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Updated Project Conserve Audit System

Volume I — System Documentation

May 1978

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Prepared For
U.S. Department of Energy
Assistant Secretary for Conservation
and Solar Applications
Division of Buildings and Community Systems

Under Contract No. W-7405-ENG-48

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UPDATED PROJECT CONSERVE AUDIT SYSTEM

VOLUME I -- SYSTEM DOCUMENTATION

May 1978

Prepared by

Lawrence Berkeley Laboratory
with the Assistance of
Applied Urbanetics, Inc.

for

U.S. DEPARTMENT OF ENERGY
Assistant Secretary for Conservation
and Solar Applications
Division of Buildings and Community Systems
Washington, D.C. 20545

Under Contract No. W-7405-ENG-48

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PREFACE

The enclosed documentation represents Volume I of a two volume set of System Documentation for the Updated Project Conserve Residential Energy Audit program.

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

Titles in Volume I of the Documentation are:

1. Functional Requirements Document
2. Data Requirements Document
3. System/Subsystem Specification
4. Local Data Program Specification
5. Project Conserve Preprocessor Program Specification
6. HEA Preprocessor Program Specification
7. Analysis Module Program Specification
8. History File Data Base Specification
9. Test Plan
10. Test Analysis Report
11. Users Manual
12. ADP Operations Manual
13. Program Maintenance Manual

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UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

Functional Requirements Document

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

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1. General Definition

Summary

With a recognition that a significant portion of diminishing energy resources are being used in the residential sector, a clear need has been established to develop a method to help homeowners take energy conserving actions. The Home Energy Audit system, a software system, is being developed to assist a homeowner in determining how much energy his particular home is using and what specific energy conserving actions may be taken.

Environment

The Home Energy Audit System (HEA) is to be developed for the Department of Energy (FEA/ERDA). This development will be a cooperative effort of the National Bureau of Standards and Applied Urbanetics, Inc.

It is anticipated that this system will be sponsored by a variety of public and private organizations such as the Federal, state and local governments as well as such private organizations as financial institutions and utilities. Design of the system will allow the computer processing to be run on IBM, CDC, or UNIVAC computer equipment.

References

Lawrence Berkeley Laboratory Purchase Order 3533602 issued in September, 1977 initiated the development of the Residential Energy Audit.

In addition, several published references are relevant to the development of the system.

1. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

2. Air Conditioning and Refrigeration, Wm. H. Severns and J. R. Fellows, John Wiley and Sons, Inc., 1975.

3. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

4. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

5. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

6. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

7. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

8. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

9. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperation with the Energy Research and Development Administration) June 1977.

10. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.), June 1977.

2. Overview

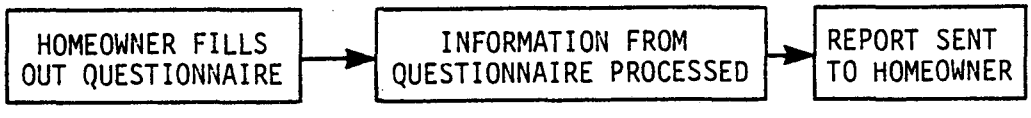
Background

As currently envisioned, the HEA will be designed to be used primarily as a self-administered audit that provides homeowners with estimates of the costs and savings potential of taking specific energy conserving retrofit actions.

The basic elements in the HEA will be the self-administered homeowner questionnaire, the computer processing and analysis, and the homeowner report.

The system requires that a number of sequential steps be performed in order to provide the homeowner report. The initial step is to complete the brief homeowner questionnaire by the participating household. This questionnaire provides the input data for the system by outlining the characteristics of the home, the energy usage of the home and the home's specific geographic location. Once the questionnaire is filled out, it will be sent to a processing center in a state or private sponsoring office. Here, the information from the questionnaire will be converted to a computer readable form. These data will then be analyzed using the HEA computer program. The computer analysis will outline the costs and savings of taking retrofit actions for the specific home taking into account local climate data and local fuel and housing materials costs. During the computer processing, a two-page computer printout report will be provided that can be sent directly back to the homeowner.

The diagram below shows how information from the homeowner questionnaire is processed and developed into the homeowner report.



Objectives

The objective of the system is to provide a capability that will take information from a homeowner questionnaire, process the information and develop a list of recommendations in the form of a Homeowner Report. The Homeowner Report will detail the potential financial and energy savings that may be realized by taking one or more energy conservation actions in specific homes. The Homeowner Report will be designed to indicate both quantitative and qualitative recommendations and suggestions. The quantitative recommendations will highlight cost effective data for such specific actions as installing:

- insulation;
- storm windows and storm doors;
- caulking and weatherstripping;

- water heater insulation; and
- solar water heating.

The savings will identify annual savings in terms of such variables as:

- fuel saved;
- dollars saved;
- cost estimates based on do-it-yourself actions;
- cost estimates based on contractor installed actions; and
- years to recover investment at current prices.

In addition to the quantitative recommendations, several qualitative narrative recommendations will be made to indicate other actions that should be considered. These narrative comments include several personalized suggestions on the use of appliances, bathroom fixtures, thermostat setback as well as suggestions that the homeowner would find useful in regard to financial assistance and tax exemptions, etc.

Existing Methods and Procedures

The forerunner of the Home Energy Audit was Project Conserve, a program developed for the Federal Energy Administration. The Project Conserve program was originally developed for use by state energy offices and was put into the public domain for use by other interested public and private groups. The main framework for the Project Conserve program incorporated a computerized analysis of residential energy consumption using information taken from a homeowner questionnaire and producing a homeowner report.

Because of its applicability in a variety of situations, the program was designed to allow as much of the operation of the program by non-specialists as possible. Such activities as receiving the questionnaires, coding the questionnaires and mailing of questionnaires were designed to be performed by semi-technical personnel while technical computer expertise was required only for running the computer processing. When it was developed for the FEA, Project Conserve was designed to be used on only IBM equipment.

The volume of inputs and outputs varied with the use by the sponsoring office and the frequency was on an as needed basis. For example, under the FEA sponsorship, the program was run in a number of pilot tests as well as statewide programs in New Mexico and Massachusetts. In these programs, the public exhibited a marked interest with a participation rate of 11 percent in New Mexico and 16 percent in Massachusetts.

During the implementation of the statewide programs several deficiencies became apparent. The most important of these deficiencies was the method of deriving heat load calculations. The calculations used in Project Conserve for computing the heating and cooling requirements of the home were based on a steady state model. The steady model reflected the most up to date technology at the time Project Conserve was developed. While steady state calculations allowed processing of each home with great speed, it was found to result in some imprecision in the cost and savings.

The public interest in Project Conserve as demonstrated in the pilot tests, coupled with the Federal interest in providing home energy audits to households has created a clear need to improve upon the estimates of costs and savings produced by Project Conserve. This improvement is to be done by structuring the HEA System around a dynamic heat load calculation developed by the NBS. This dynamic model will provide the desired increase in the accuracy of the estimates.

Proposed Methods and Procedures

The proposed Home Energy Audit System will incorporate an improved set of calculations as developed by the National Bureau of Standards. This system will follow the basic framework of the Project Conserve system of using a homeowner questionnaire for input data, utilizing computer processing, and providing a homeowner report targeted to the specific individual's home. With a change in heat load calculation methods, it is necessary to revise the homeowner questionnaire to provide the more detailed data that is required by these new calculation procedures. It is also anticipated that a revised homeowners report will be developed to provide greater clarity and ease of interpretation to the homeowner.

The Home Energy Audit System will be a self contained program capable of running on any major IBM, CDC, or UNIVAC computer facility. The system will be packaged so that a variety of groups or sponsors with adequate resources may run the Home Energy Audit in most locations.

Summary of Impacts

The Home Energy Audit System will be designed to be compatible with most standard computer installations. Each component of the system will be independent and will require only standard resources and utilities.

Operationally, the impacts of the system will be determined by the constraints of the particular user group or sponsor. The system will be designed to be flexible with many of the tasks involved in completing the program capable of being handled by non computer specialists. A flow chart showing the numerous activities in implementing the HEA is included in Figure 1. It is anticipated that the non specialists will be able to handle many of the local data collection, clerical and coding tasks, with the necessity for computer technicians restricted to the computer processing tasks.

Because of the flexibility of the Home Energy Audit System and its ability to operate at various computer facilities each with its own accounting and billing procedures, a fixed cost estimate per questionnaire is not possible. With incorporation of the NBS modeling technique it is expected that costs will be approximately $2.00 per questionnaire including keypunching, coding, processing, and mailing (excluding postage).

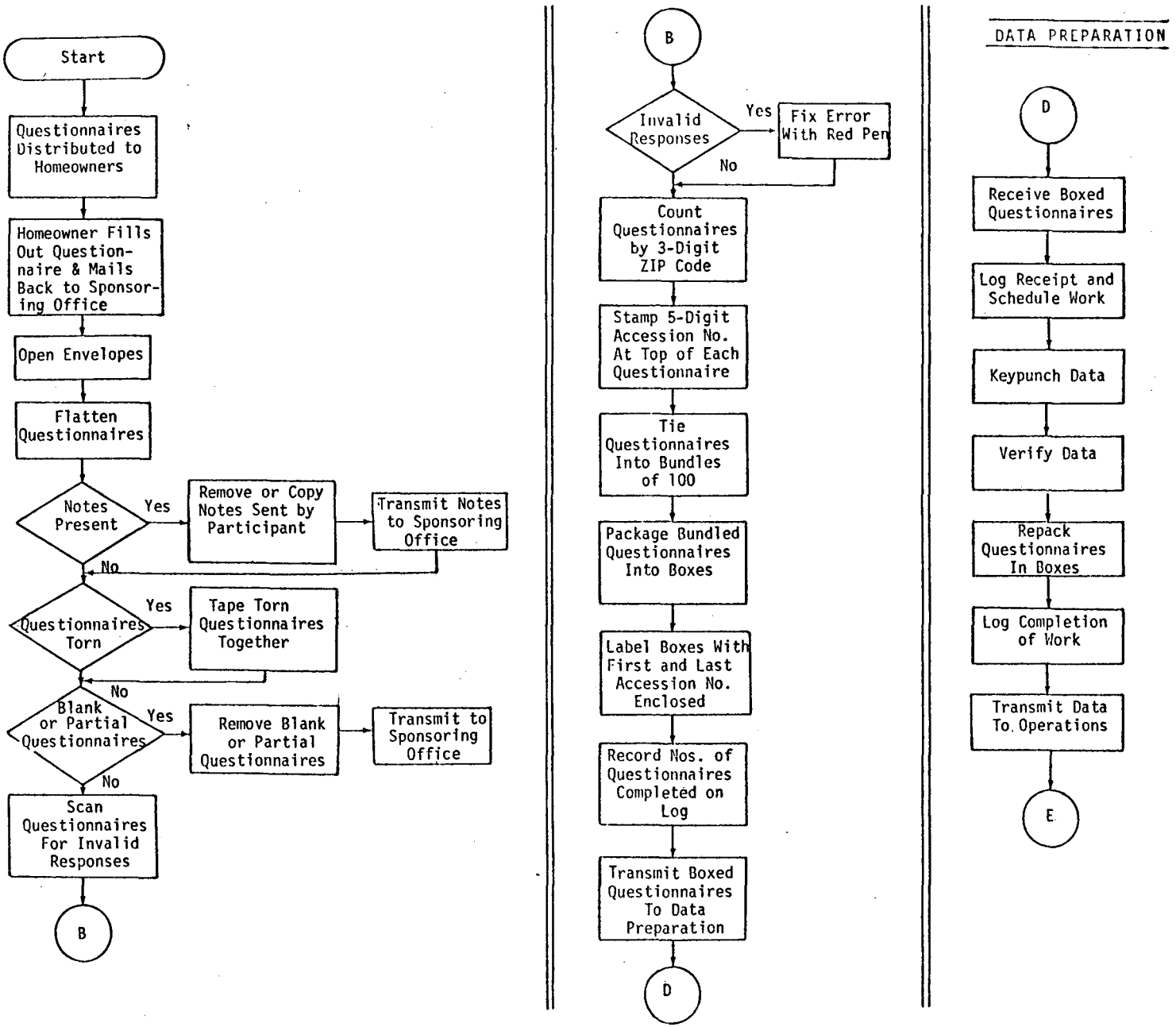
3. Requirements

Functions

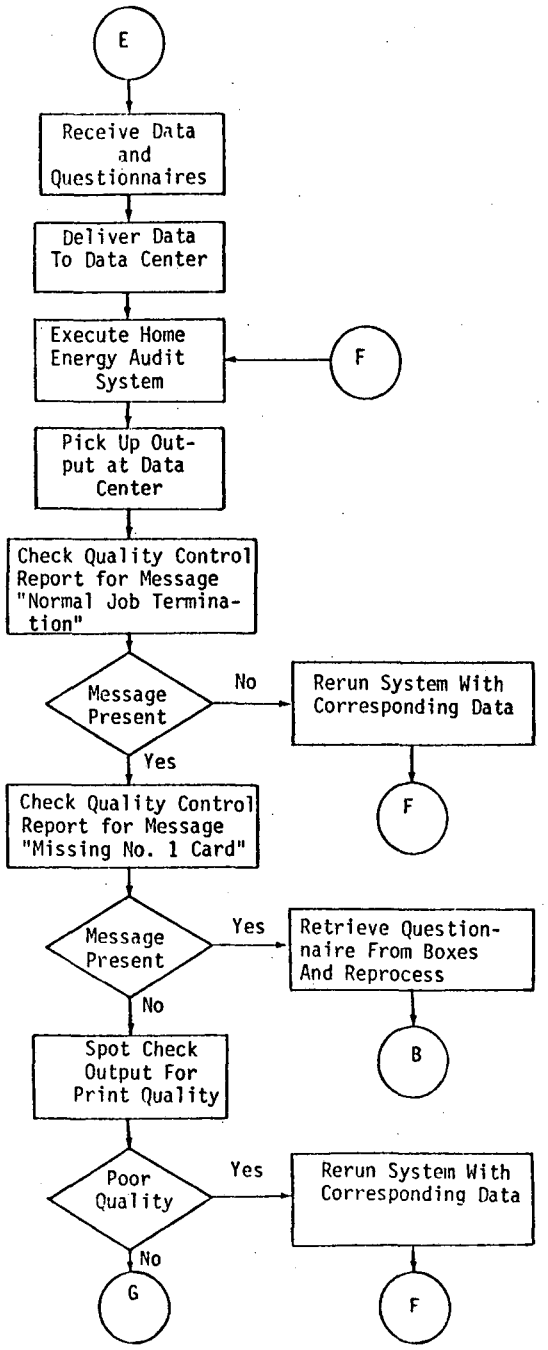
One major element of the Home Energy Audit System that is not under direct control is the actual filling out of the questionnaire. Realizing that there is always a chance of error, the system has been designed to handle input of any quality and produce a "reasonable" output. That is, questionnaire responses determined to be invalid or inconsistent with other responses will be given a predetermined substitute value. In this manner, any questionnaire with a ZIP Code may be processed completely, resulting in a two-page Homeowner Report. Any values which were substituted for whatever reason, will be indicated on the report.

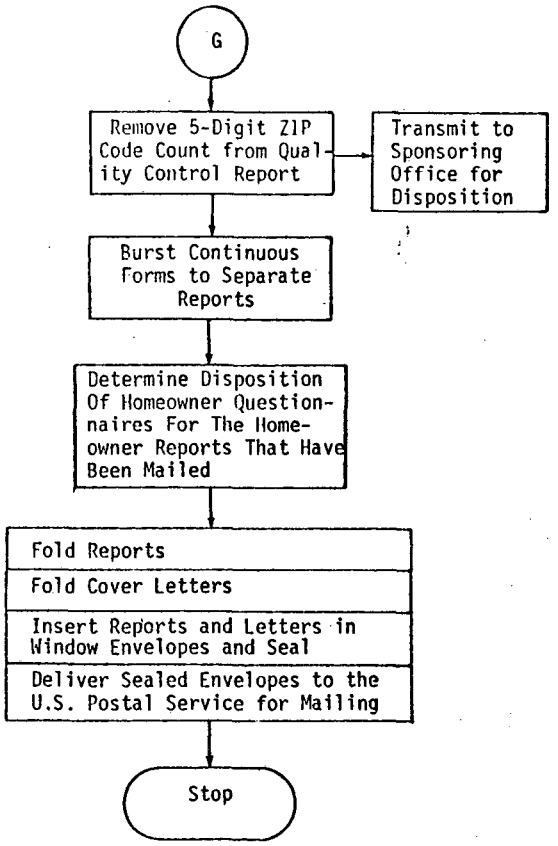
Another aspect of the system which allows for greater accuracy is the local data file. This is a set of information used by the computer program in its calculations to provide estimates based on local weather conditions, fuel costs, and

Figure 1 Home Energy Audit Flow



OPERATIONS


E
Receive Data and Questionnaires
Deliver Data To Data Center
Execute Home Energy Audit System
F
Pick Up Output at Data Center
Check Quality Control Report for Message "Normal Job Termination"
Message Present
No
Rerun System With Corresponding Data
F
Yes
Check Quality Control Report for Message "Missing No. 1 Card"
Message Present
Yes
Retrieve Questionnaire From Boxes And Reprocess
B
No
Spot Check Output For Print Quality
Poor Quality
Yes
Rerun System With Corresponding Data
F
No
G


G
Remove 5-Digit ZIP Code Count from Quality Control Report
Transmit to Sponsoring Office for Disposition
Burst Continuous Forms to Separate Reports
Determine Disposition Of Homeowner Questionnaires For The Homeowner Reports That Have Been Mailed
Fold Reports
Fold Cover Letters
Insert Reports and Letters in Window Envelopes and Seal
Deliver Sealed Envelopes to the U.S. Postal Service for Mailing
Stop

material and contractor costs. The data contained in this file is organized by ZIP code so that the proper information can be matched to the respondent's address on the questionnaire.

Performance

In performing the various calculations to determine the energy consumption of the home, the costs to make improvements, and the savings that may be realized, an attempt will be made to develop the estimates as accurately as possible within the constraints of the system.

Validation

An extensive testing and validation procedure is being developed by the NBS to insure the accuracy and repeatability of the thermodynamic processing. The final design will be reviewed by the FEA, ERDA, NBS and several public and private organizations to insure proper system operation.

Flexibility

The initial version of the Home Energy Audit System will process questionnaires one batch at a time on an as needed basis.

The system will be written in ANSI FORTRAN with versions available for processing on IBM, CDC, or UNIVAC computer facilities.

Information contained in the local data file may be adapted according to local requirements. More than one file may be used for an even greater degree of flexibility.

The system will be capable of properly processing single family homes with up to 2600 sq. ft. of living area and with heating fuel bills and/or cooling fuel bills up to $1,000 per year. Processing larger homes with bigger fule bills will require the development of a new questionnaire and a new Preprocessor program.

Inputs-Outputs

The standard input to the Home Energy Audit system will be a questionnaire similar to that shown in HEA Appendix A. A detailed description of the data elements captured by the HEA questionnaire is presented in Appendix B. The system will also be designed to accept the data collected via the Homeowner questionnaires for the current Project Conserve program.

Auxiliary input to the system is information from the local data file. The proper set of local data for a given home will be located using the ZIP Code of the respondent.

The primary output of the system is the Homeowners Report shown in HEA Appendix K. This will be a two-page analysis. The first page lists the information taken from the questionnaire on which calculations and estimates were made. Any substituted values will be indicated. The second page presents a summary of estimated costs and savings for selected energy conserving actions for the particular residence. A number of general suggestions will also appear on the second page of the report.

A secondary output of the system will be the History file. This file will contain data received from the questionnaires with the option of excluding names and addresses of the participants. This file will also contain the related costs and savings estimates for each of the participating homes. The file will allow analysis of housing characteristics and can be used to develop a tally of homes that have been processed. This tally can be used to evaluate the response rate of the program participants. Figure 2 shows the relationships between the inputs, computer processing, and the outputs.

Failure

Any anticipated failure would be due to hardware problems because all data input to the system is validated prior to processing. Checks are designed within the processing modules to prevent any software failure. Failure due to hardware difficulties would require the particular job to be rerun in accordance with the procedures described in the User's and Operations manuals.

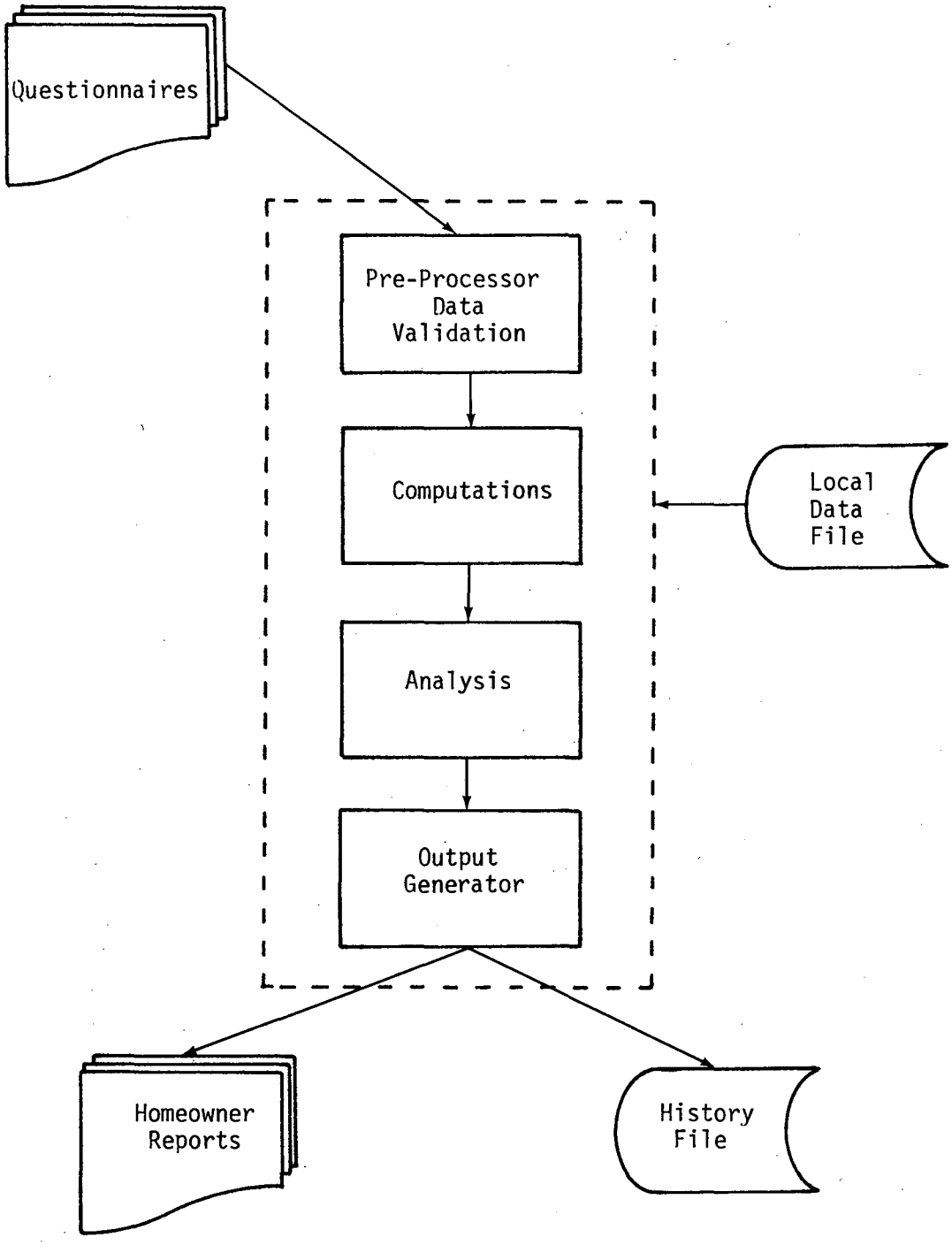
4. Operating Environment

Equipment

The Home Energy Audit System is designed to run on IBM 360/370 UNIVAC 1108, or CDC 6000/CYBER series computers. Standard hardware such as card readers, tape drives, line printers, and on-line mass storage will be the only requirements.

Figure 2

HOME ENERGY AUDIT SYSTEM



Support Software

The Home Energy Audit System will be self-contained and will require no other software. However, the input data must be presented to the system grouped by respondent; the most efficient way of achieving this is to use a sort utility. A FORTRAN compiler capable of handling all ANSI FORTRAN features and standard libraries and loader facilities will be sufficient to operate the system.

A stand-alone program will be provided to the user which will assist in creation of one or more local data files. Documentation for all programs will be supplied.

Interfaces

The Home Energy Audit System is not designed to interface with any other system.

Security and Privacy

The Home Energy Audit System collects the names and addresses of respondents along with the energy consumption characteristics of their residences. This data should be handled in a manner appropriate to ensure the privacy of the participants. No identification other than ZIP Code will normally be kept in the History File, however, the option to do so will be provided. It is recommended that all questionnaires be destroyed once the Homeowners Reports are mailed to the households.

Controls

Control of the operation of the Home Energy Audit System will be at the discretion of the administering agency.

5. Development Plan

The ERDA/FEA will contact the NBS to develop, test, and refine a comprehensive thermodynamic processing program for quickly, efficiently, and accurately determining the energy requirements for residential structures. Once the input and output requirements of the calculation portion are defined, supporting programming will be developed to complete the Home Energy Audit System.

After the system is designed and tested, variations will be introduced to allow operation on different computer facilities.

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UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

Data Requirements Document

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Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

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DATA REQUIREMENTS DOCUMENT

1. PURPOSE

The purpose of this document is to provide, during the definition stage of software development, a data description and technical information about data collection requirements for the Home Energy Audit System (HEAS).

2. GENERAL INFORMATION

Summary

The Home Energy Audit System will be designed to analyze the energy conserving/consuming characteristics of a single family home and provide a cost/savings report for various energy conserving actions in the home. A questionnaire will be designed to be filled out by the head of the household and submitted for analysis. The ZIP Code of the home's location allows the analysis to consider local cost and climatic factors. The ZIP Code also permits the system to assign default values to the characteristics of a home when a question is not answered or the answer is determined to be not logical. The two main outputs of the system will be: (1) a two-page report to be mailed directly to the participant and (2) a history file of the home's characteristics and potential savings but without personal identifying information other than ZIP Code.

The Home Energy Audit System includes three stand-alone programs:

1. A questionnaire preprocessor to read a questionnaire file and write a standard format intermediate file. Each particular questionnaire format will require its own questionnaire preprocessor program. All questionnaire preprocessors will be required to generate the same standard format intermediate file. HEAS will include two preprocessors: one for the HEAS questionnaire and one for the Project Conserve questionnaire.

2. The local data subsystem to create the local data file which contains climatic, cost and housing default values for given ranges of ZIP Codes.

3. The analysis program to read the standard format intermediate file and the local data file to perform the heat load analyses, and output homeowner reports, a job execution log and a history file for those questionnaires processed.

The local data file subsystem will be executed prior to processing any questionnaires.

Environment

The HEAS is to be developed for the Department of Energy (ERDA/FDA) by Applied Urbanetics, Inc., for installation and operation on the FEA/OSI service facility.

The FEA computer facility located in Rockville, Maryland, is operated by OSI exclusively for FEA. It consists of two IBM 370/168 central processing units connected in multiprocessor mode with OS/MVS and JES2, plus an extensive micrographics capability.

After HEAS has been developed and tested on the FEA/OSI computer, versions of HEAS will be developed to run on UNIVAC 1108 and CDC 6000 series or CYBER series computers.

References

Contract Number 3533602, issued by the University of California Lawrence Berkeley Laboratory.

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, W. H. Severns and J. R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

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3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral, (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy, Office of Development and Research. (HUD in cooperation with the Energy Research and Development Administration), June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation , FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., Report Number HUD-HAI-2, March 1973.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building, Science Series 64, December 1974.

Modification of Data Requirements

The data requirements described below may be modified and the scope of the HEAS expanded via written proposal to the Department of Energy, Office of Conservation, Division of Buildings and Community Systems, 20 Massachusetts Avenue, N.W., Washington, D.C. 20545. However, since DOE is furnishing the HEAS to all public and private requestors, it is the recipient's responsibility to make any modifications to the system at his own expense and initiative. If any recipient does enhance the system and feels that enhancement warrants broad dissemination, the above DOE office should be contacted.

3. DATA DESCRIPTION

A. Questionnaire Preprocessor

Static Data

The questionnaire preprocessors are designed to operate solely with the dynamic data described below.

Dynamic Input Data

All dynamic input data for the HEAS questionnaire preprocessor are keypunched from HEAS questionnaires. Each questionnaire gives the following information about a single dwelling:

1. name, address, and ZIP Code of participant;
2. size, age, style, structure, and operational characteristics of home;
3. description of foundation, attic, and attic insulation;
4. description of exterior doors and windows;
5. orientation, exposure to sun, and exterior color of base structure;
6. type and operating characteristics of heating and cooling systems;
7. cost of heating and cooling systems;
8. type and operating characteristics of solar collectors: and
9. presence of other major energy consumers and sources of heat.

HEAS questionnaire keypunch instructions are shown in Appendix B.

All dynamic input data for the Project Conserve questionnaire preprocessor are keypunched from Project Conserve questionnaires, each of which provides the following information per home:

1. name, address, and ZIP Code of participant;
2. size, age, and operational characteristics of home;

3. number, style, and condition of exterior doors;

4. number, style, and condition of windows;

5. type and operating characteristics of air conditioning system;

6. type and condition of heating system;

7. cost of heating and cooling fuels;

8. attic condition and amount of insulation;

9. fuel consumed by major appliances; and

10. presence of other major energy consumers.

Project Conserve questionnaire keypunch instructions are shown in Appendix E.

Dynamic Output Data

Dynamic output data from questionnaire preprocessors include the standard format data file and job execution log.

All questionnaire preprocessors produce the same Standard Format Data File for subsequent input to the analysis program. One record of this file describes a single home to be analyzed. This record contains:

1. name, address, and ZIP Code of participant;

2. questionnaire of origin;

3. size, age, style, structure, and operational characteristics of home;

4. description of foundation, attic, and attic insulation;

5. description of exterior doors and windows;

6. orientation, exposure to sun, and exterior color of structure;

7. type and operating characteristics of heating and cooling systems;

8. annual cost to operate heating and cooling systems;

9. type and operating characteristics of solar collectors; and

10. number and type of other major energy consumers in the home.

The Standard Format Data File is shown in Appendix L.

Each questionnaire preprocessor produces a job execution log or summary. Both the HEAS questionnaire preprocessor and the Project Conserve preprocessor job execution log report the same data:

1. accession numbers and ZIP Codes of each questionnaire successfully processed;

2. accesssion numbers and ZIP Codes of each questionnaire which could not be successfully processed;

3. number of questionnaires successfully processed, rejected, and total; and

4. messages indicating normal or abnormal termination of job.

The format of the job execution log is shown in Appendix T.

Internally Generated Data

None of the data generated internally by the questionnaire preprocessors are of informational value to the user.

Data Constraints

The major considerations in determining the size of the questionnaire input file and the standard format data file(s) are: (1) to ensure easy and efficient management of the job, and (2) to ensure economical and efficient resource allocation. Runs which process 2,000 to 2,500 questionnaires

would be small enough for convenient scheduling to optimize use of human and material resources, yet large enough to manage efficiently.

B. Local Data Subsystem

Static Data

The Local Data Subsystem, considered as a stand-alone program, uses only static data. Its primary dynamic output, the Local Data file, is used as static data by the Analysis Program.

Dynamic Input Data

All dynamic input data for the Local Data Subsystem are keypunched from the sources discussed in the section "Data Collection" below. The data are grouped by ZIP Code range and include:

1. ZIP Code range to which the data are applicable;
2. Physiographic data;
3. Fuel and utility cost data;
4. Home improvement cost data;
5. Housing characteristic default values and acceptable ranges;
6. Localized message to appear on the Homeowner reports; and
7. Engineering constants used in the analysis of a home.

The system, as provided by the Department of Energy, will include a local data file which the Home Energy Audit sponsor may choose to employ. However, these local data may not account in sufficient detail for local variation in climate, cost, or housing stock characteristics. Therefore, the program sponsor may choose to collect his own

set of local data for the geographic area to be served by the program (e.g., a state) and replace all or part of the data provided with the system.

Local data keypunch instructions are shown in Appendix H.

Dynamic Output Data

Dynamic output data from the Local Data Subsystem are contained on the Local Data File. The function of the Local Data Subsystem is to unite the input data with the Local Data File; therefore the Local Data File contains the information described above as dynamic input data.

A complete description of the Local Data File Format is shown in Appendix M.

Internally Generated Data

None of the data generated internally by the Local Data Subsystem are of informational value to the user.

Data Constraints

The Local Data File created by the Local Data Subsystem will contain one logical record for each ZIP Code or range of contiguous ZIP Codes which represent a homogenous geographic area with respect to cost, climatic and housing stock characteristics. There is no limit to the size of the Local Data File to serve a given geographic area. Considering implementation on a state-wide basis, the number of homogeneous ZIP Code areas may vary from less than 100 to as many as 500. With this limited number of records on the Local Data File, there is little concern for efficiency in the design of the system. The file itself will be directly accessed as the questionnaire data are being processed.

4. DATA COLLECTION

There would be two basic data collection efforts associated with the implementation and operation of the HEAS: (1) local climatic, cost, range, and default values, and (2) characteristics of the homes to be analyzed. The local data would be collected by the sponsor of the HEAS and the characteristics of the homes to be analyzed would be collected by the participating homeowner and recorded on an HEAS questionnaire.

Source of Input

Local climatic data may be collected from:

1. Comparative Climatic Data Through 1976, U.S. Department of Commerce, Asheville, NC, April 1977.

2. Appendix Table 1-1 of Low Temperature Engineering Applications of Solar Energy, ASHRAE Spec. Publication 1967.

3. NBS Building Science Series 96 National Bureau of Standards, U.S. Department of Commerce, April 1977.

Local cost data may be collected from contractors, home improvement centers, retail stores, utility companies and fuel oil suppliers. Local range and default values may be collected from local building inspectors, realtors, local mortgage lenders or local Federal Housing Administration officers.

The characteristics of the home to be recorded on the questionnaire are collected by the participant through direct observation or from personal records.

Input Medium and Device

Sources of local data are entered into the local data subsystem on punched cards through the card reader. Housing characteristics submitted for batch processing by the questionnaire preprocessors may be entered either on punched cards or on magnetic tape. Magnetic tape would be more convenient during high volume processing.

C. Analysis Program

Static Data

All static data for the HEAS analysis program are in the Local Data File. One record of these data describes for a ZIP Code range:

1. climatic data;
2. default values for housing stock in the area;
3. acceptable value ranges for housing stock in the area;
4. energy cost data;
5. retrofit materials cost data; and
6. contractor-installed retrofit cost data.

Before the HEAS analysis program is run in a given area (e.g., a state) the local data subsystem is run to create a local data file for all ZIP Codes to be processed.

Local data file keypunch instructions are shown in Appendix H and the local data file format is shown in Appendix M. A complete discussion of the data requirements of the Local Data Subsystem are presented in Part B of this section.

Dynamic Input Data

All dynamic data for the HEAS analysis program are on the Standard Format Data File. One record of these data describes a single home to be analyzed. The organization of the Standard Format Data File is shown in Appendix L.

Before the HEAS analysis program is run for a given set of questionnaires, a questionnaire preprocessor program is executed to read the questionnaire file and generate a Standard Format Data File. One record will be written on the Standard Format Data File for each questionnaire to be processed.

Dynamic Output Data

The HEAS analysis program produces three sets of dynamic output data:

1. A two-page Homeowner report for each home processed, containing:

   a. participant's name and address;

   b. discussion of the content of the report;

   c. summary of costs and savings associated with specific retrofit actions; and

   d. helpful suggestions to aid the participant in interpreting the report, understanding alternatives at his disposal, and encouraging at least minimum energy conservation;

   The format of the Homeowner report is shown in Appendix K.

2. A one-page job execution log for each run of the analysis program, giving:

   a. number of records processed that had no default substitutions;

   b. number of records processed containing missing or unacceptable data requiring default value substitutions;

   c. total number of records processed: and

   d. frequency distribution by ZIP Code of records processed.

   The format of the analysis program job execution log is shown in Appendix J.

3. A History File for each run of the HEAS analysis program which includes one record for each home processed. Each record of the History File contains:

   a. data used to describe the structure for analysis;

b. indicators of default substitutions made;

c. annual heating and cooling requirements for each configuration of the dwelling analyzed;

d. economic impact of each energy conservation recommendation.

The format of the History File is shown in Appendix N.

Internally Generated Data

The data generated internally by the HEAS analysis program that are of informational value to the user are in the arrays B and BTU. The array B contains the combination of dynamic and static data required by the Compute Module to analyze the heating and cooling requirements for one configuration of the house. The B array contains:

1. ZIP Code;

2. size and thermodynamic characteristics of living area, attic, roof, and foundation;

3. climatic data;

4. area, orientation, and thermodynamic characteristics of walls, exterior glass, and doors

5. operational characteristics of solar collector; and

6. heating and cooling fuel efficiencies.

The B array data are derived from the standard format data and the local data for the home. The B array data are varied to reflect proposed modifications to the home and resubmitted to the Compute Module for analysis.

The elements of array B are shown in Appendix O. The changes to the array B reflecting retrofit options on the home are described in Appendix Q.

The array BTU holds the results of computer module analysis of all changes:

1. heating requirement for house as input;

2. cooling requirement for house as input;

3. heating requirement for house with added attic insulation up to the minimum suggested;

4. cooling requirement for house with added attic insulation up to the minimum suggested;

5. heating requirement for house with added attic insulation up to the optimum suggested;

6. cooling requirement for house with added attic insulation up to the optimum suggested;

7. heating requirement for house with added storm windows and doors;

8. cooling requirement for house with added storm windows and doors;

9. heating requirement for house with added weatherstripping/caulking;

10. cooling requirement for house with added weatherstripping/caulking;

11. heating requirement for house with all changes; and

12. cooling requirement for house with all changes.

All elements in the array are in BTUs/year. The format of array BTU is shown in Appendix P.

Data Constraints

The volume of data and the size of all dynamic files are determined by the execution of the questionnaire preprocessor generating the Standard Format Data File. The size of the static input file is determined by the run of the local data subsystem which generates the local data file. The local data file must include data for all ZIP Codes represented on the Standard Format Data File.

The Local Data File accessed by the analysis program must be on direct access mass storage.

The Standard Format Data File may be on any sequential device. If the preprocessor and analysis programs are run as two steps of a single job, direct access storage would be a likely choice. If the analysis module is to be run much later than the preprocessor, the user may prefer magnetic tape. The decision between various devices will likely be a function of the computer resources available at the facility chosen for implementation and operation of the HEAS.

Recipients

The output produced by the HEAS would include: (1) Homeowner Reports which would be mailed directly to the participant, (2) temporary History File which would be saved for subsequent merging with other temporary history files and analysis, and (3) job execution log which would be employed by the system user to monitor the performance of the system.

Output Medium and Device

The Homeowner reports and accession number tabulation would be produced in hard copy form on the printer. The historical file of housing characteristics would be produced on either a magnetic tape or disk file. (For the purpose of this documentation, it is assumed that the historical file is resident on a disk file in its temporary state as produced by the analysis program and then it is transcribed to tape for permanent storage.)

Critical Value

There are two sets of values critical to the recipient of the Homeowner report: (1) the description of the home as processed, to ensure that it is substantially correct, and (2) the economic impacts of the energy saving recommendations, to guide the homeowner in selecting retrofit options for implementation.

Scales of Measurement

The unit of measurement represented by each data item of each file is specified in the detailed format file listed in the appropriate appendix.

Conversion Factors

There would be no special conversion procedures used by the HEAS outside the basic calculation methodology. That is, the basic function of HEAS is to convert the questionnaire data into estimates of costs and savings associated with energy conserving changes in the characteristics of the home.

Frequency of Processing

Processing frequency is completely dependent upon the rate at which questionnaires are returned from participants. Pilot testing of this response profile for Project Conserve indicated that an average of 15 percent of the questionnaires distributed would be returned for processing. Of this number, 75 percent would be received in the first four weeks of the program and 90 percent would have been received by the eighth week of the program. The remaining 10 percent of the returns would arrive over a period of several months.

5. INPUT RESPONSIBILITIES

It is the responsibility of the participating homeowner to fill out and submit the HEAS questionnaire containing the characteristics of his home. It is the responsibility of the program sponsor to collect the local climatic, cost, and default value data.

6. PROCEDURES

The recommended procedure for collecting data for batch processing from the homeowner involves mailing a questionnaire directly to the potential participant. It is then up to the recipient to voluntarily fill in the requested information and return the questionnaire. The recommended procedure for the collection of the local data begins by dividing the geographic area of the program into ZIP Code ranges that represent homogeneous cost and climatic conditions. Within each resulting ZIP Code range, it is then necessary to collect the complete set of data shown on the form in Appendix G. Telephone contact would be an acceptable and inexpensive method.

An excellent discussion of the complete range of activity associated with data collection and the overall conduct of HEAS is presented in the "Home Energy Audit System Local Data Collection Handbook" dated January 1978 available from the Department of Energy office cited above in Section 2, Modification of Data Requirements.

7. IMPACTS

The collection of the local data would require the availability of staff to place the necessary telephone calls. The mailing of the questionnaires would require the printing of an adequate supply of questionnaires, mailing envelopes and, possibly, return envelopes. It would also be necessary to purchase or otherwise acquire address labels for the single family residences in the area covered by the program.

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UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

System/Subsystem Specification

0 0 0 0 5 1 0 0 0 2 5

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

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SYSTEM/SUBSYSTEM SPECIFICATION

1. Purpose

The purpose of the system/subsystem specification is to specify for analysts and programmers, the requirements, operating environment, design characteristics and program specifications for the Home Energy Audit System.

2. General Information

The Home Energy Audit System is designed to analyze the energy conserving/consuming characteristics of a single family home and provide a cost/savings report for various energy conserving actions in the home. A questionnaire has been devised to gather the necessary information regarding the energy characteristics of the home. When the questionnaire is submitted for analysis, its ZIP Code allows cost and climatic data appropriate for the location of the home to be used in the analysis. The two main outputs of the system are: (1) a two-page Homeowner Report which is mailed to the participant; and (2) a history file recording the home characteristics and cost/savings estimates for each home processed.

Environment

The Home Energy Audit System was developed for the Department of Energy (ERDA/FEA) as a cooperative effort by the National Bureau of Standards and Applied Urbanetics, Inc. The initial system development and subsequent testing for the IBM version of the system is to be done at the OSI computer facility located in Rockville, Maryland. This facility, operated exclusively for the Department of Energy (FEA), by Optimum Systems, Inc., consists of two IBM 370/168 central processing units connected in multiprocessor mode, with OS/MVS and JES2.

References

Contract Number 3533602, as issued by the University of California Lawrence Berkeley Laboratory

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J. R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U. S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperation with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

3. Requirements

Description

The Home Energy Audit System is designed to analyze the existing characteristics of a home and the costs and savings associated with altering these characteristics for the purpose of conserving energy. Information concerning the home which is required for the analysis will be gathered by means of a questionnaire distributed to homeowners. The questionnaire data will be transcribed to punched cards and read by the Home Energy Audit System. The system will edit the data for completeness and consistency, (substituting default values for invalid or inconsistent responses.) The analysis will estimate costs and savings associated with a variety of energy conserving home improvement actions. Local considerations, such as climate, material and fuel costs, will be provided during analysis by means of a local data file keyed by ZIP Code. The results of the analysis will be output in the form of a report to be mailed directly to the homeowner. A data base file will also be produced to record the characteristics and cost/savings estimates for each home processed. A Quality Control Report will be output for each run listing the number of homes processed and other summary statistics. (See Figure 1)

Functions

The Home Energy Audit System consists of three processing components:

1. the Input Preprocessing Subsystem;
2. the Analysis Subsystem; and
3. the Local Data Subsystem.

The Input Preprocessing Subsystem will organize data input from various sources, such as the Project Conserve questionnaire, or the Home Energy Audit questionnaire, and produce a Standard Format Data File which will be read by the Analysis Subsystem.

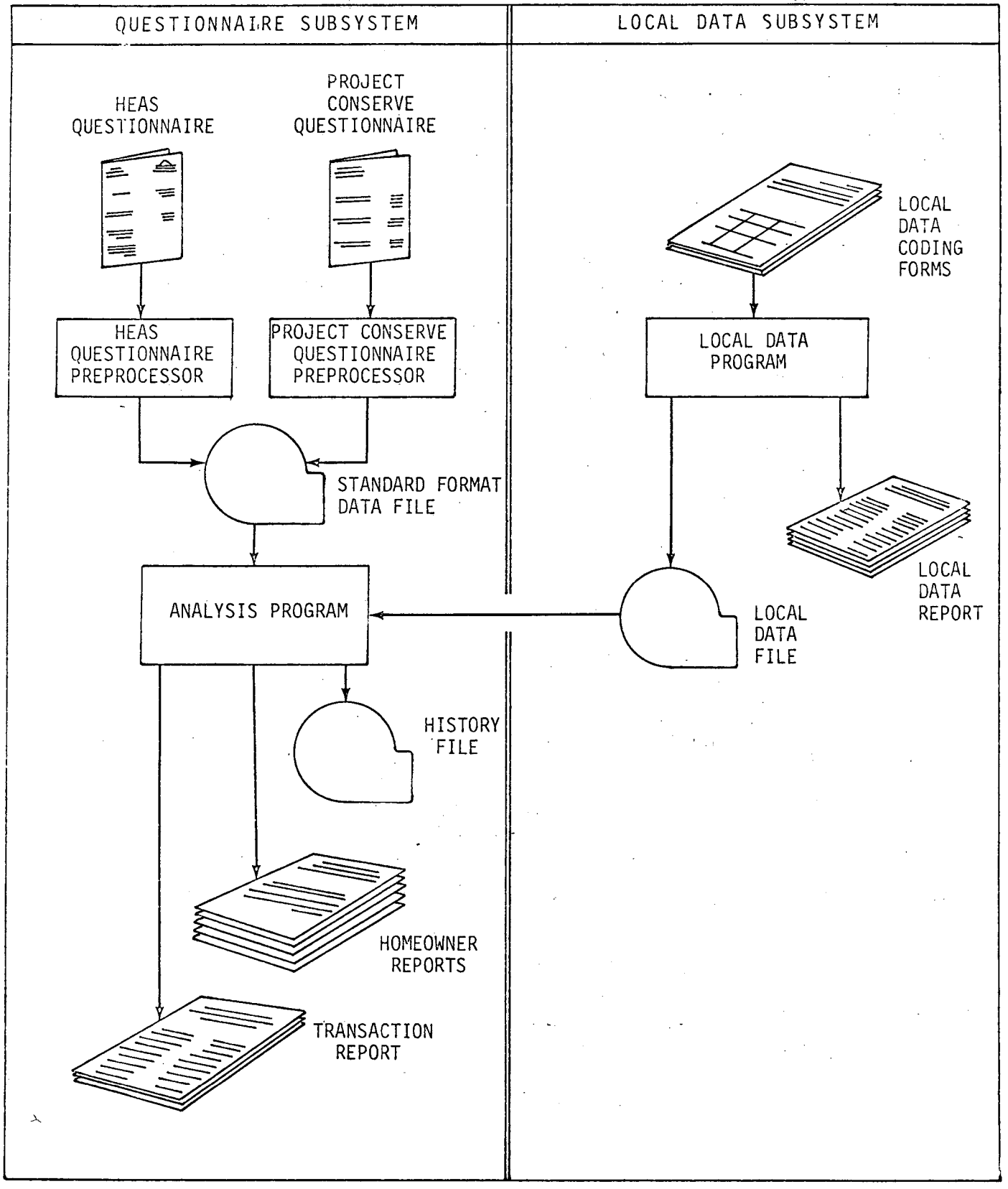
The keypunch instructions for the HEA Preprocessor are shown in Appendix B and for the PC Preprocessor in Appendix E. The format of the Standard Format Data File is shown in Appendix L.

The Analysis Subsystem will perform four separate functions:

- read and validate data describing the energy conserving/consuming characteristics of the home;
- calculate BTU requirements for heating and cooling the home under current conditions and with possible home improvement actions;

Figure 1

Home Energy Audit System Logical Flow



- analyze the possible fuel savings with each home improvement action and the related costs for do-it-yourself and contractor installation;

- produce a Homeowner Report for each home processed outlining the estimated costs and savings, and a history file recording the home characteristics and associated cost and savings estimates.

The Local Data Subsystem will create the Local Data File that will serve as the source of local cost, climatic and default data values to be referenced by the Analysis Subsystem. A range of contiguous ZIP Codes will be used to define the geographic applicability of a set of local data. The ZIP Code of the home being processed provides the key to locating the appropriate entry in the Local Data File.

Performance

The Home Energy Audit System is designed to provide an analysis for every questionnaire submitted as long as the participant's name, address, and ZIP Code are present. Input data of any quality may be handled resulting in a "reasonable" output. That is, questionnaire responses determined to be invalid or inconsistent with other responses will be given a predetermined substitute value. In this manner, any questionnaire may be processed completely, resulting in a two-page Homeowner Report. Any values which were substituted for whatever reason, will be indicated on the report.

Accuracy

The Home Energy Audit System employs an improved set of heating and cooling requirements calculations as developed in September, 1977, by the National Bureau of Standards. Increased attention to details affecting heat gain and loss as well as the incorporation of heat load calculations allow for a greater degree of accuracy than was possible in the steady state approach used in Project Conserve. A detailed account of the calculation methodology employed may be found in the Home Energy Audit System Appendices.

Validation

The Home Energy Audit System is designed to perform validation on all input data derived from questionnaire responses. Entries are checked against a possible range of valid answers.

Values out of range, invalid blanks, or inconsistent answers are given default values appropriate for the location of the home. This logical editing allows records containing data of any quality to be fully processed.

Timing

Any timing considerations are under the control of the sponsoring agency. The Home Energy Audit System is intended to be run on an as needed basis. Local organization of resources will determine the time framework involved from the reception of the completed questionnaires through the mailing of the Homeowner Reports to the participants.

Flexibility

Initially, the Home Energy Audit System will be developed for an IBM facility. Modified versions of the completed system will then be produced for use on CDC and UNIVAC equipment. All versions will be written in ANSI FORTRAN, Level G or H. Input data may be in the form of punched cards or magnetic tape. The system is designed to handle input from two main sources: (1) the Project Conserve questionnaire; and (2) the Home Energy Audit questionnaire. The Local Data File, the History File, and the Standard Format Data File are sequentially arranged and may reside on disc or magnetic tape. Information contained in the Local Data File may be adapted according to local requirements. Multiple files may be established to provide an even greater degree of flexibility. The modular construction of the Analysis Subsystem permits a higher level of adaptability which allows for modifications without extensive reprogramming.

4. Operating Environment

Equipment

Multiple versions of the Home Energy Audit System will allow running on IBM 360/370, UNIVAC 1108, or CDC 6000/CYBER series computers. Standard hardware such as card readers, tape drives, line printers, and on line mass storage will be the only requirements.

Support Software

Standard software facilities such as a FORTRAN compiler and FORTRAN library will be the only necessary software support for the Home Energy Audit System.

Interfaces

The Home Energy Audit System is self contained and will not need to interface with any other system.

Security and Privacy

Names and addresses of respondents will not normally be placed on the History File. However, they may be included at the discretion of the sponsoring group, with a minor change to the program code which is documented in the Operations Manual. Names and addresses of respondents will, however, be present on the questionnaire responses, keypunched input file, and Standard Format Data File. These files are all temporary. Consideration should be given to keeping them secure and destroying them after the information they contain has been successfully processed, to protect the privacy of the respondent.

Controls

Control of the operation of the Home Energy Audit System will be completely at the discretion of the administering agency.

5. Design Characteristics

Operations

The Home Energy Audit System will initially be developed at the DOE/OSI IBM facility in Rockville, Maryland. Final versions which may be run in batch will be available for IBM, CDC and UNIVAC equipment.

System/Subsystem Logic

Input Preprocessing Subsystem. This subsystem receives data from different sources including the Project Conserve questionnaire and the Home Energy Audit (Standard) questionnaire. Depending on the input format, the appropriate preprocessing module is invoked to convert values, as necessary, to output the information in the format required by the Standard Format Data File, the output of this subsystem.

Analysis Subsystem. This subsystem reads the Standard Format Data File and passes the data through four modules:

- the input or validation module which performs detailed data verification and consistency checking;

- the Compute module which performs the heating and cooling requirements calculations;
- the Results Analysis module which calculates cost and savings estimates; and
- the Report Generator module which prints the Homeowner Reports and creates the History File.

Local Data Subsystem. This subsystem uses keypunched data (Appendix H) to create one or more local data files. The analysis subsystem matches ZIP Codes from input questionnaire data to local data file ZIP Code ranges to provide local values for default assumptions, calculations of climatic and cost factors, and other locally dependent processing steps.

Appendix G shows the Collection Form used in collecting the local data.

6. Program Specifications

Input Preprocessor Specification

Requirements

The Input Preprocessor reads data either in the form of a card deck or a mass storage file which have been keypunched or otherwise transcribed from the questionnaire. The preprocessing module appropriate for the form of input checks for completeness and legality of the data entries, but it does not check for range validity except as necessary within the preprocessor module. The output to the Standard Format Data File may be written to magnetic tape or disc mode.

Operating Environment

The Input Preprocessor will be written in FORTRAN and will require only the standard FORTRAN compiler and library facilities.

Design Characteristics

The subsystem will have the capability of handling data from two sources of input: the Project Conserve questionnaire, and the Home Energy Audit (standard) questionnaire. Preprocessing modules will perform verification tasks and value conversions from coded to actual data so that the output data is complete and in the format of the Standard Format Data File which is the common input to the Analysis Subsystem.

Analysis Subsystem Specification

Requirements

The Analysis Subsystem reads the Standard Format Data File which resides on either magnetic tape or disc. During the data verification and consistency checking stages, access to the Local Data file is necessary so that appropriate default values may be assigned. This file is also required in the subsequent modules to provide cost and climatic data used in various calculations. This subsystem produces two forms of output: the Homeowner Report which requires a line printer and the History File which may be written to magnetic tape or disc.

Operating Environment

The Analysis Subsystem will be written in FORTRAN and will require only the standard FORTRAN compiler and library facilities.

Design Characteristics

This subsystem will read the Standard Format Data File and perform final data validation and consistency checking before passing the data to the compute module which calculates the heating and cooling requirements of the home in BTUs. Various configurations of the home will be passed as parameters in separate calls to the compute module to provide BTU figures for each predetermined set of conditions.

These figures are analyzed by a subsequent module to determine the possible fuel and dollar savings that could result from the various home improvement actions. Local data will provide costs for materials alone and contractor installation. In addition a History File record is written detailing the home characteristics, defaulted values and cost and savings estimates for the home.

Local Data Subsystem Specification

Requirements

The Local Data Subsystem creates one or more permanent files containing climatic data, material and contractor cost data, and default values to be used for particular areas defined by a contiguous range of ZIP Codes. Data values must be keypunched on cards according to a specific format. The program which reads these cards will check for completeness of data and will compare each value against a range of possible valid entries for that item. Any errors encountered in reading the data will be indicated on a control report. The Local Data File must be available before the Analysis Subsystem can be run.

Operating Environment

The Local Data Subsystem will be written in FORTRAN and will require only the standard FORTRAN compiler and library facilities.

Design Characteristics

The Local Data Subsystem is intended to operate in a batch mode with the sole purpose of reading a local data card file, editing the data content, and creating a permanent Local Data File to be utilized by the other components of the Home Energy Audit System.

The input to the Local Data Program is a set of card image records indicating the local data entries by ZIP Code range that are to be created or modified. The program performs editing functions such as range and validity checking of the data and makes the indicated entries or modifications to the Local Data File.

With the edit technique that is employed, new ZIP Code ranges may be added, old ones modified, and old ranges broken up into several smaller ranges. However, once a ZIP Code has an associated record of data, that ZIP Code cannot be deleted.

After the new or modified file is created, a report is generated showing the contents of each record of the file.

The Local Data File is used by the Analysis Program of the HEA System. Under normal circumstances, the Local Data Program is executed one time for a particular region before executing the HEA Analysis Program for that region.

The user may maintain more than one file used for different purposes. It is then the responsibility of the operations personnel to ensure that the correct Local Data File is used by each run of the Analysis Subsystem.

0 0 0 0 5 1 0 0 0 3 2

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

Local Data Program Specification

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

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1. Purpose

This document describes the requirements, operating environment, and design characteristics of the Local Data Program.

2. General Information

Summary

The Local Data Program will be designed to create or modify a file of local cost, construction, and climatic data plus analysis constants. Default values will be substituted for inconsistent or illogical entries in the Standard Format Data File from the Local Data File prior to the analysis of each home. Each set of cost, climatic data, and default values in the resulting file will be associated with a specific range of contiguous ZIP Codes. The ZIP Code range will be employed to define the locality for which the data is applicable.

Environment

The Home Energy Audit was developed for the Department of Energy (ERDA/FEA) by the National Bureau of Standards and Applied Urbanetics, Inc. The development will be done on the Federal Energy Administration's/O.S.I. Service Facility. After the entire Home Energy Audit System has been developed on the FEA IBM computer, versions will be developed for UNIVAC and CDC computers.

References

Contract Number 353602, as issued by the University of California Lawrence Berkeley Laboratory.

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J.R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperative with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

3. Requirements

Program Description

The analysis of data by the Home Energy Audit System involves two main programs: 1) The questionnaire preprocessor and 2) the Analysis Program. A third program creates the local cost and climatic data file used by the Analysis Program. This Local Data Program is described in this document.

The input to the Local Data Program is a set of card image records indicating the Local Data entries by ZIP Code range that are to be created or modified. The program performs editing functions such as range and validity checking of the data and makes the indicated entries or modifications to the Local Data File. After completion of processing on the new or modified file, a report is generated showing the contents of each record of the file.

The Local Data File is used by the Analysis Program of the HEA System. Under normal circumstances, the Local Data Program is executed one time for a particular region before executing the HEA Analysis Program for that region.

Functions

The Local Data Program creates, modifies, and reports the contents of the Local Data File. The data and the instructions for making the desired modifications are input as card image records.

Accuracy/Validity

Each numeric element of the Local Data File has a range associated with it. These hard-coded ranges are used to ensure that the replacement values are reasonable. If a new value is found to be out of range a message noting this is generated.

The substitution of a value out of range may or may not be allowed depending on the element being modified. The ranges for each element are listed in the columns titled "Range" in Appendix M (Local Data File Format). Negative numbers in the IPOINT column indicate those elements for which values out of range will not be substituted.

Timing

There are no timing constraints on the Local Data Program other than it is executed before the Home Energy Audit Analysis program so that the Local Data File will be available when needed.

Flexibility

To minimize the volume of input required to create a Local Data File a "record modification" technique is used. A single ZIP Code specifies the existing record to be used as the basis for the modification. If this ZIP Code is zero, or if there is no existing record for that ZIP Code, then a default record is used. The values for this default record are listed in the "Supplied Value" column of the Local Data File Format in Appendix M. The user provides the base record ZIP Code, the element number of the item to be changed, and the new value. Using this technique, only those elements to be changed are input, thus reducing the amount of data that must be entered.

With the edit technique that is employed, new ZIP Code ranges may be added, old ones modified, and old ranges broken up into several smaller ranges. However, once a ZIP Code has an associated record of data, that ZIP Code cannot be deleted unless the entire file is deleted and rebuilt.

To give maximum flexibility the user may maintain several different Local Data Files. It then becomes the responsibility of the operations personnel to know the characteristics of each file and the conditions for which each is used.

Operating Environment

Versions of the Local Data Program will be available for IBM, UNIVAC, and CDC computers. The core storage requirements for each machine are shown in Table I. The organization and access method of the Local Data File require that it reside on a random access, mass storage device. The size of the file is dependent on the number of data records it may contain. Currently the program has code that requires the Local Data File to be 705 records or 1,303,020 bytes on an IBM 3330 disk. Computer installations selected to run the Home Energy Audit System must have the required type and amount of mass storage.

Support Software

Each installation of the Home Energy Audit System and Local Data Program will require a level G or H FORTRAN compiler, FORTRAN Library, and the Link-Edit utilities.

Interfaces

The Local Data Program interfaces with the Home Energy Audit System via the Local Data File. The format and default contents of the Local Data File are shown in Appendix M.

Storage

The core storage requirements are summarized in Table I. The Local Data File must reside on a random access, mass storage device. 705 records or 1,300,020 bytes are required for the Local Data File's mass storage.

Security and Privacy

The Local Data Program will require no security or privacy conditions.

Controls

Control of the operation of the Local Data Program will be at the complete discretion of the sponsoring office. Its operation may be regularly scheduled or on an ad hoc basis, but should be coordinated with the running of the HEA Analysis Program.

TABLE I

LOCAL DATA PROGRAM
CORE STORAGE REQUIREMENTS

	BYTES	WORDS
IBM/370	196,608	49,152

Inputs

Inputs to the Local Data Program consist of a new or existing Local Data File and card image modification records. If an existing Local Data File is used, records may be added (to a maximum of 700 ZIP Code ranges) or modified. ZIP Code ranges may be split or consolidated, but a particular ZIP Code, once on the file, may not be deleted. If the Local Data File is new the program will determine this and expect the file to be empty.

If a new Local Data File is used, the default or base record is used as the basis for initial modifications until new records have been created. As long as a ZIP Code range exists on the Local Data File it may be designated as a base record. The format of the Local Data Program modification cards is shown in Appendix H. The fields on the modification card are:

Control Value (cc 1) - 0 - numeric data

1 - part one of the first line of text for pass-through message

2 - part two of the first line of text for pass-through message

3 - part one of the second line of text for pass-through message

4 - part two of the second line of text for pass-through message.

Low ZIP Code (cc 2-6) - the 5 digit ZIP Code that is the low end of the range for which this record is applicable

High ZIP Code (cc 7-11) - the 5 digit ZIP Code that is the high end of the range for which this record is applicable

Base ZIP Code (cc 12-16) - 0 - indicates the default base record is to be used as the basis for modification.

- 5 digit ZIP Code indicates the record of local data that is to be used as the basis for modification. If there is no corresponding record in the file a message is printed and the default base record is used.

The remaining fields on the card are dependent on the Control Value. If the Control Value is zero these fields contain up to 6 pairs of 5 digit numbers indicating an element to be modified and the corresponding replacement value. If the Control Value is 1, 2, 3, or 4 the remaining 64 characters are taken as text for pass through messages.

The Local Data Program will operate more efficiently if all modification records for a particular ZIP Code range are contiguous.

Local Data Program Logic

The sequence of processing within the Local Data Program is illustrated in Figure 1. The program first determines if the Local Data File is to be created or modified. It then processes the modification records creating, modifying, condensing or splitting records depending on the specified ZIP Code ranges. Once an index entry has been determined, each replacement is tested for validity. If the replacement value is found to be outside the range of reasonable values a warning message is issued. Depending on the particular element, the substitution of the new value may be allowed. Certain elements may not have values out of range, so substitutions of invalid values is not allowed. The elements for which invalid substitutions are not allowed are indicated in Appendix M by a negative value in the IPOINT column.

Once all modifications are made the records are condensed and the index records are written out to the file. A report of the contents of the file is generated at this point. The format of this report is shown in Appendix I. The Local Data Program may be used to list the contents of an existing file by not providing any modification records.

Output

There are two outputs produced by the Local Data Program:

1) The Local Data File Report - Appendix I
2) The Local Data File - Appendix M

The Local Data File Report consists of four sections:

1) The transaction section showing the modification records processed and any error messages generated. All error messages are listed in Appendix V.

2) Record to Index Pointers - a printout of the IRTIP array showing what INDEX entry references each record.

3) Local Data File Index - shows the ZIP Code ranges and the associated records contained in the Local Data File.

4) Local Data File Summary - a complete printout of every record contained in the Local Data File.

0 0 0 0 5 1 0 0 0 3 9

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

Project Conserve Preprocessor Program Specification

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

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1. Purpose

The purpose of this program specification is to describe the requirements, operating environment, and design characteristics of the Project Conserve Preprocessor Program in the Home Energy Audit System (HEA).

2. General Information

Summary

The Project Conserve Preprocessor reads keypunched data describing the energy consuming/conserving characteristics of homes as gathered by the Project Conserve questionnaire. The input data are edited to place alphabetic data in alphabetic fields and numeric data in numeric fields. Coded input data, if present, are checked for validity and decoded. Missing or illegal data are assigned a negative numeric value. Additional data values are calculated:

- Attic floor area;
- Storm windows on each wall;
- Oversized windows on each wall;
- Storm doors on each wall;
- Degree of weatherstripping; and
- Degree of window rattling.

The transformed and calculated data are written in a standard format on the Standard Format Data File for use as input to the HEA Analysis Program.

Environment

The Home Energy Audit System (HEA) was developed for the Department of Energy (Energy Research and Development Administration, Office of Conservation, and the Federal Energy Administration, Office of Conservation and Environment). This development was the cooperative effort of the National Bureau of Standards and Applied Urbanetics, Inc.

It is anticipated that this system will be sponsored by both public organizations, such as Federal, state, or local governments, and private organizations, such as financial institutions and utilities. The system may be run on IBM, CDC, or UNIVAC computer equipment.

References

Contract Number 353602, as issued by the University of California Lawrence Berkeley Laboratory.

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J.R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperative with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

3. Requirements

Program Description

The Preprocessor reads the two records (two cards) keypunched from the Project Conserve questionnaire. The Preprocessor expects the cards for each questionnaire to be adjacent in the deck; however, they may be in any order within the questionnaire group.

The Project Conserve Preprocessor edits the data as required to write the Standard Format Data File to the following specifications:

1. One record is generated for each questionnaire processed.

2. Fields containing values derived from missing or illegal inputs are given the negative value SN, so that all fields contain a legal value.

3. A ZIP Code is present.

4. Data codes are converted to actual engineering units where required.

5. Data not specifically available from the questionnaire are either supplied or assigned the negative value SN.

All ranges and default values required for the edit checks are hard coded. The HEA Analysis Program will further check the data for ranges and assign default values using information taken from the Local Data File.

Functions

The function of the Preprocessor is to write a Standard Format Data File for subsequent processing by the Analysis Program. To accomplish this, the Preprocessor performs the following subfunctions:

1. Reads a logical record;

2. Validates the coded responses;

3. Assigns a negative number (or blank) to unusable responses;

4. Converts responses to standard format;

5. Writes a record to the output Standard Format Data File;

6. Notes all records which could not be processed and prints an appropriate transaction message.

Accuracy

The Preprocessor edits the input data for accuracy to the extent necessary to ensure clean data for the output file. More detailed range checks are performed by the Analysis Program. Data items not validated by either program which must be accurate are the ZIP Code and the respondent's name and mailing address. Cards must be presented to the Preprocessor grouped by questionnaire accession number.

Validation

The data validation steps necessary for the Preprocessor to write clean data to the output file are:

1. Replace illegal inputs with the negative integer, SN (or blank for alphabetic fields);

2. Replace missing inputs with the negative integer, SN (or blank for alphabetic fields);

3. Check for range data codes which are to be converted to actual values (for example, heating costs coded as a number 0 to 9 are to be converted to a dollar value), and set out of range values to the negative integer, SN; and

4. Check that other (uncoded) input data are either non-negative or equal to the negative integer, SN, and set out of range inputs to SN.

Timing

There are no critical timing constraints imposed on the HEA Preprocessor program.

Flexibility

The Project Conserve Preprocessor program is designed to accept source data collected on the Project Conserve questionnaire and convert it to the HEA standard format on the Standard Format Data File. This is the sole purpose of the program. There is no flexibility intended or implied. Changes in the

questionnaire content or format will require the development of a new preprocessor capable of reading the new format and writing a file in exactly the format specified for the Standard Format Data File.

4. Operating Environment

Equipment

Multiple versions of the Home Energy Audit System will allow running on IBM 360/370, UNIVAC 1108, or CDC 6000/CYBER series computers. Standard hardware such as card readers, tape drives, line printers, and on line mass storage will be the only requirements.

Support Software

Standard software facilities such as a FORTRAN compiler and FORTRAN library will be the only necessary software support for the Project Conserve Preprocessor.

Interfaces

The Project Conserve Preprocessor is self contained and will not need to interface with any other system.

Security and Privacy

Names and addresses of respondents will be present on the questionnaire respones, keypunched input file, and Standard Format Data File. These files are all temporary. Consideration should be given to keeping them secure and destroying them after the information they contain has been successfully processed, to protect the privacy of the respondent.

Controls

Control of the operation of the Project Conserve Preprocessor will be completely at the discretion of the administering agency.

5. Design Characteristics

Operating Procedures

The Project Conserve Preprocessor will operate in a batch processing environment. It may be initiated either locally or via remote job entry. The program will execute with only standard interactions with the operator. No special handling will be required.

Inputs

The Project Conserve Preprocessor has one input file which contains sorted questionnaire data grouped by questionnaire accession number. These data are recorded on the Project Conserve questionnaire shown in Home Energy Audit System Appendix D. The data are keypunched and presented to the program as a set of one or two records per questionnaire. The record formats are shown in Home Energy Audit System Appendix E.

Program Logic

The Preprocessor partially validates the questionnaire responses and inserts a specific negative number, SN (or a blank in the case of alphabetic values), in missing or illegal values. If the ZIP Code is invalid, an exception is noted and the records for that questionnaire are not processed. The program checks responses only to ensure that data codes are within range and other answers are not a negative number other than SN. It then assigns a value to each element of the Standard Format Data record and writes the record to the Standard Format Data File.

The Preprocessor uses the following logical routines:

- BLOCK DATA routine which initializes arrays, values associated with data codes, and miscellaneous constants;
- Main Routine which initializes switches, writes the Job Execution Log heading and footer, reads the first questionnaire card, calls routines, writes records to the Standard Format Data File, and stops processing;
- READCD which reads the next set of questionnaire cards;
- ASSMBL which decodes alphanumeric inputs and assigns negative numbers to illegal or missing values;
- CKRANG which performs required range checks;
- ASSVAL which assigns values to Standard Format Data elements;
- SCAN which converts input alphanumeric data to numeric data;

- PACK which packs input alphanumeric data stored one character per word to alphanumeric data stored four characters per word; and

- NOTEXC which notes exceptions on the Job Execution Log.

The Preprocessor macro logic is shown in Figure 1. The remainder of the paragraphs in this section describe the Preprocessor routines in more detail.

The Block Data subprogram initializes the following variables:

- COLSC2 indicates the beginning and ending columns for data punched on card two;

- BOXCK indicates whether answers from card two are coded responses;

- NLIM indicates the range limits for coded responses on card two;

- NUMA provides alphanumeric equivalents for each of the nine digits;

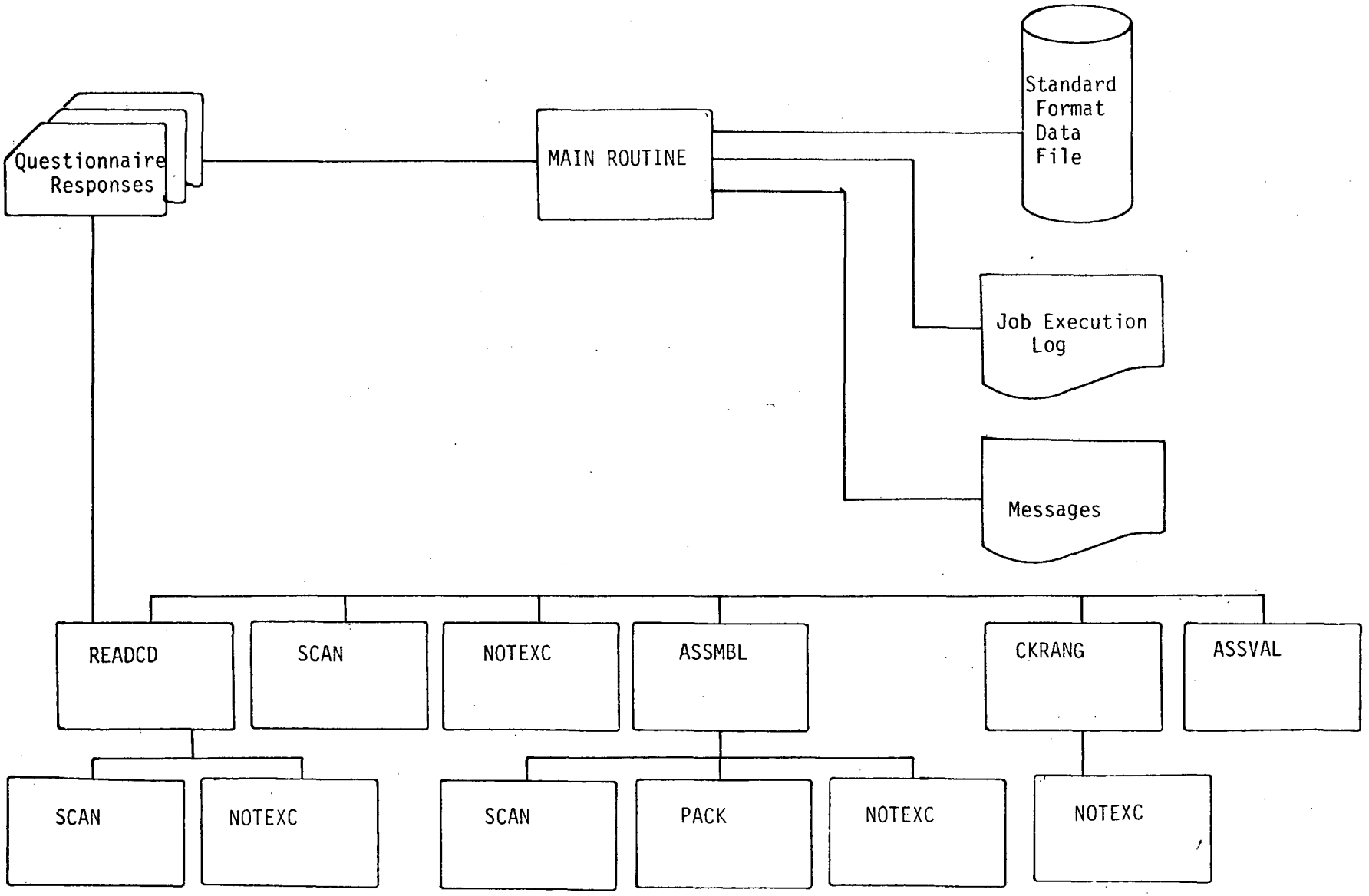
- SN, BLANK, and AST are constants set to -9999, ' ', and '*' respectively (SN is the number assigned to all missing, illegal, or out of range values);

- MAXQRE, MINZIP, MAXZIP, QRE are the maximum number of questionnaires which can be processed in one run (1,000,000), the minimum and maximum acceptable zip codes (100 and 99999), and the arbitrary number identifying the source questionnaire type (2 for Project Conserve questionnaires);

- INCD, OUTM, OUTREP, and SFD are the FORTRAN logical file numbers for input card data (10), output messages (11), output Job Execution Log (12), and the Standard Format Data File (13), respectively.

Figure 1

PROJECT CONSERVE PREPROCESSOR MACRO LOGIC



The Main Routine of the Project Conserve Preprocessor first initializes LOZIP, HIZIP, ICOUNT, and switches, writes the Job Execution Log headings, and reads the first card. LOZIP and HIZIP retain the lowest and highest zip code processed for reporting in the log. ICOUNT counts records successfully processed. The switches are:

- o EOFSW: true when end of file is read;
- o RDERSW: true when a non-recoverable read error is encountered;
- o PROCESS: initially true; set to false when an error fatal to the current accession number is encountered.

After initialization, MAIN enters the main processing loop which for each questionnaire:

- o calls READCD to read the cards for the accession number to be processed;
- o checks for missing cards;
- o calls ASSMBL to convert input data to processing formats;
- o calls CKRANG to perform all range checks;
- o calls ASSVAL to assign Standard Format Data values;
- o writes SFD record;
- o collects low and high ZIP Codes; and
- o counts records successfully processed.

When end of file is read, the current questionnaire is processed, LOZIP, HIZIP and ICOUNT are written to the Job Execution Log, and processing is halted.

Four error states can interfere with the normal flow of processing outlined above:

(1) During the initial card read, if no good card has been found after 10 tries a message is written and processing terminates.

(2) At any time, if a non-recoverable read error is encountered, (such as a character in a numeric field) processing terminates.

(3) During processing, if an error fatal to questionnaire processing is encountered, a note is made in the Job Execution Log, further processing of that questionnaire is skipped, and control passes to the end of file test. Possible errors fatal to a questionnaire are:

- accession number illegal;
- card number illegal or out of range;
- card 1 missing;
- card number duplicated; or
- ZIP Code illegal or out of range.

(4) If the main processing DO loop terminates before an end of file is encountered, a message is written and processing is halted. This will happen if MAXQRE is set too low.

The logic of the main routine is shown in Figures 2, 3, and 4.

Subroutine READCD reads one set of one or two questionnaire cards with the same ID (accession number) and stores them in CARD1 and CARD2 according to their card numbers. All cards are read as alphanumeric data (one character per word) and subsequently converted by subroutines SCAN and PACK to numeric quantities or to alphabetic data packed four characters per word. READCD calls SCAN to decode the card number and ID.

When READCD is called, the first card of the new set is in OLDCD, and its ID and card number are in OLDID and OLDNUM. READCD first moves OLDCD into CARD1 or CARD2 sets CDFLAG (1 or 2) to indicate a card of that number has been read, and sets CURRID equal to OLDID. It then enters a loop to read the remaining cards of the current ID, decode the ID and card number, and store the cards in CARD1 or CARD2. Before relinquishing control, READCD stores the first card of the next ID in OLDCD and sets OLDID and OLDNUM to the ID and card number of that card, ready for the next call. READCD will try only a limited number of times (MTRIES, set to 25) to find a good card to start the next group.

Within the loop, possible situations and the reponses to them are:

(1) Non recoverable read error (fatal error, set RDERSW and return);

(2) End of file (set EOFSW and return);

Figure 2

PROJECT CONSERVE PREPROCESSOR : MAIN ROUTINE LOGIC (1)

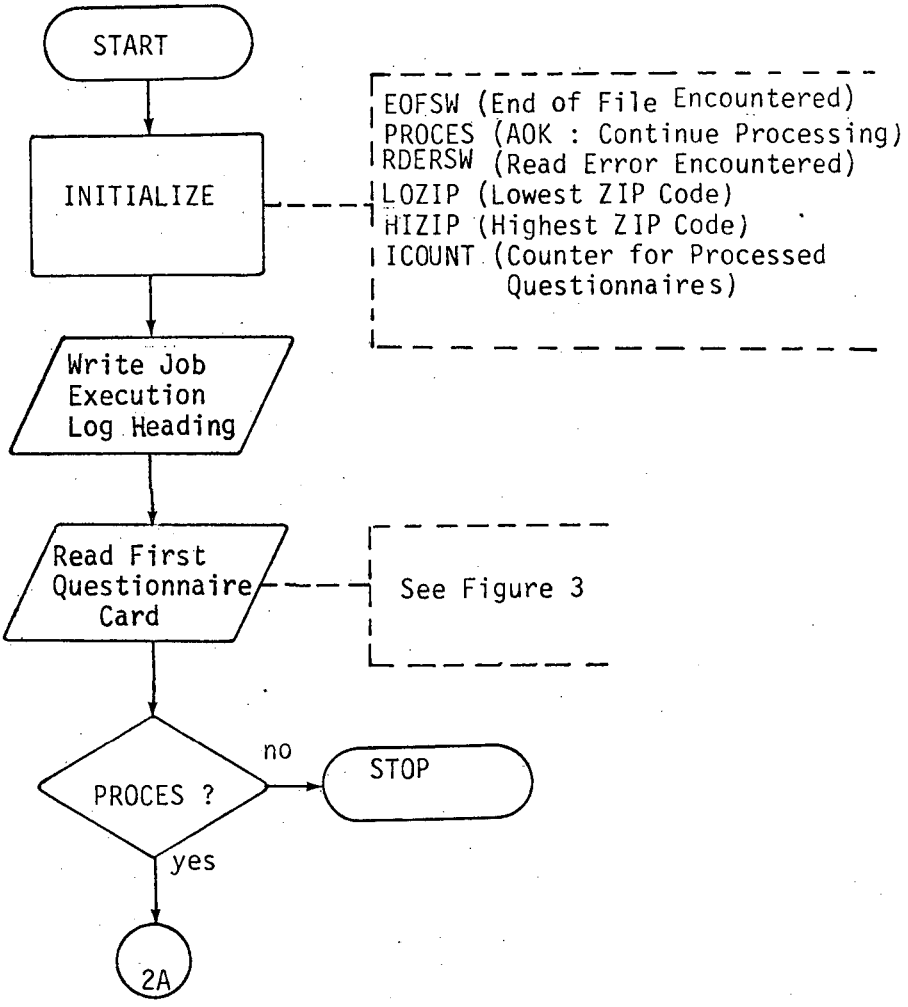


Figure 2 A

PROJECT CONSERVE PREPROCESSOR : MAIN ROUTINE LOGIC (CONTINUED)

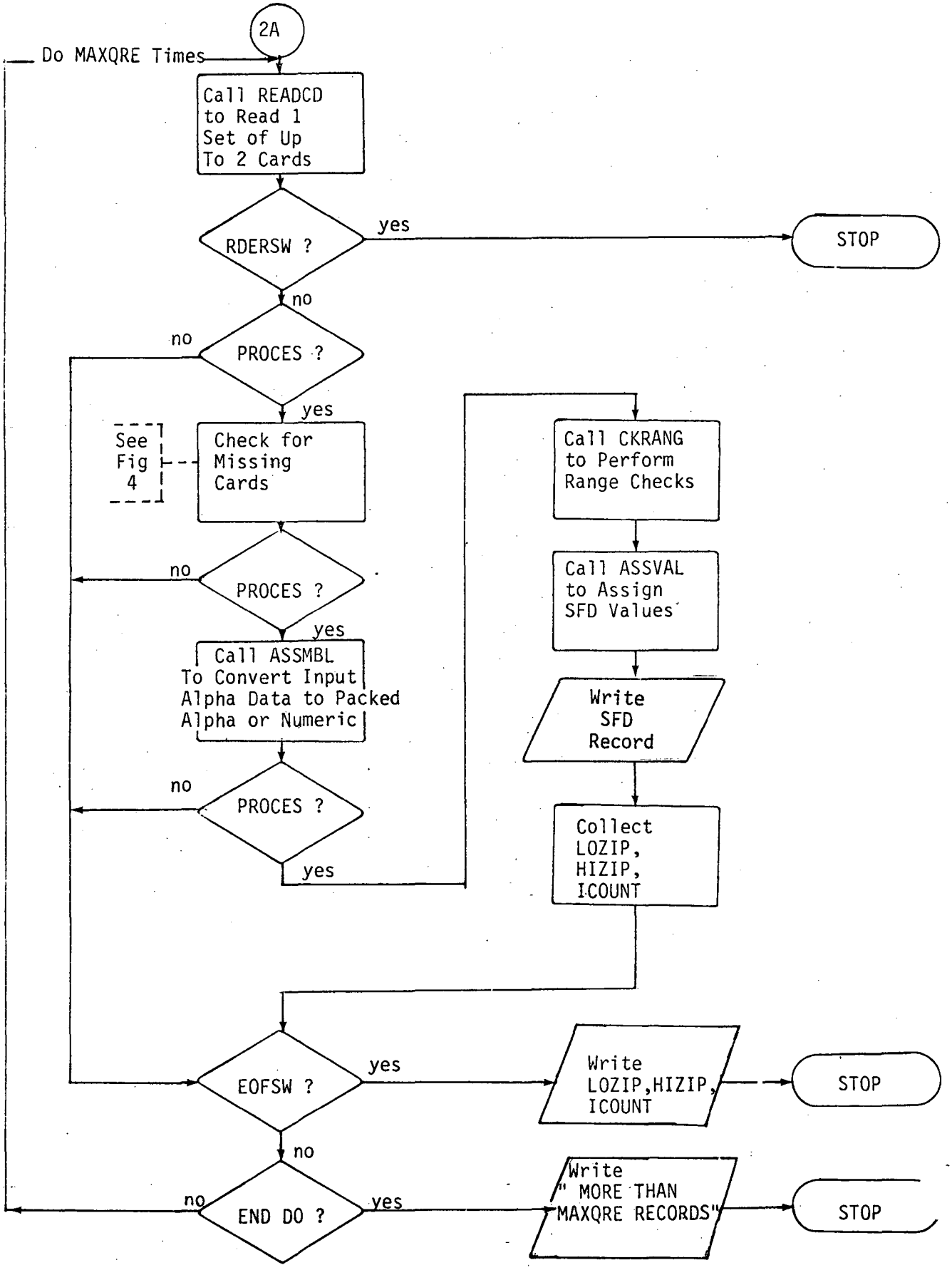


Figure 3

PROJECT CONSERVE : MAIN ROUTINE : READ FIRST CARD

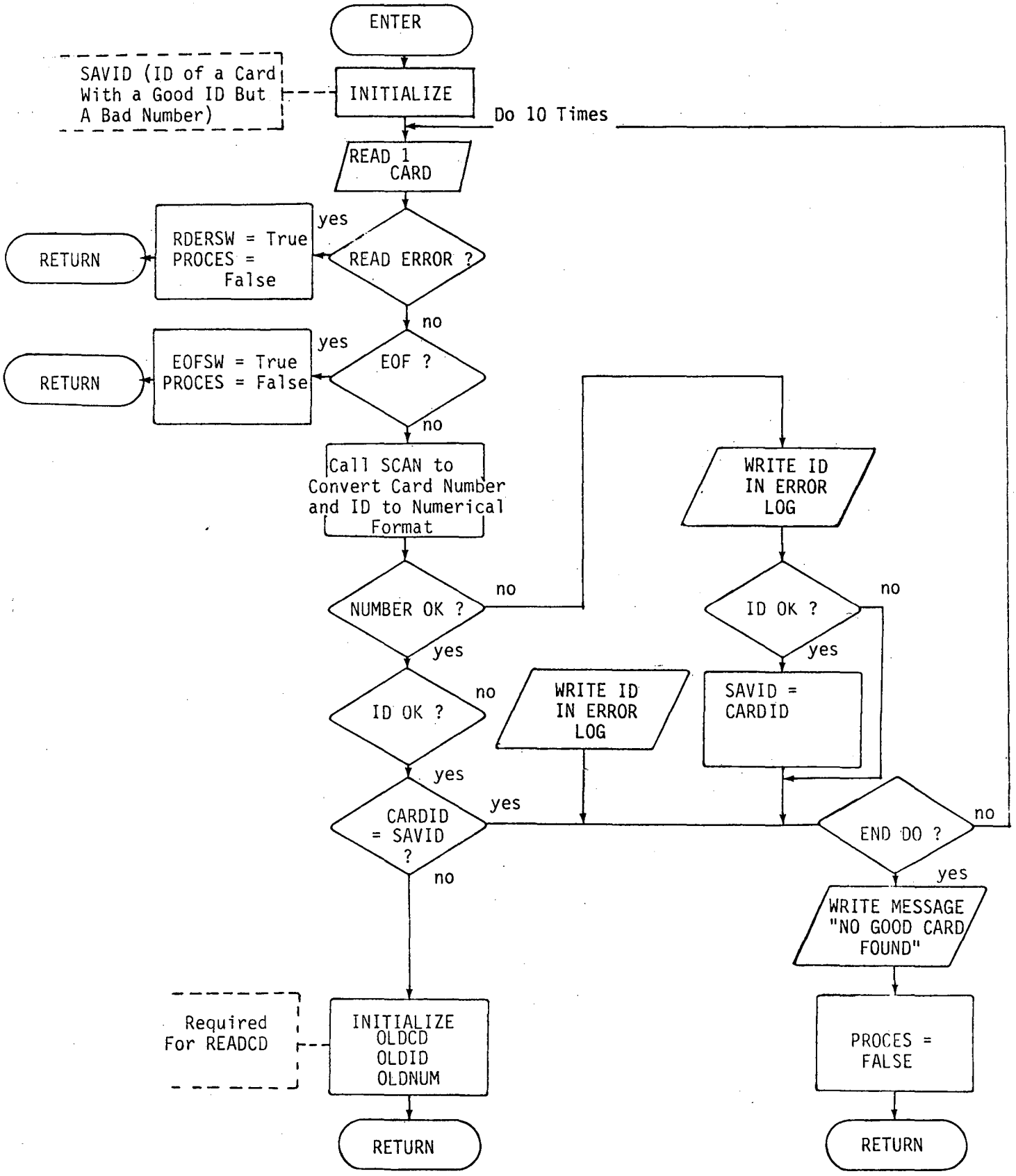
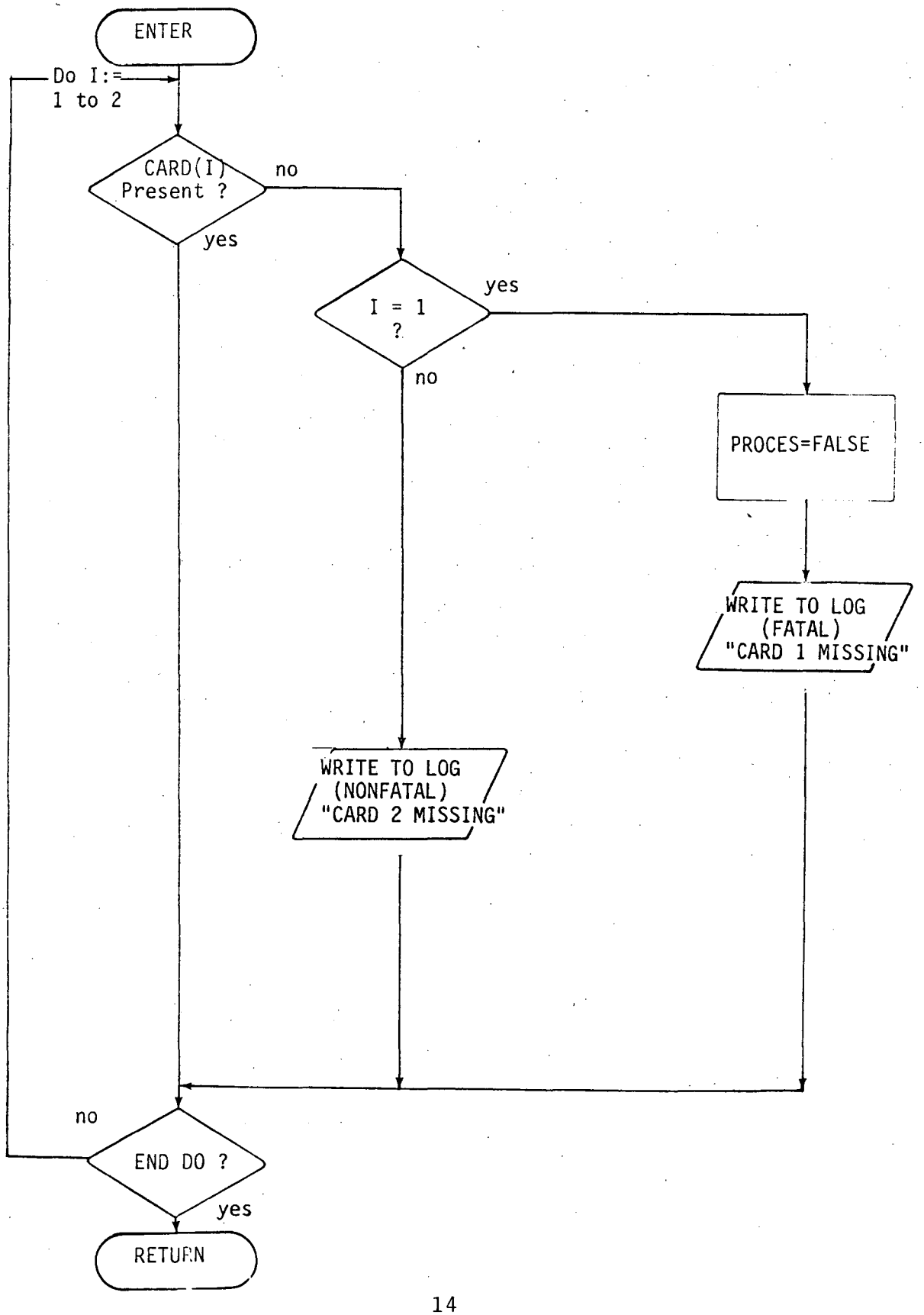


Figure 4

PROJECT CONSERVE PREPROCESSOR : MAIN ROUTINE : CHECK FOR MISSING CARDS



(3) Illegal ID (note exception, ignore card, repeat loop);

(4) Card ID is legal and matches current ID:
   (A) Illegal or out of range or duplicate card number (note exception, mark ID as not to be processed, repeat loop);
   (B) Good card number (store card in CARD1 or CARD2 set CDFLAG (1 or 2), repeat loop);

(5) Card ID is legal and does not match current ID but ID has previously been marked as non-processable:
   (A) Illegal or out of range number (note exception, mark ID as not processable, repeat loop);
   (B) Good number (ignore card, repeat loop);

(6) Card ID is legal and does not match current ID and has not previously been marked as non-processable:
   (A) Illegal or out of range number (note exception, mark ID as not processable, repeat loop);
   (B) Good number (store card in OLDCD, store ID and card number in OLDID and OLDNUM, return); or

(7) More than MTRIES card are read but situation (6B) does not occur (write message, set EOFSW to terminate processing normally as if end of file had been read, return).

The logic of subroutine READCD is shown in Figure 5.

Subroutine ASSMBL assigns appropriate values to the mnemonic variables representing questionnaire input:

- Alphabetic variables receive the card input values packed four characters per word, or blanks if the pack attempt is unsuccessful;

- Numeric variables receive the integer equivalent of the card input values, or the negative number SN if the conversion is unsuccessful or the card input is blank.

The first value checked is ZIP Code. If a legal value for ZIP is not found, the switch PROCESS is set to false, a message is written to the Job Execution Log, and control is returned at once to the calling routine. If the ZIP Code is satisfactory, each remaining input value is processed independently. The logic of subroutine ASSMBL is shown in Figure 6.

Figure 5

PROJECT CONSERVE PREPROCESSOR : SUBROUTINE READCD LOGIC

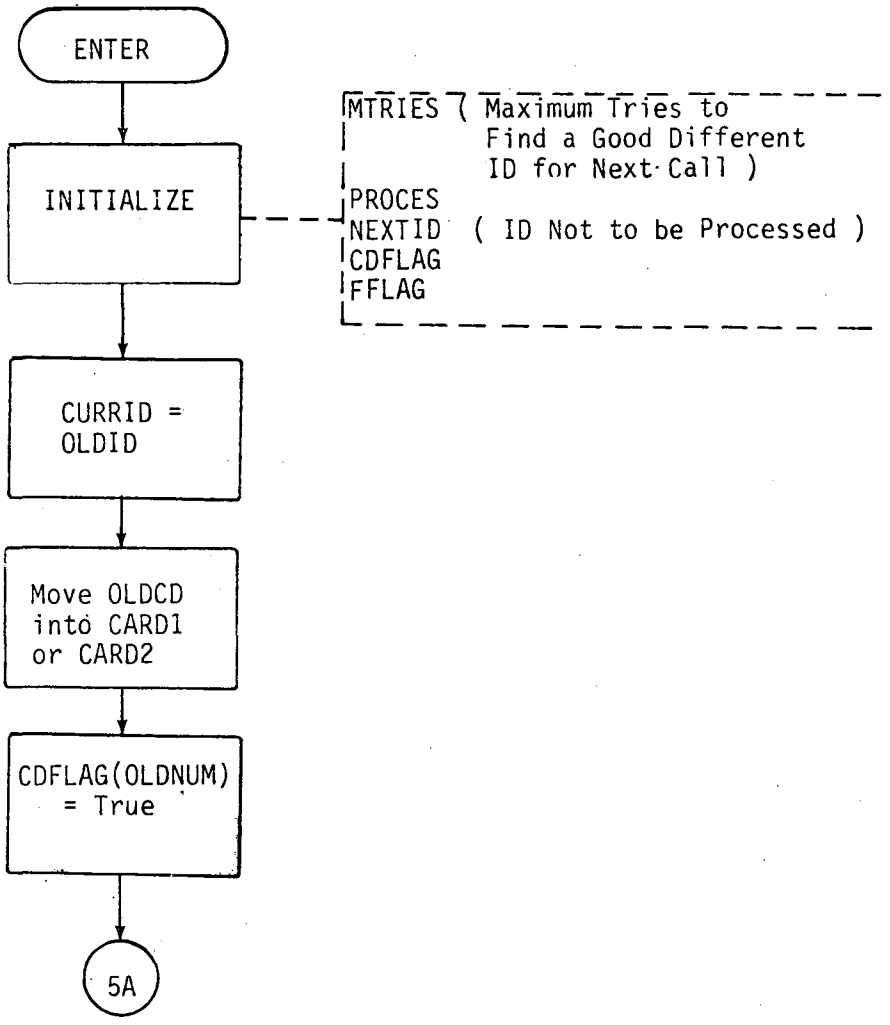


Figure 5 A : SUBROUTINE READCD LOGIC (CONTINUED)

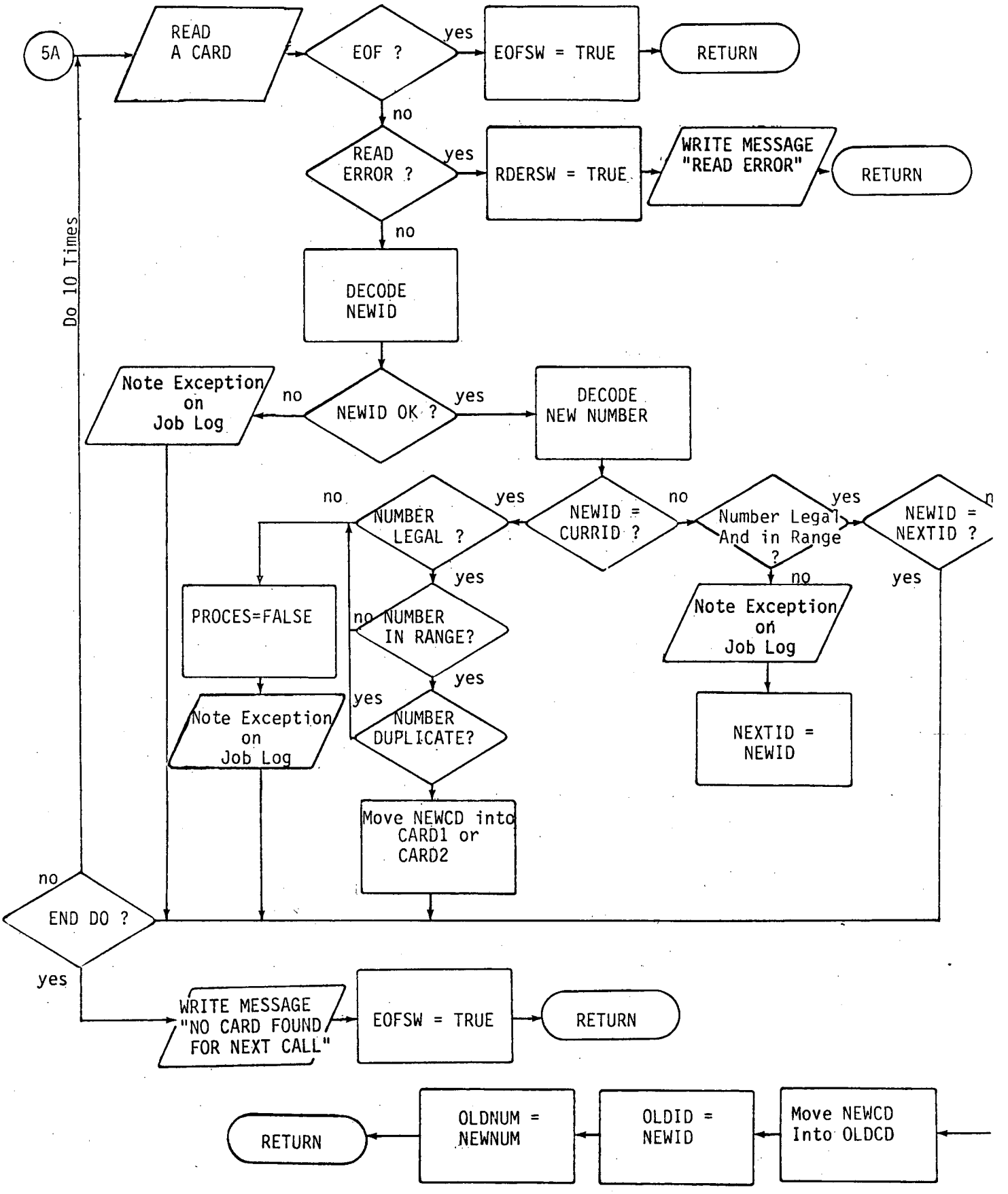
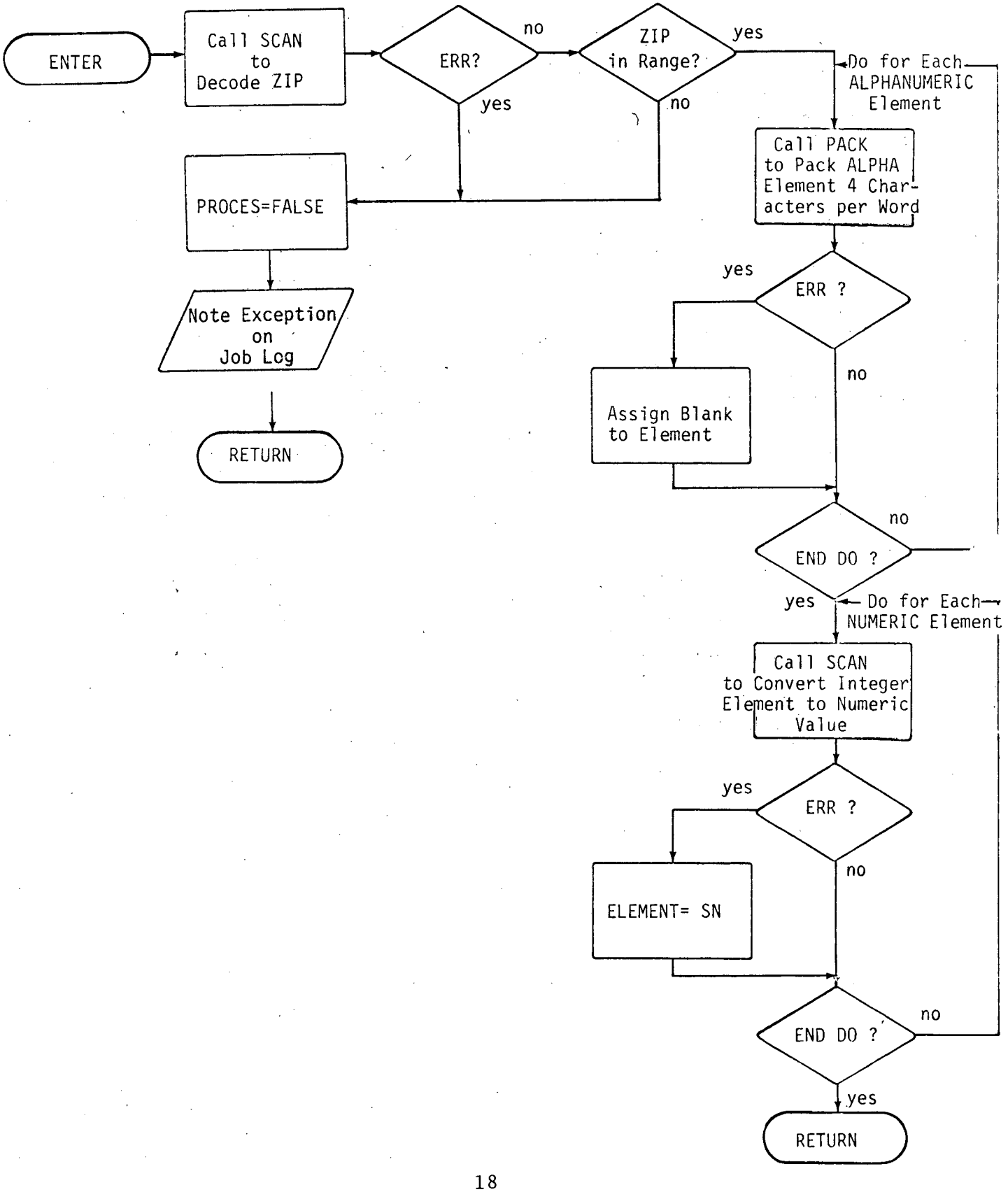


Figure 6

PROJECT CONSERVE PREPROCESSOR : SUBROUTINE ASSMBL LOGIC



Subroutine CKRANG checks card two and card three variables for range. Variables are of two types:

1. Box check responses. The respondent has checked Box 1, Box 2, etc; each box is a code for a value. Some box check responses will be decoded by subroutine ASSVAL, the rest will be written as codes on the SFD File, but all must be within specific range limits or equal to SN. SN signals a missing or illegal answer.

2. Actual value responses. The respondent has filled in a number representing an actual value; for example the number of color TVs in the home. Actual value responses must be non-negative or equal to SN.

CKRANG checks each variable in turn against its appropriate limits. If a value is out of range, an exception is noted in the log and the value of the variable is set to SN. The arrays BOXCK defines the box check type responses. The array NLIM defines the range limits for each response. The array NVAR1 is equivalent to the variables to be tested.

The logic of the subroutine CKRANG is shown in Figure 7.

Subroutine ASSVAL assigns values to all elements of the Standard Format Data File except for questionnaire type (QRE), name, street, city, state, and ZIP Code. QRE is a constant assigned by BLOCK DATA. Name, street, city, and state are alphabetic data assigned as they are decoded by PACK. ZIP Code was needed by earlier routines; it was assigned when decoded by READCD. All questionnaire variables have been checked by earlier routines.

The SFD elements are assigned independently of each other, in the order in which they are written on the file. Processing is by one of four types of procedure:

1. Straight Assignment. Many elements are assigned directly the value of the associated questionnaire variable, or SN if no associated questionnaire variable is present. For example, STVTYP = QSTOVE and GARAGE = SN. Attach is always assigned the value 0, to permit window and door distribution to walls.

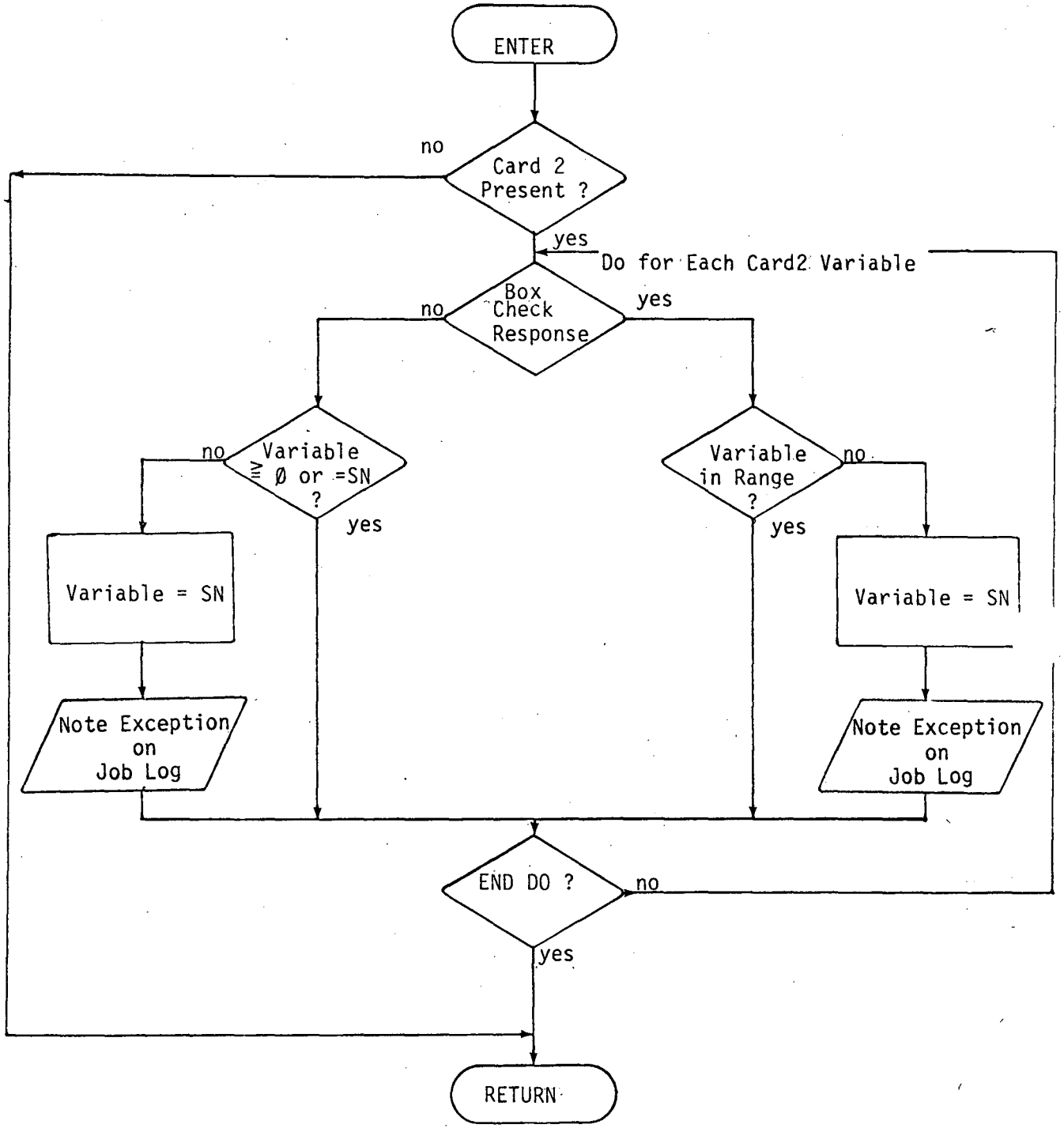
2. Decoding. The following elements are box check type responses to the questionnaire, but actual value type elements in the SFD File:

   BDATE - date home built;

   FTSQ - square footage of living area;

Figure 7

PROJECT CONSERVE PREPROCESSOR : SUBROUTINE CKRANG LOGIC



AINAMT - amount of attic insulation;

DWTEMP - daytime winter thermostat setting;

NWTEMP - nighttime winter thermostat setting;

DSTEMP - daytime summer thermostat setting;

NSTEMP - nighttime summer thermostat setting;

HCOST - total annual cost for fuel used for heating; and

ACCOST - total annual cost for fuel used for cooling.

For these elements, the actual value is held in an array. The arrays are:

BDATES(4) - for BDATE;

FTSQS(10) - for FTSQ;

AINAMS(7) - for AINAMT;

WTEMPS(5) - for DWTEMP and NWTEMP;

STEMPS(4) - for DSTEMP and NSTEMP;

FCOSTS(10) - for HCOST and ACCOST.

If the questionnaire value is SN, the SFD value is SN also, otherwise the questionnaire value is used as an index into the array to get the SFD value. For example, BDATE = BDATES(QDATE).

The questionnaire elements QFTSQ, QHBILL, and QACBIL are input with 0 instead of 10; these are converted before being used as an index.

3. Calculation. Four variables are calculated from other data:

(a) The attic floor area (AAREA) is a function of the square footage (FTSQ), presence of an attic, and style:

STYLE	AAREA=
If an attic is present:	
1-one story	FTSQ
2-two story	FTSQ/2
3-three or more story	FTSQ/3
4-split level	2*FTSQ/3

If an attic is not present AAREA = 0

(b) Total windows, total glass doors, and total other doors are distributed evenly to all four walls, (ATTACH having previously been defined arbitrarily as 0). The remainder after even distribution is assigned to walls 1, 2, and 3 in order. The logic of this caculation is shown in Figure 8.

(c) Storm windows (STORW) per wall is the fraction (total storm windows)/(total windows) multiplied by number of windows on each wall. The logic for this calculation is shown in Figure 9.

(d) Oversized windows (BIGW) per wall are the total number of big windows (QCW & QPW) distributed evenly between the front (1) and rear (2) walls, with any extra window assigned to the front.

(e) Storm doors (STORMD) per wall are the number of storm doors (QSTRMD) distributed first to regular doors (QDWD + QWD + QWRD + QWGD + QDVD + QOD), then, if any remain, to glass doors (QSGD). The logic for this calculation is shown in Figure 10.

4. Simple conversion. Many SFD variables bear a simpler relationship to associated questionnaire variables than those discussed in Section (3), but may not be assigned directly. For example:

STYLE	=	QSTYLE
1	=	1
2	=	4
3	=	2
4	=	3
SN	=	SN

These variables are:

STYLE	QSTYLE
ATTIC	QATTIC
STRIP	QSTRPW, QSTRPD
RATTLE	QRATTL, QAIRMD, QAIRMW
DWTEMP	QDWTEM, QEWTEM
HFUEL	QHFUEL
HSERVC	QHSERVC
DRYTYP	QDRYER
WATTYP	QWHEAT
FRIDGE	QFRIDG

Details of these simple relationships may easily be derived from inspection of the code, or from a comparison of the description of the associated variables (Appendix E and Appendix L in the Project Conserve Appendices).

In all cases, if the questionnaire value is SN, the associated SFD variable is also set at SN.

Flowcharts for the sections of code which calculate storm windows and storm doors are shown in Figures 8, 9 and 10. The remainder of the code is logically obvious; no flow chart is given.

Subroutine SCAN receives an array of 80 alphanumeric elements and two index numbers. It extracts the numeric digit equivalent to each array element between the index numbers, inclusive, and returns the value of the single integer represented by the digits extracted. The positional value of the digits is represented by their position in the array: i.e., a lower index implies a more leftward position.

SCAN takes each input array element between the indexes in turn, from lower index to higher, comparing each element to each of the elements in array NUMA. NUMA contains the alphabetic representations of the digits ('0', '1',...'9'). When a match is found, the index of the matching element is one higher than the numeric equivalent of the input array element. Each time a new digit is decoded, SCAN shifts the current combined integer one place to the left by multiplying by 10 and adds the new decoded digit.

Figure 8

T CONSERVE PREPROCESSOR : SUBROUTINE ASSVAL : WINDOW AND DOOR DISTRIBUTION TO 4 WALLS

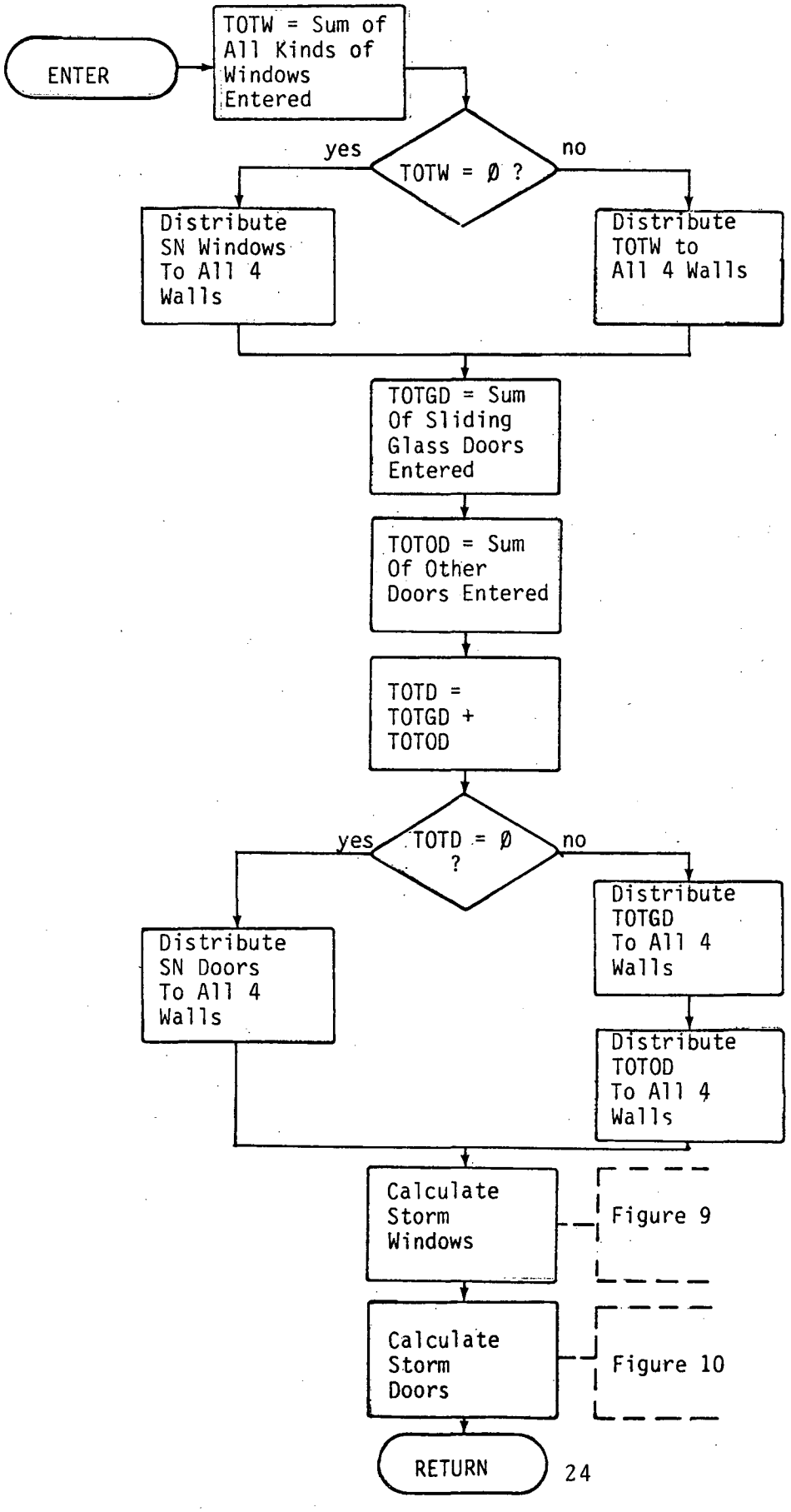


Figure 9

PROJECT CONSERVE PREPROCESSOR : SUBROUTINE ASSVAL : STORM WINDOW CALCULATIONS

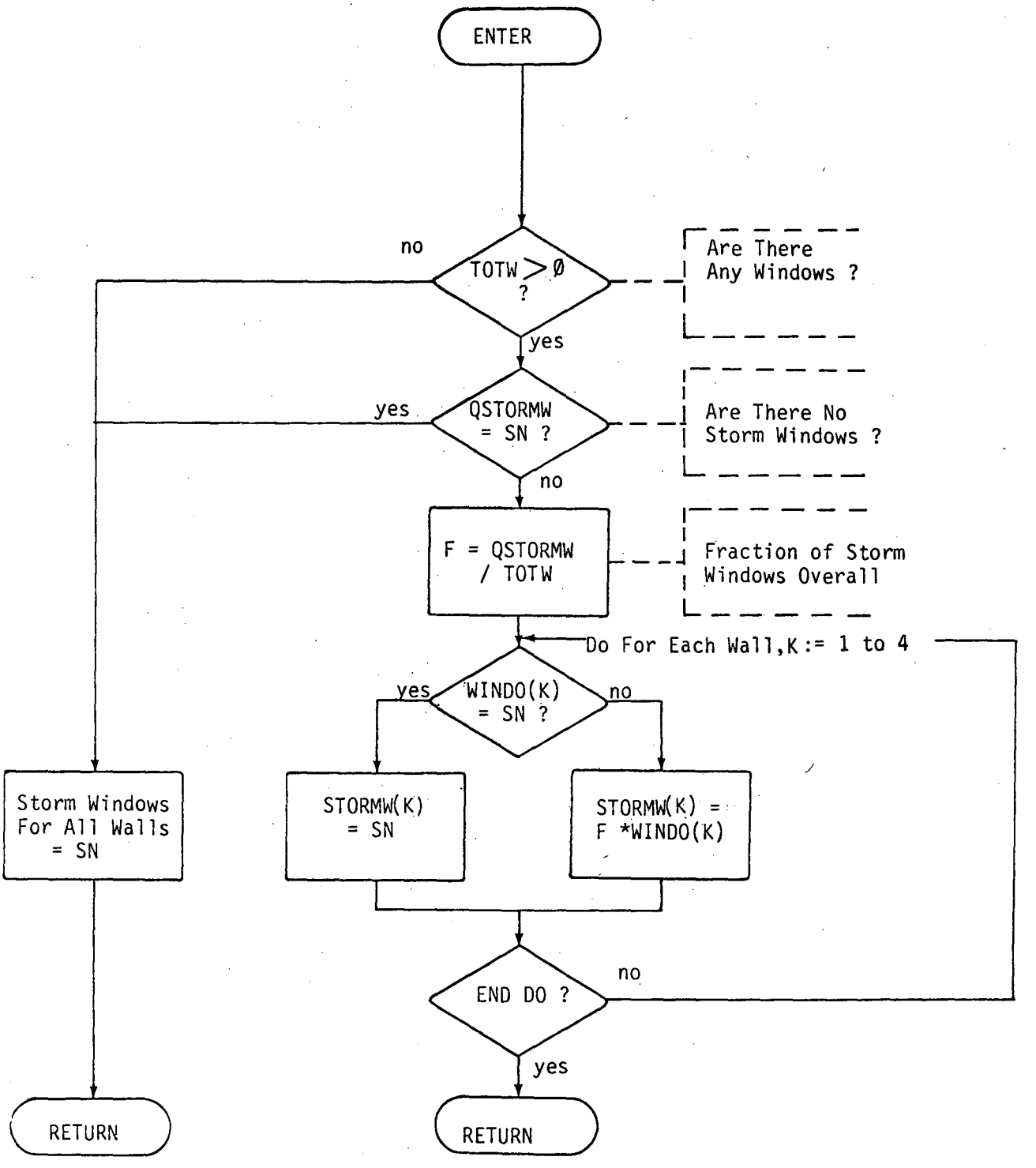


Figure 10

PROJECT CONSERVE PREPROCESSOR : SUBROUTINE ASSVAL : STORM DOOR CALCULATIONS LOGIC

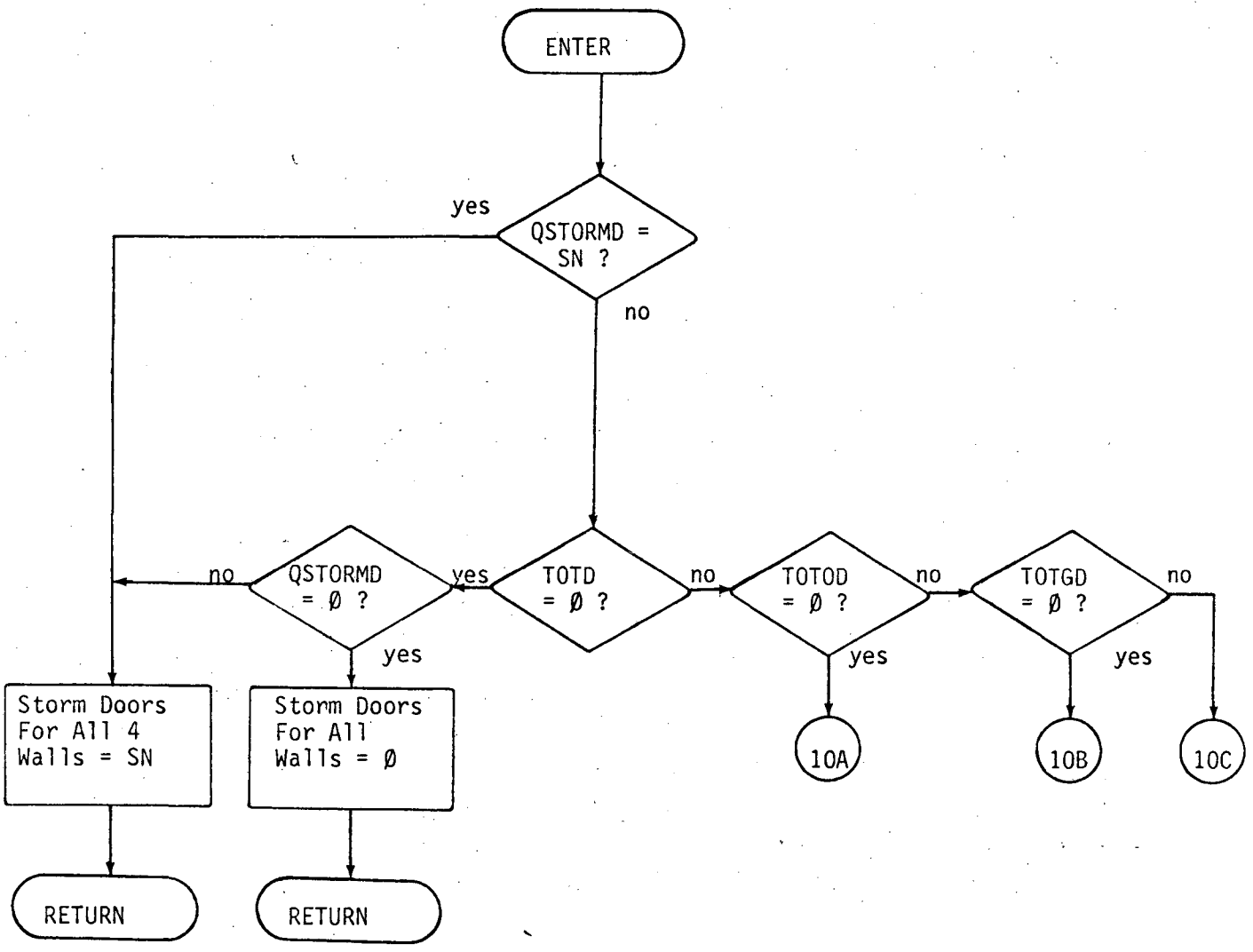


Figure 10 A

PROJECT CONSERVE PREPROCESSOR : SUBROUTINE ASSVAL : STORM DOOR CALCULATIONS LOGIC (CONTINUED)

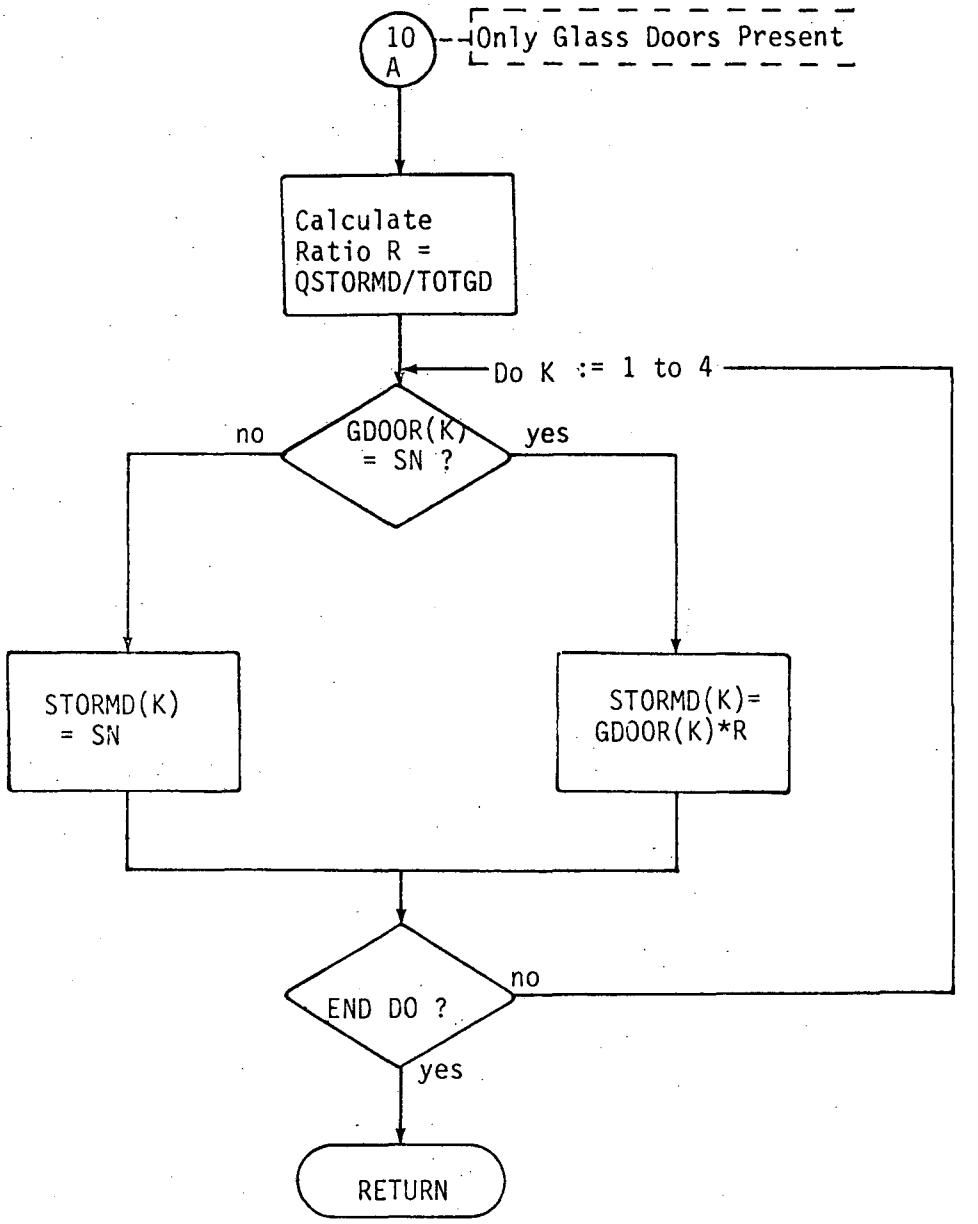


Figure 10 B

PROJECT CONSERVE PREPROCESSOR : SUBROUTINE ASSVAL : STORM DOOR CALCULATIONS LOGIC (CONTINUED)

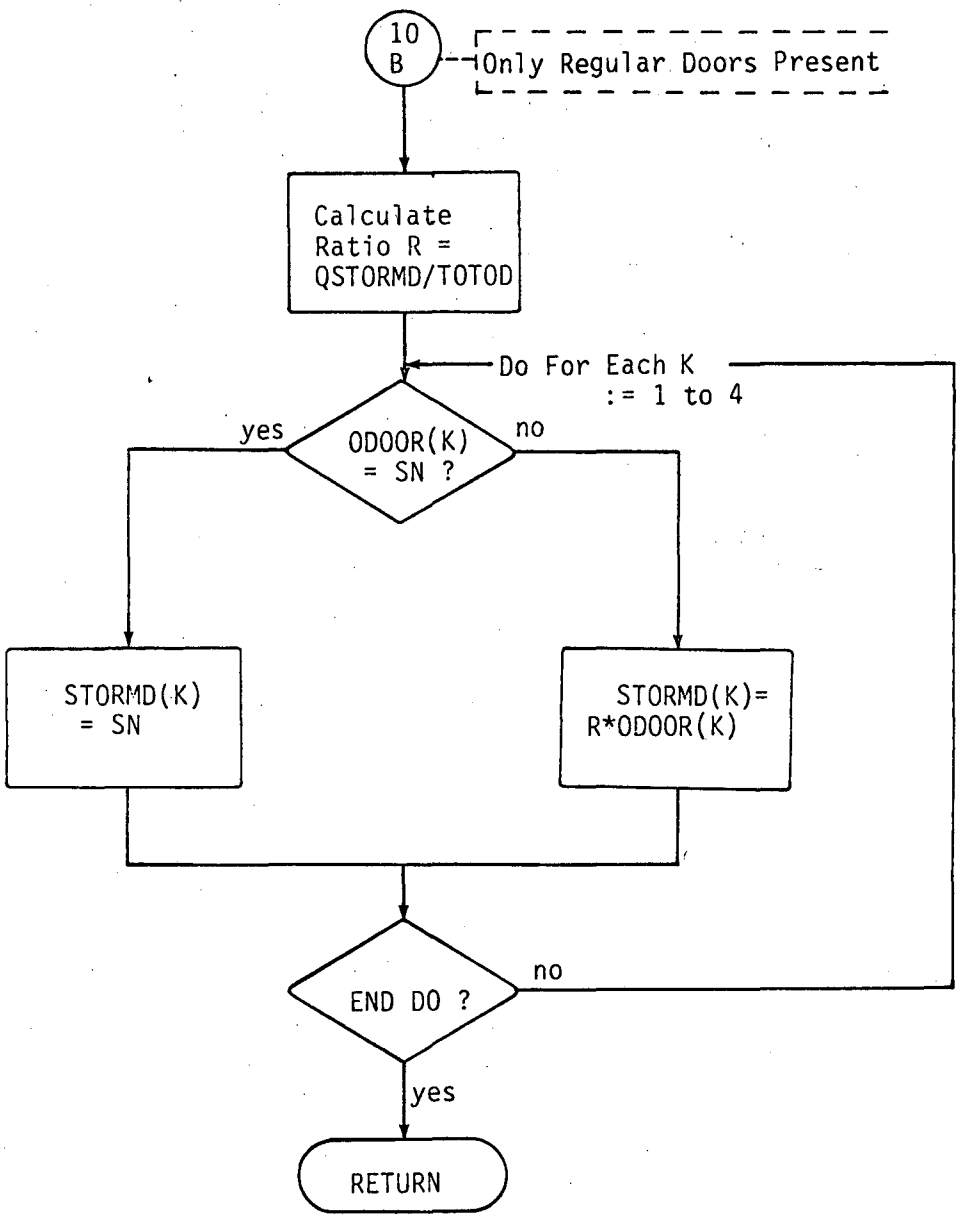
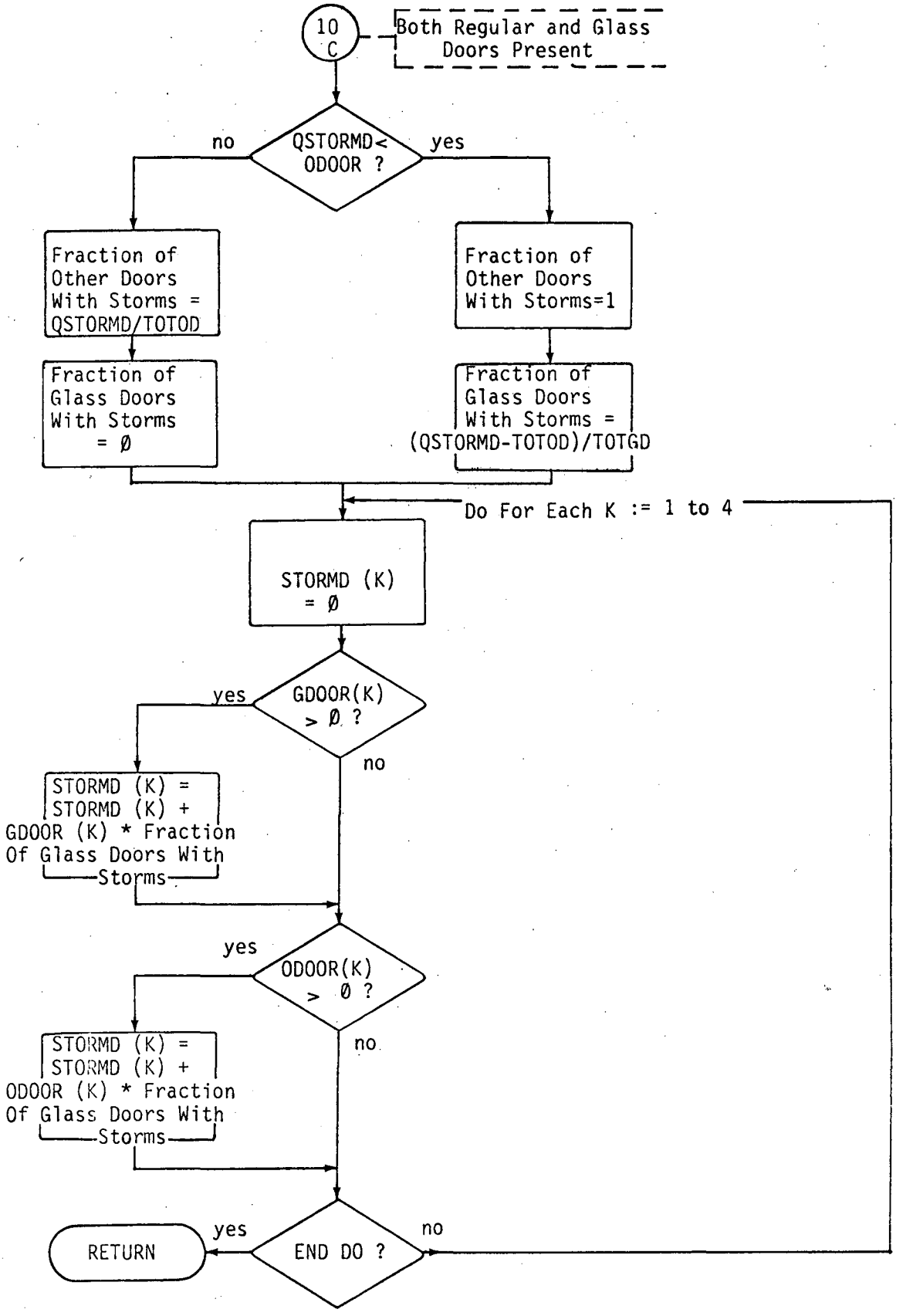


Figure 10 C

PROJECT CONSERVE PREPROCESSOR : SUBROUTINE ASSVAL : STORM DOOR CALCULATIONS LOGIC (CONTINUED)



If all indicated input elements are blank, SCAN returns SN as the value. If an error is found (blank in other than leading position, non-digit element, second index smaller than first) SCAN sets an error flag and returns SN as the value.

The logic of subroutine SCAN is shown in Figure 11.

Subroutine PACK packs characters stored one per word into words with four characters per word. The logic of subroutine PACK is shown in Figure 12.

Subroutine NOTEXC receives a card image, stored in 80A1 format, an index of value one through four, and a flag containing either a blank or an asterisk. It writes into one of four columns, indicated by the index, the first five elements of the card image and the flag, using 6A1 format. The logic is so simple that no flowchart is provided.

Outputs

The main output of the Project Conserve Preprocessor program is the Standard Format Data File which meets the following specifications:

1. One complete record is generated for each questionnaire processed.

2. Fields containing values derived from missing or illegal inputs are given the negative value SN so that all fields contain a legal value.

3. The ZIP Code is present and within range.

The detailed layout and content of the Standard Format Data File is shown in the Home Energy Audit System Appendix L.

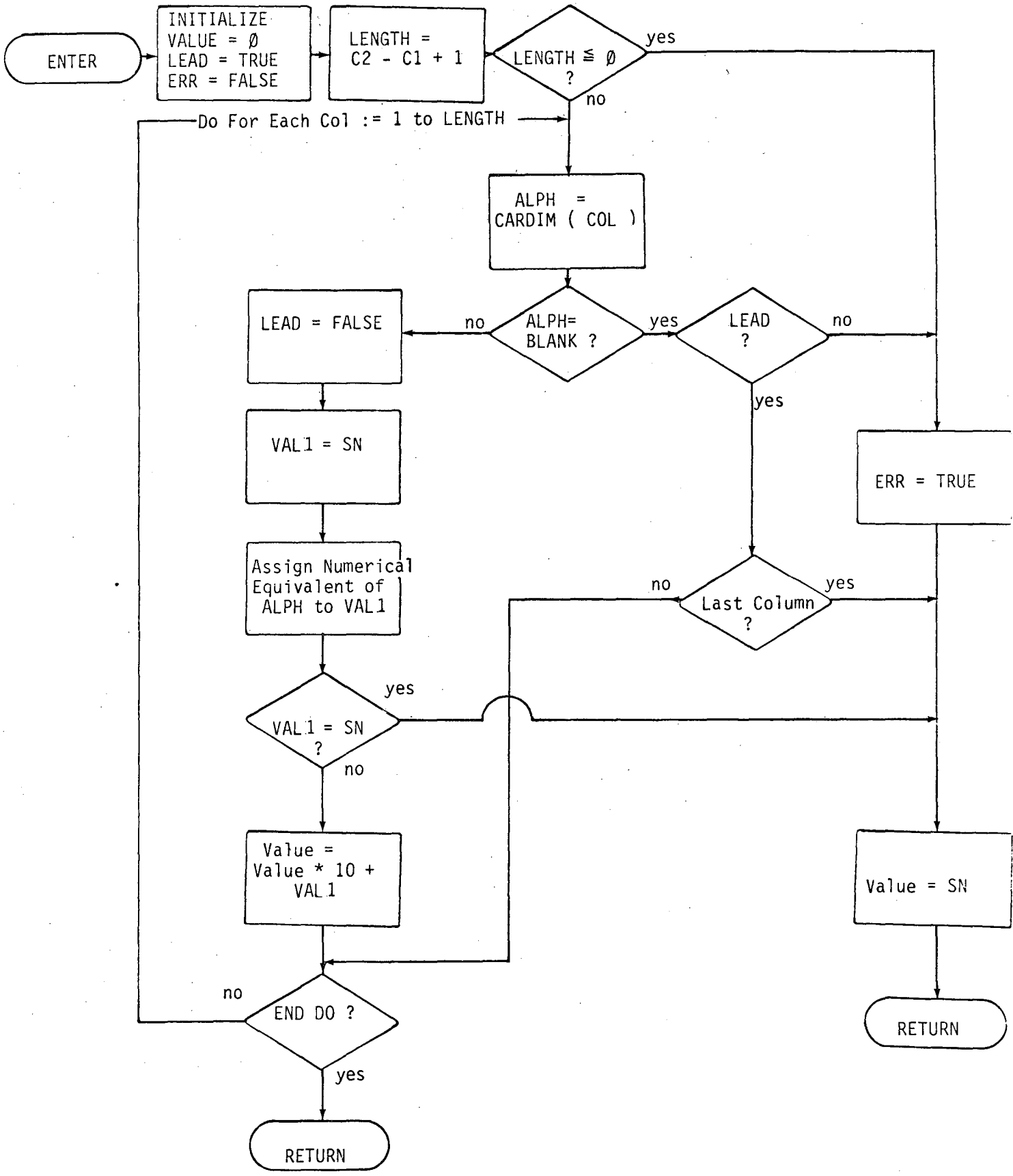
The Standard Format Data File may be stored on any sequential device. It contains the names and addresses of the homeowners; therefore appropriate measures should be taken to protect the privacy of the individual.

A second output of the Project Conserve Preprocessor program is the Job Execution Log, which shows:

1. The accession number of each card found to be in error, listed by card type and flagged if the error prevented processing of the ID;

Figure 11

PROJECT CONSERVE PREPROCESSOR : SUBROUTINE SCAN LOGIC



2. The lowest ZIP Code and the highest ZIP Code successfully processed; and

3. The total number of IDs successfully processed.

A sample of the Project Conserve Preprocessor Job Execution Log is shown in the Home Energy Audit System Appendix F.

A third output of the Project Conserve Preprocessor program is a set of messages. The messages are listed in the Home Energy Audit System Appendix T.

Data Base

No data base is used or produced by the Project Conserve Preprocessor program.

0 0 0 0 5 1 0 0 0 5 7

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

Hea Preprocessor Program Specification

0 0 0 0 5 1 0 0 0 5 8

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

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1. Purpose

The purpose of this program specification is to describe the requirements, operating environment, and design characteristics of the HEA Preprocessor Program in the Home Energy Audit System (HEA).

2. General Information

Summary

The HEA Preprocessor reads keypunched data describing the energy consuming/conserving characteristics of homes as gathered by the HEA questionnaire. The input data are edited to place alphabetic data in alphabetic fields and numeric data in numeric fields. Coded input data, if present, are checked for validity and decoded. Missing or illegal data are assigned a negative numeric value. Additional data values are calculated:

- Attic floor area. Depending on the number of stories in the home, attic floor area is the square footage (1 story), one-half the square footage (2 story), one-third the square footage (3 story), or two-thirds the square footage (Cape Cod).

- Storm windows on each wall. Storm windows indicated on the questionnaire are distributed evenly to windows on each wall.

- Oversize windows on each wall. Oversize windows indicated on the questionnaire are distributed evenly between front and rear walls, with any extra window assigned to the front.

- Storm doors on each wall. Storm doors indicated on the questionnaire are distributed to the four walls in turn, first to regular doors and then to glass doors.

The transformed and calculated data are written in a standard format on the Standard Format Data File for use as input to the HEA Analysis Program.

Environment

The Home Energy Audit System (HEA) was developed for the Department of Energy (Energy Research and Development

Administration, Office of Conservation, and the Federal Energy Administration, Office of Conservation and Environment). This development was the cooperative effort of the National Bureau of Standards and Applied Urbanetics, Inc.

It is anticipated that this system will be sponsored by both public organizations, such as Federal, state, or local governments, and private organizations, such as financial institutions and utilities. The system may be run on IBM, CDC, or UNIVAC computer equipment.

References

Contract Number 353602, as issued by the University of California Lawrence Berkeley Laboratory.

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J.R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperative with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

3. Requirements

Program Description

The Preprocessor reads the three records (three cards) keypunched from the HEA questionnaire. The Preprocessor expects the cards for each questionnaire to be adjacent in the deck; however, they may be in any order within the questionnaire group.

The HEA Preprocessor edits the data as required to write the Standard Format Data File to the following specifications.

1. One record is generated for each questionnaire processed.

2. Fields containing values derived from missing or illegal inputs are given the negative value SN, so that all fields contain a legal value.

3. A ZIP Code is present.

4. Data codes are converted to actual engineering units where required. For example, square footage is converted from a code (a digit from 0-9) to square feet.

5. Data not specifically available from the questionnaire are either supplied or assigned the negative value, SN.

All ranges and default values required for the edit checks are hard coded. The HEA Analysis Program will further check the data for ranges and assign default values using information taken from the Local Data File.

Functions

The function of the Preprocessor is to write a Standard Format Data File for subsequent processing by the Analysis Program. To accomplish this, the Preprocessor performs the following subfunctions:

1. Reads a logical record;

2. Validates the coded responses;

3. Assigns a negative number (or blank) to unusable responses;

4. Converts responses to standard format;

5. Writes a record to the output Standard Format Data File;

6. Notes all records which could not be processed and prints an appropriate transaction message.

Accuracy

The Preprocessor edits the input data for accuracy to the extent necessary to ensure clean data for the output file. More detailed range checks are performed by the Analysis Program. Data items not validated by either program which must be accurate are the ZIP Code and the respondent's name and mailing address. Cards must be presented to the Preprocessor grouped by questionnaire accession number.

Validation

The data validation steps necessary for the Preprocessor to write clean data to the output file are:

1. replace illegal inputs with the negative integer, SN (or blank for alphabetic fields);

2. replace missing inputs with the negative integer, SN (or blank for alphabetic fields);

3. check for range data codes which are to be converted to actual values (for example, heating costs coded as a number 0 to 9 are to be converted to a dollar value), and set out of range values to the negative integer, SN; and

4. check that other (uncoded) input data are either non-negative or equal to the negative integer, SN, and set out of range inputs to SN.

Timing

There are no critical timing constraints imposed on the HEA Preprocessor program.

Flexibility

The HEA Preprocessor program is designed to accept source data collected on the HEA questionnaire and convert it to the HEA standard format on the Standard Format Data File. This is the sole purpose of the program. There is no flexibility intendedor implied. Changes in the questionnaire content or format will require the development of a new preprocessor capable of reading the new format and writing a file in exactly the format specified for the Standard Format Data File.

4. Operating Environment

Equipment

Multiple versions of the Home Energy Audit System will allow running on IBM 360/370, UNIVAC 1108, or CDC 6000/CYBER series computers. Standard hardware such as card readers, tape drives, line printers, and on line mass storage will be the only requirements.

Support Software

Standard software facilities such as a FORTRAN compiler and FORTRAN library will be the only necessary software support for the HEA Preprocessor.

Interfaces

The HEA Preprocessor is self contained and will not need to interface with any other system.

Security and Privacy

Names and addresses of respondents will be present on the questionnaire respones, keypunched input file, and Standard Format Data File. These files are all temporary. Consideration should be given to keeping them secure and

destroying them after the information they contain has been successfully processed, to protect the privacy of the respondent.

Controls

Control of the operation of the HEA Preprocessor will be completely at the discretion of the administering agency.

5. Design Characteristics

Operating Procedures

The HEA Preprocessor will operate in a batch processing environment. It may be initiated either locally or via remote job entry. The program will execute with only standard interactions with the operator. No special handling will be required.

Inputs

The HEA Preprocessor has one input file which contains sorted questionnaire data grouped by questionnaire accession number. These data are recorded on the HEA questionnaire shown in Home Energy Audit System Appendix A. The data are keypunched and presented to the program as a set of one to three records per questionnaire. The record formats are shown in Home Energy Audit System Appendix B.

Program Logic

The Preprocessor partially validates the questionnaire responses and inserts a specific negative number, SN (or a blank in the case of alphabetic values), in missing or illegal values. If the ZIP Code is invalid, an exception is noted and the records for that questionnaire are not processed. The program checks responses only to ensure that data codes are within range and other answers are not a negative number other than SN. It then assigns a value to each element of the Standard Format Data record and writes the record to the Standard Format Data File.

The Preprocessor uses the following logical routines:

- BLOCK DATA routine which initializes arrays, values associated with data codes, and miscellaneous constants;

- Main Routine which initializes switches, writes the Job Execution Log heading and footer, reads the first questionnaire card, calls routines, writes records to the Standard Format Data File, and stops processing;

- READCD which reads the next set of questionnaire cards;

- ASSMBL which decodes alphanumeric inputs and assigns negative numbers to illegal or missing values;

- CKRANG which performs required range checks;

- ASSVAL which assigns values to Standard Format Data elements;

- SÇAN which converts input alphanumeric data to numeric data;

- PACK which packs input alphanumeric data stored one character per word to alphanumeric data stored four characters per word; and

- NOTEXC which notes exceptions on the Job Execution Log.

The Preprocessor macro logic is shown in Figure 1. The remainder of the paragraphs in this section describe the Preprocessor routines in more detail.

The Block Data subprogram initializes the following variables:

- COLSC2 and COLSC3 indicate the beginning and ending columns for data punched on cards two and three, respectively;

- BOXCK1 and BOXCK2 indicate whether answers from cards two and three, respectively, are coded responses;

- NLIMI and NLIM2 indicate the range limits for coded responses on cards two and three, respectively;

- NUMA provides alphanumeric equivalents for each of the nine digits;

- SN, BLANK, and AST are constants set to -9999, ' ', and '*' respectively (SN is the number assigned to all missing, illegal, or out of range values);

- MAXQRE, MINZIP, MAXZIP, QRE are the maximum number of questionnaires which can be processed in one run (1,000,000), the minimum and maximum acceptable zip codes (100 and 99999), and the arbitrary number identifying the source questionnaire type (1 for HEA questionnaires);

- INCD, OUTM, OUTREP, and SFD are the FORTRAN logical file numbers for input card data (10), output messages (11), output Job Execution Log (12), and the Standard Format Data File (13), respectively.

The Main Routine of the HEA Preprocessor first initializes LOZIP, HIZIP, ICOUNT, and switches, writes the Job Execution Log headings, and reads the first card. LOZIP and HIZIP retain the lowest and highest zip code processed for reporting in the log. ICOUNT counts records successfully processed. The switches are:

- EOFSW: true when end of file is read;

- RDERSW: true when a non-recoverable read error is encountered;

- PROCESS: initially true; set to false when an error fatal to the current accession number is encountered.

After initialization, MAIN enters the main processing loop which for each questionnaire:

- calls READCD to read the cards for the accession number to be processed;

- checks for missing cards;

- calls ASSMBL to convert input data to processing formats;

- calls CKRANG to perform all range checks;

- calls ASSVAL to assign Standard Format Data values;

- o writes SFD record;
- o collects low and high ZIP Codes; and
- o counts records successfully processed.

When end of file is read, the current questionnaire is processed, LOZIP, HIZIP and ICOUNT are written to the Job Execution Log, and processing is halted.

Four error states can interfere with the normal flow of processing outlined above:

(1) During the initial card read, if no good card has been found after 10 tries a message is written and processing terminates.

(2) At any time, if a non-recoverable read error is encountered, (such as a character in a numeric field) processing terminates.

(3) During processing, if an error fatal to questionnaire processing is encountered, a note is made in the Job Execution Log, further processing of that questionnaire is skipped, and control passes to the end of file test. Possible errors fatal to a questionnaire are:

- accession number illegal;
- card number illegal or out of range;
- card 1 missing;
- card number duplicated; or
- ZIP Code illegal or out of range.

(4) If the main processing DO loop terminates before an end of file is encountered, a message is written and processing is halted. This will happen if MAXQRE is set too low.

The logic of the main routine is shown in Figures 2, 3, and 4.

Subroutine READCD reads one set of up to three questionnaire cards with the same ID (accession number) and stores them in CARD1, CARD2, and CARD3 according to their card numbers. All cards are read as alphanumeric data (one character per word) and subsequently converted by subroutines SCAN and PACK to numeric quantities or to alphabetic data packed four characters per word. READCD calls SCAN to decode the card number and ID.

When READCD is called, the first card of the new set is in OLDCD, and its ID and card number are in OLDID and OLDNUM. READCD first moves OLDCD into CARD1, CARD2, or CARD3, sets CDFLAG (1, 2, or 3) to indicate a card of that number has been read, and sets CURRID equal to OLDID. It then enters a loop to read the remaining cards of the current ID, decode the ID and card number, and store the cards in CARD1, CARD2, and CARD3. Before relinquishing control, READCD stores the first card of the next ID in OLDCD and sets OLDID and OLDNUM to the ID and card number of that card, ready for the next call. READCD will try only a limited number of times (MTRIES, set to 25) to find a good card to start the next group.

Within the loop, possible situations and the reponses to them are:

(1) Non recoverable read error (fatal error, set RDERSW and return);

(2) End of file (set EOFSW and return);

(3) Illegal ID (note exception, ignore card, repeat loop);

(4) Card ID is legal and matches current ID:
  (A) Illegal or out of range or duplicate card number (note exception, mark ID as not to be processed, repeat loop);
  (B) Good card number (store card in CARD1, CARD2, or CARD3, set CDFLAG (1, 2, or 3), repeat loop);

(5) Card ID is legal and does not match current ID but ID has previously been marked as non-processable:
  (A) Illegal or out of range number (note exception, mark ID as not processable, repeat loop);
  (B) Good number (ignore card, repeat loop);

(6) Card ID is legal and does not match current ID and has not previously been marked as non-processable:
  (A) Illegal or out of range number (note exception, mark ID as not processable, repeat loop);
  (B) Good number (store card in OLDCD, store ID and card number in OLDID and OLDNUM, return); or

(7) More than MTRIES card are read but situation (6B) does not occur (write message, set EOFSW to terminate processing normally as if end of file had been read, return).

The logic of subroutine READCD is shown in Figure 5.

Subroutine ASSMBL assigns appropriate values to the mnemonic variables representing questionnaire input:

- o Alphabetic variables receive the card input values packed four characters per word, or blanks if the pack attempt is unsuccessful;

- o Numeric variables receive the integer equivalent of the card input values, or the negative number SN if the conversion is unsuccessful or the card input is blank.

The first value checked is ZIP Code. If a legal value for ZIP is not found, the switch PROCESS is set to false, a message is written to the Job Execution Log, and control is returned at once to the calling routine. If the ZIP Code is satisfactory, each remaining input value is processed independently. The logic of subroutine ASSMBL is shown in Figure 6.

Subroutine CKRANG checks card two and card three variables for range. Variables are of two types:

1. Box check responses. The respondent has checked Box 1, Box 2, etc; each box is a code for a value. Some box check responses will be decoded by subroutine ASSVAL, the rest will be written as codes on the SFD File, but all must be within specific range limits or equal to SN. SN signals a missing or illegal answer.

2. Actual value responses. The respondent has filled in a number representing an actual value; for example the number of color TVs in the home. Actual value responses must be non-negative or equal to SN.

CKRANG checks each variable in turn against its appropriate limits. If a value is out of range, an exception is noted in the log and the value of the variable is set to SN. The arrays BOXCK1 and BOXCK2 define the box check type responses. The arrays NLIM1 and NLIM2 define the range limits for each response. The arrays NVAR1 and NVAR2 are equivalent to the variables to be tested.

The logic of the subroutine CKRANG is shown in Figure 7.

Subroutine ASSVAL assigns values to all elements of the Standard Format Data File except for questionnaire type (QRE), name, street, city, state, and ZIP Code. QRE is a constant assigned by BLOCK DATA. Name, street, city, and state are alphabetic data assigned as they are decoded by PACK. ZIP Code

was needed by earlier routines; it was assigned when decoded by READCD. All questionnaire variables have been checked by earlier routines.

The SFD elements are assigned independently of each other, in the order in which they are written on the file. Processing is by one of four types of procedure:

1. Straight Assignment. Many elements are assigned directly the value of the associated questionnaire variable. For example, STYLE = QTYPE.

2. Decoding. The following elements are box check type responses to the questionnaire, but actual value type elements in the SFD File:

   BDATE - date home built;

   FTSQ - square footage of living area;

   AINAMT - amount of attic insulation;

   FACE - direction faced by front of house;

   BSWALL - percentage of basement wall underground;

   DWTEMP - daytime winter thermostat setting;

   NWTEMP - nighttime winter thermostat setting;

   DSTEMP - daytime summer thermostat setting;

   NSTEMP - nighttime summer thermostat setting;

   HCOST - total annual cost for fuel used for heating; and

   ACCOST - total annual cost for fuel used for cooling.

   For these elements, the actual value is held in an array. The arrays are:

   BDATES(4) - for BDATE;

   FTSQS(10) - for FTSQ;

   AINAMS(7) - for AINAMT;

   FACES(4) - for FACE;

BSWALS(4) - for BSWALL;

WTEMPS(5) - for DWTEMP and NWTEMP;

STEMPS(4) - for DSTEMP and NSTEMP;

FCOSTS(10) - for HCOST and ACCOST.

If the questionnaire value is SN, the SFD value is SN also, otherwise the questionnaire value is used as an index into the array to get the SFD value. For example, FACE = FACES (QFACE).

The questionnaire elements QFTSQ, QHBILL, and QACBIL are input with 0 instead of 10; these are converted before being used as an index.

3. Calculation. Four variables are calculated from other data:

(a) The attic floor area (AAREA) is a function of the square footage (FTSQ), presence of an attic, and style:

STYLE	AAREA=
If an attic is present:	
1-one story	FTSQ
2-two story	FTSQ/2
3-three or more story	FTSQ/3
4-split level	2*FTSQ/3
5-1-1/2 story	2*FTSQ/3
If an attic is not present:	
1,2,3,4, and 6	0
5	FTSQ/3

(b) Storm windows (STORMW) per wall is the fraction (total storm windows) / (total windows) multiplied by the number of windows on each wall. The logic for this calculation is shown in Figure 8.

(c) Oversized windows (BIGW) per wall are the total number of big windows (QBIGW) distributed evenly between the front (1) and rear (2) walls, with any extra window assigned to the front.

(d) Storm doors (STORMD) per wall are the number of storm doors (QSTRMD) distributed first to regular doors (QODOOR), then, if any remain, to glass doors (QGDOOR). The logic for this calculation is shown in Figure 9.

4. Simple conversion. Some SFD variables bear a simpler relationship to associated questionnaire variables than those discussed in Section (3), but may not be assigned directly. For example:

REFLEC (ground surface reflectance)		QGCOV (ground cover)
1	=	2
2	=	1
3	=	3

These variables are:

ATTACH	QATACH
REFLEC	QGCOV
WDRAPE	QWDRAP
DDRAPE	QWDRAP
SOLTYP	QSCOL, QSGLAZ
SUSEHW	QSUSE
SUSESH	QSUSE
FRIDGE	QFRIDG
FFREEZ	QFREEZ, QFRIDG

Details of these simple relationships may easily be derived from inspection of the code, or from a comparison of the description of the associated variables (Appendix A and Appendix L in the HEA Appendices).

In all cases, if the questionnaire value is SN, the associated SFD variable is also set at SN. SUSESC (use of solar collector for space cooling) is always set to SN because no associated questionnaire variable is present.

Flowcharts for the sections of code which calculate storm windows and storm doors are shown in Figures 8 and 9. The remainder of the code is logically obvious; no flow chart is given.

Subroutine SCAN receives an array of 80 alphanumeric elements and two index numbers. It extracts the numeric digit equivalent to each array element between the index numbers, inclusive, and returns the value of the single integer represented by the digits extracted. The positional value of the digits is represented by their position in the array: i.e., a lower index implies a more leftward position.

SCAN takes each input array element between the indexes in turn, from lower index to higher, comparing each element to each of the elements in array NUMA. NUMA contains the alphabetic representations of the digits ('0', '1',...'9'). When a match is found, the index of the matching element is one higher than the numeric equivalent of the input array element. Each time a new digit is decoded, SCAN shifts the current combined integer one place to the left by multiplying by 10 and adds the new decoded digit.

If all indicated input elements are blank, SCAN returns SN as the value. If an error is found (blank in other than leading position, non-digit element, second index smaller than first) SCAN sets an error flag and returns SN as the value.

The logic of subroutine SCAN is shown in Figure 10.

Subroutine PACK packs characters stored one per word into words with four characters per word. The logic of subroutine PACK is shown in Figure 11.

Subroutine NOTEXC receives a card image, stored in 80A1 format, an index of value one through four, and a flag containing either a blank or an asterisk. It writes into one of four columns, indicated by the index, the first five elements of the card image and the flag, using 6A1 format. The logic is so simple that no flowchart is provided.

Outputs

The main output of the HEA Preprocessor program is the Standard Format Data File which meets the following specifications:

1. One complete record is generated for each questionnaire processed.

2. Fields containing values derived from missing or illegal inputs are given the negative value SN so that all fields contain a legal value.

3. The ZIP Code is present and within range.

The detailed layout and content of the Standard Format Data File is shown in the Home Energy Audit System Appendix L.

The Standard Format Data File may be stored on any sequential device. It contains the names and addresses of the homeowners; therefore appropriate measures should be taken to protect the privacy of the individual.

A second output of the HEA Preprocessor program is the Job Execution Log, which shows:

1. The accession number of each card found to be in error, listed by card type and flagged if the error prevented processing of the ID;

2. The lowest ZIP Code and the highest ZIP Code successfully processed; and

3. The total number of IDs successfully processed.

A sample of the HEA Preprocessor Job Execution Log is shown in the Home Energy Audit System Appendix C.

A third output of the HEA Preprocessor program is a set of messages. The messages are listed in the Home Energy Audit System Appendix T.

Data Base

No data base is used or produced by the HEA Preprocessor program.

0 0 0 0 5 1 0 0 0 6 8

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

Analysis Module Program Specification

0 0 0 0 5 1 0 0 0 6 9

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

0 0 0 0 5 1 0 0 0 7 0

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1. Purpose

The purpose of this program specification is to describe the requirements, operating environment, and design characteristics of the Analysis Program in the Home Energy Audit System (HEA).

2. General Information

Summary

The Analysis Program reads a Standard Format Data Record describing a home and the Local Data Record for its ZIP code, validates the Standard Format input data using the local data as a reference, and creates a set of data completely describing the home in its physiographic environment. These data are used to compute the BTUs per year necessary to heat and cool the home. The data are then modified to reflect possible energy conserving improvements to the home and the computation of annual BTUs is repeated. Annual BTUs are calculated for six configurations in the home:

1. The base configuration as validated by the input processing module;

2. The base configuration with attic insulation added to bring the total up to the recommended minimum for the area;

3. The base configuration with attic insulation added to bring the total up to the optimum recommended for the area;

4. The base configuration with a complete set of storm windows and doors;

5. The base configuration with complete weatherstripping and caulking; and

6. The base configuration with modifications 3, 4, and 5.

The six sets of BTU requirements, the Local Data record, and the Standard Format record are used to produce a two-page Homeowner Report describing costs and savings for energy conserving actions and to write a History File record of the analysis results.

Environment

The Home Energy Audit System (HEA) was developed for the Department of Energy (ERDA/FEA). This development was a cooperative effort of the National Bureau of Standards and Applied Urbanetics, Inc.

It is anticipated that this system will be sponsored by both public organizations, such as Federal, state and local governments, and private organizations, such as financial institutions and utilities. Design of the system allows processing on IBM, CDC, or UNIVAC computer equipment.

References

Lawrence Berkeley Laboratory Purchase Order 3533602 issued in September, 1977 initiated the development of the Residential Energy Audit.

In addition, several published references are relevant to the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J.R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock, and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada. T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperation with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R.W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S.R. Peterson, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

3. Requirements

Program Description

The Analysis program consists of four modules:

1. The Input Data Processing Module reads the Standard Format Data File, previously written by one of the Preprocessor programs, and the Local Data File, previously written by the Local Data Program. It validates the Standard Format Data, using maximum and minimum values taken from the Local Data File. The input module supplies default values, also taken from the Local Data File, for all invalid Standard Format inputs. It uses the validated Standard Format Data and data from the Local Data File to construct six sets of data completely describing one home. The final set describes the base home as reflected in the validated Standard Format Data. Five additional sets of data reflect one or more energy conserving modifications to the base configuration.

2. The Compute Module performs a dynamic analysis of the thermodynamic characteristics of a home described by the content of the common block BLIST, and returns the home's annual heating and cooling requirements in BTUs.

3. The Results Analysis Module uses the six pairs of heating and cooling requirements produced by the input processing module and the Compute Module to compute possible annual savings of fuel and dollars that may be realized through various home improvement actions. Estimates of material and contractor costs involved in taking these actions are calculated using information contained in the Standard Format Data File and the Local Data File.

4. The Report Generator Module takes the results from the analysis of the home's energy consumption and savings potential and prints a Homeowner's Report. The Report includes a summary of the data collected on the questionnaire, the savings results and cost estimates as calculated in the Analysis Module and a number of additional suggestions for energy conserving measures that should be considered by the homeowner.

   A second output of the Report Generator Module is the History File record. Each record contains the questionnaire responses as recorded in the validated Standard Format Data File, the heating and cooling requirements produced by the Compute Module, and the cost and savings estimates calculated in the Analysis Module. One record is written for every home processed.

Functions

The Analysis Program fulfills the primary function of the Home Energy Audit System: to report for each home the savings possible from energy conserving actions. The analysis results are saved for later reference in the History File. To fulfill these functions, the Analysis program performs the following subfunctions:

- Reads a record from the Standard Format Data File;
- Reads the corresponding ZIP Code record from the Local Data File;
- Range checks the Standard Format data against the local data;
- Assigns needed defaults to the Standard Format data;
- Identifies those Standard Format data which are irrelevant for the given home;
- Calculates and/or assigns values to the compute module input data;
- Performs thermodynamic analysis of the base house in the compute module;

- Modifies the compute module input data to reflect the addition of energy conservation modifications;
- Reruns the compute module with the modified data;
- Calculates and/or assigns values to the report data;
- Writes a two-page Homeowner Report; and
- Writes a History File record.

Accuracy

The Analysis Program requires that the Standard Format Data File and the Local Data File be in the correct format. All Standard Format data other than ZIP Code may be either missing (indicated by a negative number) or out of range, in which case values for these data will be defaulted; however, too many defaults may decrease the relevance of the results to the actual home configuration.

Validation

The Preprocessor which writes Standard Format Data File ensures that every field contains correctly formatted data. For numeric fields, a negative number indicates that the original input was illegal, missing, or out of the range limits defined in the Preprocessor.

The Analysis Program performs two kinds of range checks:

1. Non-negative numeric input fields representing actual input values are checked against the range limits for that field contained in the appropriate Local Data File record.
2. Non-negative numeric input fields representing coded input values are checked against hard-coded limits defining legal codes.

Negative numeric input fields always imply use of the default value taken from the Local Data File. Alphabetic input fields are used as given.

Except for the case of a ZIP Code either absent on input or missing on the Local Data File, assignment of default values from the Local Data File will enable any Standard Format Data record to be processed without manual intervention.

Timing

Any timing considerations are under the control of the sponsoring agency. However, a local data file produced by the Local Data Subsystem must be available before the Analysis Program can be successfully executed. It is anticipated that the Analysis Program will be run on an as needed basis.

Flexibility

The modular construction of the Analysis Subsystem permits a high level of adaptability which allows for modifications without extensive programming.

4. Operating Environment

Equipment

Multiple versions of the Home Energy Audit System will allow running on IBM 360/370, UNIVAC 1108, or CDC 6000/CYBER series computers. Standard hardware such as card readers, tape drives, line printers, and on line mass storage will be the only requirements.

Support Software

Standard software facilities such as a FORTRAN compiler and FORTRAN library will be the only necessary software support for the Home Energy Audit System.

Interfaces

The Home Energy Audit System is self contained and will not need to interface with any other system.

Security and Privacy

Names and addresses of respondents will not normally be placed on the History File. However, they may be included at the discretion of the sponsoring group, with a minor change to the program code which is documented in the Operations Manual. Names and addresses of respondents will, however, be present on the questionnaire responses, keypunched input file, and Standard Format Data File. These files are all temporary. Consideration should be given to keeping them secure and destroying them after the information they contain has been successfully processed, to protect the privacy of the respondent.

Controls

Control of the operation of the Home Energy Audit System will be completely at the discretion of the administering agency.

5. Design Characteristics

Operating Procedures

The Analysis Program will operate in a batch processing environment. It may be initiated either locally or via remote job entry. The program will execute with only standard interactions with the operator. No special handling will be required.

Inputs

The Analysis Program has two input files: Local Data and Standard Format Data. The Local Data File record content is described in detail in Appendix M. This file is created by the Local Data Subsystem.

The Standard Format Data File record is described in detail in Appendix L. This file is written by one of the HEA Preprocessors. Because it contains both details of the home and the homeowner's name and address, this file should be considered temporary and consideration should be given to destroying it after successful use to protect the privacy of the individual homeowner.

Program Logic

The Analysis program is structured to include four modules:

1. Input Data Processing Module (Subroutines PREP, BCALC, and BCHANG):

   (a) PREP validates the input SFD record;

   (b) BCALC calculates the elements needed for input to the Compute Module; and

   (c) BCHANG changes the Compute Module input elements to reflect energy-saving changes in the home configuration.

2. Compute Module (subroutine CM and routines called by CM);

3. Results Analysis Module (subroutine RESULT and routines called by RESULT; and

4. Report Generator Module (subroutine RPTGEN).

The main program calls the four modules as shown in Figure 1.

Main Routine

In addition to the major modules, the main routine calls for two other subroutines and a BLOCK DATA routine:

1. LDATA reads a record from the Local Data File corresponding to the ZIP Code of the Standard Format Data record to be processed.

2. JOBLOG accumulates data for later printing in the Job Execution Log into four categories:

   (a) Records processed with no defaulted values;

   (b) Records processed with at least one defaulted value;

   (c) Records not processed: home neither heated nor cooled; and

   (d) Records not processed: ZIP Code not found in Local Data File.

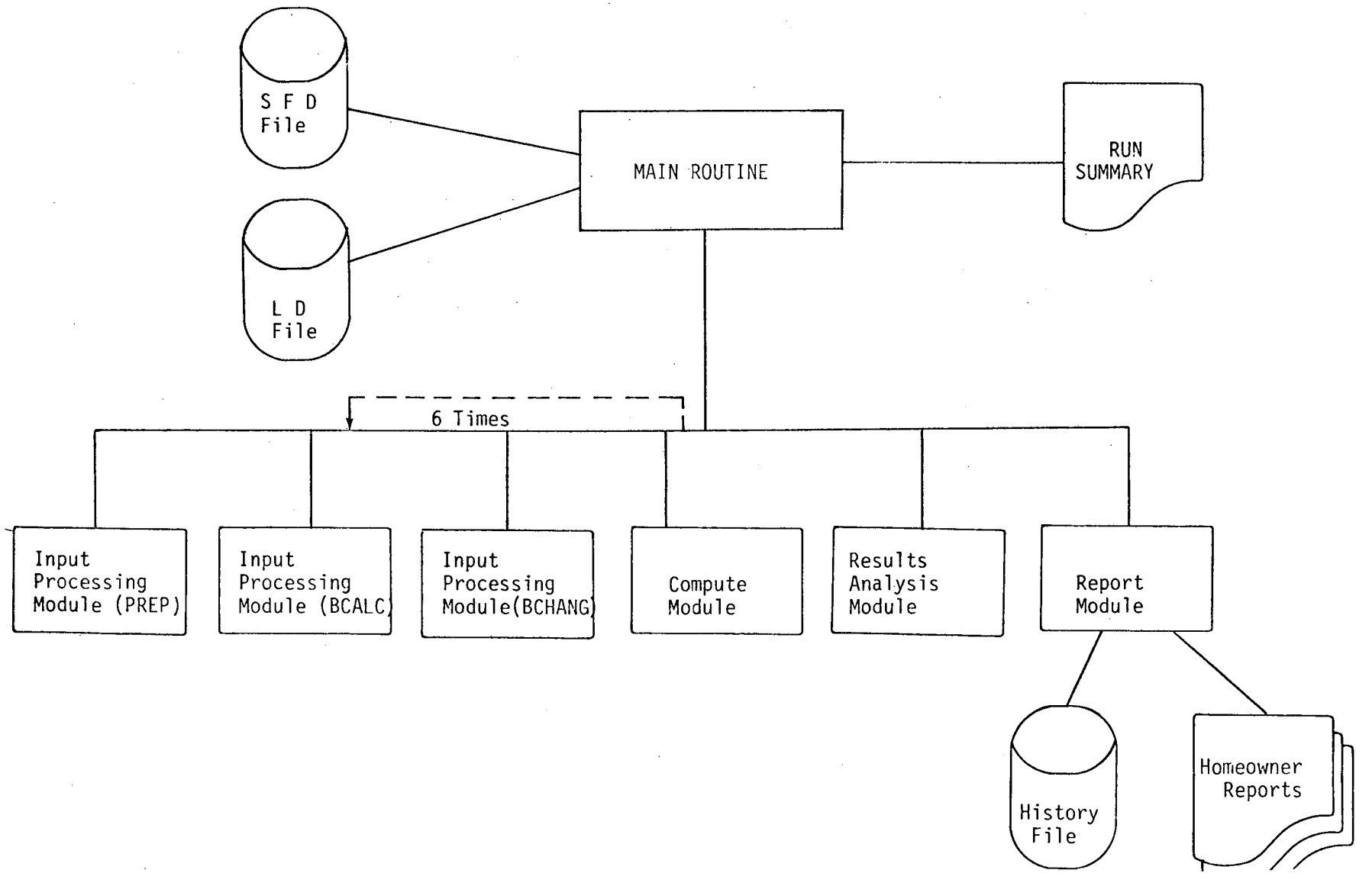
3. BLOCK DATA initializes FORTRAN logical file numbers (SFD, OUTM, OUTREP, OUTLOG, OUTHIS, INCARD), constants (MAXQRE, CDATE, SN, FCONV), alpha constants (BLANK, AST), and sets KLD and ZIPDAT equal to 0.

For each record to be processed, the Main Routine reads a Standard Format Data record and its associated Local Data record, calls the Input Module routines to prepare data for thermodynamic analysis, calls the Compute Module to perform the analysis for each configuration of the home, and calls the Results and Report Generator Modules to write the Homeowner Reports. When all records have been processed, the main routine writes the Job Execution Log report and halts processing.

The logical flow of the HEA Analysis Program main routine is shown in Figures 2 and 3.

Figure 1

H E A ANALYSIS PROGRAM : MACRO LOGIC



00105007.5

Figure 2 - H E A PROGRAM : MAIN ROUTINE LOGIC

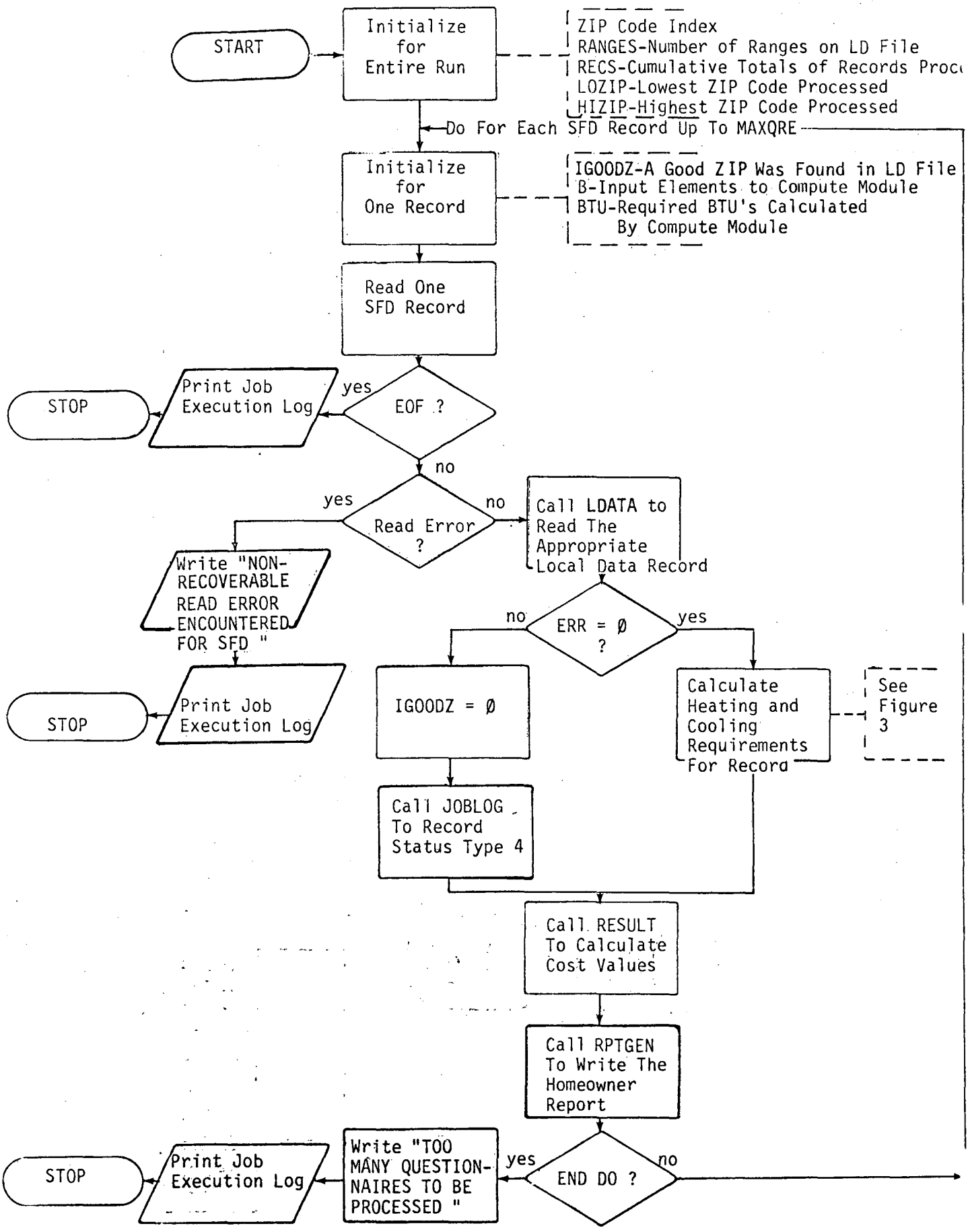
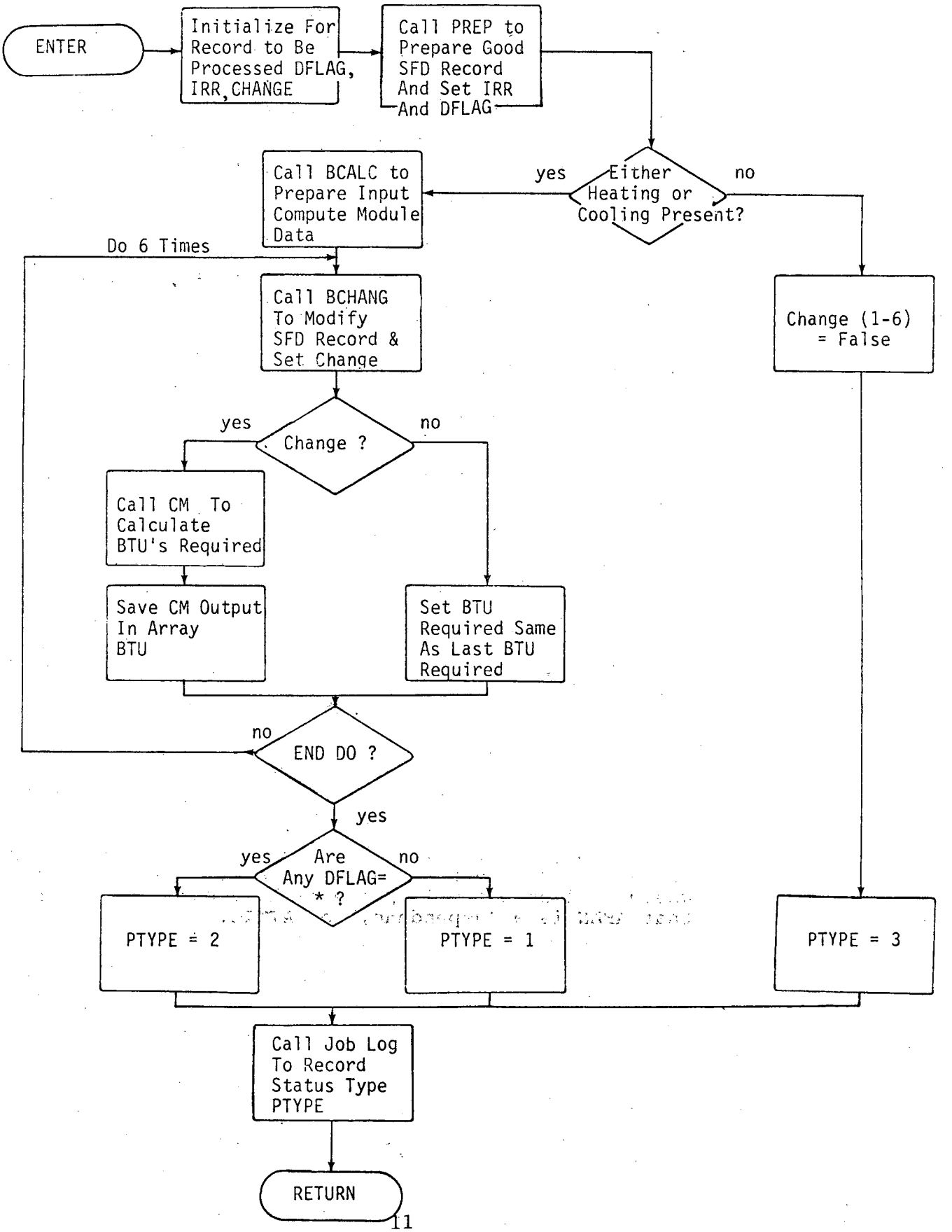


Figure 3 - H E A ANALYSIS PROGRAM : MAIN ROUTINE : CALCULATE BTU'S LOGIC



Input Processing Module

The input processing module uses data from the Standard Format Data File for the home and the Local Data File for the home's ZIP Code to develop the set of data required as input to the compute module. These data are described in Appendix O. Unacceptable inputs are flagged with an asterisk in the array, DFLAG. Input values which are irrelevant (for example, presence of an attic fan if "attic not present" is indicated) are flagged with an asterisk in the array, IRR. The elements of the arrays DFLAG and IRR are shown in Appendix S.

The input processing module consists of three subroutines called by the main routine:

1. Subroutine PREP prepares the inputs. It checks for range, assigns default values, flags defaults with '*' in the array DFLAG, and flags irrelevant inputs (such as presence of attic fan if there is no attic) with '*' in the array IRR. Because of the interdependencies involved in the above-mentioned data entires, range checks and default assignments cannot always be handled independently. Instead, PREP is organized to prepare complete groups of logically related inputs:

   - data required for later calculations and basement and crawl space related inputs;
   - attic related inputs;
   - central heating related inputs;
   - air cooling related inputs;
   - wall related inputs;
   - solar collector related inputs; and
   - independent inputs.

   Within logical groups, the validity of certain values depends on the presence of others. For example, if no attic is present, then AFAN = 1 (meaning an attic fan is present) in an implied answer, while AFAN = SN (meaning no answer given to question about attic fans) is a valid answer, whereas if an attic is present the opposite is true. We say that AFAN is a "dependency" of ATTIC.

PREP first calculates and/or validates some prerequisite data and their immediate dependencies:

- o Square footage of home living area (FTSQ) is validated;
- o Home style (STYLE) is validated;
- o Home building date (BDATE) is decoded;
- o Basement presence (BASMNT), crawl space presence (CRAWL), slab-on-grade presence (SLAB), and garage presence (GARAGE), are validated and values depending on them (BSHEAT, BSWALL and CVENT) are validated.
- o The fraction of floor which is basement (BSMFRC), crawl space (CRWFRC), and slab-on-grade (SOGFRC) is calculated from BASMNT, CRAWL, SLAB, and GARAGE. BSMFRC is used along with STYLE to calculate the number of floors (FLR). Then FLR and FTSQ are used to determine the flat projection of the house (FPOH), which is needed for later calculations.
- o Attic dependencies are as follows:
  - -style is mobile home or not (STYLE)
    - -presence of an unheated attic (ATTIC)
      - -presence of a permanent attic floor AFLOOR)
      - -attic floor area (AAREA)
      - -presence of an attic fan (AFAN)
        - -presence of an attic vent (AVENT)
        - -amount of attic insulation (AINAMT)
          - -type of attic insulation (AINTYP).
- o Heat fuel dependencies are as follows:
  - -heating fuel (HFUEL) is type "none or other" or not
    - -daytime winter thermostat setting (DWTEMP)
    - -nighttime winter thermostat setting (NWTEMP)
  - -when heating unit last serviced (HSERVC)
  - -annual cost of heating fuel (HCOST).

- Cooling fuel dependencies are as follows:
  - air conditioning type (ACTYP) is type "none" or not
  - daytime summer thermostat setting (DSTEMP)
  - when cooling unit last serviced (CSTEMP)
  - annual cost of cooling fuel (ACCOST)

- Wall dependencies are as follows:
  - number of attached walls (ATTACH)
    - windows per wall (WINDO(X))
      - storm windows per wall (STORMW(X))
      - window drapes per wall (WDRAPE(X))
      - oversized windows per wall (BIGW(X))
    - glass doors per wall (GDOOR(X))
    - regular doors per wall (ODOOR(X))
      - storm doors per wall (STORMD(X)) - depends on both GDOOR and ODOOR
    - shadow on each wall (SHADO(X))

- In validating wall dependencies, first ATTACH is validated. Then, for each exterior wall:

  - first SHADO, WINDO, GDOOR, and ODOOR are validated.
  - then, for each wall in which there are windows, STORMW and BIGW are converted from a number to a percent of the windows on that wall, and validated.
  - then total doors for the wall are summed. If there are any doors, STORMD is converted to a percent of the doors and validated.
  - then WDRAPE and DDRAPE, which are percents, are validated.

For each attached wall, all wall-dependent elements are resolved as irrelevant.

- Solar collector dependencies are as follows:
  - whether solar collector is present or not (SOLPRS)
    - type of solar collector (SOLTYP)
    - area of solar collector (SAREA)
    - tilt of solar collector (STILT)
    - use of solar collector for hot water (SUSEHW)
    - use of solar collector for space heating (SUSESH)
    - use of solar collector for space cooling (SUSESC)

2. Subroutine CALCB derives the common block BLIST elements for input to the Compute Module from the prepared inputs and the Local Data File. All elements are assigned a valid value; an irrelevant entry may be assigned an arbitrary value. The elements are calculated in the order they appear in BLIST except where a data entry value is a prerequisite for determining the value of an earlier one, or where a later value is logically associated with an earlier one. The elements FLOORA (FPOH), FTSA, FLR, BSMFRC, SOGFRC, and CRWFRC were earlier calculated by subroutine PREP, where they were needed for calculations.

   Most of the derivations are straight forward. Those presenting some complexity are described below:

   o Room air change per hour (ACRM) varies from .5 to 2.0. It is derived from four SFD values, each given a different weight:

     (1) whether windows rattle in winter (RATTLE) is given a weight of 4/12, assigned to its complement fraction of snugness (SNGFRC). Thus, if RATTLE = 1, meaning windows do rattle, SNGFRC has the value 0, meaning no snugness; otherwise SNGFRC = 1.

     (2) whether windows and doors are weatherstripped (STRIP) is given a weight of 2/12, assigned to the fraction of stripping (STRFRC).

     If STRIP = 1, STRFRC = 1 (Stripped)
     If STRIP = 2, STRFRC = 0 (Not stripped)
     If STRIP = 3, STRFRC = .5 (Partially stripped).

     (3) Presence of storm windows (STORMW) is given a weight of 4/12, assigned to the fraction of windows with storms (SWFRC). SWFRC is calculated as the sum of storm windows on all walls divided by the sum of windows on all walls.

(4) Presence of storm doors (STORMD) is given a weight of 2/12, assigned to the fraction of doors with storm (SDFRC). SDFRC Is calculated as the sum of storm doors on all walls divided by the sum of regular doors and glass doors on all walls.

ACRM is then .5 + 1.5 * (1 - (.333*SNGFRC + .334 * SWFRC + .166*SDFRC+.167*STRFRC)).

- Glass doors are treated as windows. Calculation of glass area on a given wall assumes that oversized windows (BIGW) are twice the area of regular windows and glass doors (GDOOR) are four times the size of regular windows. WINDO includes oversized windows but not glass doors; thus, the number of regular size equivalent windows is, for each wall(W): WINDO(W)+ BIGW(W)+4*GDOOR(W).

- The U value of glass on each wall is an average of the U value for double and single pane, weighted by the fraction of double and single pane glass on that wall. To obtain these, storm windows must first be distributed to regular and oversized windows (twice the area of regular windows) and storm doors distributed to other and glass doors (four times the area of regular windows). Door U values are not affected by the presence of storm doors.

  Distribution of storm windows: the storm windows on each wall are first assigned to the regular windows on the wall; any remaining storm windows go to oversized windows.

  Distribution of storm doors: the storm doors on each wall are first assigned to the regular doors on the wall; any remaining storm doors go to glass doors.

- Basement wall area (BWA) requires determination of the perimeter of the basement fraction of the lowest level in

the home. The actual perimeter is indeterminable if the basement fraction (BSMFRC) is neither 0 nor 1, because the proportion of length to width of the basement is unknown. BCALC assumes the proportion of length to width of the basement is the same as that for the entire house.

- o Winter indoor relative humidity has one value if the house is relatively dry, (SHOCK = 1) "frequently get shocks in the winter", and another if the house is relatively humid (SHOCK = 2) "never get shocks in winter". If SHOCK = 3, "sometimes get shocks in the winter," the indoor humidity index is determined by ACRM - relatively humid if the air change is less than the median value 1.25, relatively dry if ACRM is greater than 1.25

3. Subroutine BCHANG adjusts the Compute Module inputs to reflect possible retrofit changes to the house, and sets elements of the array CHANGE to indicate whether any adjustment is required. BCHANG is called six times for each SFD record to be processed:

- o Base case, house as configured by BCALC. BCHANG establishes temporary holding values for elements to be changed in later cases so they can be restored as necessary. (Room air change per hour, glass U values, ceiling U value). CHANGE (1) is always true.

- o Change, if necessary, for minimum recommended attic insulation. BCHANG checks to see if the given R value of insulation in the attic floor (1/UCEIL) is less than the minimum required. If it is, CHANGE(2) is set to true, and the additional R required is determined. Additional R may have a value of 0, 11, 19, or 22, determined as follows:

Difference Minimum Recommended and Original Value	Additional R
Six or less	0
between 7 and 17	11
between 17.1 and 20	19
over 20	22

If additional R is greater than 0, it is added to the original R and a new ceiling U value is calculated (1/total R)

If the additional R is equal to 0, or if the given R value is not less than the minimum recommended, CHANGE (2) is set to false.

- Change, if necessary, for optimum attic insulation. The process is precisely the same as that in case (2) above, except that the criterion is optimum attic insulation instead of minimum recommended attic insulation, and the new ceiling U value is saved for reference in case (6).

- Add storm windows and storm doors. If there are any windows or doors without storms, CHANGE (4) is set to true, otherwise to false. If CHANGE (4) is true, BCHANG changes the U value for glass to that for double pane, resets UCEIL to its original value (stored by the first call to BCHANG), and recalculates ACRM based on 100% storm windows and doors, 100% weatherstripping, and the original value for RATTLE.

- Add weatherstripping and caulking. If STRIP is already equal to 1, CHANGE (5) is set to false, otherwise to true. If CHANGE (5) is true, BCHANG resets UCEIL to its original value (stored by the first call to BCHANG), resets glass U values for each wall to their original values (stored by the first call to BCHANG), and recalculates ACRM based on the original storm windows and storm doors, 100% snugness, and 100% weatherstripping.

- Optimum insulation, full storm windows and doors, good weatherstripping or caulking. If any of CHANGE(3), CHANGE(4), or CHANGE(5) are true, CHANGE(6) is also true; otherwise CHANGE(6) is false. If CHANGE(6) is true, BCHANG sets the U value for glass on all walls to the value for double pane, sets UCEIL to the value named in case (3), and recalculates ACRM based on 100% snugness, 100% storm windows and doors, and 100% weatherstripping.

Compute Module

The compute module uses data contained in the common block BLIST to calculate the annual BTUs needed for heating and cooling the home described. The module logic is described in Appendix R, heating and cooling requirement calculations.

Results Analysis Module

This module receives six sets of heating and cooling requirements from the compute module (one set for the base configuration of the home; four sets for modified configurations, each involving a particular home-improvement action, and one set for the combined effect of all actions).

Three routines are called to perform the initial analyses of the BTU requirements data:

1. BASCAS which converts the BTU requirements of the house as currently configured to equivalent fuel units according to the respective heating and cooling fuels indicated. Using local fuel cost data, dollar values are calculated to reflect the annual cost of fuel(s) to provide the heating and cooling requirements projected by the compute module.

   The total cost for the fuel(s) used for heating and cooling as indicated is adjusted for the base load effect according to the indicated fuel type(s) and the appliances that are in use.

   The result of this adjustment is the indicated heating/cooling cost which is then compared to the calculated heating/cooling cost.

If the computed cost is less than or equal to the indicated cost, processing continues using the current figures. However, if the calculated cost exceeds the indicated cost, an adjustment is made to the cost of fuel per unit. This adjusted fuel cost will then be used in subsequent savings calculations for the home.

2. BTUDOL which controls the conversion of the BTU heating and cooling requirements for the five sets of modified configurations into equivalent fuel units and dollar values. This routine (as does BASCAS above) utilizes two functions specifically designed to make the necessary conversions:

   FUNIT - to convert from BTUs to fuel units; and

   DOLVAL - to convert a quantity of fuel to its dollar value.

3. SAVBAK calculates fuel and dollar savings that would result from the taking of each home improvement action. This is done by computing the difference in fuel requirements (and associated cost) between the base configuration and each modified configuration of the home. These savings estimates are checked against predetermined percentages of the annual fuel bill. In order to prevent gross savings estimates, any calculated savings amount which exceeds the percentage limit for that action, is cut back to that limit.

After the initial analysis processing is completed, routines are called to calculate cost estimates for materials and contractor installation associated with each home improvement action.

1. COSTAI - for the addition of ceiling insulation for minimum and/or optimum locally recommended levels;

2. COSTWD - for the addition of storm windows and storm doors where currently lacking; and

3. COSTWS - for the addition of weatherstripping and caulking around all door and window openings.

Local costs for materials and contractor work are computed using cost information recorded on the local data file and other information about the home derived from the questionnaire.

After cost estimates are calculated, they are compared with the anticipated fuel savings using the function PAY which calculates the payback period, or years to recover the investment.

Additional routines are included to provide so-called "helpful hints" on the Homeowner Report. These routines are:

1. THERMO - which estimates savings percentages for thermostat adjustment in summer and/or winter;

2. HOTWAT - which calculates possible savings that may be realized by the use of a hot water heater insulation kit; and

3. SOLARS - which estimates savings and costs involved in the addition of a solar collector unit to augment the current space or water heating system.

Report Generator Module

This final module of the HEA Analysis Subsystem controls the two main outputs of the system:

1. The Homeowner Report; and

2. The History File.

Data gathered from the questionnaire regarding the characteristics of the home, and the results of calculations performed by the Results Analysis module provide the necessary input to produce these two forms of output.

The Homeowner's Report summarizes the results of the Home Energy Audit. It consists of two pages (see Appendix K). The first page contains the name and address of the respondent for mailing purposes. A brief introduction to the report explaining its purpose and use is printed for the homeowner.

Under normal circumstances, the first page will summarize the information which was taken from the questionnaire and used in the analyses. If the questionnaire is received from an area outside the scope of the particular HEA System (i.e., no local data is available for the questionnaire location), a brief explanatory note is printed advising the homeowner to inquire when the HEA will be available for his or her location.

If any default values were assumed at any stage of processing, the substituted values will be noted on the summary page with an asterisk.

The second page of the Homeowner Report presents the results of the cost and savings analysis. For each home improvement action that is considered, a message is presented indicating one of three situations:

1. The home is currently well-equipped and does not require the particular improvement;

2. The improvement would save money, but the cost involved would not permit a reasonable return on investment (over 20 years to recover); or

3. The home improvement action is recommended, in which case a summary of savings and costs is outlined.

Savings figures are provided for heating and/or cooling fuels in units accompanied by a yearly dollar savings estimate. Cost ranges are given for materials only (do-it-yourself) and contractor work with associated ranges of payback periods.

The actions considered are:

- Addition of ceiling insulation for the minimum locally recommended values;

- Addition of ceiling insulation for the optimum locally recommended value;

- The installation of storm doors and storm windows where not currently present; and

- The addition of weatherstripping and caulking around all door and window openings.

Because the combined effects are not cumulative as far as savings are concerned, a final message is printed giving the estimated savings if all the recommended actions are taken together.

The Homeowner Report contains a final section which presents one or more "helpful hints" to the homeowner. These messages, which are printed if applicable to the particular home in question, include:

- Savings estimates for thermostat adjustment in summer and/or winter;

- Savings estimates for the use of a water heater insulation kit;
- A message suggesting the use of plastic storm windows if the cost of installing regular storm windows is high;
- An estimate of cost and savings involved in the addition of supplemental solar heating;
- A recommendation to clean and service the heating system on a more frequent basis; and
- An optional local message which is taken from the local data file.

In addition to the Homeowner Report, for each questionnaire that is processed by the HEA, a history file record is created. The History File is designed to make available a collection of data as gathered by and computed in the HEA system. Each record summarizes the housing characteristics and cost/savings estimates for each home processed. The record layout is presented in the HEA Appendix N. Normally the fields reserved for the respondent's name and address will be left blank as a consideration for the privacy of the homeowner. However, the administering agency is given the option of including this information if it is deemed necessary.

After the history file record is written, the Report Generator module relinquishes control to the calling program.

Outputs

The Analysis program produces three outputs:

1. Job Execution Log;
2. Homeowner Reports; and
3. History File.

The Job Execution Log format is shown in Appendix J. It reports:

- The number of Standard Format Data (SFD) records processed requiring no default values;
- The number of SFD records requiring at least one default assignment before processing;

- The number of SFD records not processed because the associated ZIP Code could not be found in the Local Data File;
- The number of SFD records not processed because the home was neither heated nor cooled;
- The total number of SFD records processed;
- The distribution of SFD records processed by ZIP Code; and
- A message signaling normal termination of the job.

A Homeowner Report is shown in Appendix K. This report consists of two pages of plain white, standard, continuous form paper stock. It averages between 80 and 95 print lines per home. The reports are to be mailed directly to the participating households. The report is formatted to position the name and address so as to appear in the window of a standard number 10 window envelope. The handling of the report should be carefully controlled to ensure the privacy of participating homeowners.

The History File record format is shown in Appendix N. This file contains the Standard Input Data, an array of flags indicating defaulted input data, the annual BTU requirements for each configuration of the home, the fuel volume, costs, and savings, and the retrofit costs estimated under each configuratiuon of the home, the amount of attic insulation to be added, and the savings from insulating the water heater and adding a solar collector.

Data Base

The Home Energy Audit system does not reference any data base. However, as a by-product of each run, a history file data base is produced. This file contains one record for each home processed indicating the characteristics of the home and associated cost and savings estimates as calculated. A detailed description of the History File may be found in the Data Base Specification.

0 0 0 0 5 1 0 0 0 8 3

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

History File

Data Base Specification

0 0 0 0 5 1 0 0 0 8 4

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

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HISTORY FILE

DATA BASE SPECIFICATION

1. Purpose

The purpose of this data base specification document is to provide the Home Energy Audit System user with a comprehensive description of the history file of housing characteristics generated as a by-product of implementing the system.

2. General Information

Summary

Implementing the Home Energy Audit (HEA) System in a given jurisdiction (e.g., a state) results in the collection of a great deal of information about the characteristics of the existing housing stock. In order to make these data available for analysis, the HEA system is designed to create a History File containing one record for each home processed by the system. In addition to the existing characteristics of each home, the History File contains the estimates of savings and costs associated with each energy conserving action considered for a home. The only identification of the geographic location of the home represented by a given record is the ZIP Code of the home. It is anticipated that the History File will provide a unique data base for the analysis and characterization of the existing housing stock in the area served by the HEA system. Such analyses may be employed to predict program impact and potential benefits from other energy conserving campaigns. Two cautions in the use of the data are appropriate.

1. The HEA questionnaire that captured the housing characteristics was self-administered by the participant. As such, there is no available measure of the accuracy with which the data were observed, measured or recorded.

2. The homes whose characteristics are contained on the History File are there because the occupants chose to voluntarily participate in the HEA program. Any analysis of the data base content and subsequent extrapolation of the results to estimates of the total population must give recognition to the potential bias that may exist in the sample.

Environment

The Home Energy Audit System was developed for the Department of Energy (ERDA/FEA) by Applied Urbanetics, Inc., for installation and operation on the Optimum Systems, Inc. computer service facility located in Rockville, Maryland.

References

Contract Number 3533602, as issued by the University of California, Lawrence Berkeley Laboratory.

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J.R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Referigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock, and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada. T. Kusuda And K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperation with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R.W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S.R. Peterson, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

3. Description

Identification

The History File created by the Home Energy Audit System is produced by the Analysis Program under the DDNAME of FT14F001 with the DSN=CN9999.AAA.HEA.HISTORY.FILE. The disposition of the file is designated as DISP=(MOD, CATLG). This disposition is designated since the Home Energy Audit system is designed to operate in a batch mode. As such, as each batch of questionnaires is processed, the corresponding History File records are concatenated to the records which existed on the HIstory File from previous batch runs.

Using Software

The Home Energy Audit System simply creates the History File as a by-product of processing questionnaires. The system contains no software which accesses or analyzes the data. The development of such using software is left to the discretion of the sponsor of the system.

Conventions

The History File created by the Analysis Program of the Home Energy Audit System is designed to reside on magnetic tape in FORTRAN binary format. The explicit Job Control Language reference to the file is as follows:

```
DDN=GO.FT14F001

DSN=CN9999.AAA.HEA.HISTORY.FILE

DCB=(RECFM=VBS,LRECL=1148,BLKSIZE=11484)

DISP=(MOD,CATLG)

UNIT=2400
```

Special Instructions

The addition of data to the data base requires that the entire Home Energy Audit System be executed. Data submitted for entry must be recorded on an appropriate questionnaire, keypunched and submitted to the corresponding questionnaire preprocessor program. The system is currently designed to accept data on either the Home Energy Audit questionnaire or the Project

Conserve questionnaire. After the questionnaire preprocessor program has been executed, the Analysis Program processes the data and concatenates the resulting housing characteristics records to the end of the existing History File.

Support Software

No support software is defined for the update, merger or maintenance of the History File data base.

4. LOGICAL CHARACTERISTICS

The History File (DSN=.HEA.HISTORY.FILE) created by the Home Energy Audit System contains a single record for each home processed. This unique data base is designed to reside on magnetic tape with the records arranged in the approximate sequence in which they were received for processing. The only identification of the home described in a given record is the ZIP Code of the home. Space is provided in the record layout for the participant's name and address. These fields will normally remain blank as a consideration for the privacy of the respondents. However, this information may be included in the history file record if desired by the sponsoring agency. A code change documented in the Operations Manual will accomplish this. No software has been developed for the purpose of accessing and/or analyzing the data contained in the data base. The layout and content of each of these records is shown in Appendix N.

5. PHYSICAL CHARACTERISTICS

Storage

The data base is created one record at a time as the homes in a given batch run are being processed. As the processing of a given home is completed, its corresponding History File record is concatenated to the file. The Home Energy Audit System has been designed to create the History File in magnetic tape form. The resulting magnetic tape is stored off line between submission of the batch runs of the Home Energy Audit System.

Design Consideration

The History File is written in FORTRAN binary format to increase the efficiency of the output processing. The blocking factor on the magnetic tape is set at 10 records per physical block.

0 0 0 0 5 1 0 0 0 8 8

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

Test Plan

0 0 0 0 5 1 0 0 0 8 9

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

0 0 0 0 5 1 0 0 0 9 0

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TEST PLAN

PURPOSE

The purpose of this document is to provide a description of the steps proposed as the test of the Home Energy Audit System.

GENERAL INFORMATION

Summary

The Home Energy Audit System (HEAS) is composed of two sub-systems: 1) the Local Data sub-system and 2) the Analysis subsystem. Collectively the two sub-systems are designed to analyze the energy conserving/consuming characteristics of a home and then provide cost and savings estimates for energy conserving retrofit actions that would be appropriate for that home. The characteristics of a given home are recorded by the occupant of the home on a specifically designed questionnaire containing 66 questions. The system is also capable of accepting the description of the home on a Project Conserve questionnaire. The data are transcribed from the questionnaire into a machine readable form such as punched cards and processed by the Analysis sub-system. The result of the processing is a two-page report that is mailed directly back to the participant and a History File containing the characteristics of the homes processed. The function of the Local Data sub-system is to create a data file containing local climatic, cost and housing default values applicable to given Postal ZIP Code areas from which the questionnaires are received. These local data are employed by the Analysis sub-system when evaluating the potential savings and costs for a given home from a given ZIP Code area.

In order to test the operation of the HEAS, it will be necessary to conduct a two-part test: one phase for the Local Data sub-system and one phase for the Analysis subsystem. The Local Data subsystem test will be designed to exercise the data editing features that exist in the software. The Analysis subsystem test will be designed to exercise both the data editing and the Local Data File interface that exist in the software.

Environment and Pretest Background

The HEAS is an outgrowth of the existing Project Conserve system that was developed in 1974 and continues to be used

in many areas. The primary differences between Project Conserve and the HEAS are:

- the HEAS employs a dynamic heat load analysis to estimate fuel savings versus the component-by-component statistic methodology employed by Project Conserve.

- the HEAS provides the program sponsor extensive, although optional, flexibility in tailoring the analysis of a home to the requirements and characteristics of a given locale.

- the HEAS produces a simplified report for the participant which includes a variety of personalized, helpful hints for saving energy in his home.

The heat calculation module contained in the Analysis sub-system was developed by the National Bureau of Standards. The remainder of the HEAS was developed by Applied Urbanetics, Inc., in close cooperation and consultation with the Department of Energy (ERDA/FEA), various state energy office representatives and other interest groups.

The engineering calculations contained in the National Bureau of Standards' heat load module were tested during their development. This test consisted of comparing the results of the module with results that were produced by the sophisticated NBSLD heat load model. These tests indicated that the heat load computations for the HEAS were within ten percent of the results produced by the NBSLD model. As a result of the success of these previous tests, this test plan will not include validation tests of the engineering portion of the Analysis subsystem.

References

Contract Number 353602, as issued by the University of California Lawrence Berkeley Laboratory.

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J.R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperative with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

PLAN

Software Description

The HEAS is composed of two subsystems as illustrated in Figure I. Each subsystem will be separately tested.

The Local Data subsystem test will employ a set of Local Data for Washington, D.C., plus other hypothetical data designed to exercise the data editing portions of the subsystem. The Local Data File produced by the test will serve as input to the Analysis subsystem test.

The test of the Analysis subsystem will employ Home Energy Audit questionnaires and Project Conserve questionnaires

containing data describing a series of hypothetical homes. These data will be selected to test the editing capabilities of the system as well as to produce all possible forms of output that may occur on the Homeowner Reports.

Milestones

The HEAS test is scheduled to occur during December, 1977. All testing will be performed using the computer resources of the Optimum Systems, Inc., computer service facility located in Rockville, Maryland.

Testing

All system testing will be accomplished by Applied Urbanetics, Inc.

Schedule

The planned test schedule is to begin the HEAS test in December, 1977, and to complete the test by mid-January, 1978.

Requirements

The HEAS test will require no special equipment other than such conventional items as a keypunch and key verifier for preparing the questionnaire and local data. No special computer software will be required to conduct the test other than the programs that make up the HEAS. The personnel to be involved in the test procedures will be limited to the existing development staff during normal working hours.

Testing Materials

The conduct of the system test will require the availability of the User's Manual and Operations Manual elements of the System Documentation to serve as a guide to the test process. All program elements of the HEAS will be required to exist in order to conduct the test. Input data will also be required representing both local data values and questionnaire data.

Test Training

Since the test of the HEAS will be conducted by the development staff, no special training will be required.

Subsequent Testing

No subsequent testing of the HEAS is planned prior to the release of the system by the Department of Energy. It is

anticipated that the test data files will be employed by the recipients of the system to verify that their implementation procedures have been successful.

SPECIFICATIONS & EVALUATIONS

Specifications

The test of the Local Data subsystem will employ specially constructed sets of local data designed to test:

a) invalid data errors
b) valid card handling procedures
c) valid data handling procedures
d) local data file creation logic
e) local data summary tabulation

The test of the Analysis subsystem will employ specially constructed sets of questionnaire data designed to test:

a) questionnaire data card sequence errors
b) questionnaire accession number errors
c) invalid or missing data element errors
d) out-of-range ZIP Code handling logic
e) default value assignment logic
f) homeowner report production
g) history file creation
h) summary report production

The progression of the test process should be as follows:

a) Execute the Local Data subsystem
b) Execute the questionnaire preprocessors
c) Execute the Analysis programs

Methods and Constraints

The HEAS test will be conducted using the User's Manual and Operations Manual as guides to the process. Local Data and Questionnaire data will be available in punched card form and the HEAS programs will be resident on the Optimum systems, Inc., computer service facility accessible through SUPER WYLBUR. The test procedure will involve the execution of either a complete subsystem or a stand-alone program. As each step is executed, an examination of all output will be performed to insure the success of the step. At the same time, the instructions contained in the User's Manual and Operations Manual will be verified for accuracy and completeness.

The testing of the system will be thorough, but will not be complete. The number of combinations of questionnaire responses on the Home Energy Audit questionnaire alone is far too large for it to be reasonable to attempt to test each one. The test will, however, include all categories or types of error conditions so that all logic in the system is exercised and tested.

The results of the test will be retained in the form of the reports produced by the system. These reports will constitute the documentation of the successful test.

Evaluations

The test results will be evaluated to show that all program elements in the system are capable of handling all data in a proper fashion without either coming to an abnormal end or giving erroneous results to the participant. Every element of input must appear in a report, on an output file or on a summary report or job execution log. Error conditions detected must be automatically handled and appropriately reported either to the homeowner or to the system user.

TEST DESCRIPTIONS

Presented on the following pages are descriptions of the test data sets for the Project Conserve Questionnaire test, the HEA Questionnaire test, and the Local Data Program test.

The questionnaire data are identified by "Case No." which will be printed in the names and address areas of the resulting homeowner reports. It should be noted that:

1) Case No. 1-53 provide tests of the sensitivity of the model to changes in the configuration of a home as described on the HEA questionnaire.

2) Case No. 101-153 provide tests of the sensitivity of the model to changes in the configuration of a home as described on the Project Conserve questionnaire. Not all case numbers from 101 to 153 are used since the Project Conserve questionnaire is less detailed than the HEA questionnaire. By subtracting 100 from the Project Conserve Case Numbers, the corresponding HEA Questionnaire Test Case Number is produced.

3) Case No. 60-87 provide tests of the data editing capability of the HEA Preprocessor program. Seven unnumbered cards within Case No. 60 test non-processable conditions.

4) Case No. 160-176 provide tests of the Project Conserve Preprocessor program. Six unnumbered cards within Case No. 160 test non-processable conditions.

Presented separately are the test data for the Local Data Program. These data are not identified by case number.

Tests with HEA Preprocessor

Case No. 1 - Base House (HEA). The house described by the data identified as Case No. 1 should be regarded as a base for comparison of the subsequent 52 sets of test data for Home Energy Audit Questionnaires. The characteristics of the Case No. 1 house have been selected to be average or typical. The subsequent houses will represent variations to selected characteristics for the purpose of testing the sensitivity of the heat load calculations.

Case No. 2 and 3 - Attached Houses (HEA). Case No. 2 and 3 houses are the same as the base house except that they show the effect of attached walls.

Case No. 4 - Old Construction (HEA). Case No. 4 is the same as the base house exept that it is built prior to 1920.

Case No. 5 - Heavy Construction (HEA). Case No. 5 is the same as the base house except it is constructed of heavy materials.

Case No. 6 and 7 - Living Area (HEA). Case No. 6 and 7 are the same as the base house except that Case No. 6 is a house with less living area and Case No. 7 is a house with more living area.

Case No. 8 and 9 - Exterior Wall Color (HEA). Case No 8 and 9 are the same as the base house except that Case No. 8 has a light colored exterior and Case No. 9 has a dark colored exterior.

Case No. 10 and 11 - Roof Color (HEA). Case No. 10 and 11 are the same as the base house except that Case No. 10 has a light colored roof and Case No. 11 has a dark colored roof.

Case No. 12 - Roof Shadow (HEA). Case No. 12 is the same as the base house except that it has extensive roof shadow thus reducing solar heat gain.

Case No. 13 and 14 - Ground Cover Color (HEA). Case No. 13 and 14 are the same as the base house except that Case No. 13 has light colored material covering the surface of the ground around the house and Case No. 14 has a dark colored ground surface around the house.

Case No. 15, 16 and 17 - Winter Thermostat Setting (HEA). Case No. 15, 16 and 17 are the same as the base house except that Case No. 15 has a low daytime winter thermostat setting and Case No. 16 has low night time winter thermostat setting. Case No. 17 shows the combined effect of both daytime and night time low thermostat settings.

Case No. 18 and 19 - Heating System Service (HEA). Case No. 18 and 19 are the same as the base house except that Case No. 18 has the heating system recently serviced and Case No. 19 has never had the heating system serviced.

Case No. 20 and 21 - Heating Fuel Costs (HEA). Case No. 20 and 21 are the same as the base house except that Case No. 20 has a low cost for heating fuel and Case No. 21 has a high cost for heating fuel.

Case No. 22 - No Central Air Conditioning (HEA). Case No. 22 is the same as the base house except that it does not have a central air conditioning system.

Case No. 23 and 24 - Air Conditioner Fuel Cost (HEA). Case No. 23 and 24 are the same as the base house except that Case No. 23 has a low cost for air conditioner fuel while Case No. 24 has a high cost.

Case No. 25, 26 and 27 - Summer Thermostat Setting (HEA). Case No. 25, 26 and 27 are the same as the base house except Case No. 25 has a low daytime summer thermostat setting and Case No. 26 has a low night time summer thermostat setting. Case No. 27 shows the effect of both day time and night time low summer thermostat settings.

Case No. 28 - No Storm Windows (HEA). Case No. 28 is the same as the base house except that it is not equipped with storm window protection.

Case No. 29 - No Storm Windows or Doors (HEA). Case No. 29 is the same as the base house except that it is not equipped with either storm windows or storm doors.

Case No. 30 - Absense of Weatherstripping (HEA). Case No. 30 is the same as the base house except that the doors and windows are not equipped with weatherstripping materials.

Case No. 31 - Additional Large Windows (HEA). Case No. 31 is the same as the base house except that the number of extra large windows has been increased from two to six out of the 15 windows present.

Case No. 32 - Loose Fitting Windows (HEA). Case No. 32 is the same as the base house except that the windows are loose fitting so that they rattle when opened or closed.

Case No. 33 - Low Indoor Relative Humidity in Winter (HEA). Case No. 33 is the same as the base house except that it has a low indoor winter time relative humidity as evidenced by regularly occurring static shock.

Case No. 34 - Air Out House in Nice Weather (HEA). Case No. 34 is the same as the base house except that it has the windows and doors opened and the heating system/cooling system turned off in pleasant weather.

Case No. 35 - Window Shades and Drapes (HEA). Case No. 35 is the same as the base house except that it has no shades or drapes on the windows to keep out the sun on summer days and to keep out the cold on winter nights.

Case No. 36 and 37 - Solar Water Heater (HEA). Case No. 36 and 37 are the same as the base house except that Case No. 36 has a small capacity solar water heating system and Case no. 37 has a larger capacity solar water heating system.

Case No. 38 and 39 - House Orientation (HEA). Case No. 38 and 39 are the same as the base house except that Case No. 38 has the front of the house facing West and Case No. 39 has the front of the house facing South.

Case No. 40 and 41 - Exterior Wall Shading (HEA). Case No. 40 and 41 are the same as the base house except that Case No. 40 has its exterior walls completely shaded from the sun and Case No. 41 has its walls completely exposed to the sun.

Case No. 42 - No Attic (HEA). Case No 42 is the same as the base house except that it has no attic space.

Case No. 43 and 44 - Attic Ventilation (HEA). Case No. 43 and 44 are the same as the base house except Case No. 43 has no attic ventilation and Case No. 44 has an attic exhaust fan for maximum ventilation.

Case No. 45 - Attic Insulation Type (HEA). Case No. 45 is the same as the base house except that the type of attic insulation material is changed from batts to loose particles.

Case No. 46 and 47 - Attic Insulation Amount (HEA). Case No. 46 and 47 are the same as the base house except that Case No. 46 has less attic insulation while Case No. 47 has more attic insulation.

Case No 48 and 49 - Partial Basements (HEA). Case No. 48 and 49 are the same as the base house except that Case No. 48 has a partial basement and crawl space foundation while Case No. 49 has a partial basement, crawl space and slab-on-grade foundation.

Case No. 50 & 51 - Crawl Space Ventilation (HEA). Case No. 50 and 51 are the same as the base house except that each is built on a crawl space foundation. Case No. 50 has a ventilated crawl space while Case No. 51 has no ventilation for the crawl space.

Case No. 52 - Slab-on-grade Foundation (HEA). Case No. 52 is the same as the base house except that it is constructed on a slab-on-grade type of foundation.

Case No. 53 - Basement Wall Exposed (HEA). Case No. 53 is the same as the bas house except that the wall of the basement is about half above grade and half below grade.

Case No. 54 - ZIP Code 100 (HEA). Case No. 54 tests two conditions: (1) card 3 absent; (2) all data defaulted to the legal minimum for the Analysis Program. These data are taken from the test Local Data File, ZIP Code Range 00100 to 00100.

Case No. 55 - ZIP Code 99999 (HEA). Case No. 55 tests two conditions: (1) card 2 absent; (2) all data defaulted to the legal maximum for the Analysis Program. These data are taken from the test Local Data File, Zip Code Range 99999/99999.

Case No. 56 - ZIP Code 99999, Heat and Cool (HEA). Case No. 56 tests all data except for heating and cooling fuel defaulted to the maximum for the Analysis Program. These data are taken from the test Local Data File, ZIP Code Range 99999/99999.

Case No. 60 - Strange Cards (HEA). Case No. 60 consists of six cards, each containing one character repeated, and one card with alpha accession number.

(1) All alpha, letter 'A'. Card will be rejected because alpha accession number and alpha card number are both illegal.

(2) All '0'. Card will be rejected because zero card number is illegal.

(3) All '1'. Card will be accepted and processed as card 1, accession number 1, ZIP Code 11111, cards 2 and 3 absent.

(4) All '2'. Card will be accepted as a card 2 but not processed (card 1 missing).

(5) All '3'. Card will be accepted as a card 3 but not processed (card 1 missing).

(6) All '4'. Card will be rejected because 4 is an illegal card number.

(7) Accession number alpha, card number 1. Card will be rejected because an alpha character in an accession number field is illegal.

Case No. 61 - Card Number Alpha (HEA). Case will be rejected for illegal card number.

Case No. 62 - ZIP Code Absent (HEA). Case will be rejected for absent ZIP Code.

Case No. 63 - Zip Code Zero (HEA). Case will be rejected for illegal ZIP Code.

Case No. 64 - ZIP Code = !!!!! (HEA). Case will be rejected for illegal ZIP Code.

Case No. 65 - ZIP Code not on Local Data File. (HEA). Case will be processed by Preprocessor but not processed by Analysis Module because ZIP Code cannot be found on Local Data File.

Case No. 66 - Data Alpha; Case with Bad Card Number Intermixed (HEA). This case tests two conditions: (1) Case 66 will be processed with all data defaulted because of alpha characters in numeric data fields; and (2) all cards of Case 66 will be read, despite the intermediate presence of a case to be rejected.

Case No. 67 - A Bad Card Number was Previously Processed (HEA). This case tests the Preprocessor's ability to reject: (1) a card with a blank card number; and (2) a good card with an accession number the same as that on a previously rejected card. This latter ability is restricted to errors encountered during attempts to process a single case (in this example, Case No. 66). It is intended to catch one or two cards inserted by error in the deck.

Case No. 68 - Duplicate Card Number (Card 2) (HEA). Case 68 should be rejected because of a duplicate card 2.

Case No. 69 - Duplicate Card Number (Card 1) (HEA). Case 69 should be rejected because of a duplicate card 1.

Case No. 70 - All Data at 0 and a Blank Card Inserted (HEA). Case 70 tests two conditions: (1) The Preprocessor's ability to ignore a blank card; and (2) the system's ability to handle data input at 0.

Cases No 71 through 79 - All Numerics (HEA). Cases 71 through 79 consist of legal cases with all data fields filled with each digit. The objective is to test the system's ability to handle data inputs of every possible number in every input one-character field and a representative sample of data inputs in all input two or more character fields. (Note that the ZIP Code for Case 79, all data at 9, is not 99999; this is because ZIP 99999 is reserved for another purpose - see Case No. 56).

Case No. 80 - All Data Legal Minimum for Preprocessor (HEA). Case 80 tests the Preprocessor's ability to (1) handle legal minimum inputs for each input variable; and (2) handle cards in 3-2-1 order.

Case No. 81 - All Data Legal Maximum for Preprocessor (HEA). Case 81 tests the Preprocessor's ability to (1) handle legal maximum inputs for each input variable; and (2) handle cards in 3-1-2 order

Case No. 82 - All Data Legal Maximum Except Heating and Cooling Fuel (HEA). Case 82 repeats test 81, except that both heating and cooling systems are present and the card order is 2-3-1.

Tests with Project Conserve Preprocessor

Case No. 101 - Base House (PC). The house described by the data identified as Case No. 101 should be regarded as a base for comparison of the subsequent sets of test data for Project Conserve Questionnaires. The characteristics of the Case No. 101 house have been selected to be average or typical. The subsequent houses will represent variations of selected characteristics for the purpose of testing the sensitivity of the heat load calculations. It should be noted that Case No. 1-53 for the HEA questionnaire are directly comparable to Case No. 101-153 for the Project Conserve questionnaire.

Case No. 104 - Old Construction (PC). Case No. 104 is the same as the base house in Case No. 101 except that it is built prior to 1920.

Case No. 106 and 107 - Living Area (PC). Case No. 106 and 107 are the same as the base house in Case No. 101 except that Case No. 106 has less living area and Case No. 107 has more living area.

Case No. 115, 116 and 117 - Winter Thermostat Setting (PC). Case No. 115, 116 and 117 are the same as the base house in Case No. 101 except that Case No. 115 has a low day time winter thermostat setting and Case No. 116 is specified as low night time winter thermostat setting. Case No. 117 shows the combined effect of both day time and night time low winter thermostat settings.

Case No. 118 and 119 - Heating System Service (PC). Case No. 118 and 119 are the same as the base house in Case No. 101 except that Case No. 118 has the heating system recently serviced and Case No. 119 is specified as never having had the heating system serviced.

Case No. 120 and 121 - Heating Fuel Costs (PC). Case No. 120 and 121 are the same as the base house in Case No. 101 except that Case No. 120 has a low cost for heating fuel while Case No. 121 has a high cost for heating fuel.

Case No. 122 - No Central Air Conditioning (PC). Case No 122 is the same as the base house in Case No. 101 except that Case No. 122 does not have a central air conditioning system.

Case No. 123 and 124 - Air Conditioner Fuel Cost (PC). Case No 123 and 124 are the same as the base house in Case No. 101 except that Case No. 123 has a low cost for air conditioner fuel and Case No. 124 has a high cost.

Case No. 125, 126 and 127 - Summer Thermostat Setting (PC). Case No 125, 126 and 127 are the same as the base house in Case No. 101 except that Case No. 125 has a low daytime summer thermostat setting. Case No. 126 has a low night time summer thermostat setting. Case No. 127 illustrates the effect of low summer thermostat settings in both daytime and night time.

Case No. 128 - No Storm Windows (PC). Case No. 128 is the same as the base house in Case No. 101 except that it is not equipped with storm window protection.

Case No. 129 - No Storm Windows or Doors (PC). Case No. 129 is the same as the base house in Case No. 101 except that it is specified as lacking both storm windows and storm doors.

Case No. 130 - Absence of Weatherstripping (PC). Case No. 130 is the same as the base house in Case No. 101 except that the doors and windows are not equipped with weatherstripping and caulking materials.

Case No. 131 - Additional Large Windows (PC). Case No. 131 is the same as the base house in Case No. 101 except that the number of large, fixed pane windows is increased from 2 to 6 out of 15 windows.

Case No. 132 - Loose Fitting Windows (PC). Case No. 132 is the same as the base house in Case 101 except that the windows are loose fitting.

Case No. 142 - No Attic (PC). Case No. 142 is the same as the base house in Case No. 101 except that Case No. 142 has no attic.

Case No. 143 and 144 - Attic Ventilation (PC). Case No 143 and 144 are the same as the base house in Case No. 101 except that Case No. 143 has no attic ventilation while Case No. 144 is equipped with an attic exhaust fan.

Case No. 145 - Attic Insulation Type (PC). Case No. 145 is the same as the base house in Case No. 101 except that the type of attic insulation is changed from batt-type to loose particles.

Case No. 146 and 147 - Attic Insulation Amount (PC). Case No. 146 and 147 are the same as the base house in Case No. 101 except that Case No. 146 is specified as having less attic insulation and Case No. 147 has more attic insulation.

Case No. 160 - Strange Cards (PC). Case No. 160 consists of five cards, each containing one character repeated, and one card with alpha accession number.

(1) All alpha, letter 'A'. Card will be rejected because alpha accession number and alpha card number are both illegal.

(2) All '0'. Card will be rejected because zero card number is illegal.

(3) All '1'. Card will be accepted and processed as card 1, accession number 1, ZIP Code 11111, cards 2 and 3 absent.

(4) All '2'. Card will be accepted as a card 2 but not processed (card 1 missing).

(5) All '4'. Card will be rejected because 4 is an illegal card number.

(6) Accession number alpha, card number 1. Card will be rejected because an alpha character in an accession number field is illegal.

Case No. 161 - Card Number Alpha (PC). Case will be rejected for illegal card number.

Case No. 162 - ZIP Code Absent (PC). Case will be rejected for absent ZIP Code.

Case No. 163 - Zip Code Zero (PC). Case will be rejected for illegal ZIP Code.

Case No. 164 - ZIP Code = !!!!! (PC). Case will be rejected for illegal ZIP Code.

Case No. 165 - ZIP Code not on Local Data File. (PC). Case will be processed by Preprocessor but not processed by Analysis Module because ZIP Code cannot be found on Local Data File.

Case No. 166 - Data Alpha; Case with Bad Card Number Intermixed (PC). This case tests two conditions: (1) Case 166 will be processed with all data defaulted because of alpha characters in numeric data fields; and (2) all cards of Case 166 will be read, despite the intermediate presence of a case to be rejected.

Case No. 167 - A Bad Card Number was Previously Processed (PC). This case tests the Preprocessor's ability to reject: (1) a card with a blank card number; and (2) a good card with an accession number the same as that on a previously rejected card. This latter ability is restricted to errors encountered during attempts to process a single case (in this example, Case No. 166). It is intended to catch one or two cards inserted by error in the deck.

Case No. 168 - Duplicate Card Number (Card 2) (PC). Case 168 should be rejected because of a duplicate card 2.

Case No. 169 - Duplicate Card Number (Card 1) (PC). Case 169 should be rejected because of a duplicate card 1.

Case No. 170 - All Data at 0 and a Blank Card Inserted (PC). Case 170 tests two conditions: (1) The Preprocessor's ability to ignore a blank card; and (2) the system's ability to handle data input at 0.

Cases No 171 through 179 - All Numerics (PC). Cases 171 through 179 consist of legal cases with all data fields filled with each digit. The objective is to test the system's ability to handle data inputs of every possible number in every input one-character field and a representative sample of data inputs in all input two or more character fields. (Note that the ZIP Code for Case 179, all data at 9, is not 99999; this is because ZIP 99999 is reserved for another purpose - see Case No. 56).

Case No. 180 - All Data Legal Minimum for Preprocessor (PC). Case 180 tests the Preprocessor's ability to (1) handle legal minimum inputs for each input variable; and (2) handle cards in 2-1 order.

Case No. 181 - All Data Legal Maximum for Preprocessor (PC). Case 181 tests the Preprocessor's ability to handle legal maximum inputs for each input variable.

Case No. 182 - All Data Legal Maximum Except Heating and Cooling Fuel (PC). Case 182 repeats test 181, except that both heating and cooling systems are present.

Local Data Program Tests

The test data for validating the performance of the Local Data Program shall appear as follows:

(1) 0 0 1 0 0 0 0 2 0 0 0 0

Test the establishment of a new ZIP Code range referencing the base ZIP Code for the source of the local data values.

(2) 0 0 0 9 0 0 0 0 9 0 0 0

Test the establishment of a single five-digit ZIP Code area as a unique set of local data using the base ZIP Code local data values.

(3) 0 0 0 9 1 5 0 1 0 0 5 0

Test the establishment of a new ZIP Code range that includes the low end of a previously established ZIP Code range and use the base ZIP Code local data values.

(4) 0 0 1 0 1 0 0 1 0 2 5 0

Test the establishment of a new ZIP Code range that occurs within a previously established range and uses the base ZIP Code local data values.

(5) 0 01995 02050 0

Test the establishment of a new ZIP Code range that includes the upper end of a previously established range and uses the base ZIP Code local data values.

(6) 0 02400 02350 0

Test the proper handling of a ZIP Code range specification in which the ZIP Code values have been specified in reverse order.

(7) 0 02350 02400 02100

Test the proper handling of a ZIP Code range which calls for the use of the local data values from a ZIP Code not previously defined.

(8) 0 01995 02050 0 3 18.3

Test the ability to modify a single local data value in an existing ZIP Code range by altering the average latitude to be 18.3 degrees.

(9)

0	30000	30000	0	1	22391	2	22392	3	90.4	4		28.52	100.0	40	210.0
0	30000	30000	0	52	13	54.1	1000.	67	10.00	89	1000.	100	101	119	5.2
0	30000	30000	0	125	1.5	129		130	1.2	131	101	133	-9.1	140	0.02
0	30000	30000	0	142	11.	145	0.0	155	200	157	55.0	159	15.0	175	6000
0	30000	30000	0	178	0.0	218	2500	220	0.3	220		220	1.5	222	1.5
0	30000	30000	0	222		223	3	224.1		224	1.2	225		225	1.1
0	30000	30000	0	226	2.5	225	10	235	12.5	235	150	238	5	241	400
0	30000	30000	0	300	5001	312	101	311	7	311	5.5	320	1.2	334	91.1
0	30000	30000	0	336		352	60.1	352	70	356	3	421		423	0.1
0	30000	30000	0	424	0.11	425	2	430	1.0	435	4.0	438	10	440	11.1
0	30000	30000	0	450	0.04	450	5.1	458	1.5	460	3.2	461	6	470	3.2

Test the data validity checking capability of the Local Data Program by specifying local data values that are outside of the predefined acceptable limits.

```
0 00500 00510 03000
1 00500 00510 03000 FIRST
2 00500 00510 03000 SECOND
3 00500 00510 03000 THIRD
4 00500 00510 03000 FOURTH
```

(10)

Test the ability of the Local Data Program to establish a new ZIP Code range from the local data values for a record other than the base record and to appropriately alter the "Pass Through" message portion of the local data.

(11)
```
9 00500 00510  0
```

Test the ability of the Local Data Program to properly handle an input card with an invalid card number in the first column.

(12)
```
0 AAAAA BBBBB CCCCC
```

Test the ability of the Local Data Program to properly handle invalid data (i.e., alphabetic) in the ZIP Code specification fields.

(13)
```
0 00500 00510 03000 AAAAA BBBBB
```

Test the ability of the Local Data Program to properly handle invalid data (i.e., alphabetic) in the data fields.

0 0 0 0 5 1 0 0 1 0 0

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

Test Analysis Report

0 0 0 0 5 1 0 0 1 0 1

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

0 0 0 0 5 1 0 0 1 0 2

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TEST ANALYSIS

Purpose

The purpose of the test analysis report is to document the test plan findings, to present the capabilities and deficiences of the Home Energy Audit system for review and to provide a basis for preparing a statement of software readiness for implementation.

The material presented in the test analysis report may also serve as a check on the success of installing the system on a new machine in preparation for implementing a residential energy conservation program in which the Home Energy Audit is to be used.

General Information

Summary

The Home Energy Audit system consists of two subsystems: the local data subsystem and the analysis subsystem.

The local data subsystem consists of a single computer program whose sole purpose is to read and edit local data input cards and create a local data file. The local data subsystem must be executed and the local data file created before the analysis subsystem can be executed. The reason for this is the local data file serves as input to each subsequent execution of the analysis subsystem.

The analysis subsystem consists of two programs. The first program is the questionnaire preprocessor whose purpose is to read the data from a given questionnaire, edit it for completeness and validity, and produce an intermediate file called the Standard Format Data file (SFD). As delivered with this documentation, the Home Energy Audit system is provided with two preprocessor programs: one to process data collected on the Home Energy Audit questionnaire and one to process data collected on the Project Conserve questionnaire. The SFD is input to the analysis program, the second program in the analysis subsystem. The analysis program performs the cost and savings calculations for a given home using the SFD and local data file as input. It is the analysi program that prints the homeowner reports and creates a history file with one record per home processed.

The test of the Home Energy Audit system should proceed in accordance with the following steps:

1. Execute the local data program using the file of local test data supplied with the system.

2. Examine the local data program job execution log and local data summary reports to ensure that they agree with the results shown in Figures 1 and 2, respectively.

3. Execute the Project Conserve preprocessor program using the Project Conserve questionnaire test data file supplied with the system.

4. Examine the resulting job execution log to ensure that it agrees with that shown in Figure 3.

5. Execute the Home Energy Audit preprocessor program using the Home Energy Audit questionnaire test data file supplied with the system.

6. Examine the resulting job execution log to ensure that it agrees with the log shown in Figure 4.

7. Execute the analysis program using the Standard Format Data file produced in step 3 and the local data file produced in step 1.

8. Examine the resulting job summary report and home-owner reports to ensure complete agreement with the results shown in Figures 5 and 6, respectively.

9. Execute the analysis program using the Standard Format Data file produced in step 5 and the local data file produced in step 1.

10. Examine the resulting job summary report and home-owner reports to ensure complete agreement with the results shown in Figures 7 and 8, respectively.

The Home Energy Audit system was developed by Applied Urbanetics, Inc., for the Department of Energy under University of California, Lawrence Berkeley Laboratory Contract No. 3533602. The computer programs were written in FORTRAN for implementation of the computer service facility in Rockville, Maryland. This facility, operated exclusively for the Department of Energy (FEA), by Optimum Systems, Inc., consists of two IBM 370/168 central processing units connected in multiprocessor mode, with OS/MVS and JES2. Versions of the computer programs are available for UNIVAC and CDC computer installations.

As recipients of the computer programs and system documentation prepare to install and test the system, the programs should be examined by a qualified computer specialist to ensure that the job control language and computer resource requirements are correctly specified for the recipients' specific computer facility.

References

Contract Number 353602, as issued by the University of California Lawrence Berkeley Laboratory.

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J.R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperative with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

Test Results & Findings

The test results and findings are presented below in the categories of static and dynamic data tests. The static data tests refer to the local data subsystem and the dynamic data tests refer to the processing of questionnaire data.

Static Data Performance

Evidence of the success of the static data testing is presented in Figures 1 and 2. The capabilities tested and demonstrated to be ready for implementation are:

1. Create a new ZIP Code area using the entire set of base data supplied with the system.

2. Create a new ZIP Code area using only part of the base data.

3. Create a new ZIP Code area either partially or wholly contained within an existing ZIP Code area.

4. Produce an error message for an invalid pair of ZIP Codes defining a range to be created.

5. Produce an error message for invalid local data elements.

6. Produce a report for the local data for each ZIP Code range in the local data file.

The only known deficiency of the program is that once a ZIP Code range has been established it cannot be deleted from the file. The only mechanism for deletion is to use the local data cards with that ZIP Code range manually removed and to recreate the entire local data file.

As a result of the static data testing, it is concluded that the program is ready for implementation.

Dynamic Data Performance

The success of the dynamic data processing tasks is evidenced by the results shown in Figures 3 through 8. The capabilities tested and demonstrated to be ready for implementation are:

1. Default value assignments are being properly handled.

2. Increased attic insulation is associated with increased savings.

3. Addition of storm windows and storm doors is associated with increased energy savings.

4. Installation of weatherstripping and caulking is associated with increased energy savings.

5. Reduced winter thermostat setting reduces winter savings for other actions.

6. Increased summer thermostat setting reduces summer savings for other actions.

7. Homes from ZIP Code areas not included in the local data file are properly handled.

8. The job execution logs in Figures 3 and 4 show the disposition of each questionnaire handled by the preprocessors.

9. The job summary reports shown in Figures 5 and 7 show the disposition of each questionnaire handled by the Analysis program plus a frequency distribution by 5-digit ZIP Code of the responses.

The only known deficiencies of the system are imposed by practical constraints on the design of the questionnaires and the competence of the respondents. That is, only homes whose characteristics may be identified among the optional answers on the questionnaires may be processed. Large homes over 2600 square feet of living area or with fuel/utility bills in excess of $1200 per year will be assigned these values, by default, causing inaccurate output.

As a result of the dynamic data testing, it is concluded that the programs are ready for implementation.

Software Function Findings

The function of the local data program is to read the local data card input and create a local data file in ZIP Code sequence. The Static Data Performance Test successfully demonstrated that this function is performed accurately.

The function of the preprocessors and analysis programs is to read the input data cards and create a two-page homeowner report for each home processed. The Dynamic Data Performance Test successfully demonstrated that this function is performed accurately.

Analysis Summary

The test of the system has demonstrated that it has met the requirements of the original design. This requirement was twofold:

1. Estimate the costs and savings associated with energy conserving actions in a specific home based on the data collected on a simplified questionnaire and using local cost and climatic factors.

2. Automatically correct and continue to process the data about any home given that a ZIP Code is present.

The only known deficiencies in the system arise from the fact that one questionnaire generates more than one card-image record. These records are identified by a 5-digit accession number unique to each questionnaire and a card number in position 6 of each record. Several error conditions may result from this system design requirement:

1. If, in the same batch, two questionnaires are given the same accession number, it may be that neither will be processed.

2. If one of the cards other than card 1 for a given questionnaire has an erroneous accession number or card number, the system will provide default values for all data elements on that card.

3. If the first card for a questionnaire has an invalid accession number, card number, or ZIP Code, the entire set of data will be rejected and not processed.

4. If the accession number of a given data card is incorrectly punched, causing it to not match the other cards for the same questionnaire but, instead, causing it to match the cards of a different questionnaire, two errors will occur. The first error will be as described in (2) or (3) above. The second error will occur in the data set whose accession number coincidently matches the erroneous accession number. If the erroneous card is contiguous in the input stream to the matching data set the matching data set will not be processed.

5. If the data cards for a given questionnaire are not contiguous in the input stream the separate groups will be handled independently. Only the group including card 1 of the set will be processed; data on cards in other groups will be ignored.

The remedy for condition 1 is to carefully control the assignment of accession numbers to avoid duplication within a batch of questionnaires being processed. The remedy for conditions 2, 3, and 4 is to take all possible steps to ensure the accuracy of the accession numbers and card numbers being key punched. Verification via redundant keying of the data should be an adequate precaution. The remedy for condition 5 is to ensure that the cards are correctly sorted by accession number.

It is the conclusion of this test analysis report that the system is ready for implementation.

Figure 1

Local Data Program Job Execution Log

```
LOCAL DATA FILE FOUND TO BE EMPTY.
     0   1000   2000      0
     0    900    900      0
     0    850    900      0
     0    800    875      0
     0    775    875      0
     0    100     99      0

 THE ZIP CODE RANGE OF    100 TO     99 IS ILLOGICAL AND WILL NOT BE PROCESSED.
     0    750    880      0
     0    750    750      0
     0    751    760      0
     0    900    900      0
     0    900    950      0
     0    910    940      0
     0    915    940      0
     0    920    960      0
     0   1000   1050      0
     0    101   1020      0
     0  22090  22091      0
     0    100   1000      0
     0  99999  99999      0
     0    920   1000      0
     0    915   1002      0
     0    101  90000      0
     0  30000  30000      0       122391     222392     3 90.4     4      28.52100.0    40210.0

WARNING........AN ATTEMPT WAS MADE TO CHANGE A ZIP CODE AS IF IT WERE A DATA ELEMENT ON A MODIFICATION  RECORD
               WITH A ZIP CODE RANGE OF   30000 TO   30000.  BECAUSE ZIP CODES ARE MODIFIED AUTOMATICALLY THIS WAS IGNORED.

WARNING........AN ATTEMPT WAS MADE TO CHANGE A ZIP CODE AS IF IT WERE A DATA ELEMENT ON A MODIFICATION  RECORD
               WITH A ZIP CODE RANGE OF   30000 TO   30000.  BECAUSE ZIP CODES ARE MODIFIED AUTOMATICALLY THIS WAS IGNORED.
WARNING........ELEMENT NUMBER   3 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS    90.4000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0001 TO    69.0000 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE      38.8500 WAS KEPT.
WARNING........A CARD WITH A ZIP CODE RANGE OF 30000-30000 WAS FOUND TO HAVE AN ELEMENT NUMBER OF    28.5200.
                 THE TRUNCATED VALUE OF    28 WAS USED INSTEAD.
WARNING........ELEMENT NUMBER  28 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS   100.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0    TO    99.9000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER  40 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS   210.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0    TO   200.0000 BUT THE SUBSTITUTION WAS MADE......
     0  30000  30000      0      52    13 54.11000.   6710.00   891000.  100  101  119 5.2
WARNING........ELEMENT NUMBER  52 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     13.
               THIS VALUE IS OUTSIDE THE RANGE OF     1 TO     12 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE       5 WAS KEPT.
WARNING........A CARD WITH A ZIP CODE RANGE OF 30000-30000 WAS FOUND TO HAVE AN ELEMENT NUMBER OF    54.1000.
                 THE TRUNCATED VALUE OF    54 WAS USED INSTEAD.
```

```
WARNING........ELEMENT NUMBER  54 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS  1000.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF   -99.9000 TO   999.8999 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER  67 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS    10.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0001 TO     9.9990 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE      0.4700 WAS KEPT.
WARNING........ELEMENT NUMBER  89 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS  1000.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO   999.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 100 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS   101.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO   100.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 119 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     5.2000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO     5.0000 BUT THE SUBSTITUTION WAS MADE......
     0  30000  30000      0    125  1.5  129        130  1.2  131  101  133 -9.1  140 0.02
WARNING........ELEMENT NUMBER 125 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     1.5000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO     1.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 129 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     0.0    .
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0001 TO     3.0000 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE      1.1300 WAS KEPT.
WARNING........ELEMENT NUMBER 130 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     1.2000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0001 TO     1.0000 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE      0.5500 WAS KEPT.
WARNING........ELEMENT NUMBER 131 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS   101.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO   100.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 133 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS    -9.1000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO     1.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 140 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     0.0200.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0500 TO     5.0000 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE      1.0000 WAS KEPT.
     0  30000  30000      0    142  11.  145  0.0  155  200  157 55.0  159 15.0  175 6000
WARNING........ELEMENT NUMBER 142 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS    11.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0500 TO    10.0000 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE      1.0000 WAS KEPT.
WARNING........ELEMENT NUMBER 145 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     0.0    .
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0001 TO     5.0000 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE      0.1300 WAS KEPT.
WARNING........ELEMENT NUMBER 155 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS   200.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO    20.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 157 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS    55.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO    50.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 159 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS    15.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO    10.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 175 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS  6000.0000.
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0     TO  5000.0000 BUT THE SUBSTITUTION WAS MADE......
     0  30000  30000      0    178  0.0  218 2500  220  0.3  220       220  1.5  222  1.5
WARNING........ELEMENT NUMBER 178 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     0.0    .
               THIS VALUE IS OUTSIDE THE RANGE OF     0.0010 TO     3.0000 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE      0.6300 WAS KEPT.
WARNING........ELEMENT NUMBER 218 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS   2500.  THIS
               VALUE IS OUTSIDE THE RANGE OF       0 TO   2000 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 220 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
                    0.3000.  BECAUSE ELEMENT 220 IS SUPPOSED TO BE AN INTEGER VALUE     0 WAS USED.  THIS MODIFICATION
               SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 220 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.
               THIS VALUE IS OUTSIDE THE RANGE OF       1 TO    500 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE    2600 WAS KEPT.
WARNING........ELEMENT NUMBER 220 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.
               THIS VALUE IS OUTSIDE THE RANGE OF       1 TO    500 AND THE SUBSTITUTION WAS NOT MADE.
               THE OLD VALUE    2600 WAS KEPT.
WARNING........ELEMENT NUMBER 220 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
                    1.5000.  BECAUSE ELEMENT 220 IS SUPPOSED TO BE AN INTEGER VALUE     1 WAS USED.  THIS MODIFICATION
               SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 222 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
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0 0 0 1 3 0 1 0 7

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                1.5000.  BECAUSE ELEMENT 222 IS SUPPOSED TO BE AN INTEGER VALUE     1 WAS USED.  THIS MODIFICATION
            SHOULD BE CAREFULLY EXAMINED.
     0  30000  30000      0    222       223    3224.1       224  1.2  225       225  1.1
WARNING........ELEMENT NUMBER 222 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.
            THIS VALUE IS OUTSIDE THE RANGE OF      1 TO      6 AND THE SUBSTITUTION WAS NOT MADE.
            THE OLD VALUE       1 WAS KEPT.
WARNING........ELEMENT NUMBER 223 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      3.  THIS
            VALUE IS OUTSIDE THE RANGE OF      0 TO      2 BUT THE SUBSTITUTION WAS MADE.
WARNING........A CARD WITH A ZIP CODE RANGE OF 30000-30000 WAS FOUND TO HAVE AN ELEMENT NUMBER OF   224.1000.
              THE TRUNCATED VALUE OF   224 WAS USED INSTEAD.
WARNING........ELEMENT NUMBER 224 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.  THIS
            VALUE IS OUTSIDE THE RANGE OF      1 TO      2 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 224 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
                1.2000.  BECAUSE ELEMENT 224 IS SUPPOSED TO BE AN INTEGER VALUE     1 WAS USED.  THIS MODIFICATION
            SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 225 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.
            THIS VALUE IS OUTSIDE THE RANGE OF      1 TO      2 AND THE SUBSTITUTION WAS NOT MADE.
            THE OLD VALUE       2 WAS KEPT.
WARNING........ELEMENT NUMBER 225 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
                1.1000.  BECAUSE ELEMENT 225 IS SUPPOSED TO BE AN INTEGER VALUE     1 WAS USED.  THIS MODIFICATION
            SHOULD BE CAREFULLY EXAMINED.
     0  30000  30000      0    226  2.5  225   10  235 12.5  235  150  238    5  241  400
WARNING........ELEMENT NUMBER 226 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
                2.5000.  BECAUSE ELEMENT 226 IS SUPPOSED TO BE AN INTEGER VALUE     2 WAS USED.  THIS MODIFICATION
            SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 225 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     10.
            THIS VALUE IS OUTSIDE THE RANGE OF      1 TO      2 AND THE SUBSTITUTION WAS NOT MADE.
            THE OLD VALUE       1 WAS KEPT.
WARNING........ELEMENT NUMBER 235 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
               12.5000.  BECAUSE ELEMENT 235 IS SUPPOSED TO BE AN INTEGER VALUE    12 WAS USED.  THIS MODIFICATION
            SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 235 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS    150.  THIS
            VALUE IS OUTSIDE THE RANGE OF      0 TO    100 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 238 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      5.  THIS
            VALUE IS OUTSIDE THE RANGE OF      1 TO      4 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 241 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS    400.  THIS
            VALUE IS OUTSIDE THE RANGE OF      0 TO    360 BUT THE SUBSTITUTION WAS MADE.
     0  30000  30000      0    300 5001  312  101  311    7  311  5.5  320  1.2  334 91.1
WARNING........ELEMENT NUMBER 300 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS   5001.  THIS
            VALUE IS OUTSIDE THE RANGE OF      0 TO   5000 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 312 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS    101.  THIS
            VALUE IS OUTSIDE THE RANGE OF      0 TO    100 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 311 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      7.
            THIS VALUE IS OUTSIDE THE RANGE OF      1 TO      5 AND THE SUBSTITUTION WAS NOT MADE.
            THE OLD VALUE       1 WAS KEPT.
WARNING........ELEMENT NUMBER 311 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
                5.5000.  BECAUSE ELEMENT 311 IS SUPPOSED TO BE AN INTEGER VALUE     5 WAS USED.  THIS MODIFICATION
            SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 320 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
                1.2000.  BECAUSE ELEMENT 320 IS SUPPOSED TO BE AN INTEGER VALUE     1 WAS USED.  THIS MODIFICATION
            SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 334 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
               91.1000.  BECAUSE ELEMENT 334 IS SUPPOSED TO BE AN INTEGER VALUE    91 WAS USED.  THIS MODIFICATION
            SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 334 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     91.  THIS
            VALUE IS OUTSIDE THE RANGE OF      0 TO     90 BUT THE SUBSTITUTION WAS MADE.
     0  30000  30000      0    336       352 60.1  352   70  356    3  421       423  0.1
WARNING........ELEMENT NUMBER 336 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.  THIS
            VALUE IS OUTSIDE THE RANGE OF      1 TO      4 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 352 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
               60.1000.  BECAUSE ELEMENT 352 IS SUPPOSED TO BE AN INTEGER VALUE    60 WAS USED.  THIS MODIFICATION
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                SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 352 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      60.  THIS
                VALUE IS OUTSIDE THE RANGE OF       0 TO      50 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 352 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      70.  THIS
                VALUE IS OUTSIDE THE RANGE OF       0 TO      50 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 356 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS       3.
                THIS VALUE IS OUTSIDE THE RANGE OF       0 TO       2 AND THE SUBSTITUTION WAS NOT MADE.
                THE OLD VALUE        0 WAS KEPT.
WARNING........ELEMENT NUMBER 421 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.0    .
                THIS VALUE IS OUTSIDE THE RANGE OF      0.0500 TO      0.5000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 423 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.1000.
                THIS VALUE IS OUTSIDE THE RANGE OF      0.2000 TO      1.0000 BUT THE SUBSTITUTION WAS MADE......
     0  30000  30000       0     424 0.11  425    2  430  1.0  435  4.0  438   10  440 11.1
WARNING........ELEMENT NUMBER 424 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.1100.
                THIS VALUE IS OUTSIDE THE RANGE OF     0.0050 TO      0.1000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 430 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      1.0000.
                THIS VALUE IS OUTSIDE THE RANGE OF      5.0000 TO    100.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 435 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      4.0000.
                THIS VALUE IS OUTSIDE THE RANGE OF      5.0000 TO    200.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 438 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      10.  THIS
                VALUE IS OUTSIDE THE RANGE OF      11 TO      80 BUT THE SUBSTITUTION WAS MADE.
WARNING........ELEMENT NUMBER 440 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS     11.1000.
                THIS VALUE IS OUTSIDE THE RANGE OF      0.0500 TO     10.0000 BUT THE SUBSTITUTION WAS MADE......
     0  30000  30000       0     450 0.04  450  5.1  458  1.5  460  3.2  461    6  470  3.2
WARNING........ELEMENT NUMBER 450 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      0.0400.
                THIS VALUE IS OUTSIDE THE RANGE OF      0.0500 TO      5.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 450 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      5.1000.
                THIS VALUE IS OUTSIDE THE RANGE OF      0.0500 TO      5.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 458 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS      1.5000.
                THIS VALUE IS OUTSIDE THE RANGE OF      0.0    TO      1.0000 BUT THE SUBSTITUTION WAS MADE......
WARNING........ELEMENT NUMBER 460 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 HAS A VALUE OF
                   3.2000.  BECAUSE ELEMENT 460 IS SUPPOSED TO BE AN INTEGER VALUE     3 WAS USED.  THIS MODIFICATION
                SHOULD BE CAREFULLY EXAMINED.
WARNING........ELEMENT NUMBER 461 ON THE CARD WITH A ZIP CODE RANGE OF 30000 TO 30000 WAS       6.  THIS
                VALUE IS OUTSIDE THE RANGE OF       0 TO       5 BUT THE SUBSTITUTION WAS MADE.
WARNING........ON A MOD CARD WITH A ZIP RANGE OF 30000 TO 30000 AN ELEMENT NUMBER OF       470 IS OUT OF RANGE.
     0   1000   1001       0
     0   1002   1003       0
     0   1004   1005       0
     0   1006   1007       0
     0   1008   1009       0
     0   1010   1011       0
     0   1020   1030       0
     0   2000   2999       0
     0   1002   3005       0
     0    100    100       0
     0   1000  99999       0
     1   1000  99999       0  THE ABOVE ANALYSIS OF POTENTIAL SAVINGS AND COSTS FOR ENERGY CON
     2   1000  99999       0  SERVING RETROFIT ACTIONS IS BASED ON A SERIES OF TEST DATA THAT
     3   1000  99999       0  IS OF A HYPOTHETICAL NATURE.  IT WAS ESTABLISHED SOLELY FOR THE
     4   1000  99999       0  PURPOSE OF TESTING THE HOME ENERGY AUDIT SYSTEM FOR THE D. O. E.
     0  99999  99999       0
     0  25000  25000   30000
     1  25000  25000   30000  THIS IS THE RECORD THAT USED A DIFFERENT BASE RECORD THAN THE
     2  25000  25000   30000  DEFAULT BASE RECORD.  COMPARE THIS WITH RECORD 30000-30000.
     3  25000  25000   30000
     4  25000  25000   30000
```


0 0 0 5 1 0 1 0 8

Figure 2

Local Data Summary Report

LOCAL DATA FILE FOUND TO BE EMPTY.
0 100 99999 0

13.

LOCAL DATA FILE SUMMARY
RECORD TO INDEX POINTERS

RCD. NO.	INDEX NO.	RCD. NO.	INDEX NO.	RCD. NO.	INDEX NO.	RCD. NO.	INDEX NO.	RCD. NO.	INDEX NO.
1	1	2	0	3	0	4	0	5	0

00031009

LOCAL DATA FILE INDEX

NO.	LOW ZIP		HIGH ZIP	RCD.	NO.	LOW ZIP		HIGH ZIP	RCD.	NO.	LOW ZIP		HIGH ZIP	RCD.
1.	100	-	99999	1	2.	0	-	0	0	3.	0	-	0	0

LOCAL DATA FILE SUMMARY

ZIP CODE RANGE: 100 TO 99999 REC. NO. 1

PHYSIOGRAPHIC DATA

		UNITS	
MEAN LATITUDE	(3)	DEG.	38.9
FIRST MONTH COOLING SEASON	(52)	-	5
LAST MONTH COOLING SEASON	(53)	-	9

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MEAN DAYTIME TEMP.	(4-15)	DEG.F	38.0	40.0	48.0	57.0	68.0	76.0	80.0	78.0	72.0	61.0	50.0	40.0
MEAN DAILY TEMP.	(16-27)	DEG.F	35.6	37.3	45.1	56.4	66.2	74.6	78.7	77.1	70.6	59.8	48.0	37.4
MEAN WIND SPEED	(28-39)	MPH	9.9	10.4	10.9	10.5	9.2	8.7	8.1	8.0	8.2	8.5	9.2	9.4
SOLAR COLCTR INLET TEMP.	(40-51)	DEG.F	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MEAN GROUND TEMP.	(54-65)	DEG.F	47.0	47.0	51.0	51.0	51.0	66.0	66.0	66.0	63.0	63.0	63.0	47.0
LIU/JORDAN FACTOR	(66-77)	RATIO	0.445	0.470	0.496	0.504	0.516	0.553	0.524	0.516	0.520	0.506	0.464	0.460
TOTAL HORZ. INSOLATION	(78-89)	-	664.0	965.0	1320.0	1643.0	1871.0	2078.0	1898.0	1670.0	1377.0	1021.0	687.0	589.0
REL. HUMIDITY - A.M.	(90-101)	PCT	69.0	67.0	68.0	68.0	72.0	75.0	75.0	79.0	80.0	79.0	73.0	71.0
REL.HUMIDITY - P.M.	(102-113)	PCT	54.0	52.0	49.0	47.0	51.0	52.0	52.0	54.0	55.0	51.0	52.0	57.0

FUEL AND UTILITY COST DATA

GAS	(421)	$0.270/100 CU.FT.
FUEL OIL	(422)	$0.450/GALLON
PROPANE	(423)	$0.480/GALLON
ELECTRICITY	(424)	$0.035/KWH

HOME IMPROVEMENT COST DATA

	UNITS	MATERIALS COST RANGE LOW	MATERIALS COST RANGE HIGH	CONTRACTOR COST RANGE LOW	CONTRACTOR COST RANGE HIGH
INSULATION					
MINIMUM RECOMMENDED IS R-19 (ELEMENT NO. 443).					
OPTIMUM LEVEL (R-30) (438)	$/SQ.FT.	0.40 (439)	0.48 (440)	0.39 (441)	0.45 (442)
R-11	$/SQ.FT.	0.15 (444)	0.20 (445)	0.18 (446)	0.23 (447)
R-19	$/SQ.FT.	0.20 (448)	0.27 (449)	0.24 (450)	0.29 (451)
R-22	$/SQ.FT.	0.28 (452)	0.35 (453)	0.34 (454)	0.39 (455)
STORM WINDOWS					
<100 UNITED INCHES	$/EACH	17.00 (426)	29.00 (427)	23.00 (428)	37.00 (429)
>100 UNITED INCHES	$/EACH	30.00 (430)	42.00 (431)	35.00 (432)	50.00 (433)
STORM DOORS	$/EACH	55.00 (434)	95.00 (435)	70.00 (436)	120.00 (437)
WEATHERSTRIPPING/CAULKING	$/LN.FT.	0.02 (456)	0.12 (457)	N/A	N/A

0 0 0 9 1 0 1 0

LOCAL DATA FILE SUMMARY

ZIP CODE RANGE: 100 TO 99999 REC. NO.

HOUSING CHARACTERISTICS

****

ELEMENT NUMBER	DESCRIPTION	VALID RANGE LOW	HIGH	DEFAULT VALUE
217-218	DATE HOME BUILT	1915		1950
219-221	TOTAL HEATED LIVING AREA	700-	2600	1400
222	STYLE OF HOME			1
223	NUMBER OF ATTACHED WALLS			0
224	GARAGE UNDER LIVING AREA			2
225	CONSTRUCTION MATERIAL			2
226	EXTERIOR WALL COLOR			1
227	ROOF COLOR			1
255	DOOR COLOR			2
228	GROUND SURFACE REFLECTANCE			2
229	ROOF SHADOW FACTOR			2
230	PRESENCE OF UNHEATED ATTIC			1
231	PERMANENT ATTIC FLOOR			2
232	TYPE OF ATTIC VENTS			1
233	PRESENCE OF ATTIC FAN			2
234-236	ATTIC FLOOR INSULATION-INCHES	0-	100	3
	ATTIC INSULATION TYPE BY AGE:			
237	BEFORE 1920			1
238	1920-1945			1
239	1946 - 1965			1
240	AFTER 1965			1
241	DIRECTION OF FRONT OF HOUSE			270
242-244	WIDTH OF FRONT OF HOUSE	10-	120	40
245-247	NUMBER OF WINDOWS / WALL	0-	100	5
248-250	NUMBER OF SL. GL. DRS / WALL	0-	5	0
251-253	NUMBER OF OTHER DOORS / WALL	0-	5	1
254	WALL SHADOW FACTOR DEFAULT			1
258-260	PERCENT WINDOWS WITH STORMS	0-	100	0
261-263	PERCENT DOORS WITH STORMDOORS	0-	100	0
264-266	PERCENT OF OVERSIZE WINDOWS	0-	100	10
267-269	PERCENT WINDOWS WITH DRAPES	0-	100	50
270-272	%SLIDING GLSS DRS WITH DRAPES	0-	100	100
273	EXTENT OF WEATHER STRIPPING			3
274	WINDOWS OPEN IN GOOD WEATHER			2
275	PRESENCE OF BASEMENT			1
276	PRESENCE OF CRAWL SPACE			2
277	PRESENCE OF SLAB-ON-GRADE			2
278	BASEMENT HEATED			2

LOCALIZED MESSAGE FOR PARTICIPANTS (PASS THROUGH COMMENTS)

****

NUMBER OF LINES = 0

FIRST LINE:

SECOND LINE:

ELEMENT NUMBERS	DESCRIPTION	VALID RANGE LOW	HIGH	DEFAULT VALUE
279	PCNT. BASEMENT WALLS UNDERGRND			100
280	PRESENCE OF CRAWL-SPACE VENTS			1
281-282	NUMBER OF OCCUPANTS-MIN&MAX	0-	20	
283	DAYTIME DEFAULT-			1
284	NIGHT TIME DEFAULT-			1
285-287	DAYTIME WINTER THERMOSTAT	55-	80	60
288-290	NIGHT TIME WINTER THERMOSTAT	55-	80	60
291	WINDOWS RATTLE			2
292	STATIC SHOCKS IN WINTER			2
293	TYPE OF HEATING FUEL			1
294	HEATING SYSTEM LAST SERVICED			2
295	COOLING SYSTEM LAST SERVICED			1
296-298	ANNUAL COST FOR HEATING-GAS	100-	1500	960
299-301	ELEC.	100-	2000	1200
302-304	PROPANE	100-	2000	1000
305-307	OIL	100-	2000	1000
308-310	HEAT PUMP	100-	2000	1000
311	TYPE AND PRESENCE OF AIR COND.			2
312-314	DAYTIME SUMMER THERMOSTAT	65-	85	78
315-317	NIGHT TIME SUMMER THERMOSTAT	65-	85	78
318-320	ANNUAL COST OF GAS FOR A/C	100-	1500	960
321-323	ANNUAL COST OF ELEC. FOR A/C	100-	2000	1200
324	PRESENCE OF SOLAR COLLECTOR			2
325-327	SOLAR COLLECTOR PERFORMANCE	1-	3	1
328-330	AREA OF SOLAR COLLECTOR	0-	1000	80
	SOLAR COLLECTOR USED FOR:			
331	HOT WATER HEATING-			2
332	SPACE HEATING			2
333	BOTH SPACE & WATER HEATING			2
334	SOLAR COLLECTOR ANGLE OF TILT-DEGREES			45
335	COOKING STOVE FUEL			;
336	CLOTHES DRYER FUEL			1
337	WATER HEATER FUEL			1
338-340	NUMBER OF COLOR TV'S	0-	5	1
341-343	NUMBER OF OUTSIDE GAS LIGHTS	0-	5	0
344-346	NUMBER OF REFRIGERATORS	1-	4	1
347	NUMBER OF FROST FREE FRIGE.			0
348-350	NUMBER OF FREEZERS	0-	2	0
351	NUMBER OF FROST FREE FREEZ.			0
352-354	NUMBER OF FIREPLACES	0-	4	0
459-461	NUMBER OF AUTO DISHWASHERS	0-	5	1

LOCAL DATA FILE SUMMARY

ZIP CODE RANGE: 100 TO 99999 REC. NO. 1

ANALYSIS CONSTANTS
PAGE 1 OF 2
****

(SEE SYSTEM DOCUMENTATION FOR DEFINITION OF TERMS)

DESCRIPTION	ELEMENT NUMBER	VALUE	UNITS
INDOOR RELATIVE HUMIDITY			
SUMMER(WITH A/C)	114	60.00	PERCENT
WINTER- NO HUMIDIFIER	115	20.00	
WINTER- WITH HUMIDIFIER	116	50.00	
STANDARD AIR LEAKAGE			
TIGHT HOUSE	117	0.50	AIR CHANGES/HR.
AVERAGE HOUSE	118	0.75	
LEAKY HOUSE	119	1.00	
VERY LEAKY HOUSE	120	1.50	
GROUND SURFACE REFLECTANCE			
LIGHT IN COLOR-HIGH	121	0.60	
MEDIUM	122	0.40	
DARK -LOW	123	0.20	
SHADOW FACTORS			
NO SHADOW	124	0.0	
PART SHADOW	125	0.50	
ALL SHADOW	126	1.00	
WINDOW COEFFICIENTS			
SHADE COEF.-NO SHADES	127	0.0	
SHADE COEF.-WITH SHADES	128	0.55	
U VALUES-SINGLE GLAZE	129	1.13	BTU/HR/SQFT/DEG
U VALUE-DOUBLE GLAZE	130	0.55	
AVERAGE AREA	131	10.00	SQ.FT.
DOOR COEFFICIENTS			
SURFACE ABSORPTIVITY-LIGHT	132	0.40	
-MEDIUM	133	0.70	
-DARK	458	0.95	
AVERAGE AREA	134	17.80	
U VALUE	135	0.50	BTU/HR/SQFT/DEG

DESCRIPTION	ELEMENT NUMBER	VALUE	UNITS
SOLAR COLLECTOR			
SA - Y AXIS ABSORP. FACTOR FROM			
GLASS -LOW	136	0.70	
-MEDIUM	137	0.75	
-HIGH	138	0.80	
SB - X AXIS ABSORP. FACTOR			
WATER TEMP./SOLAR RAD.			
-LOW	139	0.80	
-MEDIUM	140	1.00	
-HIGH	141	1.20	
UTILIZATION FACTOR	142	1.00	
BASE INSTALLATION COST	355	500.00	DOLLARS
COLLECTOR COST PER SQ.FT.	425	25.00	$/SQ.FT.
WALL COEFFICIENTS			
U VALUE UNINSULATED MASONRY	143	0.29	BTU/HR/SQFT/DEG
U VALUE UNINSULATED WOOD	144	0.23	
U VALUE INSULATED MASONRY	145	0.13	
U VALUE INSULATED WOOD	146	0.07	
SURFACE ABSORPTIVITY-LIGHT	147	0.40	
-MEDIUM	148	0.70	
-DARK	149	0.95	
ROOF COEFFICIENTS			
ABSORPTIVITY-LIGHT	150	0.40	
-MEDIUM	151	0.70	
-DARK	152	0.95	
U VALUE-VENTED OR NO ATTIC	153	0.55	BTU/HR/SQFT/DEG
-UNVENTED	154	0.20	
ATTIC-WALL HEIGHT	155	4.00	FT.
-AIR CHANGE-ATTIC FAN	156	20.00	AIR CHANGES/HR.
-SOFFIT&RIDGE	157	6.00	
-GABLE VENT	158	3.00	
-NO VENT	159	0.0	
CEILING U VALUE(IF ATTIC)	160	0.30	BTU/HR/SQFT/DEG
CEILING HEIGHT	161	8.00	FT.

LOCAL DATA FILE SUMMARY

ZIP CODE RANGE: 100 TO 99999

REC. NO. 1

ANALYSIS CONSTANTS
PAGE 2 OF 2
****

(SEE SYSTEM DOCUMENTATION FOR DEFINITION OF TERMS)

DESCRIPTION	ELEMENT NUMBER	VALUE	UNITS
CRAWL SPACE-BASEMENT			
CRAWL SPACE AIR CHANGE			
UNVENTED	163	0.0	AIR CHANGES/HR.
VENTED	164	3.00	
-CEILING U VALUE	165	0.30	BTU/HR/SQFT/DEG
-WALL U VALUE	167	0.25	
-WALL HEIGHT	168	2.00	FT.
BASEMENT- CEILING U VALUE	166	0.30	BTU/HR/SQFT/DEG
- HEAT GAIN FROM OTHER EQUIPMENT	175	1500.0	BTU/HR
GROUND WALL HEAT FLUX	173	3.40	
GROUND FLOOR U VALUE	174	0.10	BTU/HR/SQFT/DEG
BASE LOAD FACTORS			
AVERAGE LIGHTING-DAYTIME	169	0.10	WATTS/SQFT/DAY
-NIGHT TIME	170	0.22	
AVERAGE ELEC. EQUIPMENT USAGE			
-DAYTIME	171	0.70	WATTS/SQFT/DAY
-NIGHT TIME	172	0.42	
PERCENT OF ANNUAL FUEL COST			
GAS-HEATING OR COOLING	210	0.15	PERCENT
ELECTRICITY-HEAT OR COOL	211	0.20	
OIL-HEATING	212	0.10	
PROPANE-HEATING	213	0.05	
GAS-HEATING AND COOLING	214	0.05	
ELECTRICITY-HEAT AND COOL	215	0.10	
HEAT PUMP	216	0.15	
STORAGE LOAD FACTOR			
SLAB-ON-GRADE(SOG)	176	0.80	
CRAWL SPACE OR BASEMENT	177	0.80	
HOT WATER			
USAGE PER PERSON PER DAY	162	20.00	GALLONS
U VALUE FOR 1 INCH OF:			
LOOSE PARTICLES	256	0.45	
BATT INSULATION	257	0.31	

DESCRIPTION	ELEMENT NUMBER	VALUE
HEATING PLANT PERFORMANCE FACTORS		
GAS FURNACE-EFFICIENCY	178	0.63
-SERVICE MOD FACTOR		
LT 1 YEAR	179	1.00
GT 1 YEAR	180	0.90
NEVER SERVICED	181	0.80
ELECTRIC -EFFICIENCY	182	1.00
-SERVICE MOD FACTOR		
LT 1 YEAR	183	1.00
GT 1 YEAR	184	1.00
NEVER SERVICED	185	1.00
PROPANE -EFFICIENCY	186	0.63
-SERVICE MOD FACTOR		
LT 1 YEAR	187	1.00
GT 1 YEAR	188	0.90
NEVER SERVICED	189	0.80
FUEL OIL -EFFICIENCY	190	0.67
-SERVICE MOD FACTOR		
LT 1 YEAR	191	1.00
GT 1 YEAR	192	0.90
NEVER SERVICED	193	0.80
HEAT PUMP -EFFICIENCY	194	2.00
-SERVICE MOD FACTOR		
LT 1 YEAR	195	1.00
GT 1 YEAR	196	0.90
NEVER SERVICED	197	0.80
COOLING PLANT PERFORMANCE FACTORS		
GAS -EFFICIENCY	198	0.50
-SERVICE MOD FACTOR		
LT 1 YEAR	199	1.00
GT 1 YEAR	200	0.90
NEVER SERVICED	201	0.80
ELECTRIC -EFFICIENCY	202	2.10
-SERVICE MOD FACTOR		
LT 1 YEAR	203	1.00
GT 1 YEAR	204	0.90
NEVER SERVICED	205	0.80
HEAT PUMP -EFFICIENCY	206	2.10
SERVICE MOD. FACTOR		
LT 1 YEAR	207	1.00
GT 1 YEAR	208	0.90
NEVER SERVICED	209	0.80

Figure 3

Project Conserve Preprocessor Job Execution Log

H O M E E N E R G Y A U D I T S Y S T E M

PROJECT CONSERVE QUESTIONNAIRE PREPROCESSOR

J O B E X E C U T I O N L O G

THE FOLLOWING ACCESSION NUMBERS WERE IN ERROR ON THE INDICATED CARD.

POSSIBLE ERRORS INCLUDE:

CARD NOT FOUND,
CARD NUMBER DUPLICATED,
INVALID FIELD FOUND ON CARD.
OUT OF RANGE FIELD FOUND ON CARD.

AN ASTERISK INDICATES THE ACCESSION NUMBER WAS NOT PROCESSED.

POSSIBLE REASONS FOR NOT PROCESSING AN ACCESSION NUMBER ARE:

ACCESSION NUMBER NON-INTEGER,
CARD 1 NOT FOUND
DUPLICATE CARD
CARD NUMBER OTHER THAN 1 OR 2,
ZIP CODE OTHER THAN INTEGER BETWEEN 100 AND 99999.

CARD 1 ERROR	CARD 2 ERROR	OTHER ERROR
		AAAAA*
		00000*
	11111	
		44444*
		AAAAA*
		161*
22222*		
	162	
162*		
	163	
163*		
	164	
164*		
	165	
		167*
	166	
	168*	
169*		
		*
	170	
	173	
	174	
	175	
	176	
	177	
	178	
	179	

ZIP CODE RANGE OF ACCESSION NUMBERS SUCCESSFULLY PROCESSED:

LOW ZIP: 444
HIGH ZIP: 90000

ACCESSION NUMBERS SUCCESSFULLY PROCESSED: 44

END HEA PROJECT CONSERVE QUESTIONNAIRE PREPROCESSOR

Figure 4

Home Energy Audit Preprocessor Job Execution Log

HOME ENERGY AUDIT SYSTEM

PREPROCESSOR

JOB EXECUTION LOG

THE FOLLOWING ACCESSION NUMBERS WERE IN ERROR ON THE INDICATED CARD.

POSSIBLE ERRORS INCLUDE:

CARD NOT FOUND,
CARD NUMBER DUPLICATED,
INVALID FIELD FOUND ON CARD.
OUT OF RANGE FIELD FOUND ON CARD.

AN ASTERISK INDICATES THE ACCESSION NUMBER WAS NOT PROCESSED.

POSSIBLE REASONS FOR NOT PROCESSING AN ACCESSION NUMBER ARE:

ACCESSION NUMBER NON-INTEGER,
CARD 1 NOT FOUND
DUPLICATE CARD
CARD NUMBER OTHER THAN 1, 2, OR 3,
ZIP CODE OTHER THAN INTEGER BETWEEN 100 AND 99999.

CARD 1 ERROR	CARD 2 ERROR	CARD 3 ERROR	OTHER ERROR
		54	
	55		
			AAAAA*
			00000*
		56	
	11111		
		11111	
22222*			
		22222	
			44444*
			AAAAA*
			61*
33333*			
	33333		
	62		
		62	
62*			
	63		
		63	
63*			
	64		
		64	
64*			
	65		
		65	
			67*
	66		

66

68*

69*

*

70
73
74
75
76
77
78
79

ZIP CODE RANGE OF ACCESSION NUMBERS SUCCESSFULLY PROCESSED:

LOW ZIP: 100
HIGH ZIP: 99999

ACCESSION NUMBERS SUCCESSFULLY PROCESSED: 72

END HEA QUESTIONNAIRE PREPROCESSOR

Figure 5

Analysis Program Job Summary Report
for PC Questionnaire Data

H O M E E N E R G Y A U D I T S Y S T E M
J O B S U M M A R Y

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  0 RECORDS PROCESSED WITH NO DEFAULTED VALUES
 42 RECORDS PROCESSED WITH AT LEAST ONE DEFAULTED VALUE
  1 RECORDS NOT PROCESSED--HOME NEITHER HEATED NOR COOLED
  1 RECORDS NOT PROCESSED--ZIP CODE NOT ON LOCAL DATA FILE
 44 TOTAL RECORDS READ
```

DISTRIBUTION OF RECORDS PROCESSED BY LOCAL DATA FILE ZIP CODE RANGES

ZIP RANGE	RECORDS PROCESSED
100 - 100	0
1000 - 90000	42
99999 - 99999	0

END HOME ENERGY ANALYSIS SYSTEM ANALYSIS PROGRAM

Figure 6

Homeowner Reports for PC Questionnaire Data

HOME ENER' AUDIT BEGUN

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CASE #101 - BASE HOU
SE P-C QUESTIONNAIR
E TESTS 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

****

GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
---
*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
---
*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 70 TO $ 115 AND WILL BE RECOVERED IN 4.5 TO 7.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 90 TO $ 150 AND WILL BE RECOVERED IN 6.0 TO 9.7 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #104 - OLD CONS
TRUCTION (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1915
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 135 TO $ 230 AND WILL BE RECOVERED IN 8.9 TO 15.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 185 TO $ 295 AND WILL BE RECOVERED IN 12.1 TO 19.4 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #106 - LOW LIVI
NG AREA(P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

****

GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 900 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5200 CU.FT. COOLING: 5 KWH SAVINGS OF $ 14 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 205 TO $ 350 AND WILL BE RECOVERED IN 14.3 TO 24.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 275 TO $ 445 AND WILL BE RECOVERED IN 19.4 TO 31.2 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 600 CU.FT. COOLING: 5 KWH SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.8 TO 10.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 18 PER YEAR AT CURRENT PRICES (OR $ 180 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 6500 CU.FT. FOR HEATING AND 10 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #107 - HIGH LIV
ING AREA (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 2300 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
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*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
---
*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6200 CU.FT. COOLING: 0 KWH SAVINGS OF $ 17 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 270 TO $ 465 AND WILL BE RECOVERED IN 16.3 TO 27.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 370 TO $ 590 AND WILL BE RECOVERED IN 22.0 TO 35.4 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1600 CU.FT. COOLING: 10 KWH SAVINGS OF $ 5 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 0.7 TO 4.2 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 25 PER YEAR AT CURRENT PRICES (OR $ 250 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 9400 CU.FT. FOR HEATING AND 5 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #115 - LOW DAYT
IME WINTER THERMOSTA
T (P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 62 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 4300 CU.FT. COOLING: 0 KWH SAVINGS OF $ 12 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 340 TO $ 580 AND WILL BE RECOVERED IN 29.0 TO 49.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 460 TO $ 740 AND WILL BE RECOVERED IN 39.3 TO 63.2 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 800 CU.FT. COOLING: 5 KWH SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.4 TO 8.6 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 16 PER YEAR AT CURRENT PRICES (OR $ 160 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 5900 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 62 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 62 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 19% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

CASE #116 - LOW NIGH
T WINTER THERMOSTA
T (P-C) 22090

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 57 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 4400 CU.FT. COOLING: 0 KWH SAVINGS OF $ 12 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 410 TO $ 695 AND WILL BE RECOVERED IN 34.7 TO 59.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 550 TO $ 890 AND WILL BE RECOVERED IN 47.0 TO 75.6 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 800 CU.FT. COOLING: 5 KWH SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.4 TO 8.6 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 16 PER YEAR AT CURRENT PRICES (OR $ 160 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 5900 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #117 - LOW DAY
& NIGHT WINTER THE
RMO-STAT (P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 62 DEG.
NIGHT : 57 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 3300 CU.FT. COOLING: 0 KWH SAVINGS OF $ 9 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 475 TO $ 810 AND WILL BE RECOVERED IN 53.8 TO 91.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 645 TO $1035 AND WILL BE RECOVERED IN 72.8 TO 117.2 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 600 CU.FT. COOLING: 5 KWH SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.9 TO 11.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 12 PER YEAR AT CURRENT PRICES (OR $ 120 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 4400 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #118 - HEAT SYS
TEM RECENTLY SERVIC
ED (P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: RECENTLY
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5100 CU.FT. COOLING: 0 KWH SAVINGS OF $ 14 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 545 TO $ 930 AND WILL BE RECOVERED IN 39.6 TO 67.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 735 TO $1185 AND WILL BE RECOVERED IN 53.6 TO 86.2 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1000 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.2 TO 7.2 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 19 PER YEAR AT CURRENT PRICES (OR $ 190 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 7000 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

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CASE #119 - HEAT SYS
TEM NEVER SERVICED
(P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6400 CU.FT. COOLING: 0 KWH SAVINGS OF $ 17 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 610 TO $1045 AND WILL BE RECOVERED IN 35.7 TO 60.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 830 TO $1330 AND WILL BE RECOVERED IN 48.2 TO 77.6 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1200 CU.FT. COOLING: 10 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.0 TO 5.8 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 24 PER YEAR AT CURRENT PRICES (OR $ 240 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 8700 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #120 - LOW HEAT
ING FUEL BILL (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 250
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 680 TO $1160 AND WILL BE RECOVERED IN 44.6 TO 76.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 920 TO $1480 AND WILL BE RECOVERED IN 60.3 TO 97.0 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #121 - HIGH HEA
TINGFUEL BILL (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 950
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 750 TO $1275 AND WILL BE RECOVERED IN 49.0 TO 83.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $1010 TO $1630 AND WILL BE RECOVERED IN 66.3 TO 106.7 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #122 - NO AIR C
OND-ITIONER SYSTEM (
P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 550
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1 FREEZERS : 1
GAS LIGHTS : 0 *FIREPLACES : 0
REFRIGERATORS: 1 *DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 815 TO $1390 AND WILL BE RECOVERED IN 53.5 TO 91.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $1105 TO $1775 AND WILL BE RECOVERED IN 72.4 TO 116.4 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

CASE #123 - LOW COST
AIRCONDITIONER FUEL
(P-C) 22090

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
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*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 250
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
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*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 885 TO $1510 AND WILL BE RECOVERED IN 57.9 TO 98.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $1195 TO $1925 AND WILL BE RECOVERED IN 78.4 TO 126.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #124 -HIGH COST
AIRCONDITIONER FUEL
(P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 950
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 950 TO $1625 AND WILL BE RECOVERED IN 62.4 TO 106.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $1290 TO $2070 AND WILL BE RECOVERED IN 84.4 TO 135.8 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #125 - LOW DAY
TIMESUMMER THERMOSTA
T (P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 68 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 30 KWH SAVINGS OF $ 16 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1020 TO $1740 AND WILL BE RECOVERED IN 62.0 TO 105.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $1380 TO $2220 AND WILL BE RECOVERED IN 83.9 TO 134.9 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 20 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.0 TO 5.7 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 23 PER YEAR AT CURRENT PRICES (OR $ 230 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 100 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 68 DEGREES DURING THE DAY AND 77 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #126 - LOW NIGH
T SUMMER THERMOSTA
T (P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 68 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1 FREEZERS : 1
GAS LIGHTS : 0 *FIREPLACES : 0
REFRIGERATORS: 1 *DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 30 KWH SAVINGS OF $ 16 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1090 TO $1855 AND WILL BE RECOVERED IN 66.2 TO 112.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $1470 TO $2370 AND WILL BE RECOVERED IN 89.6 TO 144.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 20 KWH SAVINGS OF $ 4 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 0.9 TO 5.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 24 PER YEAR AT CURRENT PRICES (OR $ 240 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 100 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #127 - LOW DAY
AND NIGHT SUMMER THE
RMO-STAT (P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 68 DEG.
NIGHT : 68 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 100 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1155 TO $1970 AND WILL BE RECOVERED IN 60.4 TO 103.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $1565 TO $2515 AND WILL BE RECOVERED IN 81.7 TO 131.4 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 40 KWH SAVINGS OF $ 4 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 0.8 TO 4.6 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 30 PER YEAR AT CURRENT PRICES (OR $ 300 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 200 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 68 DEGREES DURING THE DAY AND 68 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #128 - NO STORM
WINDOWS (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 250
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 0
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 28300 CU.FT. COOLING: 0 KWH SAVINGS OF $ 75 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 330 TO $ 550 AND WILL BE RECOVERED IN 4.3 TO 7.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 440 TO $ 690 AND WILL BE RECOVERED IN 5.7 TO 9.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 10 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.3 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 80 PER YEAR AT CURRENT PRICES (OR $ 800 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 30400 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #129 - NO STORM
WINDOWS OR DOORS
(P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 250
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 0
NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 28300 CU.FT. COOLING: 0 KWH SAVINGS OF $ 75 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 495 TO $ 835 AND WILL BE RECOVERED IN 6.5 TO 10.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 650 TO $1050 AND WILL BE RECOVERED IN 8.5 TO 13.8 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 10 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.3 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 80 PER YEAR AT CURRENT PRICES (OR $ 800 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 30400 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #130 - ABSENSE
OF WEATHERSTRIPPING
(P-C) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : NONE
WINDOWS RATTLE IN WIND : REGULARLY
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 13000 CU.FT. COOLING: 20 KWH SAVINGS OF $ 35 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 565 TO $ 950 AND WILL BE RECOVERED IN 15.8 TO 26.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1200 AND WILL BE RECOVERED IN 20.6 TO 33.5 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 6300 CU.FT. COOLING: 30 KWH SAVINGS OF $ 18 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 7 TO $ 40 AND WILL BE RECOVERED IN 0.4 TO 2.2 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 35 PER YEAR AT CURRENT PRICES (OR $ 350 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 13000 CU.FT. FOR HEATING AND 20 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

CASE #131 - TRIPLE
NUMBER OF LARGE
WIN-DOWS (P-C) 22090

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 6
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

0 0 0 5 1 0 0 1 3 6

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 635 TO $1065 AND WILL BE RECOVERED IN 41.5 TO 69.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 830 TO $1350 AND WILL BE RECOVERED IN 54.5 TO 88.3 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 1.3 TO 7.8 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #132 - LOOSE FI
T ONWINDOWS (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : NONE
WINDOWS RATTLE IN WIND : NEVER
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

0 0 7 5 1 0 0 1 3 7

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 8800 CU.FT. COOLING: 2 KWH SAVINGS OF $ 24 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 700 TO $1180 AND WILL BE RECOVERED IN 29.4 TO 49.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 925 TO $1495 AND WILL BE RECOVERED IN 38.7 TO 62.7 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 2100 CU.FT. COOLING: 10 KWH SAVINGS OF $ 6 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 7 TO $ 40 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 24 PER YEAR AT CURRENT PRICES (OR $ 240 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 8800 CU.FT. FOR HEATING AND 2 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #142 - NO ATTIC
(P-C)

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
PERMANENT FLOOR : NO
ATTIC VENTS :
ATTIC EXHAUST FAN:
FLOOR INSULATION:
INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1 FREEZERS : 1
GAS LIGHTS : 0 *FIREPLACES : 0
REFRIGERATORS: 1 *DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

0 0 0 7 0 3 1 0 0 1 3 8

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	YOU INDICATE YOU DO NOT HAVE AN UNHEATED ATTIC. ADDITIONAL INSULATION WILL SAVE YOU MONEY, BUT COSTS AND SAVINGS CANNOT BE ESTIMATED IN THIS REPORT.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 10 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 770 TO $1295 AND WILL BE RECOVERED IN 49.7 TO 83.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $1015 TO $1645 AND WILL BE RECOVERED IN 65.6 TO 106.2 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 10 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.3 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 22 PER YEAR AT CURRENT PRICES (OR $ 220 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 20 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE. ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #143 - NO ATTIC
VENTILATION (P-C
) 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : NO
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

0 0 0 5 1 0 1 3 9

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 835 TO $1415 AND WILL BE RECOVERED IN 54.9 TO 92.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $1110 TO $1790 AND WILL BE RECOVERED IN 72.6 TO 117.4 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #144 - ATTIC FA
N PRESENT (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : NO
ATTIC EXHAUST FAN: YES
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 905 TO $1530 AND WILL BE RECOVERED IN 59.3 TO 100.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $1200 TO $1940 AND WILL BE RECOVERED IN 78.6 TO 127.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #145 - PARTICLE
INSULATION (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1 FREEZERS : 1
GAS LIGHTS : 0 *FIREPLACES : 0
REFRIGERATORS: 1 *DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 3100 CU.FT. COOLING: 1 KWH SAVINGS OF $ 8 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 110 TO $ 150 AND WILL BE RECOVERED IN 13.3 TO 17.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 135 TO $ 175 AND WILL BE RECOVERED IN 15.9 TO 20.4 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 975 TO $1645 AND WILL BE RECOVERED IN 63.8 TO 107.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $1290 TO $2090 AND WILL BE RECOVERED IN 84.7 TO 136.8 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 30 PER YEAR AT CURRENT PRICES (OR $ 300 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 10900 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #146 - LESS INS
ULA-TION (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
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*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG:
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 4 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
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*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 3200 CU.FT. COOLING: 1 KWH SAVINGS OF $ 9 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 110 TO $ 150 AND WILL BE RECOVERED IN 12.8 TO 17.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 135 TO $ 175 AND WILL BE RECOVERED IN 15.3 TO 19.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1040 TO $1760 AND WILL BE RECOVERED IN 68.2 TO 115.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $1385 TO $2235 AND WILL BE RECOVERED IN 90.7 TO 146.5 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 30 PER YEAR AT CURRENT PRICES (OR $ 300 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 11000 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #147 - MORE INS
ULA-TION (P-C)
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 10 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	4	4	3	3
NO. GLASS DOORS:	1	0	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5700 CU.FT. COOLING: 0 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1110 TO $1875 AND WILL BE RECOVERED IN 72.7 TO 123.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $1475 TO $2385 AND WILL BE RECOVERED IN 96.7 TO 156.2 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1100 CU.FT. COOLING: 5 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 3 TO $ 20 AND WILL BE RECOVERED IN 1.1 TO 6.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 21 PER YEAR AT CURRENT PRICES (OR $ 210 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 7800 CU.FT. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 23% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
*LIVING AREA : 1400 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
*HEATING FUEL BILL: $ 960
*AIR COND. TYPE: GAS CENTRAL
*AIR COND. FUEL COST: $ 960
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 7300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 21 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 210 TO $ 280 AND WILL BE RECOVERED IN 10.2 TO 13.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 250 TO $ 320 AND WILL BE RECOVERED IN 12.3 TO 15.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 9300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 280 TO $ 380 AND WILL BE RECOVERED IN 10.7 TO 14.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 335 TO $ 405 AND WILL BE RECOVERED IN 12.9 TO 15.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 16100 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 12.9 TO 22.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 17.0 TO 28.1 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 70 PER YEAR AT CURRENT PRICES (OR $ 700 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 26500 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 165: ZIP CODE
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
*LIVING AREA : 1400 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
*HEATING FUEL BILL: $ 960
*AIR COND. TYPE: GAS CENTRAL
*AIR COND. FUEL COST: $ 960
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 7300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 21 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 210 TO $ 280 AND WILL BE RECOVERED IN 10.2 TO 13.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 250 TO $ 320 AND WILL BE RECOVERED IN 12.3 TO 15.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 9300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 280 TO $ 380 AND WILL BE RECOVERED IN 10.7 TO 14.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 335 TO $ 405 AND WILL BE RECOVERED IN 12.9 TO 15.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 16100 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 12.9 TO 22.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 17.0 TO 28.1 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 70 PER YEAR AT CURRENT PRICES (OR $ 700 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 26500 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 166: DATA ALPHA
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INCLUDED 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
*LIVING AREA : 1400 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
*HEATING FUEL BILL: $ 960
*AIR COND. TYPE: GAS CENTRAL
*AIR COND. FUEL COST: $ 960
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 7300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 21 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 210 TO $ 280 AND WILL BE RECOVERED IN 10.2 TO 13.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 250 TO $ 320 AND WILL BE RECOVERED IN 12.3 TO 15.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 9300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 280 TO $ 380 AND WILL BE RECOVERED IN 10.7 TO 14.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 335 TO $ 405 AND WILL BE RECOVERED IN 12.9 TO 15.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 16600 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 12.5 TO 21.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 16.5 TO 27.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 600 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 2.4 TO 14.4 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 75 PER YEAR AT CURRENT PRICES (OR $ 750 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 27100 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 170: ALL DATA
AT OAND A BLANK CARD
INSETRTED 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL
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*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 700 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
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*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 150
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 150
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS
---
*NO. STORM WINDOWS: 0
NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS
---
*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
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*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS
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*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 3700 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 10 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 105 TO $ 140 AND WILL BE RECOVERED IN 10.2 TO 13.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 125 TO $ 160 AND WILL BE RECOVERED IN 12.3 TO 15.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 4700 CU.FT. COOLING: 200 CU.FT. SAVINGS OF $ 13 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 140 TO $ 190 AND WILL BE RECOVERED IN 10.7 TO 14.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 170 TO $ 205 AND WILL BE RECOVERED IN 12.9 TO 15.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 15300 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 40 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 13.6 TO 23.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 18.0 TO 29.6 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 300 CU.FT. COOLING: 30 CU.FT. SAVINGS OF $ 1 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 4.8 TO 28.8 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 55 PER YEAR AT CURRENT PRICES (OR $ 550 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 20500 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 171: ALL DATA
AT 1
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 1 STORY
YEAR BUILT: ABOUT 1915
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 900 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
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*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 57 DEG.
NIGHT : 57 DEG.
HEATING SYSTEM SERVICE: RECENTLY
HEATING FUEL BILL: $ 250
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 250
SUMMER THERMOSTAT SETTING
DAY TIME: 68 DEG.
NIGHT : 68 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 11
NO. STORM DOORS : 11
EXTRA LARGE WINDOWS: 22
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : REGULARLY
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
*PERMANENT FLOOR : NO
*ATTIC VENTS :
*ATTIC EXHAUST FAN:
*FLOOR INSULATION:
*INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	14	14	14	13
NO. GLASS DOORS:	3	3	3	2
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
---
*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: GAS
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 1
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	YOU INDICATE YOU DO NOT HAVE AN UNHEATED ATTIC. ADDITIONAL INSULATION WILL SAVE YOU MONEY, BUT COSTS AND SAVINGS CANNOT BE ESTIMATED IN THIS REPORT.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 45900 CU.FT. COOLING: 1600 KWH SAVINGS OF $ 100 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1305 TO $2025 AND WILL BE RECOVERED IN 12.9 TO 20.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $1645 TO $2505 AND WILL BE RECOVERED IN 16.3 TO 24.8 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 68 DEGREES DURING THE DAY AND 68 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

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CASE 172: ALL DATA
AT 2
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 1/2 STORY SPLIT LEVEL
YEAR BUILT: ABOUT 1932
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1100 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: ELECTRIC
WINTER THERMOSTAT SETTING
DAY TIME: 62 DEG.
NIGHT : 62 DEG.
HEATING SYSTEM SERVICE: RECENTLY
HEATING FUEL BILL: $ 350
AIR COND. TYPE: NONE
*AIR COND. FUEL COST: $ 0
SUMMER THERMOSTAT SETTING
*DAY TIME:
*NIGHT :

WINDOWS AND DOORS

NO. STORM WINDOWS: 22
*NO. STORM DOORS : 10
EXTRA LARGE WINDOWS: 44
WEATHERSTRIPPING : NONE
WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
PERMANENT FLOOR : NO
ATTIC VENTS :
ATTIC EXHAUST FAN:
*FLOOR INSULATION:
*INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	28	28	27	27
*NO. GLASS DOORS:	0	0	5	5
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: ELECTRIC
CLOTHES DRYER: ELECTRIC
WATER HEATER : ELECTRIC

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	YOU INDICATE YOU DO NOT HAVE AN UNHEATED ATTIC. ADDITIONAL INSULATION WILL SAVE YOU MONEY, BUT COSTS AND SAVINGS CANNOT BE ESTIMATED IN THIS REPORT.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 20200 KWH COOLING: 0 SAVINGS OF $ 70 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $2205 TO $3355 AND WILL BE RECOVERED IN 31.5 TO 47.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $2735 TO $4125 AND WILL BE RECOVERED IN 39.1 TO 58.9 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 200 KWH COOLING: 0 SAVINGS OF $ 1 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 55 TO $ 335 AND WILL BE RECOVERED IN 48.8 TO 292.8 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 130 PER YEAR AT CURRENT PRICES (OR $ 1300 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 20400 KWH FOR HEATING AND 0 FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 62 DEGREES DURING THE DAY AND 62 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 62 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 13% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

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CASE 173: ALL DATA
AT 3
33333

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1955
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1300 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: PROPANE
WINTER THERMOSTAT SETTING
DAY TIME: 66 DEG.
NIGHT : 66 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 450
AIR COND. TYPE: WINDOW/WALL UNITS
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 33
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 66
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : NEVER
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION:
INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	42	41	41	41
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: PROPANE
CLOTHES DRYER: OTHER
WATER HEATER : OIL

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 20 CU.FT. COOLING: 200 KWH SAVINGS OF $ 16 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 95 TO $ 130 AND WILL BE RECOVERED IN 6.2 TO 8.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 115 TO $ 150 AND WILL BE RECOVERED IN 7.4 TO 9.5 YEARS.
ADD ATTIC INSULATION VALUE OF R-22 OR 7 TO 8 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 20 CU.FT. COOLING: 200 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 180 TO $ 230 AND WILL BE RECOVERED IN 9.8 TO 12.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 220 TO $ 255 AND WILL BE RECOVERED IN 11.9 TO 13.7 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 240 CU.FT. COOLING: 800 KWH SAVINGS OF $ 145 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $3320 TO $5065 AND WILL BE RECOVERED IN 23.3 TO 35.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $4110 TO $6220 AND WILL BE RECOVERED IN 28.8 TO 43.6 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1 CU.FT. COOLING: 20 KWH SAVINGS OF $ 1 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 40 TO $ 235 AND WILL BE RECOVERED IN 34.6 TO 207.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 160 PER YEAR AT CURRENT PRICES (OR $ 1600 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 260 CU.FT. FOR HEATING AND 1100 KWH FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 66 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 66 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 17% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 174: ALL DATA
AT 4
44444

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 3 STORY
YEAR BUILT: ABOUT 1970
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
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*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: OIL
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 71 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 550
SUMMER THERMOSTAT SETTING
DAY TIME: 80 DEG.
NIGHT : 80 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 44
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 88
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS
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*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 8 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	55	55	55	55
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
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*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: OTHER
CLOTHES DRYER: OTHER
WATER HEATER : OIL

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 2400 GAL. COOLING: 0 CU.FT. SAVINGS OF $ 235 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $4355 TO $6630 AND WILL BE RECOVERED IN 18.4 TO 28.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $5385 TO $8135 AND WILL BE RECOVERED IN 22.8 TO 34.4 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 10 GAL. COOLING: 100 CU.FT. SAVINGS OF $ 7 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 50 TO $ 310 AND WILL BE RECOVERED IN 7.3 TO 43.8 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 260 PER YEAR AT CURRENT PRICES (OR $ 2600 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 2410 GAL. FOR HEATING AND 0 CU.FT. FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 71 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 60 AT NIGHT, YOU COULD SAVE 21% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 175: ALL DATA
AT 5

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1700 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: NONE
WINTER THERMOSTAT SETTING
*DAY TIME: 0 DEG.
*NIGHT : 0 DEG.
HEATING SYSTEM SERVICE:
*HEATING FUEL BILL: $ 0
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 650
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 55
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 110
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 10 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	69	69	69	68
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 0 COOLING: 400 CU.FT. SAVINGS OF $ 1 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $5390 TO $8190 AND WILL BE RECOVERED IN ***** TO ***** YEARS CONTRACTOR INSTALLED WILL COST FROM $6660 TO $**** AND WILL BE RECOVERED IN ***** TO ***** YEARS.
	THE INSTALLATION OF WEATHERSTRIPPING AND CAULKING AROUND DOOR AND WINDOW OPENINGS WOULD SAVE FUEL, BUT IT WOULD TAKE MORE THAN 20 YEARS TO REPAY YOUR INVESTMENT.	

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

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CASE 176: ALL DATA
AT 6
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL
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*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1900 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
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*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: NONE
WINTER THERMOSTAT SETTING
DAY TIME: 0 DEG.
NIGHT : 0 DEG.
HEATING SYSTEM SERVICE:
*HEATING FUEL BILL: $ 0
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 750
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 66
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 132
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS
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*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 0 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	83	83	82	82
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
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*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS
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*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 0 COOLING: 1600 CU.FT. SAVINGS OF $ 4 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 285 TO $ 380 AND WILL BE RECOVERED IN 64.6 TO 86.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 340 TO $ 435 AND WILL BE RECOVERED IN 77.5 TO 99.0 YEARS.
ADD ATTIC INSULATION VALUE OF R-22 OR 7 TO 8 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 0 COOLING: 1900 CU.FT. SAVINGS OF $ 5 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 530 TO $ 665 AND WILL BE RECOVERED IN 103.3 TO 129.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 645 TO $ 740 AND WILL BE RECOVERED IN 125.5 TO 143.9 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 0 COOLING: 500 CU.FT. SAVINGS OF $ 1 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $6425 TO $9750 AND WILL BE RECOVERED IN ***** TO ***** YEARS CONTRACTOR INSTALLED WILL COST FROM $7935 TO $**** AND WILL BE RECOVERED IN ***** TO ***** YEARS.
	THE INSTALLATION OF WEATHERSTRIPPING AND CAULKING AROUND DOOR AND WINDOW OPENINGS WOULD SAVE FUEL, BUT IT WOULD TAKE MORE THAN 20 YEARS TO REPAY YOUR INVESTMENT.	

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 7 PER YEAR AT CURRENT PRICES (OR $ 70 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 0 FOR HEATING AND 2500 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

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CASE 177: ALL DATA
AT 7
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 2100 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 850
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 850
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 77
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 154
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	97	96	96	96
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 11300 CU.FT. COOLING: 400 CU.FT. SAVINGS OF $ 13 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 315 TO $ 420 AND WILL BE RECOVERED IN 23.6 TO 31.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 380 TO $ 485 AND WILL BE RECOVERED IN 28.3 TO 36.1 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 14300 CU.FT. COOLING: 500 CU.FT. SAVINGS OF $ 17 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 420 TO $ 565 AND WILL BE RECOVERED IN 24.7 TO 33.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 505 TO $ 610 AND WILL BE RECOVERED IN 29.7 TO 35.9 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 336800 CU.FT. COOLING: 500 CU.FT. SAVINGS OF $ 385 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $7460 TO $**** AND WILL BE RECOVERED IN 19.3 TO 29.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $9210 TO $**** AND WILL BE RECOVERED IN 23.8 TO 35.8 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 900 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 1 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 90 TO $ 545 AND WILL BE RECOVERED IN 81.9 TO 491.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 405 PER YEAR AT CURRENT PRICES (OR $ 4050 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 352800 CU.FT. FOR HEATING AND 1300 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 178: ALL DATA
AT 8

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 2300 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 950
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 950
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 12000 CU.FT. COOLING: 200 CU.FT. SAVINGS OF $ 35 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 345 TO $ 460 AND WILL BE RECOVERED IN 10.4 TO 13.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 415 TO $ 530 AND WILL BE RECOVERED IN 12.5 TO 16.0 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 15300 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 40 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 460 TO $ 620 AND WILL BE RECOVERED IN 11.0 TO 14.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 550 TO $ 665 AND WILL BE RECOVERED IN 13.3 TO 16.0 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 18400 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 50 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 11.3 TO 19.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 14.9 TO 24.5 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 900 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 1.5 TO 8.8 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 95 PER YEAR AT CURRENT PRICES (OR $ 950 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 35500 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 179: ALL DATA
AT 9

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 2500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 1200
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 1200
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 13100 CU.FT. COOLING: 40 CU.FT. SAVINGS OF $ 35 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 375 TO $ 500 AND WILL BE RECOVERED IN 10.6 TO 14.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 450 TO $ 575 AND WILL BE RECOVERED IN 12.7 TO 16.2 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 16600 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 500 TO $ 675 AND WILL BE RECOVERED IN 11.1 TO 15.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 600 TO $ 725 AND WILL BE RECOVERED IN 13.4 TO 16.1 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 18800 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 50 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 11.0 TO 18.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 14.6 TO 24.0 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1000 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 1.3 TO 8.1 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 100 PER YEAR AT CURRENT PRICES (OR $ 1000 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 37400 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 180: ALL DATA L
EGALMINIMUM FOR PREP
RO- CESSOR 11111

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 1 STORY
YEAR BUILT: ABOUT 1915
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 700 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
---
*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 57 DEG.
NIGHT : 57 DEG.
HEATING SYSTEM SERVICE: RECENTLY
HEATING FUEL BILL: $ 150
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 150
SUMMER THERMOSTAT SETTING
DAY TIME: 68 DEG.
NIGHT : 68 DEG.

WINDOWS AND DOORS
---
*NO. STORM WINDOWS: 0
NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : REGULARLY
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
*PERMANENT FLOOR : NO
*ATTIC VENTS :
*ATTIC EXHAUST FAN:
*FLOOR INSULATION:
*INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
---
*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: GAS
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 1
REFRIGERATORS: 1
FREEZERS : 1
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	YOU INDICATE YOU DO NOT HAVE AN UNHEATED ATTIC. ADDITIONAL INSULATION WILL SAVE YOU MONEY, BUT COSTS AND SAVINGS CANNOT BE ESTIMATED IN THIS REPORT.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 12600 CU.FT. COOLING: 500 KWH SAVINGS OF $ 40 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 13.3 TO 22.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 17.6 TO 28.9 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 68 DEGREES DURING THE DAY AND 68 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

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CASE 181: ALL DATA L
EGALMAXIMUM FOR PREP
RO- CESSOR 90000

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 3 STORY
YEAR BUILT: ABOUT 1970
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 2500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: NONE
WINTER THERMOSTAT SETTING
*DAY TIME: 0 DEG.
*NIGHT : 0 DEG.
HEATING SYSTEM SERVICE:
*HEATING FUEL BILL: $ 0
AIR COND. TYPE: NONE
*AIR COND. FUEL COST: $ 0
SUMMER THERMOSTAT SETTING
*DAY TIME:
*NIGHT :

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : NEVER
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
PERMANENT FLOOR : NO
ATTIC VENTS :
ATTIC EXHAUST FAN:
FLOOR INSULATION:
INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: OTHER
CLOTHES DRYER: OTHER
WATER HEATER : OIL

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK

OTHER IMPORTANT INFORMATION:

A 80 SQ. FT. SOLAR HEATING SYSTEM TO SUPPLEMENT HOUR PRESENT HOT WATER HEATING SYSTEM WOULD SAVE APPROXIMATELY 0 GAL. OF FUEL OR 0 DOLLARS EACH YEAR. INSTALLING SUCH A SYSTEM WOULD COST ABOUT 2500 DOLLARS.

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CASE 182: ALL DATA B
UT HEAT AND COOL FU
EL LEGAL MAX 90000

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 3 STORY
YEAR BUILT: ABOUT 1970
ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 2500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: OIL
WINTER THERMOSTAT SETTING
DAY TIME: 77 DEG.
NIGHT : 77 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 1200
AIR COND. TYPE: WINDOW/WALL UNITS
AIR COND. FUEL COST: $ 1200
SUMMER THERMOSTAT SETTING
DAY TIME: 80 DEG.
NIGHT : 80 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : NEVER
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
PERMANENT FLOOR : NO
ATTIC VENTS :
ATTIC EXHAUST FAN:
FLOOR INSULATION:
INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: OTHER
CLOTHES DRYER: OTHER
WATER HEATER : OIL

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	YOU INDICATE YOU DO NOT HAVE AN UNHEATED ATTIC. ADDITIONAL INSULATION WILL SAVE YOU MONEY, BUT COSTS AND SAVINGS CANNOT BE ESTIMATED IN THIS REPORT.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 390 GAL. COOLING: 0 KWH SAVINGS OF $ 175 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 3.2 TO 5.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 4.2 TO 6.9 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 20 GAL. COOLING: 1 KWH SAVINGS OF $ 9 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 0.4 TO 2.5 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 175 PER YEAR AT CURRENT PRICES (OR $ 1750 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 390 GAL. FOR HEATING AND 0 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 77 DEGREES DURING THE DAY AND 77 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 60 AT NIGHT, YOU COULD SAVE 36% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

H O M E E N E R G Y A U D I T S Y S T E M
J O B S U M M A R Y

0 RECORDS PROCESSED WITH NO DEFAULTED VALUES
43 RECORDS PROCESSED WITH AT LEAST ONE DEFAULTED VALUE
1 RECORDS NOT PROCESSED--HOME NEITHER HEATED NOR COOLED
0 RECORDS NOT PROCESSED--ZIP CODE NOT ON LOCAL DATA FILE
44 TOTAL RECORDS READ

DISTRIBUTION OF RECORDS PROCESSED BY LOCAL DATA FILE ZIP CODE RANGES

ZIP RANGE	RECORDS PROCESSED
100 - 99999	43

END HOME ENERGY ANALYSIS SYSTEM ANALYSIS PROGRAM

0 0 0 0 5 1 0 0 1 6 0

Figure 7

Analysis Program Job Summary Report
for HEA Questionnaire Data

H O M E E N E R G Y A U D I T S Y S T E M
J O B S U M M A R Y

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    0 RECORDS PROCESSED WITH NO DEFAULTED VALUES
   70 RECORDS PROCESSED WITH AT LEAST ONE DEFAULTED VALUE
    1 RECORDS NOT PROCESSED--HOME NEITHER HEATED NOR COOLED
    1 RECORDS NOT PROCESSED--ZIP CODE NOT ON LOCAL DATA FILE
   72 TOTAL RECORDS READ
```

DISTRIBUTION OF RECORDS PROCESSED BY LOCAL DATA FILE ZIP CODE RANGES

ZIP RANGE	RECORDS PROCESSED
100 - 100	1
1000 - 90000	67
99999 - 99999	2

END HOME ENERGY ANALYSIS SYSTEM ANALYSIS PROGRAM

HOME ENER AUDIT BEGUN

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CASE # 1 - BASE HOUS

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 70 TO $ 115 AND WILL BE RECOVERED IN 3.5 TO 6.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 90 TO $ 150 AND WILL BE RECOVERED IN 4.8 TO 7.7 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE # 2 - ONE ATTAC
HED WALL
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 1
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 12
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
*NO. OF WINDOWS :	4	5	3	0
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
*AMOUNT SHADED :	PARTLY	PARTLY	MUCH	MUCH

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 135 TO $ 230 AND WILL BE RECOVERED IN 7.1 TO 12.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 185 TO $ 295 AND WILL BE RECOVERED IN 9.6 TO 15.4 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE # 3 - TWO ATTAC
HED WALLS
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 2
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 9
NO. STORM DOORS : 2
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
*NO. OF WINDOWS :	4	5	0	0
NO. GLASS DOORS:	0	1	0	0
*NO. OTHER DOORS:	1	1	0	0
*AMOUNT SHADED :	PARTLY	PARTLY	MUCH	MUCH

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 205 TO $ 350 AND WILL BE RECOVERED IN 10.6 TO 18.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 275 TO $ 445 AND WILL BE RECOVERED IN 14.4 TO 23.1 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE # 4 - OLD CONST
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1915
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 270 TO $ 465 AND WILL BE RECOVERED IN 14.2 TO 24.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 370 TO $ 590 AND WILL BE RECOVERED IN 19.2 TO 30.9 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE # 4 - HEAVY CON
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED HEAVY
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 340 TO $ 580 AND WILL BE RECOVERED IN 17.7 TO 30.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 460 TO $ 740 AND WILL BE RECOVERED IN 24.0 TO 38.6 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE # 6 - LOW LIVIN
G AREA
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 900 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES.
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5900 CU.FT. COOLING: 20 KWH SAVINGS OF $ 17 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 410 TO $ 695 AND WILL BE RECOVERED IN 24.6 TO 41.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 550 TO $ 890 AND WILL BE RECOVERED IN 33.2 TO 53.4 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE # 7 - HIGH LIVI
NG AREA
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 2300 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 7900 CU.FT. COOLING: 40 KWH SAVINGS OF $ 23 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 475 TO $ 810 AND WILL BE RECOVERED IN 21.0 TO 35.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 645 TO $1035 AND WILL BE RECOVERED IN 28.5 TO 45.8 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE # 8 - LIGHT EXT
ERIOR WALL COLOR
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: LIGHT
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6900 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 545 TO $ 930 AND WILL BE RECOVERED IN 28.0 TO 47.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 735 TO $1185 AND WILL BE RECOVERED IN 37.8 TO 60.9 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE # 9 - DARK EXTE
RIOR WALL COLOR
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: DARK
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

0 0 5 0 1 3 1 7 0

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 610 TO $1045 AND WILL BE RECOVERED IN 31.9 TO 54.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 830 TO $1330 AND WILL BE RECOVERED IN 43.1 TO 69.4 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #10 - LIGHT ROO
F COLOR
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : LIGHT
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 680 TO $1160 AND WILL BE RECOVERED IN 35.4 TO 60.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 920 TO $1480 AND WILL BE RECOVERED IN 47.9 TO 77.1 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #11 - DARK ROOF
COLOR

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : DARK
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 750 TO $1275 AND WILL BE RECOVERED IN 39.0 TO 66.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $1010 TO $1630 AND WILL BE RECOVERED IN 52.7 TO 84.8 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #12 - EXTENSIVE
ROOF SHADOW
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : MUCH
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 815 TO $1390 AND WILL BE RECOVERED IN 42.5 TO 72.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $1105 TO $1775 AND WILL BE RECOVERED IN 57.5 TO 92.6 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #13 - LIGHT COL
ORED GROUND COVER
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : MEDIUM

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 885 TO $1510 AND WILL BE RECOVERED IN 45.9 TO 78.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $1195 TO $1925 AND WILL BE RECOVERED IN 62.1 TO 99.9 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #14 - DARK COLO
RED GROUND COVER
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : DARK

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6900 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 950 TO $1625 AND WILL BE RECOVERED IN 49.0 TO 83.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $1290 TO $2070 AND WILL BE RECOVERED IN 66.2 TO 106.6 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #15 - LOW DAY
TIME WINTER THERMO-
STAT 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 4700 CU.FT. COOLING: 30 KWH SAVINGS OF $ 14 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1020 TO $1740 AND WILL BE RECOVERED IN 75.2 TO 128.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $1380 TO $2220 AND WILL BE RECOVERED IN 101.7 TO 163.6 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #16 - LOW NIGHT
TIME WINTER THERMO-
STAT 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
*NIGHT : 60 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 5200 CU.FT. COOLING: 30 KWH SAVINGS OF $ 15 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1090 TO $1855 AND WILL BE RECOVERED IN 72.9 TO 124.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $1470 TO $2370 AND WILL BE RECOVERED IN 98.6 TO 158.6 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #17 - LOW DAY & NIGHT WINTER THERM-OSTAT 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 3900 CU.FT. COOLING: 30 KWH SAVINGS OF $ 11 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1155 TO $1970 AND WILL BE RECOVERED IN 100.8 TO 171.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $1565 TO $2515 AND WILL BE RECOVERED IN 136.3 TO 219.3 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #18 - HEATING
SYSTEM RECENTLY
SERVICED 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: RECENTLY
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6100 CU.FT. COOLING: 20 KWH SAVINGS OF $ 17 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1225 TO $2090 AND WILL BE RECOVERED IN 70.9 TO 120.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $1655 TO $2665 AND WILL BE RECOVERED IN 95.9 TO 154.3 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

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CASE #19 - HEATING
SYSTEM NEVER
SERVICED 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 7600 CU.FT. COOLING: 30 KWH SAVINGS OF $ 22 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1290 TO $2205 AND WILL BE RECOVERED IN 59.8 TO 102.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $1750 TO $2810 AND WILL BE RECOVERED IN 81.0 TO 130.3 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #20 - LOW HEAT
FUEL BILL
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 250
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1360 TO $2320 AND WILL BE RECOVERED IN 70.9 TO 120.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $1840 TO $2960 AND WILL BE RECOVERED IN 95.9 TO 154.3 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #21 - HIGH HEAT
FUEL BILL
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 950
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1430 TO $2435 AND WILL BE RECOVERED IN 74.4 TO 126.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $1930 TO $3110 AND WILL BE RECOVERED IN 100.7 TO 162.0 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #22 - NO AIR
CONDITIONER SYSTEM

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: NONE
*AIR COND. FUEL COST: $ 0
SUMMER THERMOSTAT SETTING
*DAY TIME:
*NIGHT :

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 0 SAVINGS OF $ 18 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1495 TO $2550 AND WILL BE RECOVERED IN 81.9 TO 139.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $2025 TO $3255 AND WILL BE RECOVERED IN 110.8 TO 178.3 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #23 - LOW COST
AIR CONDITIONER FUEL
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 250
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1565 TO $2670 AND WILL BE RECOVERED IN 81.5 TO 139.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $2115 TO $3405 AND WILL BE RECOVERED IN 110.3 TO 177.4 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #24 - HIGH COST
AIR CONDITIONER FUEL
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 950
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1630 TO $2785 AND WILL BE RECOVERED IN 85.0 TO 145.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $2210 TO $3550 AND WILL BE RECOVERED IN 115.1 TO 185.1 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #25 - LOW DAY
TIME SUMMER THERMO-
STAT 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

****

GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 66 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

****

NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 100 KWH SAVINGS OF $ 21 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1700 TO $2900 AND WILL BE RECOVERED IN 80.1 TO 136.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $2300 TO $3700 AND WILL BE RECOVERED IN 108.3 TO 174.2 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 66 DEGREES DURING THE DAY AND 76 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #26 - LOW NIGHT
TIME SUMMER THERMO-
STAT 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 66 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 100 KWH SAVINGS OF $ 22 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1770 TO $3015 AND WILL BE RECOVERED IN 80.7 TO 137.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $2390 TO $3850 AND WILL BE RECOVERED IN 109.1 TO 175.6 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 76 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #27 - LOW DAY &
NIGHT SUMMER THERMO-
STAT 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 66 DEG.
NIGHT : 66 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 200 KWH SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1835 TO $3130 AND WILL BE RECOVERED IN 72.8 TO 124.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $2485 TO $3995 AND WILL BE RECOVERED IN 98.5 TO 158.5 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 66 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #28 - NO STORM
WINDOWS

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 0
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 29600 CU.FT. COOLING: 100 KWH SAVINGS OF $ 85 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 330 TO $ 550 AND WILL BE RECOVERED IN 4.0 TO 6.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 440 TO $ 690 AND WILL BE RECOVERED IN 5.3 TO 8.3 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #29 - NO STORM
WINDOWS OR DOORS
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 0
NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 29600 CU.FT. COOLING: 100 KWH SAVINGS OF $ 85 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 495 TO $ 835 AND WILL BE RECOVERED IN 6.0 TO 10.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 650 TO $1050 AND WILL BE RECOVERED IN 7.8 TO 12.6 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #30 - WEATHER-
STRIPPING ABSENT

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : NONE
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 8900 CU.FT. COOLING: 50 KWH SAVINGS OF $ ~ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 565 TO $ 950 AND WILL BE RECOVERED IN 22.0 TO 37.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1200 AND WILL BE RECOVERED IN 28.8 TO 46.8 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 2100 CU.FT. COOLING: 20 KWH SAVINGS OF $ 6 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 7 TO $ 40 AND WILL BE RECOVERED IN 1.0 TO 6.1 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 25 PER YEAR AT CURRENT PRICES (OR $ 250 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 8900 CU.FT. FOR HEATING AND 50 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #31 - TRIPLE
NUMBER OF LARGE
WINDOWS 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 6
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 635 TO $1065 AND WILL BE RECOVERED IN 33.0 TO 55.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 830 TO $1350 AND WILL BE RECOVERED IN 43.4 TO 70.2 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #32 - LOOSE
FITTING WINDOWS

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : REGULARLY
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 11000 CU.FT. COOLING: 100 KWH SAVINGS OF $ 30 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 700 TO $1180 AND WILL BE RECOVERED IN 21.9 TO 36.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 925 TO $1495 AND WILL BE RECOVERED IN 28.8 TO 46.6 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #33 - LOW R.H.
INDOORS IN WINTER
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : REGULARLY
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 770 TO $1295 AND WILL BE RECOVERED IN 40.1 TO 67.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $1015 TO $1645 AND WILL BE RECOVERED IN 52.9 TO 85.7 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #34 - NEVER AIR
OUT HOUSE IN NICE
WEATHER 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: NO
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 0 KWH SAVINGS OF $ 18 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 835 TO $1415 AND WILL BE RECOVERED IN 45.8 TO 77.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $1110 TO $1790 AND WILL BE RECOVERED IN 60.7 TO 98.1 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #35 - NO SHADES
OR DRAPES

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : NONE

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6900 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 905 TO $1530 AND WILL BE RECOVERED IN 46.5 TO 78.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $1200 TO $1940 AND WILL BE RECOVERED IN 61.7 TO 99.8 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #36 - SMALL
SOLAR WATER HEATER
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE: HIGH
COLLECTOR AREA: 300 SQ.FT.
COLLECTOR TILT: 20 DEG.
USED FOR SPACE HEATING: NO
*USED FOR SPACE COOLING: NO
USED FOR WATER HEATING: YES

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6000 CU.FT. COOLING: 30 KWH SAVINGS OF $ 17 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 975 TO $1645 AND WILL BE RECOVERED IN 56.9 TO 96.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $1290 TO $2090 AND WILL BE RECOVERED IN 75.5 TO 122.0 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #37 - LARGER
SOLAR WATER HEATER
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE: HIGH
COLLECTOR AREA: 900 SQ.FT.
COLLECTOR TILT: 20 DEG.
USED FOR SPACE HEATING: NO
*USED FOR SPACE COOLING: NO
USED FOR WATER HEATING: YES

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 4100 CU.FT. COOLING: 30 KWH SAVINGS OF $ 12 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1040 TO $1760 AND WILL BE RECOVERED IN 86.5 TO 146.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $1385 TO $2235 AND WILL BE RECOVERED IN 114.9 TO 185.7 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #38 - FRONT OF
OUSE TO WEST
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	WEST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1110 TO $1875 AND WILL BE RECOVERED IN 57.8 TO 97.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $1475 TO $2385 AND WILL BE RECOVERED IN 76.9 TO 124.2 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #39 - FRONT OF
HOUSE TO SOUTH
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	SOUTH			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1175 TO $1995 AND WILL BE RECOVERED IN 61.3 TO 103.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $1570 TO $2530 AND WILL BE RECOVERED IN 81.7 TO 132.0 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #40 - FULL WALL SHADING

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	MUCH	MUCH	MUCH	MUCH

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1245 TO $2110 AND WILL BE RECOVERED IN 64.3 TO 109.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $1660 TO $2680 AND WILL BE RECOVERED IN 85.8 TO 138.5 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #41 - NO WALL
SHADING
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1315 TO $2225 AND WILL BE RECOVERED IN 68.4 TO 116.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $1750 TO $2830 AND WILL BE RECOVERED IN 91.3 TO 147.4 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #42 - NO ATTIC

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
PERMANENT FLOOR : NO
*ATTIC VENTS :
ATTIC EXHAUST FAN:
*FLOOR INSULATION:
*INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	YOU INDICATE YOU DO NOT HAVE AN UNHEATED ATTIC. ADDITIONAL INSULATION WILL SAVE YOU MONEY, BUT COSTS AND SAVINGS CANNOT BE ESTIMATED IN THIS REPORT.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1380 TO $2340 AND WILL BE RECOVERED IN 72.0 TO 122.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $1845 TO $2975 AND WILL BE RECOVERED IN 96.1 TO 155.1 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #43 - NO ATTIC VENTILATION

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : NO
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1450 TO $2455 AND WILL BE RECOVERED IN 75.5 TO 128.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $1935 TO $3125 AND WILL BE RECOVERED IN 100.9 TO 162.8 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #44 - ATTIC FAN
PRESENT

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : NO
ATTIC EXHAUST FAN: YES
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1515 TO $2575 AND WILL BE RECOVERED IN 79.1 TO 134.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $2030 TO $3270 AND WILL BE RECOVERED IN 105.7 TO 170.5 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #45 - PARTICLE
INSULATION
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 1900 CU.FT. COOLING: 30 KWH SAVINGS OF $ 6 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 75 TO $ 100 AND WILL BE RECOVERED IN 11.9 TO 15.9 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 90 TO $ 115 AND WILL BE RECOVERED IN 14.3 TO 18.3 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1585 TO $2690 AND WILL BE RECOVERED IN 82.6 TO 140.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $2120 TO $3420 AND WILL BE RECOVERED IN 110.5 TO 178.2 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 25 PER YEAR AT CURRENT PRICES (OR $ 250 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 8700 CU.FT. FOR HEATING AND 100 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #46 - LESS INSULATION

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 4 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 2000 CU.FT. COOLING: 30 KWH SAVINGS OF $ 7 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 75 TO $ 100 AND WILL BE RECOVERED IN 11.5 TO 15.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 90 TO $ 115 AND WILL BE RECOVERED IN 13.8 TO 17.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1655 TO $2805 AND WILL BE RECOVERED IN 86.1 TO 146.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $2210 TO $3570 AND WILL BE RECOVERED IN 115.3 TO 185.9 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 25 PER YEAR AT CURRENT PRICES (OR $ 250 IN 10 YEARS). THIS WOULD INCLUDE FUEL SAVINGS OF 8800 CU.FT. FOR HEATING AND 100 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #47 - MORE
INSULATION

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 8 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1720 TO $2920 AND WILL BE RECOVERED IN 89.7 TO 152.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $2305 TO $3715 AND WILL BE RECOVERED IN 120.1 TO 193.7 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #48 - PARTIAL
BASEMENT WITH CRAWL
SPACE 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : PARTIAL
CRAWL SPACE PRESENT: PARTIAL
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED: YES

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1790 TO $3035 AND WILL BE RECOVERED IN 93.2 TO 158.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $2395 TO $3865 AND WILL BE RECOVERED IN 124.9 TO 201.4 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND `55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #49 - PARTIAL
BASEMENT, CRAWL AND
S-O-G 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : PARTIAL
CRAWL SPACE PRESENT: PARTIAL
BUILT ON SLAB : PARTIAL
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED: YES

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1855 TO $3155 AND WILL BE RECOVERED IN 96.5 TO 163.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $2490 TO $4010 AND WILL BE RECOVERED IN 129.3 TO 208.4 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #50 - CRAWL
SPACE ONLY WITH
VENTILATION 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : NO
CRAWL SPACE PRESENT: YES
BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 0 PERCENT
BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED: YES

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1925 TO $3270 AND WILL BE RECOVERED IN 99.5 TO 169.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $2580 TO $4160 AND WILL BE RECOVERED IN 133.4 TO 215.1 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #51 - CRAWL
SPACE ONLY WITHOUT
VENTILATION 22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : NO
CRAWL SPACE PRESENT: YES
BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 0 PERCENT
BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED: NO

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1995 TO $3385 AND WILL BE RECOVERED IN 103.1 TO 175.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $2670 TO $4310 AND WILL BE RECOVERED IN 138.2 TO 222.8 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #52 - SLAB-ON-GRADE ONLY

22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : NO
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : YES
*BASEMENT WALL UNDER GROUND: 0 PERCENT
BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2 FREEZERS : 1
GAS LIGHTS : 0 FIREPLACES : 1
REFRIGERATORS: 1 DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $2060 TO $3500 AND WILL BE RECOVERED IN 106.6 TO 181.0 YEARS CONTRACTOR INSTALLED WILL COST FROM $2765 TO $4455 AND WILL BE RECOVERED IN 142.9 TO 230.4 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE #53 - BASEMENT
WALL HALF EXPOSED
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : LITTLE
GROUND COVER : LIGHT

INSIDE YOUR HOME

NO. OF OCCUPANTS: 1 DAY; 4 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 71 DEG.
NIGHT : 67 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 14
NO. STORM DOORS : 3
EXTRA LARGE WINDOWS: 2
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : NO
ATTIC VENTS : YES
ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 6 IN.
INSULATION TYPE : BLANKETS OR BATTS

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
WIDTH :	40 FEET			
NO. OF WINDOWS :	4	5	3	2
NO. GLASS DOORS:	0	1	0	0
NO. OTHER DOORS:	1	1	1	0
AMOUNT SHADED :	PARTLY	PARTLY	MUCH	PARTLY

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: NO
BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 50 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: ELECTRIC
WATER HEATER : GAS

COLOR TVS : 2
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 6800 CU.FT. COOLING: 30 KWH SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $2130 TO $3615 AND WILL BE RECOVERED IN 110.9 TO 188.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $2855 TO $4605 AND WILL BE RECOVERED IN 148.8 TO 239.9 YEARS.
	YOUR HOME IS SUFFICIENTLY FITTED WITH WEATHERSTRIPPING AT THIS TIME.	

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 71 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 24% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

CASE 54: ZIP CODE
100
00100

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
*LIVING AREA : 1400 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
*HEATING FUEL BILL: $ 960
*AIR COND. TYPE: GAS CENTRAL
*AIR COND. FUEL COST: $ 960
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1
*GAS LIGHTS : 0
REFRIGERATORS: 1
*FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 7300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 21 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 210 TO $ 280 AND WILL BE RECOVERED IN 10.2 TO 13.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 250 TO $ 320 AND WILL BE RECOVERED IN 12.3 TO 15.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 9300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 280 TO $ 380 AND WILL BE RECOVERED IN 10.7 TO 14.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 335 TO $ 405 AND WILL BE RECOVERED IN 12.9 TO 15.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 16600 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 12.5 TO 21.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 16.5 TO 27.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 600 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 2.4 TO 14.4 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 75 PER YEAR AT CURRENT PRICES (OR $ 750 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 27100 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 55: ZIP CODE
99999

99999

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
*LIVING AREA : 1400 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
*HEATING FUEL BILL: $ 960
*AIR COND. TYPE: GAS CENTRAL
*AIR COND. FUEL COST: $ 960
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1 *FREEZERS : 0
*GAS LIGHTS : 0 *FIREPLACES : 0
REFRIGERATORS: 1 *DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 7300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 21 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 210 TO $ 280 AND WILL BE RECOVERED IN 10.2 TO 13.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 250 TO $ 320 AND WILL BE RECOVERED IN 12.3 TO 15.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 9300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 280 TO $ 380 AND WILL BE RECOVERED IN 10.7 TO 14.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 335 TO $ 405 AND WILL BE RECOVERED IN 12.9 TO 15.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 16600 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 12.5 TO 21.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 16.5 TO 27.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 600 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 2.4 TO 14.4 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 75 PER YEAR AT CURRENT PRICES (OR $ 750 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 27100 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 56: ZIP CODE
99999, HEAT AND COOL
99999

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
*LIVING AREA : 1400 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: HEAT PUMP
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
*HEATING FUEL BILL: $ 1000
AIR COND. TYPE: WINDOW/WALL UNITS
*AIR COND. FUEL COST: $ 960
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1
*GAS LIGHTS : 0
REFRIGERATORS: 1
*FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 700 KWH COOLING: 100 KWH SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 210 TO $ 280 AND WILL BE RECOVERED IN 7.9 TO 10.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 250 TO $ 320 AND WILL BE RECOVERED IN 9.5 TO 12.1 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 900 KWH COOLING: 100 KWH SAVINGS OF $ 35 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 280 TO $ 380 AND WILL BE RECOVERED IN 8.3 TO 11.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 335 TO $ 405 AND WILL BE RECOVERED IN 9.9 TO 12.0 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 1600 KWH COOLING: 0 KWH SAVINGS OF $ 55 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 10.1 TO 17.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 13.3 TO 22.0 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 100 KWH COOLING: 10 KWH SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 1.7 TO 10.4 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 90 PER YEAR AT CURRENT PRICES (OR $ 900 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 2600 KWH FOR HEATING AND 0 KWH FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
*LIVING AREA : 1400 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
*HEATING FUEL BILL: $ 960
*AIR COND. TYPE: GAS CENTRAL
*AIR COND. FUEL COST: $ 960
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS

	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1
*GAS LIGHTS : 0
REFRIGERATORS: 1
*FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 7300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 21 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 210 TO $ 280 AND WILL BE RECOVERED IN 10.2 TO 13.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 250 TO $ 320 AND WILL BE RECOVERED IN 12.3 TO 15.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 9300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 280 TO $ 380 AND WILL BE RECOVERED IN 10.7 TO 14.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 335 TO $ 405 AND WILL BE RECOVERED IN 12.9 TO 15.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 16600 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 12.5 TO 21.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 16.5 TO 27.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 600 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 2.4 TO 14.4 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 75 PER YEAR AT CURRENT PRICES (OR $ 750 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 27100 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 65: ZIP COD
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
*LIVING AREA : 1400 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
*HEATING FUEL BILL: $ 960
*AIR COND. TYPE: GAS CENTRAL
*AIR COND. FUEL COST: $ 960
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1
*GAS LIGHTS : 0
REFRIGERATORS: 1
*FREEZERS : 0
*FIREPLACES : 0
*DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 7300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 21 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 210 TO $ 280 AND WILL BE RECOVERED IN 10.2 TO 13.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 250 TO $ 320 AND WILL BE RECOVERED IN 12.3 TO 15.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 9300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 280 TO $ 380 AND WILL BE RECOVERED IN 10.7 TO 14.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 335 TO $ 405 AND WILL BE RECOVERED IN 12.9 TO 15.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 16600 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 12.5 TO 21.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 16.5 TO 27.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 600 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 2.4 TO 14.4 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 75 PER YEAR AT CURRENT PRICES (OR $ 750 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 27100 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 66: DATA ALP
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
*LIVING AREA : 1400 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
*HEATING FUEL BILL: $ 960
*AIR COND. TYPE: GAS CENTRAL
*AIR COND. FUEL COST: $ 960
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

*NO. STORM WINDOWS: 0
*NO. STORM DOORS : 0
*EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS

	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	5	5	5	5
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1 *FREEZERS : 0
*GAS LIGHTS : 0 *FIREPLACES : 0
REFRIGERATORS: 1 *DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 7300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 21 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 210 TO $ 280 AND WILL BE RECOVERED IN 10.2 TO 13.7 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 250 TO $ 320 AND WILL BE RECOVERED IN 12.3 TO 15.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 9300 CU.FT. COOLING: 300 CU.FT. SAVINGS OF $ 25 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 280 TO $ 380 AND WILL BE RECOVERED IN 10.7 TO 14.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 335 TO $ 405 AND WILL BE RECOVERED IN 12.9 TO 15.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 16600 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 560 TO $ 960 AND WILL BE RECOVERED IN 12.5 TO 21.4 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 740 TO $1220 AND WILL BE RECOVERED IN 16.5 TO 27.1 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 600 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 4 TO $ 24 AND WILL BE RECOVERED IN 2.4 TO 14.4 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 75 PER YEAR AT CURRENT PRICES (OR $ 750 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 27100 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 70: ALL DATA
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 2500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

NO. OF OCCUPANTS: 0 DAY; 0 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 1200
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 1200
SUMMER THERMOSTAT SETTING
*DAY TIME: 78 DEG.
*NIGHT : 78 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 0
NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 0
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
WINDOWS WITH DRAPES : NONE

SOLAR COLLECTOR

PERFORMANCE TYPE:
COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	0	0	0	0
NO. GLASS DOORS:	0	0	0	0
NO. OTHER DOORS:	0	0	0	0
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
FIREPLACES : 0
DISHWASHERS: 0

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 13100 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 35 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 375 TO $ 500 AND WILL BE RECOVERED IN 10.6 TO 14.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 450 TO $ 575 AND WILL BE RECOVERED IN 12.8 TO 16.3 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 16600 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 45 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 500 TO $ 675 AND WILL BE RECOVERED IN 11.2 TO 15.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 600 TO $ 725 AND WILL BE RECOVERED IN 13.4 TO 16.2 YEARS.
	YOUR RESPONSES INDICATE THAT YOUR HOME IS CURRENTLY WELL EQUIPPED WITH STORM DOORS AND WINDOWS.	
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 6900 CU.FT. COOLING: 200 CU.FT. SAVINGS OF $ 19 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 0 TO $ 0 AND WILL BE RECOVERED IN 0.0 TO 0.0 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 65 PER YEAR AT CURRENT PRICES (OR $ 650 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 23400 CU.FT. FOR HEATING AND 0 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

A 80 SQ. FT. SOLAR HEATING SYSTEM TO SUPPLEMENT HOUR PRESENT HOT WATER HEATING SYSTEM WOULD SAVE APPROXIMATELY 0 CU.FT. OF FUEL OR 0 DOLLARS EACH YEAR. INSTALLING SUCH A SYSTEM WOULD COST ABOUT 2500 DOLLARS.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 71: ALL DATA
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 1 STORY
YEAR BUILT: ABOUT 1915
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED HEAVY
GARAGE UNDER HOME: YES
LIVING AREA : 700 SQ.FT.
EXTERIOR COLOR: LIGHT
ROOF COLOR : LIGHT
ROOF SHADOW : LITTLE
GROUND COVER : MEDIUM

INSIDE YOUR HOME

NO. OF OCCUPANTS: 11 DAY; 11 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
HEATING SYSTEM SERVICE: RECENTLY
HEATING FUEL BILL: $ 150
AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 150
SUMMER THERMOSTAT SETTING
DAY TIME: 66 DEG.
NIGHT : 66 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 44
NO. STORM DOORS : 8
EXTRA LARGE WINDOWS: 11
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : REGULARLY
STATIC SHOCK IN WINTER : REGULARLY
OPEN WINDOWS ON NICE DAY: YES
WINDOWS WITH DRAPES : ALL

SOLAR COLLECTOR

PERFORMANCE TYPE: LOW
COLLECTOR AREA: 111 SQ.FT.
COLLECTOR TILT: 11 DEG.
USED FOR SPACE HEATING: NO
*USED FOR SPACE COOLING: NO
USED FOR WATER HEATING: YES

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : YES
ATTIC VENTS : NO
ATTIC EXHAUST FAN: YES
FLOOR INSULATION: 2 IN.
INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	NORTH			
WIDTH :	111 FEET			
NO. OF WINDOWS :	11	11	11	11
NO. GLASS DOORS:	1	1	1	1
NO. OTHER DOORS:	1	1	1	1
AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: YES
BUILT ON SLAB : YES
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED: YES

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: GAS
WATER HEATER : GAS

COLOR TVS : 1
GAS LIGHTS : 1
REFRIGERATORS: 1
FREEZERS : 1
FIREPLACES : 1
DISHWASHERS: 1

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK

CONGRATULATIONS -

ALL THE MAJOR ENERGY CONSERVING STEPS WHICH WE RECOMMEND HAVE ALREADY BEEN TAKEN IN YOUR HOME.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 66 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

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CASE 72: ALL DATA
AT 2
22222

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 STORY
YEAR BUILT: ABOUT 1932
ATTACHED WALL: 1
CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 900 SQ.FT.
EXTERIOR COLOR: MEDIUM
ROOF COLOR : MEDIUM
ROOF SHADOW : PARTLY
GROUND COVER : LIGHT

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: ELECTRIC
WINTER THERMOSTAT SETTING
DAY TIME: 60 DEG.
NIGHT : 60 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 250
AIR COND. TYPE: ELECTRIC CENTRAL
AIR COND. FUEL COST: $ 250
SUMMER THERMOSTAT SETTING
DAY TIME: 68 DEG.
NIGHT : 68 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 66
NO. STORM DOORS : 12
EXTRA LARGE WINDOWS: 22
WEATHERSTRIPPING : SOME
WINDOWS RATTLE IN WIND : SOMETIMES
STATIC SHOCK IN WINTER : SOMETIMES
OPEN WINDOWS ON NICE DAY: NO
WINDOWS WITH DRAPES : NONE

SOLAR COLLECTOR

*PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
*USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
PERMANENT FLOOR : NO
ATTIC VENTS :
ATTIC EXHAUST FAN:
*FLOOR INSULATION:
*INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	SOUTH			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	22	22	22	0
*NO. GLASS DOORS:	2	2	2	0
*NO. OTHER DOORS:	2	2	2	0
*AMOUNT SHADED :	PARTLY	PARTLY	PARTLY	MUCH

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 75 PERCENT
BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: ELECTRIC
CLOTHES DRYER: ELECTRIC
WATER HEATER : ELECTRIC

COLOR TVS : 2 FREEZERS : 2
GAS LIGHTS : 2 FIREPLACES : 2
REFRIGERATORS: 2 DISHWASHERS: 2

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	YOU INDICATE YOU DO NOT HAVE AN UNHEATED ATTIC. ADDITIONAL INSULATION WILL SAVE YOU MONEY, BUT COSTS AND SAVINGS CANNOT BE ESTIMATED IN THIS REPORT.	
	YOUR RESPONSES INDICATE THAT YOUR HOME IS CURRENTLY WELL EQUIPPED WITH STORM DOORS AND WINDOWS.	
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 100 KWH COOLING: 20 KWH SAVINGS OF $ 1 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 16 TO $ 100 AND WILL BE RECOVERED IN 23.8 TO 143.0 YEARS

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 68 DEGREES DURING THE DAY AND 68 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 73: ALL DATA
AT 3
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 3 STORY
YEAR BUILT: ABOUT 1952
ATTACHED WALL: 2
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1100 SQ.FT.
EXTERIOR COLOR: DARK
ROOF COLOR : DARK
ROOF SHADOW : MUCH
GROUND COVER : DARK

INSIDE YOUR HOME
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*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: PROPANE
WINTER THERMOSTAT SETTING
DAY TIME: 64 DEG.
NIGHT : 64 DEG.
HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 350
AIR COND. TYPE: HEAT PUMP
AIR COND. FUEL COST: $ 350
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 66
NO. STORM DOORS : 12
EXTRA LARGE WINDOWS: 33
WEATHERSTRIPPING : NONE
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : NEVER
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS
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*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION:
INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	EAST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	33	33	0	0
*NO. GLASS DOORS:	3	3	0	0
*NO. OTHER DOORS:	3	3	0	0
AMOUNT SHADED :	MUCH	MUCH	MUCH	MUCH

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : PARTIAL
CRAWL SPACE PRESENT: PARTIAL
BUILT ON SLAB : PARTIAL
BASEMENT WALL UNDER GROUND: 50 PERCENT
*BASEMENT PART OF LIVING AREA: NO
*CRAWL SPACE VENTILATED: YES

OTHER ENERGY CONSUMERS

KITCHEN STOVE: PROPANE
CLOTHES DRYER: OTHER
WATER HEATER : OIL

COLOR TVS : 3 *FREEZERS : 0
GAS LIGHTS : 3 FIREPLACES : 3
REFRIGERATORS: 3 DISHWASHERS: 3

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 10 CU.FT. COOLING: 100 KWH SAVINGS OF $ 8 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 55 TO $ 75 AND WILL BE RECOVERED IN 6.8 TO 9.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 65 TO $ 85 AND WILL BE RECOVERED IN 8.2 TO 10.5 YEARS.
ADD ATTIC INSULATION VALUE OF R-22 OR 7 TO 8 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 10 CU.FT. COOLING: 100 KWH SAVINGS OF $ 9 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 100 TO $ 130 AND WILL BE RECOVERED IN 10.9 TO 13.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 125 TO $ 145 AND WILL BE RECOVERED IN 13.2 TO 15.1 YEARS.
	YOUR RESPONSES INDICATE THAT YOUR HOME IS CURRENTLY WELL EQUIPPED WITH STORM DOORS AND WINDOWS.	
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 2 CU.FT. COOLING: 20 KWH SAVINGS OF $ 1 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 35 TO $ 220 AND WILL BE RECOVERED IN 28.5 TO 171.3 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 11 PER YEAR AT CURRENT PRICES (OR $ 110 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 10 CU.FT. FOR HEATING AND 100 KWH FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 64 DEGREES DURING THE DAY AND 64 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 64 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 15% OF YOUR HEATING FUEL COST.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 74: ALL DATA
AT 4
44444

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 2 1/2 STORY SPLIT LEVEL
YEAR BUILT: ABOUT 1970
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1300 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: OIL
WINTER THERMOSTAT SETTING
DAY TIME: 67 DEG.
NIGHT : 67 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 450
AIR COND. TYPE: WINDOW/WALL UNITS
AIR COND. FUEL COST: $ 450
SUMMER THERMOSTAT SETTING
DAY TIME: 72 DEG.
NIGHT : 72 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 176
NO. STORM DOORS : 32
EXTRA LARGE WINDOWS: 44
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 8 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	WEST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	44	44	44	44
NO. GLASS DOORS:	4	4	4	4
NO. OTHER DOORS:	4	4	4	4
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 25 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

KITCHEN STOVE: OTHER
CLOTHES DRYER: NONE
WATER HEATER : OIL

COLOR TVS : 4
GAS LIGHTS : 4
REFRIGERATORS: 4
*FREEZERS : 0
FIREPLACES : 4
DISHWASHERS: 4

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
	YOUR RESPONSES INDICATE THAT YOUR HOME IS CURRENTLY WELL EQUIPPED WITH STORM DOORS AND WINDOWS.	
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 10 GAL. COOLING: 100 KWH SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 40 TO $ 250 AND WILL BE RECOVERED IN 14.6 TO 87.7 YEARS

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 67 DEGREES DURING THE DAY AND 67 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 67 DURING THE DAY AND 55 AT NIGHT, YOU COULD SAVE 18% OF YOUR HEATING FUEL COST.

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 72 DEGREES DURING THE DAY AND 72 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 75: ALL DATA
AT 5
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : 1 1/2 STORY CAPE
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1500 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
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*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: HEAT PUMP
WINTER THERMOSTAT SETTING
DAY TIME: 69 DEG.
NIGHT : 69 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 550
AIR COND. TYPE: NONE
*AIR COND. FUEL COST: $ 0
SUMMER THERMOSTAT SETTING
*DAY TIME:
*NIGHT :

WINDOWS AND DOORS

NO. STORM WINDOWS: 220
NO. STORM DOORS : 40
EXTRA LARGE WINDOWS: 55
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS
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*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 10 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	55	55	55	55
NO. GLASS DOORS:	5	5	5	5
NO. OTHER DOORS:	5	5	5	5
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
---
*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS
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*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

COLOR TVS : 5 *FREEZERS : 0
GAS LIGHTS : 5 *FIREPLACES : 0
*REFRIGERATORS: 1 DISHWASHERS: 5

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
	YOUR RESPONSES INDICATE THAT YOUR HOME IS CURRENTLY WELL EQUIPPED WITH STORM DOORS AND WINDOWS.	
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 100 KWH COOLING: 0 SAVINGS OF $ 1 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 50 TO $ 310 AND WILL BE RECOVERED IN 41.8 TO 251.0 YEARS

OTHER IMPORTANT INFORMATION:

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 76: ALL DATA
AT 6

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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

HOME TYPE : MOBILE HOME
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1700 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: NONE
WINTER THERMOSTAT SETTING
*DAY TIME: 0 DEG.
*NIGHT : 0 DEG.
HEATING SYSTEM SERVICE:
*HEATING FUEL BILL: $ 0
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 650
SUMMER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 264
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 66
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
PERMANENT FLOOR : NO
ATTIC VENTS :
ATTIC EXHAUST FAN:
*FLOOR INSULATION:
INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	66	66	66	66
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : NO
*CRAWL SPACE PRESENT: YES
*BUILT ON SLAB : NO
BASEMENT WALL UNDER GROUND: 0 PERCENT
BASEMENT PART OF LIVING AREA: NO
*CRAWL SPACE VENTILATED: YES

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1
*GAS LIGHTS : 0
*REFRIGERATORS: 1
*FREEZERS : 0
*FIREPLACES : 0
DISHWASHERS: 6

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	YOU INDICATE YOU DO NOT HAVE AN UNHEATED ATTIC. ADDITIONAL INSULATION WILL SAVE YOU MONEY, BUT COSTS AND SAVINGS CANNOT BE ESTIMATED IN THIS REPORT.	
	THE INSTALLATION OF STORM DOORS AND WINDOWS WHERE LACKING WOULD SAVE FUEL, BUT IT WOULD TAKE MORE THAN 20 YEARS TO REPAY YOUR INVESTMENT.	
	THE INSTALLATION OF WEATHERSTRIPPING AND CAULKING AROUND DOOR AND WINDOW OPENINGS WOULD SAVE FUEL, BUT IT WOULD TAKE MORE THAN 20 YEARS TO REPAY YOUR INVESTMENT.	

OTHER IMPORTANT INFORMATION:

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CASE 77: ALL DATA
AT 7
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL

*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 1900 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME

*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 73 DEG.
NIGHT : 73 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 750
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 750
SUMMER THERMOSTAT SETTING
DAY TIME: 78 DEG.
NIGHT : 78 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 308
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 77
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 14 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	77	77	77	77
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS

*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1
*GAS LIGHTS : 0
*REFRIGERATORS: 1
*FREEZERS : 0
*FIREPLACES : 0
DISHWASHERS: 7

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	APPARENTLY YOUR ATTIC IS ALREADY INSULATED WITH THE OPTIMUM RECOMMENDED THICKNESS.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 1700 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1000 TO $1720 AND WILL BE RECOVERED IN 410.0 TO 705.2 YEARS CONTRACTOR INSTALLED WILL COST FROM $1300 TO $2180 AND WILL BE RECOVERED IN 533.0 TO 893.8 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 1700 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 65 TO $ 390 AND WILL BE RECOVERED IN 26.4 TO 158.3 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 7 PER YEAR AT CURRENT PRICES (OR $ 70 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 5000 CU.FT. FOR HEATING AND 300 CU.FT. FOR COOLING.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 73 DEGREES DURING THE DAY AND 73 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 60 AT NIGHT, YOU COULD SAVE 27% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 78: ALL DATA
AT 8
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THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL
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*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 2100 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
---
*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 76 DEG.
NIGHT : 76 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 850
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 850
SUMMER THERMOSTAT SETTING
DAY TIME: 80 DEG.
NIGHT : 80 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 352
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 88
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS
---
*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
FLOOR INSULATION: 0 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	88	88	88	88
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
---
*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS
---
*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1
*GAS LIGHTS : 0
*REFRIGERATORS: 1
*FREEZERS : 0
*FIREPLACES : 0
DISHWASHERS: 8

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 83800 CU.FT. COOLING: 500 CU.FT. SAVINGS OF $ 90 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 315 TO $ 420 AND WILL BE RECOVERED IN 3.4 TO 4.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 380 TO $ 485 AND WILL BE RECOVERED IN 4.1 TO 5.2 YEARS.
ADD ATTIC INSULATION VALUE OF R-22 OR 7 TO 8 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 98300 CU.FT. COOLING: 600 CU.FT. SAVINGS OF $ 110 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 590 TO $ 735 AND WILL BE RECOVERED IN 5.4 TO 6.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 715 TO $ 820 AND WILL BE RECOVERED IN 6.6 TO 7.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 2100 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1220 TO $2100 AND WILL BE RECOVERED IN 515.4 TO 887.1 YEARS CONTRACTOR INSTALLED WILL COST FROM $1580 TO $2660 AND WILL BE RECOVERED IN 667.4 TO ***** YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 2100 CU.FT. COOLING: 100 CU.FT. SAVINGS OF $ 2 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 75 TO $ 445 AND WILL BE RECOVERED IN 31.0 TO 186.2 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 115 PER YEAR AT CURRENT PRICES (OR $ 1150 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 104700 CU.FT. FOR HEATING AND 800 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 76 DEGREES DURING THE DAY AND 76 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 60 AT NIGHT, YOU COULD SAVE 34% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 79: ALL DATA
AT 9
22090

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

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GENERAL
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*HOME TYPE : 1 STORY
*YEAR BUILT: ABOUT 1950
*ATTACHED WALL: 0
*CONSTRUCTION : UNINSULATED MEDIUM
*GARAGE UNDER HOME: NO
LIVING AREA : 2300 SQ.FT.
*EXTERIOR COLOR: LIGHT
*ROOF COLOR : LIGHT
*ROOF SHADOW : PARTLY
*GROUND COVER : MEDIUM

INSIDE YOUR HOME
---
*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
*HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
DAY TIME: 78 DEG.
NIGHT : 78 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 950
*AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 950
SUMMER THERMOSTAT SETTING
DAY TIME: 82 DEG.
NIGHT : 82 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 396
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 99
*WEATHERSTRIPPING : SOME
*WINDOWS RATTLE IN WIND : SOMETIMES
*STATIC SHOCK IN WINTER : SOMETIMES
*OPEN WINDOWS ON NICE DAY: NO
*WINDOWS WITH DRAPES : HALF

SOLAR COLLECTOR

PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS
---
*UNHEATED ATTIC : YES
*PERMANENT FLOOR : NO
*ATTIC VENTS : YES
*ATTIC EXHAUST FAN: NO
*FLOOR INSULATION: 3 IN.
*INSULATION TYPE : LOOSE PARTICLES

WALLS	FRONT	REAR	RIGHT	LEFT
*ORIENTATION:	EAST			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	99	99	99	99
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	1	1
*AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS
---
*BASEMENT PRESENT : YES
*CRAWL SPACE PRESENT: NO
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 100 PERCENT
*BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED:

OTHER ENERGY CONSUMERS
---
*KITCHEN STOVE: GAS
*CLOTHES DRYER: GAS
*WATER HEATER : GAS

*COLOR TVS : 1 *FREEZERS : 0
*GAS LIGHTS : 0 *FIREPLACES : 0
*REFRIGERATORS: 1 DISHWASHERS: 9

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NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

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ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
ADD ATTIC INSULATION VALUE OF R-11 OR 3 TO 4 INCHES FOR MINIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 28100 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 30 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 345 TO $ 460 AND WILL BE RECOVERED IN 10.9 TO 14.6 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 415 TO $ 530 AND WILL BE RECOVERED IN 13.1 TO 16.7 YEARS.
ADD ATTIC INSULATION VALUE OF R-19 OR 6 TO 7 INCHES FOR OPTIMUM RECOMMENDED THICKNESS.	YEARLY SAVINGS - HEATING: 35700 CU.FT. COOLING: 0 CU.FT. SAVINGS OF $ 40 ARE POSSIBLE PER YEAR AT CURRENT PRICES.	DO-IT-YOURSELF WILL COST FROM $ 460 TO $ 620 AND WILL BE RECOVERED IN 11.4 TO 15.5 YEARS CONTRACTOR INSTALLED WILL COST FROM $ 550 TO $ 665 AND WILL BE RECOVERED IN 13.7 TO 16.6 YEARS.
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 2500 CU.FT. COOLING: 40 CU.FT. SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1440 TO $2480 AND WILL BE RECOVERED IN 500.7 TO 862.3 YEARS CONTRACTOR INSTALLED WILL COST FROM $1860 TO $3140 AND WILL BE RECOVERED IN 646.7 TO ***** YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 2500 CU.FT. COOLING: 40 CU.FT. SAVINGS OF $ 3 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 85 TO $ 500 AND WILL BE RECOVERED IN 28.7 TO 172.3 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 50 PER YEAR AT CURRENT PRICES (OR $ 500 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 43200 CU.FT. FOR HEATING AND 100 CU.FT. FOR COOLING.
(THIS ESTIMATE IS BASED ON THE INSTALLATION OF THE OPTIMUM RECOMMENDED LEVEL OF INSULATION).

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE WINTER THERMOSTAT SETTINGS ARE 78 DEGREES DURING THE DAY AND 78 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 68 DURING THE DAY AND 60 AT NIGHT, YOU COULD SAVE 38% OF YOUR HEATING FUEL COST.

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

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CASE 80: ALL DATA
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REPROCESSOR 11111

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

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GENERAL

HOME TYPE : 1 STORY
YEAR BUILT: ABOUT 1915
ATTACHED WALL: 0
CONSTRUCTION : UNINSULATED HEAVY
GARAGE UNDER HOME: YES
LIVING AREA : 2500 SQ.FT.
EXTERIOR COLOR: LIGHT
ROOF COLOR : LIGHT
ROOF SHADOW : LITTLE
GROUND COVER : MEDIUM

INSIDE YOUR HOME

NO. OF OCCUPANTS: 0 DAY; 0 NIGHT.
HEATING FUEL: GAS
WINTER THERMOSTAT SETTING
*DAY TIME: 60 DEG.
*NIGHT : 60 DEG.
HEATING SYSTEM SERVICE: RECENTLY
HEATING FUEL BILL: $ 1200
AIR COND. TYPE: GAS CENTRAL
AIR COND. FUEL COST: $ 1200
SUMMER THERMOSTAT SETTING
DAY TIME: 66 DEG.
NIGHT : 66 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 0
NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 0
WEATHERSTRIPPING : ALL
WINDOWS RATTLE IN WIND : REGULARLY
STATIC SHOCK IN WINTER : REGULARLY
OPEN WINDOWS ON NICE DAY: YES
*WINDOWS WITH DRAPES : NONE

SOLAR COLLECTOR

PERFORMANCE TYPE: LOW
COLLECTOR AREA: 0 SQ.FT.
COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING: NO
*USED FOR SPACE COOLING: NO
USED FOR WATER HEATING: YES

ATTICS

UNHEATED ATTIC : YES
PERMANENT FLOOR : YES
ATTIC VENTS : NO
ATTIC EXHAUST FAN: YES
FLOOR INSULATION: 2 IN.
INSULATION TYPE : LOOSE PARTICLES

WALLS

	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	NORTH			
*WIDTH :	40 FEET			
NO. OF WINDOWS :	0	0	0	0
NO. GLASS DOORS:	0	0	0	0
NO. OTHER DOORS:	0	0	0	0
AMOUNT SHADED :	LITTLE	LITTLE	LITTLE	LITTLE

FOUNDATIONS AND BASEMENTS

BASEMENT PRESENT : YES
CRAWL SPACE PRESENT: YES
BUILT ON SLAB : YES
BASEMENT WALL UNDER GROUND: 100 PERCENT
BASEMENT PART OF LIVING AREA: YES
CRAWL SPACE VENTILATED: YES

OTHER ENERGY CONSUMERS

KITCHEN STOVE: GAS
CLOTHES DRYER: GAS
WATER HEATER : GAS

COLOR TVS : 0
GAS LIGHTS : 0
REFRIGERATORS: 1
FREEZERS : 0
FIREPLACES : 0
DISHWASHERS: 0

****

NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

0 0 0 0 3 1 0 0 2 2 9

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK

CONGRATULATIONS -

ALL THE MAJOR ENERGY CONSERVING STEPS WHICH WE RECOMMEND HAVE ALREADY BEEN TAKEN IN YOUR HOME.

OTHER IMPORTANT INFORMATION:

YOUR CURRENT AVERAGE SUMMER THERMOSTAT SETTINGS ARE 66 DEGREES DURING THE DAY AND 66 DEGREES AT NIGHT. IF YOU SIMPLY RESET YOUR THERMOSTAT TO 78 DURING THE DAY AND 78 AT NIGHT, YOU COULD SAVE 99% OF YOUR COOLING FUEL COST.

```
****************************************
*                                      *
*   H O M E   E N E R G Y   A U D I T  *
*                                      *
****************************************
```

CASE 81: ALL DATA
LEGAL MAXIMUM FOR P
REPROCESSOR 90000

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE A RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

****

GENERAL

HOME TYPE : MOBILE HOME
YEAR BUILT: ABOUT 1970
ATTACHED WALL: 2
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 2300 SQ.FT.
EXTERIOR COLOR: DARK
ROOF COLOR : DARK
ROOF SHADOW : MUCH
GROUND COVER : DARK

INSIDE YOUR HOME
---
*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: NONE
WINTER THERMOSTAT SETTING
*DAY TIME: 0 DEG.
*NIGHT : 0 DEG.
HEATING SYSTEM SERVICE:
*HEATING FUEL BILL: $ 0
AIR COND. TYPE: NONE
*AIR COND. FUEL COST: $ 0
SUMMER THERMOSTAT SETTING
*DAY TIME:
*NIGHT :

WINDOWS AND DOORS

NO. STORM WINDOWS: 198
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 99
WEATHERSTRIPPING : NONE
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : NEVER
OPEN WINDOWS ON NICE DAY: NO
WINDOWS WITH DRAPES : NONE

SOLAR COLLECTOR
---
*PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
PERMANENT FLOOR : NO
ATTIC VENTS :
ATTIC EXHAUST FAN:
FLOOR INSULATION:
INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	WEST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	99	99	0	0
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	0	0
AMOUNT SHADED :	MUCH	MUCH	MUCH	MUCH

FOUNDATIONS AND BASEMENTS
---
*BASEMENT PRESENT : NO
*CRAWL SPACE PRESENT: YES
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 0 PERCENT
BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED: NO

OTHER ENERGY CONSUMERS

KITCHEN STOVE: OTHER
CLOTHES DRYER: NONE
WATER HEATER : OIL

*COLOR TVS : 1 *FREEZERS : 0
*GAS LIGHTS : 0 *FIREPLACES : 0
*REFRIGERATORS: 1 DISHWASHERS: 9

****

NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK

OTHER IMPORTANT INFORMATION:

```
****************************************
*                                      *
*   H O M E   E N E R G Y   A U D I T  *
*                                      *
****************************************
```

CASE 82: ALL DATA
BUT HEAT AND COOL F
UEL LEGAL MAX 90000

THE RESULTS OF YOUR HOME ENERGY AUDIT ARE PRESENTED BELOW. THE INFORMATION SHOWN ON THIS PAGE WAS TAKEN FROM YOUR QUESTIONNAIRE AND DESCRIBES THE CHARACTERISTICS OF YOUR HOME. AN ASTERISK BESIDE RESPONSE INDICATES THAT AN ASSUMED VALUE WAS USED DUE TO AN INCOMPLETE ANSWER OR PROCESSING ERROR. IF THE INFORMATION DOES NOT DESCRIBE YOUR HOME ACCURATELY, YOU MAY WISH TO SUBMIT A NEW QUESTIONNAIRE.

THE SECOND PAGE OF THE REPORT LISTS MAJOR ENERGY SAVING ACTIONS YOU MIGHT WISH TO CONSIDER IN YOUR HOME. COST AND SAVINGS ESTIMATES FOR EACH ACTION ARE INCLUDED. IT IS HELPFUL TO COMPARE THE EXPECTED SAVINGS WITH THE DOLLAR INVESTMENT YOU WILL HAVE TO MAKE. THE ESTIMATES OF HOW LONG IT WILL TAKE FOR YOUR SAVINGS TO ADD UP TO YOUR INVESTMENT WILL AID IN THIS COMPARISON. ALSO ON THE SECOND PAGE IS SOME ADDITIONAL INFORMATION ABOUT SAVING ENERGY IN YOUR HOME.

****

GENERAL

HOME TYPE : MOBILE HOME
YEAR BUILT: ABOUT 1970
ATTACHED WALL: 2
CONSTRUCTION : UNINSULATED MEDIUM
GARAGE UNDER HOME: NO
LIVING AREA : 2300 SQ.FT.
EXTERIOR COLOR: DARK
ROOF COLOR : DARK
ROOF SHADOW : MUCH
GROUND COVER : DARK

INSIDE YOUR HOME
---
*NO. OF OCCUPANTS: 1 DAY; 1 NIGHT.
HEATING FUEL: HEAT PUMP
WINTER THERMOSTAT SETTING
DAY TIME: 78 DEG.
NIGHT : 78 DEG.
*HEATING SYSTEM SERVICE: OVERDUE
HEATING FUEL BILL: $ 950
AIR COND. TYPE: WINDOW/WALL UNITS
AIR COND. FUEL COST: $ 950
SUMMER THERMOSTAT SETTING
DAY TIME: 82 DEG.
NIGHT : 82 DEG.

WINDOWS AND DOORS

NO. STORM WINDOWS: 198
*NO. STORM DOORS : 0
EXTRA LARGE WINDOWS: 99
WEATHERSTRIPPING : NONE
WINDOWS RATTLE IN WIND : NEVER
STATIC SHOCK IN WINTER : NEVER
OPEN WINDOWS ON NICE DAY: NO
WINDOWS WITH DRAPES : NONE

SOLAR COLLECTOR
---
*PERFORMANCE TYPE:
*COLLECTOR AREA: 0 SQ.FT.
*COLLECTOR TILT: 0 DEG.
USED FOR SPACE HEATING:
USED FOR SPACE COOLING:
USED FOR WATER HEATING:

ATTICS

UNHEATED ATTIC : NO
PERMANENT FLOOR : NO
ATTIC VENTS :
ATTIC EXHAUST FAN:
FLOOR INSULATION:
INSULATION TYPE : NONE

WALLS	FRONT	REAR	RIGHT	LEFT
ORIENTATION:	WEST			
*WIDTH :	40 FEET			
*NO. OF WINDOWS :	99	99	0	0
*NO. GLASS DOORS:	0	0	0	0
*NO. OTHER DOORS:	1	1	0	0
AMOUNT SHADED :	MUCH	MUCH	MUCH	MUCH

FOUNDATIONS AND BASEMENTS
---
*BASEMENT PRESENT : NO
*CRAWL SPACE PRESENT: YES
*BUILT ON SLAB : NO
*BASEMENT WALL UNDER GROUND: 0 PERCENT
BASEMENT PART OF LIVING AREA: NO
CRAWL SPACE VENTILATED: NO

OTHER ENERGY CONSUMERS

KITCHEN STOVE: OTHER
CLOTHES DRYER: NONE
WATER HEATER : OIL

*COLOR TVS : 1 *FREEZERS : 0
*GAS LIGHTS : 0 *FIREPLACES : 0
*REFRIGERATORS: 1 DISHWASHERS: 9

****

NOTE: ENERGY CONSUMPTION IN YOUR HOME DEPENDS UPON THE CHARACTERISTICS DESCRIBED ABOVE AS WELL AS UPON THE LIVING HABITS AND LIFE STYLE OF YOUR FAMILY. THE RESULTS PRESENTED ON THE NEXT PAGE ASSUME THAT NORMAL APPLIANCES AND EQUIPMENT EXIST IN YOUR HOME AND THAT YOUR LIFE STYLE IS NOT EXTREMELY ENERGY WASTEFUL. ACTIONS SUCH AS LEAVING DOORS OPEN AND OPENING WINDOWS AT NIGHT TO LET IN THE FRESH AIR WITHOUT TURNING OFF YOUR HEATING OR COOLING SYSTEM ARE EXAMPLES OF WASTING ENERGY RESOURCES AND INCREASING ENERGY COSTS TO YOUR FAMILY.

0 0 0 0 3 1 0 0 2 3 1

ACTION CONSIDERED	ANTICIPATED SAVINGS - FUEL AND DOLLARS	COSTS AND PAYBACK
	YOU INDICATE YOU DO NOT HAVE AN UNHEATED ATTIC. ADDITIONAL INSULATION WILL SAVE YOU MONEY, BUT COSTS AND SAVINGS CANNOT BE ESTIMATED IN THIS REPORT.	
INSTALL STORM WINDOWS AND STORM DOORS WHERE NOW LACKING.	YEARLY SAVINGS - HEATING: 1000 KWH COOLING: 40 KWH SAVINGS OF $ 10 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $1550 TO $2670 AND WILL BE RECOVERED IN 149.1 TO 256.8 YEARS CONTRACTOR INSTALLED WILL COST FROM $2000 TO $3380 AND WILL BE RECOVERED IN 192.3 TO 325.0 YEARS.
INSTALL WEATHERSTRIPPING AND CAULKING AROUND ALL WINDOW AND DOOR OPENINGS.	YEARLY SAVINGS - HEATING: 500 KWH COOLING: 20 KWH SAVINGS OF $ 5 ARE POSSIBLE PER YEAR AT CURRENT PRICES. THE SAVING IS LOW COMPARED TO THE COST.	DO-IT-YOURSELF WILL COST FROM $ 100 TO $ 600 AND WILL BE RECOVERED IN 19.1 TO 114.6 YEARS

ALL OF THE ABOVE ACTIONS, WHEN TAKEN TOGETHER, COULD SAVE YOU ABOUT $ 10 PER YEAR AT CURRENT PRICES (OR $ 100 IN 10 YEARS).
THIS WOULD INCLUDE FUEL SAVINGS OF 1000 KWH FOR HEATING AND 40 KWH FOR COOLING.

OTHER IMPORTANT INFORMATION:

STORM WINDOWS ADDED TO YOUR HOME WOULD SAVE ENERGY BUT WOULD BE EXPENSIVE TO INSTALL. YOU MAY WISH TO CONSIDER INSTALLING PLASTIC STORM WINDOWS AS AN EFFECTIVE, THOUGH LESS DURABLE, ALTERNATIVE.

YOUR HEATING SYSTEM SHOULD BE CLEANED AND SERVICED ON A MORE FREQUENT BASIS TO INSURE OPERATION AT HIGH EFFICIENCY.

H O M E E N E R G Y A U D I T S Y S T E M
J O B S U M M A R Y

0 RECORDS PROCESSED WITH NO DEFAULTED VALUES
71 RECORDS PROCESSED WITH AT LEAST ONE DEFAULTED VALUE
1 RECORDS NOT PROCESSED--HOME NEITHER HEATED NOR COOLED
0 RECORDS NOT PROCESSED--ZIP CODE NOT ON LOCAL DATA FILE
72 TOTAL RECORDS READ

DISTRIBUTION OF RECORDS PROCESSED BY LOCAL DATA FILE ZIP CODE RANGES

ZIP RANGE	RECORDS PROCESSED
100 - 99999	71

END HOME ENERGY ANALYSIS SYSTEM ANALYSIS PROGRAM

0 0 0 0 5 1 0 0 2 3 2

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

User's Manual

0 0 0 0 3 1 0 0 2 3 3

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

0 0 0 0 5 1 0 0 2 3 4

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Users' Manual

1. PURPOSE

The purpose of this Users' Manual is to describe the functions performed by the Home Energy Audit System in non-technical terminology, so that the user organization can determine its applicability and when and how to use it. It also serves as a reference document for preparation of input data and interpretation of results. The Users' Manual provides a detailed explanation of the manual procedures necessary to run the Home Energy Audit System. A detailed explanation of the complete procedures required to run the automated portions of the system is contained in the Home Energy Audit System Operations Manual.

2. GENERAL INFORMATION

Summary

The Home Energy Audit System is designed to analyze the energy conserving/consuming characteristics of a single family home and to provide a cost/savings report for various energy conserving actions in the home. Either the Project Conserve Questionnaire (see Appendix D) or the Home Energy Audit Questionnaire (see Appendix A), each of which gather the necessary information regarding the energy characteristics of the home, may be submitted for analysis. The ZIP code on the questionnaire allows cost and climatic data appropriate for the location of the home to be used in the analysis. The two main outputs of the system are: (1) a two-page Homeowner Report which is mailed to the participant; and (2) a history file recording home characteristics and cost/savings estimates for each home processed. In addition, a Summary Report outlines statistical information gathered during each run of the system.

Environment

The Home Energy Audit System was developed for the Department of Energy (FEA/ERDA) as a cooperative effort of the National Bureau of Standards and Applied Urbanetics, Inc. The initial system development and subsequent testing for the IBM version of the system was done at the OSI Computer facility located in Rockville, Maryland. This facility, operated exclusively for the Department of Energy (FEA), by Optimum System, Inc., consists of two IBM 370/168 central processing units connected in multiprocessor mode, with OS/MVS and JES2.

References

Contract Number 3533602, as issued by the University of California Lawrence Berkeley Laboratory

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J. R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U. S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperation with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

3. Application

Description

The Home Energy Audit System is intended to process data collected on the Project Conserve or Home Energy Audit Questionnaires. This information describes the energy consuming features of the home as well as general structural characteristics. A preprocessor program verifies incoming data and makes any necessary conversions to produce the Standard Format Data File. To supplement the processing of the data and to provide for greater accuracy in cost and savings estimates, a Local Data File is established keyed by ZIP Code, containing climatic data, default values, and fuel and material costs for particular areas. An overview of the logical system flow is shown in Figure 1.

The Analysis subsystem of HEA reads the Standard Format Data File and references the Local Data File to produce a personalized Homeowner Report which is mailed directly to the participant. This report contains a summary of the costs and savings the participant can expect from a variety of energy conserving actions taken in the home.

The sequence of tasks that constitutes the processing function is:

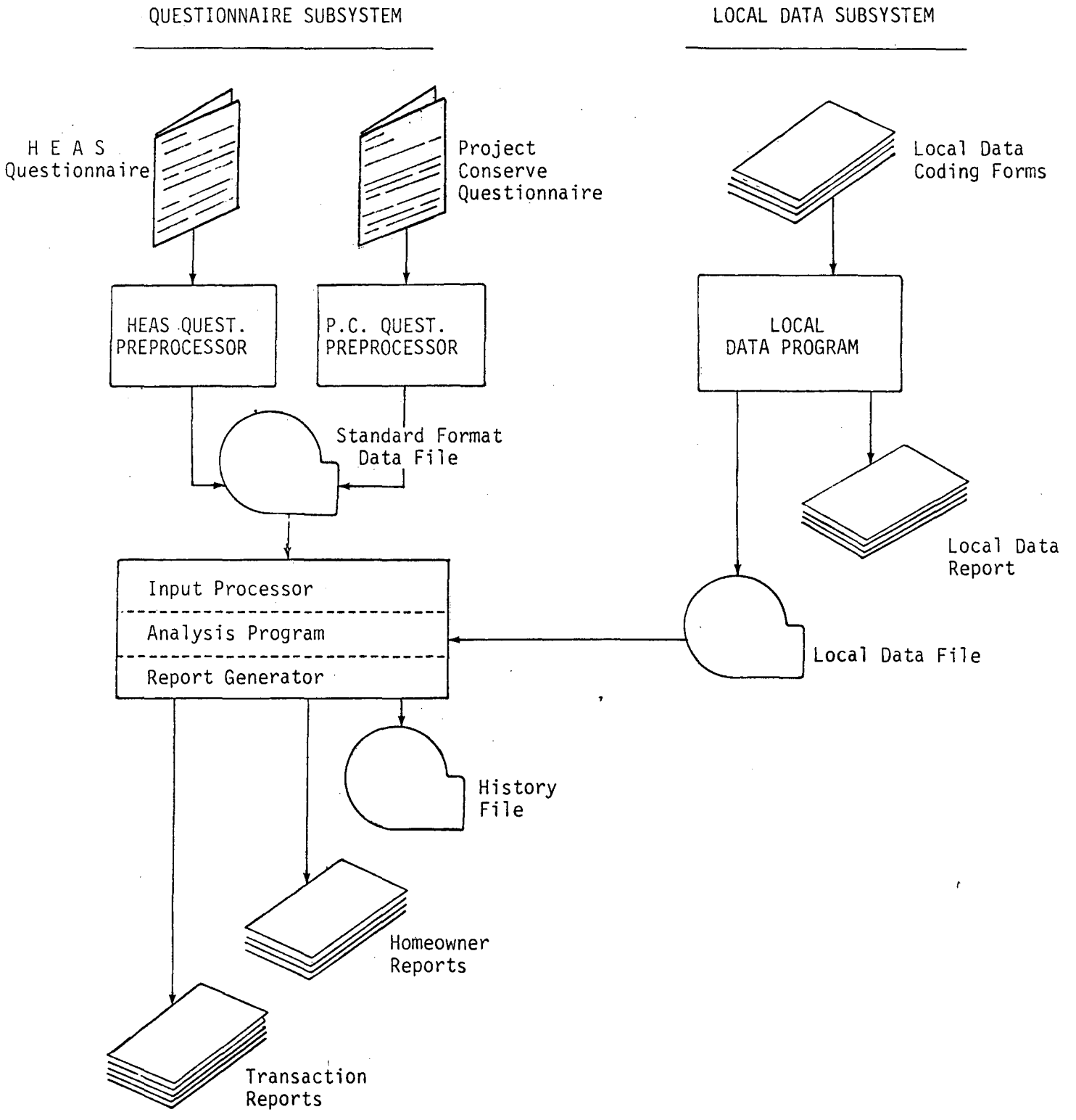
- collection of questionnaires;
- editing;
- keypunching;
- computer processing;
- mailing; and
- data disposal.

Operation

Questionnaires completed by participating homeowners are collected by the sponsoring agency most probably through mail delivery. These questionnaires are manually counted by questionnaire type prior to manual scanning. This scanning process edits obvious errors making the necessary corrections to questionnaire entries. The questionnaires are then forwarded to the keypunching staff which prepares the data for initial input to the data processing system. This data is read by the appropriate Preprocessor Program which converts the data as required by the Standard Format Data File. This file is input to the Analysis Program which produces the HEA Homeowner Report. These reports are then mailed directly to the participants.

Figure 1

HOME ENERGY AUDIT SYSTEM LOGICAL FLOW



Presented below is a detailed description of the major steps involved in the overall operation of the HEA System. Specific aspects of each step will be determined by the sponsoring agency. An abbreviated description of the step-by-step processing procedures is presented as the last section of this manual.

Collection of questionnaires - Unless a very small number of questionnaires is involved, the most practical means of gathering the completed questionnaires is via the postal service. As questionnaires are collected they should be separated by type (Project Conserve or Home Energy Audit) and proceed through subsequent processing in this manner. A count of all questionnaires received should be maintained and logged. The collected questionnaires are then forwarded to the editing staff.

Editing - Several work stations are recommended in the editing process. The first step requires questionnaires that have been delivered in envelopes to be removed. Any additional enclosures bearing the respondent's name and address should be sent to the sponsoring office as should a copy of any notes written directly on the questionnaire. Incomplete or partial questionnaires should also be returned. If questionnaires are received in a torn or separated condition, they should be taped together before continuing through the processing steps. A count by questionnaire type and ZIP Code should be maintained for statistical and control purposes. If the number of ZIP Codes is large, then a count by the first three digits may prove to be equally effective as well as time-saving. Manual scanning and editing of the questionnaire is used to correct three obvious errors:

- multiple answers to individual questions;
- written explanations in place of an explicit answer; and
- non-numeric answers where a number has been requested.

In the case of multiple answers (e.g., two thickness measurements for attic insulation), one answer should be circled by the editor and the other crossed out. If an answer was written in as a message or explanation, (e.g., "one quarter" written in where the possible answers are "yes" "no", or "partially") the editor should choose the entry which most closely represents the intent of the message. Non-numeric answers entered where a number is expected (e.g., "all" written in where the number of large or bay windows is requested) should be replaced with a reasonable entry for the house as described. If a reasonable answer cannot be determined, then the entry may be left blank and a default value will be substituted later during the computer processing stage. A case such as the above,which would involve a hard-to-define solution to an invalid questionnaire entry, suggests that at least one member of the editing staff be intimately familiar with the logic and

calculation methodology of the Home Energy Audit System. This would allow for a qualified analysis of the questionnaire to be made and a suitable correction be entered which reflects the overall intent of the respondent in view of the purposes of the Home Energy Audit System.

After editing is completed, questionnaires should be stamped with a 5-digit accession number which will be used to log work progress through the system. Bundles of questionnaires labelled with the first and last accession numbers per batch should be prepared and sent to the keypunching staff. A convenient number of questionnaires per bundle is one hundred.

Keypunching

Received questionnaires should be logged by accession numbers indicated on each bundle. The keypunch procedures depend upon the facility which is to run the Home Energy Audit System. The output medium of the keying procedure can be card, magnetic tape, or other similar recording medium.

Keypunch instructions for the Project Conserve Questionnaire and the Home Energy Audit Questionnaire may be found in the HEA System Documentation, Appendices B and E, respectively. After keypunching, all data should be verified with a redundant keying process. At this point, the original questionnaires should be stored until the corresponding Homeowner Reports are produced and mailed.

Computer Processing

The size of the batch to be processed should be determined by the data processing staff involved. Attention should be given to the volume of printed output per run. A rough estimate of 100 lines per Homeowner Report may be used as a guide. The keyed data is then submitted to the appropriate Preprocessor Program. The appropriate module for the type of questionnaire to be processed must be invoked to produce the Standard Format Data File. The run statistics report must be checked to determine if the file was created properly and all input data converted to the required format (see Appendices T and U for possible error messages). If errors occurred or the data was not completely processed, corrections must be made and the program run again. The resulting Standard Format Data File is then set up as input to the Analysis Program which produces the Homeowner Reports and History File.

The Error Messages and Summary Report (see Appendix W) produced by the Analysis Program must be checked after each run. The message "END HEA ANALYSIS PROGRAM" should be reported to and resolved by the Computer Operations staff.

If the run was successful, and Homeowner Reports were produced, spot checks should be made for the following problems:

- poor print quality;
- meaningless strings of characters; and
- torn or otherwise mutilated reports.

Care should be taken to locate the separations in the continuous form paper stock. If separations occur between two Homeowner Reports, they may be ignored. If a single report is divided into two separate pages, these two parts should be joined together to prevent misplacement and handled separately.

Mailing

The first step in the mailing process is to burst the continuous form printout paper between Homeowner Reports, keeping each two-page report intact. Folding the reports to fit in the envelopes may be done manually or automatically. It is important to note the positioning of the name and address on the report so that it will be totally visible in the envelope window after the report is folded. An explanatory cover-letter may be included at the discretion of the sponsoring office. Sealed envelopes should be delivered to the Postal Service for handling.

Data Disposal

The HEA System gathers data from private citizens and processes it through a number of steps. Care should be taken to ensure the privacy of these homeowners. The original questionnaires, the input medium to the Preprocessor, and the Standard Format Data File should be properly handled once the corresponding questionnaires have been printed and mailed.

Data Base

A single data base is produced as a by-product of the Analysis Program. This data base, or History File, is described in Appendix N and contains a summary of the significant data for each home processed (e.g., questionnaire responses, default indicators, BTU heating and cooling requirements, cost and savings estimates for home-improvement actions). The name and address of the respondent will not normally be copied to the History File. However, this information may be included at the discretion of the sponsoring office by the following change to the program code in the Report Generator Module (SUBROUTINE RPTGEN):

```
change DATA statement:    DATA NAMEIN/Ø/

                     to:  DATA NAMEIN/1/
```

The value Ø will set the name and address to blanks, and the value 1 will copy the name and address to the history file.

Handling of the History File will be determined by each computer facility. The HEA System will create a file for each run. The sponsoring agency may decide to maintain a permanent, separate History File which may be updated after each run of the HEAS, or simply append data to the History File during each run.

Inputs, Processing, and Outputs

There are two sets of inputs to the Home Energy Audit System: (1) the Local Data File, and (2) the data collected on the Project Conserve or Home Energy Audit Questionnaire.

The Local Data File must be installed before any questionnaire processing can be performed. This involves the collection of required data for contiguous ZIP Code areas.
The data collection form is shown in Appendix G in the HEAS Appendices. After the data is collected, it is keypunched (refer to Appendix H, Local Data Keypunch Instructions) and input to the Local Data Program. This program creates a Local Data File which is referenced by the Analysis subsystem for local climate data, default values, and fuel and materials costs. The Local Data File may be modified or expanded, or may consist of multiple sets of local data. The organization and maintenance of the Local Data File will be under the control of the sponsoring agency. The Local Data Collection Handbook available from the Department of Energy provides an indepth description of the collection and coding of the local data.

The second set of input to the HEA System is the questionnaire data. This may be gathered on the Project Conserve or the Home Energy Audit Questionnaire. Other questionnaires may be developed and used, but this would require the development of a new preprocessor module to convert the new questionnaire data as required to write the Standard Format Data File.

The input data is processed as shown in Figure 2, HEA Logical System Flow. Data as recorded on the questionnaire is keypunched into a card-image format. The keyed data is then read by the appropriate preprocessor program. The main output of this program is the Standrad Format Data File (SFD). The SFD is read by the HEA Analysis Program which processes the data to produce the Homeowner Reports and History File. A summary report is also generated giving run statistics and messages (see Appendix J).

4. PROCEDURES AND REQUIREMENTS

4.1. Local Data Program

Initiation

Prior to any processing by the Analysis Subsystem, the Local Data File must be installed. Data must be collected for every

area for which the HEA System is sponsored. A maximum of 675 separate ZIP Code ranges is allowed for the Local Data File.

Input

Once the local data has been collected, it should be organized into ZIP-code groups in preparation for the Local Data Program. The sequence of data to be input is determined by the selection of a base record and subsequent modifications to this primary set of data. The User is referred to the "Local Data Collection Handbook" available from the DOE for a description of the preparation of the local data.

Input Formats

Card image records are keyed according to the description given in Appendix H, Local Data Keypunch Instructions. After the card images have been keyed and verified they are input to the Local Data Program,which creates or modifies the Local Data File. The program can perform three functions:

- insert data for new ZIP Code ranges;
- consolidate ZIP Code ranges; and/or
- split previously defined ZIP Code ranges.

Modifications to the values of particular elements will be performed with any of the above functions.

Output

There are two outputs produced by the Local Data Program:

- Local Data File Reports;
- Local Data File.

Refer to Appendices I and M, respectively, for a description of these products.

Output Formats

The Local Data File Report consists of three sections. The first section is the transaction listing which contains all warning messages and an audit path for the records modified. The second section is a list of the index records to ensure proper execution and logic in the program. The third section lists the contents of each ZIP Code record.

There are four types of warning messages that may appear in the transaction section:

- "BASE RECORD FOR ZIP XXXXX DOES NOT EXIST. DEFAULT BASE RECORD USED."

  This message occurs when a specified base record does not exist on the Local Data File used by the program as input.

- "ELEMENT XXX'S VALUE OF YYY EXCEEDS THE RANGE FOR REASONABLE VALUES FOR THIS ELEMENT. THIS VALUE SHOULD BE VERIFIED."

  This message is issued when the new value for an element exceeds the range indicated by the Range column of Appendix M.

- "ELEMENT XXX IS EXPECTED TO BE AN INTEGER NUMBER BUT THE REPLACEMENT VALUE WAS XXX.XXX. THE INTEGER PART OF THIS VALUE WAS USED AS THE REPLACEMENT VALUE."

- ZIP CODE RANGE ERROR - THE LOW ZIP CODE (XXXXX) WAS LARGER THAN THE HIGH ZIP CODE (XXXXX). THIS CARD IGNORED."

4.2 QUESTIONNAIRE PREPROCESSOR

Initiation

The initiation of the questionnaire preprocessor module begins with the conversion of questionnaire responses to card image records.

Input

The only input to the questionnaire preprocessor is the card image data appropriate to that module. Modules exist for the Project Conserve Questionnaire and the Home Energy Audit Questionnaire.

Input Formats

The input format for the Project Conserve input module is described in Appendix E, Project Conserve Questionnaire Keypunch Instructions. The Home Energy Audit input is shown in Appendix B.

Each preprocessor reads the set of card images representing a questionnaire (two records for Project Conserve, and three records for the HEA) and performs the necessary conversions to produce the Standard Format Data File.

Output

Two types of output are produced by the preprocessors; the Standard Format Data File and the Job Execution Log.

Output Formats

The Standard Format Data File is described in Appendix L. This file contains the data taken from the questionnaire which has been converted to the common format necessary for reading by the Analysis subsystem.

The Job Execution Log lists run statistics for each execution of the Preprocessor, indicating the success of the run and any error conditions that were encountered.

4.3. ANALYSIS PROGRAM

Initiation

To initiate the HEA Analysis Program:

- Write a Standard Format Data File using a Preprocessor Program.
- Write a Local Data File using the Local Data Subsystem.
- Modify the JCL shown in Figures 4 or 6 to reflect local installation requirements and to specify the appropriate data set names.
- Submit job to the Computer Operations staff.

Input

Two inputs are required for the Analysis Program:

- The SFD file, and
- The Local Data File.

Input Formats

The formats of these two files have been described above and are summarized in Appendices L and M.

Output

Three sets of output are generated by the Analysis Program:

- The Homeowner Report (see Appendix K);
- The History File (see Appendix N); and
- The Job Summary Report (see Appendix J).

Output Formats

The Homeowner's Report summarizes the results of the Home Energy Audit. This report consists of two pages of plain white, standard, continuous form paper stock. It averages between 80 and 100 print lines per home. The first page contains the name and address of the respondent for mailing purposes and a listing of the information taken from the questionnaire. Any defaulted data values are marked with an asterisk. Page two presents the results of the analysis indicating energy-saving home improvement actions with associated annual fuel and dollar savings, do-it-yourself and contractor cost estimates, and the payback necessary to recover investment. The actions considered are:

- installation of attic insulation at locally recommended minimum and optimum levels
- installation of storm window and storm doors where lacking
- installation of weatherstripping and caulking
- the combined effect of the above actions (using "optimum" insulation values)

Additional messages regarding water heater insulation, thermostat setback, heating system servicing, solar water heating, and other energy-saving considerations may also be printed if applicable to the home situation. An optional message which will be added to every Report may be recorded in the Local Data File for a particular area.

A Homeowner Report is shown in Appendix K.

The History File record format is shown in Appendix N. This file contains the standard input data, an array of flags indicating defaulted input data, the annual BTU requirement for each configuration of the home, the fuel volume, costs, and savings, the retrofit costs estimated under each configuration of the home, the amount of attic insulation to be added, and the savings from insulating the water heater and adding a solar collector.

The Job Summary Report format is shown in Appendix J. It reports:

- the number of Standard Format Data (SFD) records processed requiring no default values;
- the number of SFD records requiring at least one default assignment before processing;
- the total number of SFD records processed;
- the distribution of SFD records processed by ZIP code; and
- a message signalling normal termination of the job.

5. PROCEDURE ABSTRACT

Local Data Subsystem

The following sequence of steps describes the manual operations that must be accomplished by the user in preparation for creating the Local Data File. It is important to note that the Local Data File must be created prior to processing questionnaire data through the automated portion of the Home Energy Audit System.

Step 1. Collect the local climatic, cost and engineering data in accordance with the instructions provided in the Local Data Collection Handbook available from the Department of Energy.

Step 2. Transcribe the resulting local data to punched cards in accordance with the keypunching instructions provided in Appendix H.

Step 3. Insert the resulting local data cards in the job set-up as shown in Figure 2.

Step 4. Deliver the resulting job set-up deck of cards to the Computer Operations staff requesting that the job be run.

Step 5. Receive the Local Data Report described in Appendix I from the Computer Operations staff.

Step 6. Carefully review the Local Data Report to establish that the Local Data File has been successfully created and contains the proper data for each ZIP Code range.

Step 7. Errors in the local data elements detected during the review process must be corrected by:

a) Preparing punched cards in accordance with the Keypunch Instructions in Appendix H showing the appropriate ZIP Code range and referencing the lowest ZIP Code of the range as the base ZIP Code. The Identification Number and corrected value of the data element to be changed are the only items that need be punched in the data fields.

b) Insert the resulting punched cards in the job set-up shown in Figure 1 and change the 28th line from "// DISP=(NEW,KEEP)" to "// DISP=(OLD,KEEP)."

c) Resubmit the resulting job set-up deck to the Computer Operations staff as indicated in Step 4.

d) Repeat Steps 5, 6, and 7, as needed.

Home Energy Audit (HEA) Questionnaire Handling

The following sequence of steps describes the manual operations that must be performed by the user in processing HEA questionnaires received from participants.

Step 1. Receive the HEA questionnaires submitted by participating households.

Step 2. Review the questionnaires visually for legibility. Resolve invalid responses to questions. Repair torn or separated questionnaires.

Figure 2

JØB Set up for LOCAL DATA PROGRAM

```
//AAAULDTA JOB (9999,DO2,1,5),name,TIME=(,24)
***ROUTEPRINT REMOTE1
//*
//*     EXECUTE THE LOCAL DATA PROGRAM
//*
//A  EXEC    PGM=MAIN,REGION=130K
//STEPLIB  DD  DSN=CN9999.AAA.HEA.LOCAL.DATA.LOAD,
//      UNIT=3350,VOL=SER=FEA014,DISP=SHR
//*
//*     READ THE LOCAL DATA CARDS
//*
//GO.FT05F001  DD  *
//*************************************************
//*                                               *
//*     INSERT THE LOCAL DATA CARDS HERE          *
//*                                               *
//*************************************************
/*
//*
//*     PRINT THE LOCAL DATA REPORTS
//*
//GO.FT06F001  DD  SYSOUT=A
//*
//*     CREATE THE LOCAL DATA FILE
//*
//GO.FT01F001  DD  DSN=CN9999.AAA.HEA.LOCAL.DATA,
//      UNIT=3350,DCB=(BLKSIZE=1844,RECFM=F),
//      DISP=(NEW,KEEP)
//*
//*     SET UP TWO TEMPORARY WORK FILES
//*
//GO.FT02F001  DD  DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB),
//      UNIT=3350,DISP=(NEW,DELETE,DELETE),SPACE=(3120,(5,5))
//GO.FT03F001  DD  DCB=(BLKSIZE=1844,RECFM=F),
//      UNIT=3350,DISP=(NEW,DELETE,DELETE),SPACE=(TRK,(100))
/*
```

NOTES: '9999' in the above JCL must be replace with a valid account number.

'AAA" in the above JCL must be replaced with a valid set of initials.

'name' in the above JCL should be replaced with the user's name.

Step 3. Manually stamp each questionnaire with a unique, 5-digit accession number using an automatic numbering machine as available from conventional office supply stores.

Step 4. Bundle the stamped questionnaires into groups of 100 and deliver to the keypunch staff.

Step 5. Transcribe the data on the questionnaires to card images in accordance with the keypunch instructions shown in Appendix B.

Step 6. Arrange the resulting punched cards so that the three cards for a given questionnaire are adjacent to each other. Note that the three cards need not be in sequence among themselves.

Step 7. Receive the original questionnaires and corresponding punched cards from the keypunch staff.

Step 8. Place the questionnaires in temporary storage maintaining the accession number sequence. The questionnaires may be ultimately destroyed when it is verified that the corresponding Homeowner Reports have been mailed out to the participants.

Step 9. Insert the resulting questionnaire data cards in the job set-up deck shown in Figure 3 for the HEA Preprocessor.

Step 10. Submit the resulting job set-up deck to the Computer Operations staff requesting that the job be run.

Step 11. Receive the Job Execution Log as shown in Appendix C from the Computer Operations staff.

Step 12. Review the Job Execution Log to insure that the questionnaire data were successfully processed:

a) Scan Job Execution Log for asterisks appearing beside accession numbers which indicate that the data for that questionnaire were not processed.

b) Retrieve the corresponding original questionnaires from temporary storage, review and correct any errors and include the questionnaire in with the next batch to be bundled for keypunching in Step 4.

Analysis Program - HEA Questionnaires

The following sequence of steps describes the manual functions that must be performed by the user in preparation for producing the Homeowner Reports from HEA questionnaire data that has been successfully processed by the HEA Preprocessor Program.

Figure 3

Job Set up for the HEA Preprocessor Program

```
//AAAUHPGO JOB (9999,D02,5,20),neme,MSGLEVEL=(1,1),
//      TIME=(,9)
***ROUTEPRINT REMOTE1
//*
//*     EXECUTE THE HEA PREPROCESSOR
//*
//GO  EXEC   PGM=MAIN,REGION=180K
//STEPLIB  DD DSN=CN9999.AAA.HEA.HPRE.LOAD,
//      UNIT=3350,DISP=SHR
//*
//*     DEFINE OUTPUT FOR JOB EXECUTION LOG
//*
//GO.FT06F001 DD SYSOUT=A
//*
//*     INPUT FILE FOR THE HEA QUESTIONNAIRE DATA CARDS
//*
//GO.FT10F001 DD *
//*****************************************************
//*                                                   *
//*     INSERT DATA CARDS HERE                        *
//*                                                   *
//*****************************************************
/*
//*
//*     DEFINE SUPPLEMENTARY PRINT FILES
//*
//GO.FT11F001 DD SYSOUT=A
//GO.FT12F001 DD SYSOUT=A
//*
//*     DEFINE OUTPUT FOR STANDARD FORMAT DATA FILE
//*
//GO.FT13F001 DD UNIT=3350,DSN=CN9999.AAA.HEA.SFD.HPRE,
//      DISP=(NEW,CATLG),VOL=SER=FEA027,
//      SPACE=(TRK,(1,1))
/*
```

NOTE: '9999' in the above JCL must be replaced with a valid account number.

'AAA' in the above JCL must be replaced with a valid set of initials.

'name' in the above JCL should be replaced with the user's name.

Step 1. Assemble the job set-up deck shown in Figure 4.

Step 2. Submit the resulting job set-up deck to the Computer Operations staff requesting that the job be run.

Step 3. Receive the printed Homeowner Reports (see sample in Appendix K), the Analysis Program Job Summary Report (see sample in Appendix J) and the Analysis Program Messages from the Computer Operations staff.

Step 4. Review the Summary Report and Messages to ensure that the job ran successfully as indicated by the message, "END HEA ANALYSIS PROGRAM" which will appear on the Job Summary Report. Errors in the job performance should be referenced to the Computer Operations staff for resolution.

Step 5. Inspect the printed Homeowner Reports for print quality to insure legibility.

Step 6. Deliver Homeowner Reports to Mailing staff.

Step 7. Burst continuous form paper into individual, two-page reports.

Step 8. Fold reports to fit standard, No. 10, window envelopes.

Step 9. Insert folded report and explanatory cover letter (optional) into envelopes, seal and deliver to U.S. Postal Service.

Step 10. Notify project manager of the successful mailing of the reports so that the corresponding questionnaires can be discarded from temporary storage.

Project Conserve (P-C) Questionnaire Handling

The following sequence of steps describes the manual operations that must be performed by the user in processing Project Conserve questionnaires received from participants.

Step 1. Receive the P-C questionnaires submitted by participating households.

Step 2. Review the questionnaires visually for legibility. Resolve invalid responses to questions. Repair torn or separated questionnaires.

Step 3. Manually stamp each questionnaire with a unique, 5-digit accession number using an automatic numbering machine as available from conventional office supply stores.

Step 4. Bundle the stamped questionnaires into groups of 100 and deliver to the keypunch staff.

Figure 4

Job Set Up for the HEA Analysis Program

```
//AAAUHMGO JOB (9999,D02,5,50),name,MSGLEVEL=(1,1),
//       TIME=(,9)
//*ROUTEPRINT REMOTE1
//*
//*      EXECUTE THE HEA ANALYSIS PROGRAM
//*
//GO  EXEC PGM=MAIN,REGION=180K
//STEPLIB  DD DSN=CN9999.AAA.HEA.HAM.LOAD,
//       UNIT=3350,DISP=SHR
//*
//*      DEFINE THE LOCAL DATA FILE
//*
//GO.FT01F001 DD DSN=CN9999.AAA.HEA.LOCAL.DATA,
//       UNIT=3350,DISP=SHR
//*
//*      DEFINE FILE OF MESSAGES FROM ANALYSIS PROGRAM
//*
//GO.FT06F001 DD SYSOUT=A
//*
//*      DEFINE INPUT STANDARD FORMAT DATA FILE
//*
//GO.FT10F001 DD UNIT=3350,DSN=CN9999.AAA.HEA.SFD.HPRE,
//       DISP=(SHR,KEEP),VOL=SER=FEA027,
//*
//*      DEFINE OUTPUT FILE FOR HOMEOWNER REPORTS
//*
//GO.FT12F001 DD SYSOUT=A,
//       DCB=(RECFM=VBA,LRECL=137,BLKSIZE=689)
//*
//*      DEFINE OUTPUT FILE FOR JOB EXECUTION LOG
//*
//GO.FT15F001 DD SYSOUT=A
//*
//*      DEFINE OUTPUT FILE FOR HISTORY FILE
//*
//GO.FT14F001 DD
//
/*
```

NOTE: '9999' in the above JCL must be replaced with a valid account number.

'AAA' in the above JCL must be replaced with a valid set of initials.

'name' in the above JCL must be replaced with the user's name.

Step 5. Transcribe the data on the questionnaires to card images in accordance with the keypunch instructions shown in Appendix E.

Step 6. Arrange the resulting punched cards such that the two cards for a given questionnaire are adjacent to each other. Note that two cards need not be in sequence among themselves.

Step 7. Receive the original questionnaires and corresponding punched cards from the keypunch staff.

Step 8. Place the questionnaires in temporary storage maintaining the accession number sequence. The questionnaires may be ultimately destroyed when it is verified that the corresponding Homeowner Reports have been mailed out to the participants.

Step 9. Insert the resulting questionnaire data cards in the job set-up deck shown in Figure 5 for the P-C Preprocessor.

Step 10. Submit the resulting job set-up deck to the Computer Operations staff requesting that the job be run.

Step 11. Receive the Job Execution Log as shown in Appendix C from the Computer Operations staff.

Step 12. Review the Job Execution Log to insure that the questionnaire data were successfully processed:

a) Scan Job Execution Log for asterisks appearing beside accession numbers which indicate that the data for that questionnaire were not processed.

b) Retrieve the corresponding original questionnaires from temporary storage, review and correct any errors and include the questionnaire in with the next batch to be bundled for keypunching in Step 4.

Analysis Program - Project Conserve Questionnaires

The following sequence of steps describes the manual functions that must be performed by the user in preparation for producing the Homeowner Reports from Project Conserve questionnaire data that has been successfully processed by the P-C Preprocessor Program.

Step 1. Assemble the job set-up deck shown in Figure 6.

Step 2. Submit the resulting job set-up deck to the Computer Operations staff requesting that the job be run.

Step 3. Receive the printed homeowner reports (see sample in Appendix K), the Analysis Program Job Summary Report (see sample in Appendix J) and the Analysis Program Messages from the Computer Operations staff.

Figure 5

Job Set up for the P-C Preprocessor Program

```
//AAAUHPGO JOB (9999,D02,5,20), name,MSGLEVEL=(1,1),
//      TIME=(,9)
***ROUTEPRINT REMOTE1
//*
//*     EXECUTE THE HEA PREPROCESSOR
//*
//GO  EXEC   PGM=MAIN,REGION=180K
//STEPLIB  DD DSN=CN9999.AAA.HEA PPRE.LOAD,
//      UNIT=3350,DISP=SHR
//*
//*     DEFINE OUTPUT FOR JOB EXECUTION LOG
//*
//GO.FT06F001 DD SYSOUT=A
//*
//*     INPUT FILE FOR THE HEA QUESTIONNAIRE DATA CARDS
//*
//GO.FT10F001 DD *
//*****************************************************
//*                                                   *
//*     INSERT DATA CARDS HERE                        *
//*                                                   *
//*****************************************************
/*
//*
//*     DEFINE SUPPLEMENTARY PRINT FILES
//*
//GO.FT11F001 DD SYSOUT=A
//GO.FT12F001 DD SYSOUT=A
//*
//*     DEFINE OUTPUT FOR STANDARD FORMAT DATA FILE
//*
//GO.FT13F001 DD UNIT=3350,DSN=CN9999.AAA.HEA.SFD.PPRE,
//      DISP=(NEW,CATLG),VOL=SER=FEA027,
//      SPACE=(TRK,(1,1))
/*
```

NOTE: '9999' in the above JCL must be replaced with a valid account number.

'AAA' in the above JCL must be replaced with a valid set of initials.

'name' in the above JCL should be replaced with the user's name.

Figure 6

Job Set Up for the P-C Analysis Program

```
//AAAUHMGO JOB (9999,D02,5,50),name,MSGLEVEL=(1,1),
//       TIME=( 5,9)
//*ROUTEPRINT REMOTE1
//*
//*      EXECUTE THE HEA ANALYSIS PROGRAM
//*
//GO  EXEC PGM=MAIN,REGION=180K
//STEPLIB  DD DSN=CN9999.AAA.HEA.HAM.LOAD,
//       UNIT=3350,DISP=SHR
//*
//*      DEFINE THE LOCAL DATA FILE
//*
//GO.FT01F001 DD DSN=CN9999.AAA.HEA.LOCAL.DATA,
//       UNIT=3350,DISP=SHR
//*
//*      DEFINE FILE OF MESSAGES FROM ANALYSIS PROGRAM
//*
//GO.FT06F001 DD SYSOUT=A
//*
//*      DEFINE INPUT STANDARD FORMAT DATA FILE
//*
//GO.FT10F001 DD UNIT=3350,DSN=CN9999.AAA.HEA.SFD.PPRE,
//       DISP=(SHR,KEEP),VOL=SER=FEA027,
//*
//*      DEFINE OUTPUT FILE FOR HOMEOWNER REPORTS
//*
//GO.FT12F001 DD SYSOUT=A,
//       DCB=(RECFM=VBA,LRECL=137,BLKSIZE=689)
//*
//*      DEFINE OUTPUT FILE FOR JOB EXECUTION LOG
//*
//GO.FT15F001 DD SYSOUT=A
//*
//*      DEFINE OUTPUT FILE FOR HISTORY FILE
//*
//GO.FT14F001 DD    DSN=CN9999.AAA.HEA.HISTORY.FILE,
//                  UNIT=2400,
//                  DISP=(MOD,CATLG),
//                  LABEL=( ,SL ),
//                  DCB=(RECFM=VBS,LRECL=1148,BLKSIZE=1148)
```

NOTE: '9999' in the above JCL must be replaced with a valid account number.

'AAA' in the above JCL must be replaced with a valid set of initials.

'name' in the above JCL must be replaced with the user's name.

Step 4. Review the Summary Report and Messages to ensure that the job ran successfully as indicated by the message, "END HEA ANALYSIS PROGRAM" which will appear on the Job Summary Report. Errors in the job performance should be referenced to the Computer Operations staff for resolution.

Step 5. Inspect the printed Homeowner Reports for print quality to insure legibility.

Step 6. Deliver Homeowner Reports to Mailing staff.

Step 7. Burst continuous form paper into individual, two-page reports.

Step 8. Fold reports to fit standard, No. 10, window envelopes.

Step 9. Insert folded report and explanatory cover letter (Optional) into envelopes, seal and deliver to U.S. Postal Service.

Step 10. Notify project manager of the successful mailing of the reports so that the corresponding questionnaires can be discarded from temporary storage.

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

ADP Operations Manual

0 0 0 0 5 1 0 0 2 4 6

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

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Operations Manual

1. Purpose

The purpose of this Operations Manual is to provide computer operations personnel with a description of the Home Energy Audit System software and of its operations environment as a technical aid for system execution. This manual is concerned mainly with the data processing aspects of the Home Energy Audit System. Detailed descriptions of the manual operations are contained in the Home Energy Audit System Users Manual.

2. General Information

Summary

The Home Energy Audit System is designed to analyze the energy conserving/consuming characteristics of a single family home and provide a cost/savings report for various energy conserving actions in the home. When the questionnaire is submitted for analysis, its ZIP Code allows cost and climatic data appropriate for the location of the home to be used in the analysis. The two main outputs of the system are: (1) a two- page Homeowner Report which is mailed to the participant; and (2) a history file recording the home characteristics and cost/savings estimates for each home processed.

Environment

The Home Energy Audit System was developed for the Department of Energy (ERDA/FEA) as a cooperative effort by the National Bureau of Standards and Applied Urbanetics, Inc. The initial system development and subsequent testing for the IBM version of the system was done at the OSI computer facility located in Rockville, Maryland. This facility, operated exclusively for the Department of Energy (FEA), by Optimum Systems, Inc., consists of two IBM 370/168 central processing units connected in multiprocessor mode, with OS/MVS and JES2.

References

Contract Number 3533602, issued by the University of California Lawrence Berkeley Laboratory.

In addition, several published references were employed in the development of the system:

1. Air Conditioning and Refrigeration, Wm. H. Severns and J.R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock, and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada. T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperation with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R.W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S.R. Peterson, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

3. Overview

Software Organization

The Home Energy Audit System was designed for the sole purpose of processing the data collected by the Project Conserve and Home Energy Audit questionnaires. This information describes the energy consuming features of a home. The sofware performs

an analysis of the questionnaire data and produces a Homeowner Report which is mailed directly to the participant. The report summarizes the estimated costs and savings of selected energy conserving actions which may be taken in the home.

The ZIP Code of the home's location allows specific climatic and cost factors to be used. The ZIP Code also allows the system to supplement the questionnaire data with default values where necessary. Thus, all input data may be processed with no need to inspect a home even if the questionnaire contains insufficient or illogical data.

Questionnaires are distributed by the sponsoring organization. The completed and returned questionnaires are then keyed into card-image records which are input to the Preprocessor Program appropriate to the questionnaire type. This program produces the Standard Format Data File which in turn is input to the Home Energy Audit Analysis Program. A personalized Homeowner Report is produced for each home processed and mailed directly to the participant. The report contains a summary of the costs and savings the participant can expect from a variety of energy conserving actions that may be taken in the home. Shown in Figure 1 is the logical sequence of events in the overall operation of the Home Energy Audit System. The tasks to be performed are listed below.

- Questionnaire collection;
- Editing;
- Keypunching;
- Computer processing;
- Mailing; and
- Data disposal.

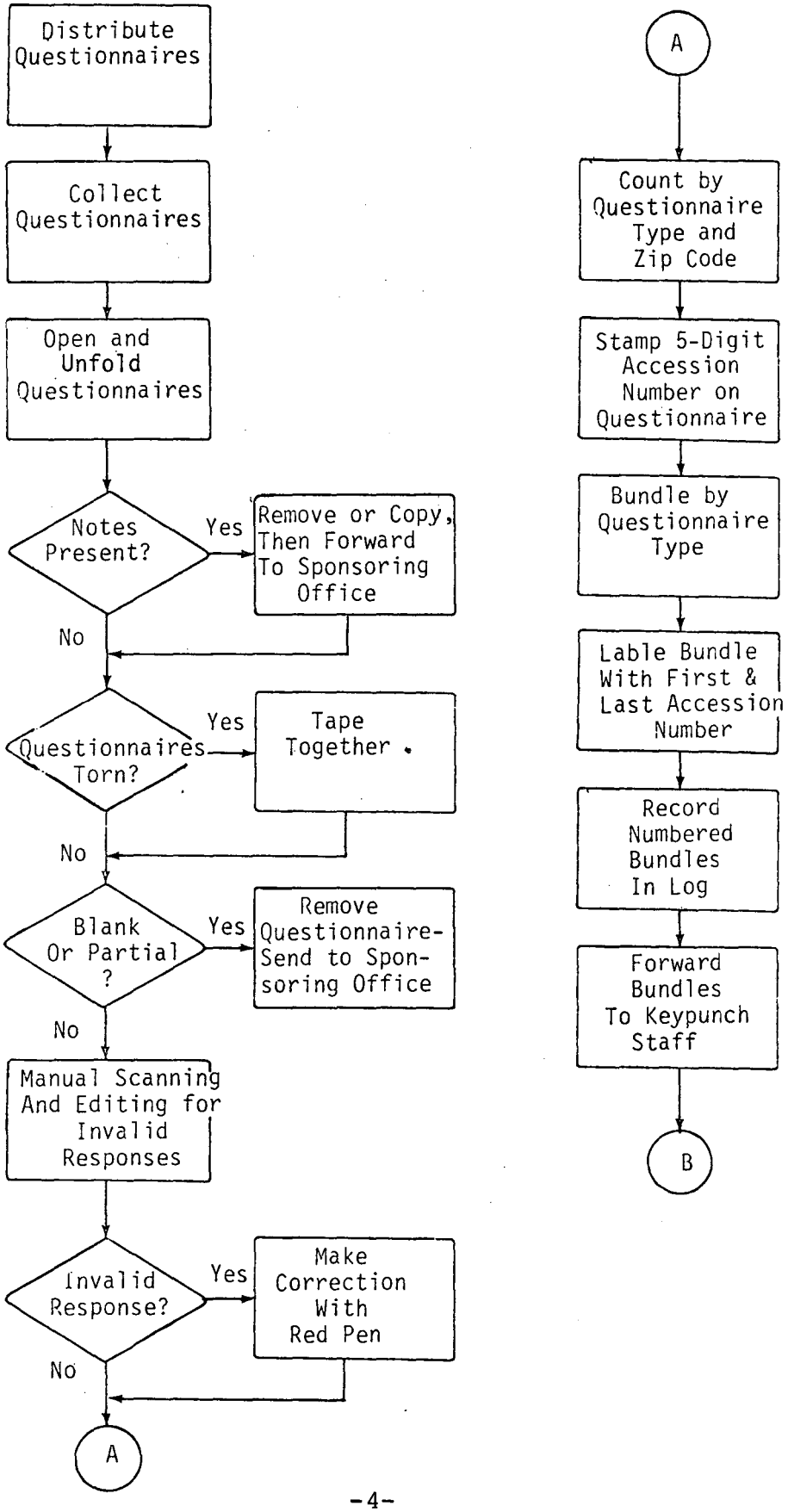
The Home Energy Audit System consists of three basic components:

1. The Local Data Subsystem;
2. The Input Preprocessor Subsystem; and
3. The Analysis Subsystem.

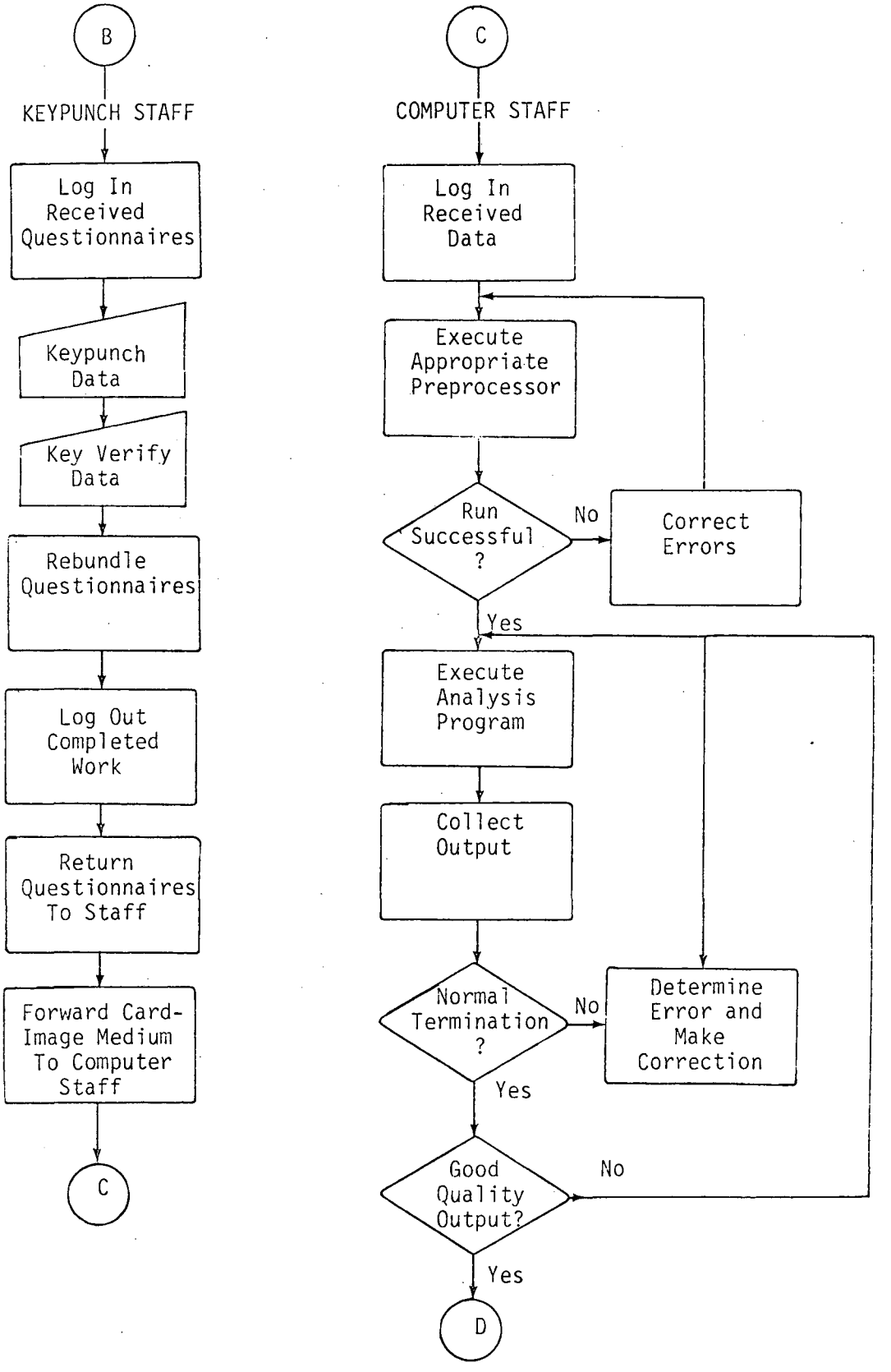
The Local Data Subsystem installs the Local Data File which contains cost and climatic data and default values for specified ZIP Code ranges.

Figure 1

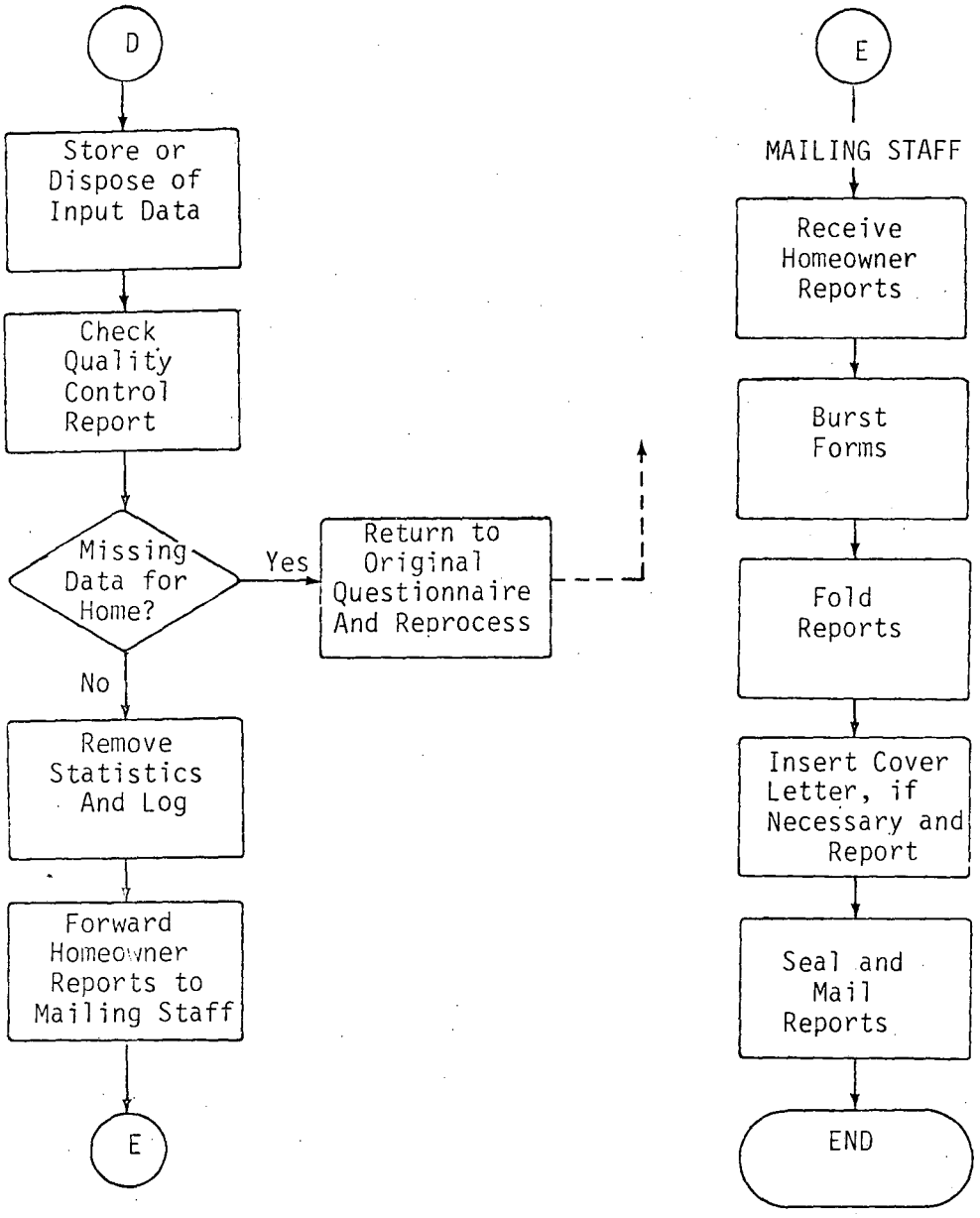
Logical Flow of Events in Overall Operation



Logical Flow of Events in Overall Operation (cont'd)



Logical Flow of Events in Overall Operation (cont'd)



The Input Preprocessor Subsystem converts the data gathered on the Project Conserve or Home Energy Audit questionnaires into a common format as required by the Standard Format Data File.

The Analysis Subsystem reads the Standard Format Data File and the Local Data File and analyzes the potential cost and savings associated with selected energy conserving home improvement actions. The primary output is the Homeowner Report which summarizes the estimated costs and savings for the homeowner.

The Local Data File must be installed before the Analysis Subsystem can be run. A description of the form used to collect the local data and the keypunch instructions may be found in Appendices G and H. Figure 2 illustrates the steps necessary to collect the local data, validate it, and convert it to machine readable format. The outputs of the Local Data Subsystem are the Local Data File (Appendix M) and a printed summary for each ZIP Code range (Appendix I).

The Input Preprocessor checks questionnaire data and converts it to a common format. Because the Home Energy Audit System is intended to process data taken from multiple sources, a Standard Format Data File has been designed to provide this common input format. Data from each source type (e.g., the Project Conserve Questionnaire) has a corresponding Preprocessor program to read the data and make any conversions or substitutions necessary to make it conform to the requirements of the Standard Format Data File. Appendices A through C describe the HEA questionnaire, HEA questionnaire keypunch instructions, and HEA preprocessor summary report. Appendices D through F describe similar information for the Project Conserve questionnaire.

The Analysis Subsystem is comprised of four modules:

1. The Preprocessing Module - performs editing functions and validity checking. Default values are assigned where necessary.

2. The Compute Module - calculates BTU requirements for heating and cooling the house under various sets of conditions indicated by parameter values.

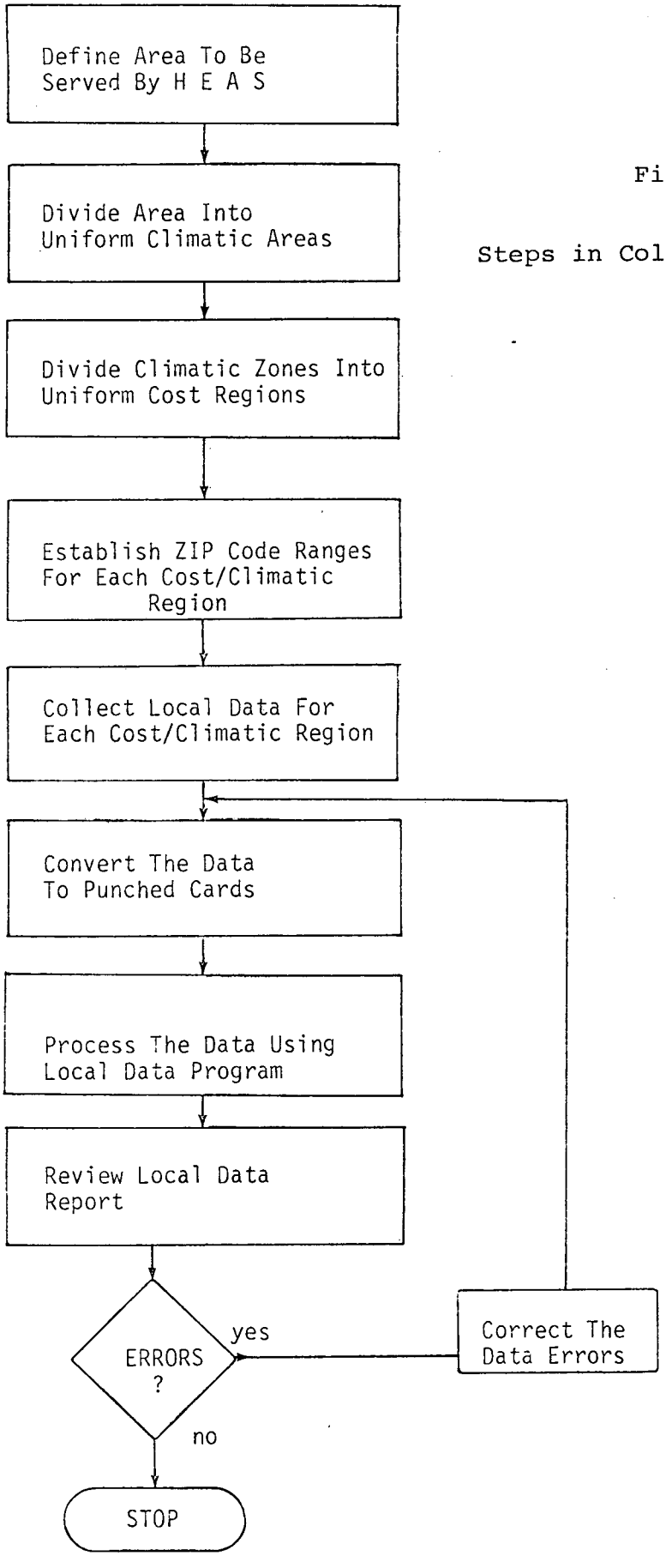


Figure 2

Steps in Collecting Local Data

3. The Results Analysis Module - calculates fuel savings for home-improvement actions and associated cost and savings figures.

4. The Report Generator - prints the Homeowner Report summarizing the cost/savings information for the home and writes one record per questionnaire to the History File.

The inputs to the Analysis Module are the Local Data File and the Standard Format Data File. The outputs are Homeowner Reports, a Job Execution Log, and a History File.

The primary output of the HEA system is the Homeowner Report shown in Appendix K. The first page of the report contains a summary of the data collected on the questionnaire with all defaulted values indicated. The second page of the report contains the participant's name and address with the estimates of costs and savings.

Another output of the Analysis Subsystem is the Job Execution Log Report shown in Appendix J. This report contains the number of questionnaires processed with and without defaults and a list of each ZIP Code area processed and the number of questionnaires processed for each ZIP Code. A completion message, "END HOME ENERGY AUDIT SYSTEM ANALYSIS PROGRAM" is printed if the job runs successfully.

The third output of the Analysis Program is the History File. This data set is written or added to each time a batch of questionnaires (on a Standard Format Data File) is processed. The History File contains a record of each questionnaire processed by the HEA System, which includes all of the input information and the computed costs and savings which appear on the Homeowner Report. There is one possible exception to this: The name and address of the respondent will not normally be copied to the History File. However, this information may be included at the discretion of the sponsoring office by the following change to the program code in the Report Generator Module (SUBROUTINE RPTGEN):

```
Change DATA statement:    DATA NAMEIN/0/
                     to:  DATA NAMEIN/1/
```

The value 0 will set the name and address to blanks; the value 1 will copy the name and address to the History File.

The information recorded in the History File can be used to evaluate participation in the project and possible impacts on energy savings. A complete description of the format and content of the History File is presented in Appendix N. The disposition of the file is designated as DISP=(MOD,CATLG). This disposition allows the History File to be created on the initial run (as long as no specific volume is specified) and added to on subsequent runs. If no History File is desired for a given run the DD card for that run should be coded //GO.FTI4F001 DD DUMMY.

Program Inventory

All permanent files referenced, created, or updated by the HEA System are shown in Table 1. The first four data sets listed contain the source code for the four programs that make up the HEA system. The next four data sets contain the four Load Modules. The next four contain test card data and test Standard Format Data for the two Preprocessors. The remaining three data sets are the Local Data File and the two History Files.

Two permanent data sets should be maintained to contain the History File - a primary copy and a backup copy. These files are named HEA.HISTORY.FILE and HEA.BACKUP.HISTORY.FILE respectively.

All other data sets referenced or created by the system are temporary.

4. Description of Runs

Run Inventory

There are nine runs possible in the Home Energy Audit System. Table 2 shows the SUPERWYLBUR data set name containing the JCL control statements, purpose, and program executed for each run.

Compile and link. Runs 1 through 4 compile and link edit the four HEA programs. The resulting executable load module for each run is saved in a partitioned data set:

1. LDCL (Local Data Subsystem) in CN9999.AAA.HEA.LOCAL.LOAD(LOCAL);

2. HPRECL (HEA Preprocessor) in CN9999.AAA.HEA.HPRE.LOAD(HPRE);

TABLE 1

Home Energy Audit System Files

Name	Function	Storage Medium	Required Storage
Source Code			
CN9999.AAA.HEA.HPRE.SOURCE	HEA Preprocessor source code.	3350 disk	5 tracks
CN9999.AAA.HEA.PCPRE.SOURCE	Project Conserve Preprocessor source code.	3350 disk	4 tracks
CN9999.AAA.HEA.HPDAT.FORMAL.TEST.DATA.CARD	Local Data Subsystem source code.	3350 disk	
CN9999.AAA.HEA.HAM.SOURCE	HEA Analysis Module Program source code.	3350 disk	12 tracks
Load Modules			
CN9999.AAA.HEA.HPRE.LOAD(HPRE)	HEA Preprocessor executable load module.	3350 disk	5 tracks
CN9999.AAA.HEA.PCPRE.LOAD(PCPRE)	Project Conserve Preprocessor executable load module.	3350 disk	5 tracks
CN9999.AAA.HEA.LOCAL.DATA.LOAD(LOCAL)	Local Data Program executable load module.	3350 disk	5 tracks
CN9999.AAA.HEA.HAM.LOAD(HAM)	HEA Analysis Module Program executable load module.	3350 disk	15 tracks
Data Sets Referenced			
CN9999.AAA.HEA.HPDAT.FORMAL.TEST.DATA.CARD	HEA questionnaire test answers, stored in card format.	3350 disk	1 track

Continued--

0 0 0 3 5 1 0 0 2 5 0

Table 1 (continued)

Name	Function	Storage Medium	Required Storage
Data Sets Referenced			
CN9999.AAA.HEA.PCDAT.FORMAL.TEST.DATA.CARD	Project Conserve questionnaire test answers stored in card fortmat	3350 disk	1 track
CN9999.AAA.HEA.SFD.HP.FORMAL.DATA	Standard Format Data File written by HEA Preprocessor (72 records).	3350 disk	2 tracks
CN9999.AAA.HEA.SFD.PC.FORMAL.DATA	Standard Format Data File written by Project Conserve Preprocessor (44 records).	3350 disk	3 tracks
CN9999.AAA.HEA.LOCAL.DATA	Local Data File written by Local Data Subsystem.	3350 disk	
CN9999.AAA.HEA.HISTORY.FILE	History File written by HEA Analysis Module program.	2400 tape	
CN9999.AAA.HEA.BACKUP.HISTORY.FILE	Backup history file.	2400 tape	

TABLE 2

Home Energy Audit System Inventory

Run	Member name*	Function	Programs executed
1	(LDCL)	Build load module for Local Data Program.	FTGICL
2	(HPRECL)	Build load module for HEA Preprocessor.	FTGICL
3	(PCPRCL)	Build load module for PC Preprocessor.	FTGICL
4	(HAMCL)	Build load module for HEA Analysis Program.	FTGICL
5	(LDGO)	Execute Local Data Subsystem to write Local Data File.	HEA.LOCAL.LOAD(LOCAL)
6	(HPREGO)	Execute HEA Preprocessor to convert one batch of HEA questionnaires to standard format and write an SFD File.	HEA.HPRE.LOAD(HPRE)
7	(PCPRGO)	Execute PC Preprocessor to convert one batch of Project Conserve questionnaires to standard format and write an SFD File.	HEA.PCPRE.LOAD(PCPRE)
8	(HAMGO)	Execute Analysis Program to analyze homes represented on any one SFD File.	HEA.HAM.LOAD(HAM)
9	(HFBACK)	Copy History.File to Backup.History.File	IEBGENER

* In SUPERWYLBUR Data set CN9999.AAA.HEA.JCL.

0010501021

3. PCPRCL (PC Preprocessor) in CN9999.AAA.HEA.PCPRE.LOAD(PCPRE); and

4. HAMCL (Analysis Program) in CN9999.AAA.HEA.HAM.LOAD(HAM).

Execute Local Data Subsystem. Run 5 invokes the Local Data Subsystem compiled and linked by Run 1 to prepare a Local Data File for subsequent use by the Analysis Program.

Execute HEA Preprocessor. Run 6 invokes the HEA Preprocessor compiled and linked by Run 2 to read a batch of HEA questionnaires and write a Standard Format Data File for subsequent use by the Analysis Program.

Execute PC Preprocessor. Run 7 invokes the PC Preprocessor compiled and linked by Run 3 to read a batch of Project Conserve questionnaires and write a Standard Format Data File for subsequent use by the Analysis Program.

Execute Analysis Program. Run 8 invokes the Analysis Program (compiled and linked by Run 4) to read a Standard Format Data File (written by Run 6 or Run 7) and a Local Data File (written by Run 5) and write Homeowner Reports and a History File.

Copy History File. Run 9 writes a backup copy of the History File written by Run 8 to protect the data.

Run Progression

Execution of the HEA System is in two phases, Setup and Processing.

Phase 1: Setup

The System must be prepared for execution by: (a) compiling and link editing the source code, and (b) writing the Local Data File. These steps need be executed only once unless there is an error.

a. The first step in setting up the HEA System is to compile and link edit the programs to be used:

   - Run 1, compile and link edit Local Data Subsystem: Always required;

   - Run 2, compile and link edit HEA Preprocessor: Required if HEA questionnaires are to be processed;

- Run 3, compile and link edit PC Preprocessor: Required if Project Conserve questionnaires are to be processed; and

- Run 4, compile and link edit Analysis Program: Always required.

b. The second step is to execute the Local Data Subsystem (Run 5). This step should be repeated until an error free Local Data File has been written.

Phase 2: Processing

Once the System is correctly set up, processing of each batch of questionnaires requires the remaining steps: Preprocessing, Analysis, and History File Backup. These three steps are repeated for each batch of questionnaires to be processed.

a. The first step in processing questionnaires is to execute one of the two Preprocessors. If HEA questionnaires are being processed, execute the HEA Preprocessor (Run 6). If Project Conserve Questionnaires are being processed, execute the PC Preprocessor (Run 7).

b. The next step is to execute the Analysis Program (Run 8), using the files written by the Local Data Subsystem and the Selected Preprocessor.

c. The final step is to secure a backup copy of the History File (Run 9). Omit this step if no History File is to be kept.

Run Description

General Information for Submission of Runs

The account and initials in the JCL and the sign-on procedure to follow are shown as "9999" and "AAA." When the system is actually run, the valid account and initials to be used will be available from the project manager. Also necessary for sign-on are the keyword, which will be shown as "XXX" and the current SUPERWYLBUR switch characters, shown here as "BBB."

There are 9 runs associated with the HEA System (see Table 2). Any of these runs may be initiated through SUPERWYLBUR, provided required card input data is stored on disk in card image format. A SUPERWYLBUR edit format file may be converted to card image format by the following instructions from the terminal:

```
USE FROM FILENAME    (CR)
RESAVE FILENAME CARD  (CR).
```

For jobs submitted through SUPERWYLBUR it will be necessary to connect the terminal to the computer and to sign on to SUPERWYLBUR. The following paragraphs explain the step-by-step procedures for terminal connection and sign-on.

Connecting the Terminal to the Computer - The following steps are necessary to make the terminal-computer connection for the Data-Phone type interface used with most of the terminals at FEA's 20th and M Street Building. (For further details on this and other types of interfaces, see Appendix D, "Establishing Terminal Computer Connections" on pages 217-224 of the FEA User's Guide for SUPERWYLBUR.)

- Turn the terminal on.
- Depress the TALK button on the Data-Phone.
- Dial 468-1100. If that is busy or does not answer, dial 468-0800.
- Wait for the high pitched tone which should occur after one or two rings. If no high pitched tone is heard, hang up and try again later.
- Depress the DATA button which should then light up.
- Hang up the phone. Make sure the DATA button is still lit.
- Start the sign-on procedure within 15 seconds or the line disconnects and the process must be repeated.

SUPERWYLBUR Sign-on Procedure - The sign-on procedure for SUPERWYLBUR is as follows.

- Type in the current switch characters BBB (CR). The system responds with "READY TO IBM" and then "MODEL?"

- Press the carriage return again. The system responds with sign-on information followed by "INITIALS?"

- Type in "AAA" where "AAA" is your three character ID/initials. The system responds with "ACCOUNT?".

- Type in "9999" where "9999" is your account number. The system responds with "KEYWORD?".

- Type in "XXX" where "XXX" is your keyword.

The system responds with a "?" and you are ready to start executing SUPERWYLBUR commands.

Here is an example of the complete sign-on process.

```
BBB
READY TO IBM
MODEL?

OSI LINE:  53 (04C) SIGNON AT:  3:38:52 P.M. On 07 JUNE 1977
WELCOME TO THE OSI 370/168 M.P. SYSTEM
INITIALS? AAA
ACCOUNT? 9999
KEYWORD? XXX
?
```

If sign-on to SUPERWYLBUR is under an account other than "9999" and initials other than "AAA", it will be necessary to change the account and initials to the set actually used before any runs are submitted. Additionally, the USERNAME field in the JOB Card (the first card in all runs) should be changed to the name of the person actually submitting the job. To change the account and initials, the following SUPERWYLBUR commands should be typed in:

Run 7 (PCPRGO):

Error Messages are discussed in Appendix U and in the Program Maintenance Manual.

If the number of cards is very large, the user may prefer to read them from a disk or tape data set instead of including them in the job stream. In this case, lines 16 - 21 of the JCL in Figure 3.7 should be replaced with

```
//GO.FT10F001 DD UNIT=3350,VOL=SER=FEA000,
//     DSN=CN9999.AAA.HEA.DATASETNAME,
//     DISP=SHR
```

or other identifying DD statement.

Run 8 (HAMGO):

Error messages are discussed in Appendix W and in the Program Maintenance Manual.

The number "50" in line 1 of Figure 3.8 establishes the maximum number of lines, in thousands, which can be printed during the run. If the number of lines exceeds this amount, processing will be halted and a message "Maximum Lines exceeded" written on the System Job Log. Should this occur, either:

a. Resubmit the run after changing the number "50" to a suitably larger number; or

b. Rerun the appropriate Preprocessor with only the unprocessed cards and then rerun the Analysis Program with the new SFD File. The Homeowner Reports and the History File written by the aborted run will be correct for all records processed except for the last; however, the HEA Job Summary will not be printed.

Run 9 (HFBACK):

This run is intended only to provide a backup for the History File, to have available should a processing error or system failure damage the main file. It need be executed only as considered necessary by the Project Manager.

Control Inputs

The run stream control statements for each run are shown in Table 3 and Figures 3.1 through 3.9.

```
?CH "9999" to "8888"  (CR)
?CH "AAA" to "ABC"  (CR)
```

In the above example, "8888" is the authorized account number, and "ABC" are the initials of the person authorized to run the system. To change the USERNAME filed in the JOB Card, it is necessary to type the following command:

```
?CH "USERNAME" to "MYNAME" IN F
```

In the above example "MYNAME" is the last name of the person authorized to run the system.

When you have finished the terminal session, type in "logoff clean" to sign-off of SUPERWYLBUR. The system will respond with accounting information followed by "END OF SESSION". For further information, see pages 46-51 of the Text Editing section of the SUPERWYLBUR manual.

Once a job has executed, the printout should be picked up at the remote station. The print out should be checked that all condition codes are zero.

Descriptions of Specific Runs

The basic information necessary to execute each run is shown in Table 3. Additional comments follow:

Runs 1 through 4: A compiler condition code of 4 is acceptable.

Run 5 (LDGO): Error messages are discussed in Appendix V and in the System Documentation Appendices.

Run 6 (HPREGO):

Error Messages are discussed in Appendix T and in the Program Maintenance Manual.

If the number of cards is very large the user may prefer to read them from a disk or tape data set instead of including them in the job stream. In this case, lines 16 - 21 of the JCL in Figure 3.6 should be replaced with

```
//GO.FT1ØFØØ1 DD UNIT=335Ø,VOL=SER=FEAØØØ,
//     DSN=CN9999.AAA.HEA.DATASETNAME,
//     DISP=SHR
```

or other identifying DD statement.

TABLE 3

Home Energy Audit System Run Descriptions

Run	Function	JCL Member Name[a]	JCL Listing	Files Referenced[b]	Catalogued Procedure Used	SUPERWYLBUR Command Stream[c]
1	Compile and link edit Local Data Program	(LDCL)	Figure 4-1	HEA.LOCAL.SOURCE HEA.LOCAL.LOAD (LOCAL)	FTGCL	Use from HEA.JCL(LDCL) (CR) Change '9999' to '8888' (CR) Change 'AAA' to 'BBB' (CR) Run REMOTE = NN (CR)
2	Compile and link edit HEA Pre-processor	(HPRECL)	Figure 4-2	HEA.HPRE.SOURCE HEA.HPRE.LOAD (HPRE)	FTGICL	Use from HEA.JCL(HPRECL) (CR) Change '9999' to '8888' (CR) Change 'AAA' to 'BBB' (CR) Run REMOTE = NN (CR)
3	Compile and link edit PC Pre-processor	(PCPRCL)	Figure 4-3	HEA.PCPRE.SOURCE HEA.PCPRE.LOAD (PCPRE)	FTGICL	Use from HEA.JCL(PCPRCL) (CR) Change '9999' to '8888' (CR) Change 'AAA' to 'BBB' (CR) Run REMOTE = NN (CR)
4	Compile and link edit Analysis Program	(HAMCL)	Figure 4-4	HEA.HAM.SOURCE HEA.HAM.LOAD(HAM)	FTGICL	Use from HEA.JCL(HAMCL) (CR) Change '9999' to '8888' (CR) Change 'AAA' to 'BBB' (CR) Run REMOTE = NN (CR)
5	Execute Local Data Subprogram	(LDGO)	Figure 4-5	HEA.LOCAL.LOAD (LOCAL)		Use from HEA.JCL(HAMCL) (CR) Change '9999' to '8888' (CR) Change 'AAA' to 'BBB' (CR) Run REMOTE = NN
6	Execute HEA Pre-processor	(HPREGO)	Figure 4-6	HEA.HPRE.LOAD(HPRE)		Use from HEA.JCL(HPREGO) (CR) Change '9999' to '8888' (CR) Change 'AAA' to 'BBB' (CR) [Replace lines 17-21 with cards to be processed] Run REMOTE = NN

Continued--

Table 3 (continued)

Run	Function	JCL Member Name[a]	JCL Listing	Files Referenced[b]	Catalogued Procedure Used	SUPERWYLBUR Command Stream[c]
7	Execute PC Pre-processor	(PCPRGO)	Figure 4-7	HEA.PCPRE.LOAD(HPRE) HEA.SFD.PCPRE		Use from HEA.JCL(PCPRGO) (CR) Change '9999' to '8888' (CR) Change 'AAA' to 'BBB' (CR) [Replace lines 17-21 with cards to be processed] Run REMOTE = NN (CR)
8	Execute Analysis Program	(HAMGO)	Figure 4-8	HEA.HAM.LOAD(HAM) HEA.LOCAL.DATA HEA.SFD.[HPRE][PCPRE]		Use from HEA.JCL(HAMGO) (CR) Change '9999' to '8888' (CR) Change 'AAA' to 'BBB' (CR) Run REMOTE = NN (CR)
9	Copy History file	(HFBACK)	Figure 4-9	HEA.HISTORY.FILE HEA.BACKUP.HISTORY.FILE		Use from HEA.JCL(HFPACK) (CR) Change '9999' to '8888' (CR) Change 'AAA' to 'BBB' (CR) Run REMOTE = NN

a/ In SUPERWYLBUR data set CN9999.AAA.HEA.JCL.
b/ All files are prefixed CN9999.AAA.
c/ (CR) indicates a carriage return. NN = number of the remote station where the job is to be printed.

Operating Information

The initiation method and estimated run time for each run are summarized in Table 4. If any problems are encountered with the run, contact the computer center personnel responsible for the project.

Input/Output Files

The file name, medium, retention schedule, and disposition of all permanent input/output files is shown in Table 5.

Output Reports

The report title, approximate pages of output, copies, and distribution of all reports generated by the nine runs in the HEA system are shown in Table 6. No reports are expected to be reproduced by non-computer means.

TABLE 4

Home Energy Audit System Operating Information

Run	Run Identification	Evaluation Method	Estimated Run Time
1	LDCL	On request	32 seconds
2	HPCL	On request	17 seconds
3	PCCL	On request	15 seconds
4	HMCL	On request	50 seconds
5	HDGO	On request	1.75 seconds/ ZIP Code coverage
6	HPGO	On request	.06 seconds/ questionnaire
7	PCGO	On request	.06 seconds/ questionnaire
8	HMGO	On request	Approximately 2.5 seconds/ questionnaire
9	HFBK	On request	

TABLE 5

Home Energy Audit System Input/Output Files

File name[a/]	Medium	Retention Schedule	Disposition
HEA.LOCAL.DATA	3350 Disk	Life of project	Local Data Program: MOD Analysis Program: SHR
HSA.SFD.HPRE HEA.SFD.PCPRE	3350 Disk	Until processed by Analysis Program	Preprocessor: NEW Analysis Program: SHR
HEA.HISTORY.FILE	2400 tape	As determined by project manager	Analysis Module: MOD Run 9: SHR
HEA.BACKUP.HISTORY. FILE	2400 tape	As determined by project manager	Run 9: NEW

a/ All file names are prefixed CN9999.AAA.

TABLE 6

Home Energy Audit System Output Reports

Run	Run Identification	Report Title	Volume	Copies	Distribution
1	LDCL	Compile listing Link edit listing	50 pp. 1 p.	1 1	Computer Operations Staff
2	HPCL	Compile listing Link edit listing	100 pp. 1 p.	1 1	Computer Operations Staff
3	PCCL	Compile listing Link edit listing	100 pp. 1 p.	 1	Computer Operations Staff
4	HMCL	Compile listing Link edit listing	250 pp. 1 p.	1 1	Computer Operations Staff
5	LDGO	Local Data Report	10 pp.	1	Program Sponsor
6	HPGO	Job Execution Log	1-5 pp.	1	Program Sponsor
7	PCGO	Job Execution Log	1-5 pp.	1	Program Sponsor
8	HMGO	Job Summary Homeowner reports	1 p. 2* number of records processed pages	1 1	Program Sponsor Mail to respondent
9	HFBK	IEBGENER Report	[illegible] pp.	1	Computer Operations Staff

FIGURE 3.1

Job Set Up for Compile and Link of
Local Data Subsystem

```
//AAAULDCL JOB (9999,002,1,5),'NAME',TIME=(,24)
/*ROUTE PRINT REMOTE1
//A      EXEC FORTGCL,PARM='MAP'
//*
//*      DEFINE SOURCE CODE
//*
//SYSIN DD DSN=CN9999.AAA.HEA.LOCAL.SOURCE,DISP=SHR
//*
//*      DEFINE OUTPUT FILE
//*
//LKED.SYSLMOD  DD  DSN=CN9999.AAA.HEA.LOCAL.DATA.LOAD(LOCAL),
//       DISP=OLD,VOL=SER=FEA011,UNIT=3350
//
```

FIGURE 3.2

Job Setup for Compile and Link of
HEA Preprocessor

```
//AAAUHPCL JOB (9999,D02,,30),'NAME',MSGLEVEL=(1,1),
// TIME=(,29)
/*ROUTE PRINT REMOTE1
//*
//*          DEFINE PROGRAM
//*
//     EXEC FTG1CL,PARM='MAP'
//*
//*          DEFINE SOURCE CODE
//*
//SYSIN DD DSN=CN9999.AAA.HEA.HPRE.SOURCE,DISP=SHR
//*
//*          DEFINE OUTPUT FILE
//*
//LKED.SYSLMOD DD DSN=CN9999.AAA.HEA.HPRE.LOAD(HPRE),
//   UNIT=3350,DISP=(NEW,CATLG,DELETE),
//   SPACE=(TRK,(10,1,1))
//*  UNIT=3350,DISP=OLD,SPACE=
```

FIGURE 3.3

Job Setup for Compile and Link of
PC Preprocessor

```
//AAAUPCCL JOB (9999,D02,,30),'NAME',MSGLEVEL=(1,1),
// TIME=(,29)
/*ROUTE PRINT REMOTE1
//*
//*            DEFINE PROGRAM
//*
//     EXEC FTG1CL,PARM='MAP'
//*
//*            DEFINE SOURCE CODE
//*
//SYSIN DD DSN=CN9999.AAA.HEA.PCPRE.SOURCE,DISP=SHR
//*
//*            DEFINE OUTPUT FILE
//*
//LKED.SYSLMOD DD DSN=CN9999.AAA.HEA.PCPRE.LOAD(PCPRE),
//   UNIT=3350,DISP=(NEW,CATLG,DELETE),
//   SPACE=(TRK,(10,1,1))
//*  UNIT=3350,DISP=OLD,SPACE=
```

FIGURE 3.4

Job Setup for Compile and Link of
Analysis Program

```
//AAAUHMCL JOB (9999,D02,,30),'NAME',MSGLEVEL=(1,1),
// TIME=(,59)
/*ROUTE PRINT REMOTE1
//*
//*          DEFINE PROGRAM
//*
//     EXEC FTG1CL,PARM='MAP'
//*
//*          DEFINE SOURCE CODE
//*
//SYSIN DD DSN=CN9999.AAA.HEA.HAM.SOURCE,DISP=SHR
//*
//*          DEFINE OUTPUT FILE
//*
//LKED.SYSLMOD DD DSN=CN9999.AAA.HEA.HAM.LOAD(HAM),
//  UNIT=3350,DISP=(NEW,CATLG,DELETE),
//  SPACE=(TRK,(30,5,1))
//*  UNIT=3350,DISP=OLD,SPACE=
```

FIGURE 3.5

JOB Set up for LOCAL DATA PROGRAM

```
//AAAULDGO JOB (9999,D02,1,5),'NAME',TIME=(,24)
/*ROUTE PRINT REMOTE1
//*
//*      EXECUTE THE LOCAL DATA PROGRAM
//*
//GO      EXEC PGM=LOCAL,REGION=130K
//STEPLIB DD DSN=CN9999.AAA.HEA.LOCAL.DATA.LOAD,
//       UNIT=3350,VOL=SER=FEA011,DISP=SHR
//*
//*      READ THE LOCAL DATA CARDS
//*
//GO.FT05F001  DD *
//*
//*************************************************************
//*                                                           *
//*      INSERT THE LOCAL DATA CARDS HERE                     *
//*                                                           *
//*************************************************************
/*
//*
//*      PRINT THE LOCAL DATA REPORTS
//*
//GO.FT06F001  DD SYSOUT=A
//*
//*      CREATE THE LOCAL DATA FILE
//*
//GO.FT01F001  DD DSN=CN9999.AAA.HEA.LOCAL.DATA,
//       UNIT=3350,DCB=(BLKSIZE=1884,RECFM=F),
//       DISP=(NEW,CATLG)
//*
//*      SET UP TWO TEMPORARY WORK FILES
//*
//GO.FT02F001  DD DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB),
//       UNIT=3350,DISP=(NEW,DELETE,DELETE),SPACE=(3120,(5,5))
//GO.FT03F001  DD DCB=(BLKSIZE=1844,RECFM=F),
//       UNIT=3350,DISP=(NEW,DELETE,DELETE),SPACE=(TRK,(100))
/*
```

FIGURE 3.6

Job Setup for Execution of
HEA Preprocessor

```
//AAAUHPGO JOB (9999,D02,,15),'NAME',MSGLEVEL=(1,1),
//  TIME=(,29)
//*ROUTE PRINT REMOTE1
//*
//*      EXECUTE THE HEA PREPROCESSOR
//*
//GO  EXEC  PGM=HPRE,REGION=180K
//STEPLIB DD DSN=CN9999.AAA.HEA.HPRE.LOAD,
//       UNIT=3350,DISP=SHR
//*
//*      INPUT FILE FOR THE HEA QUESTIONNAIRE DATA CARDS
//*
//GO.FT10F001 DD *
//*****************************************************
//*                                                   *
//*      INSERT DATA CARDS HERE                       *
//*                                                   *
//*****************************************************
/*
//*
//*      DEFINE PRINT FILES
//*
//GO.FT06F001 DD SYSOUT=A
//GO.FT11F001 DD SYSOUT=A
//GO.FT12F001 DD SYSOUT=A
//*
//*      DEFINE OUTPUT FOR STANDARD FORMAT DATA FILE
//*
//GO.FT13F001 DD UNIT=3350,DSN=CN9999.AAA.HEA.SFD.HPRE,
//       DISP=(NEW,CATLG),VOL=SER=FEA027,
//       SPACE=(TRK,(1,1))
/*
```

FIGURE 3.7

Job Setup for Execution of
Project Conserve Preprocessor

```
//AAAUPCGO JOB (9999,D02,,15),'NAME',MSGLEVEL=(1,1),
//  TIME=(,29)
//*ROUTE PRINT REMOTE1
//*
//*      EXECUTE THE PC PREPROCESSOR
//*
//GO  EXEC  PGM=PCPRE,REGION=180K
//STEPLIB DD DSN=CN9999.AAA.HEA.PCPRE.LOAD,
//       UNIT=3350,DISP=SHR
//*
//*      INPUT FILE FOR THE PC QUESTIONNAIRE DATA CARDS
//*
//GO.FT10F001 DD *
//*******************************************************
//*                                                     *
//*      INSERT DATA CARDS HERE                         *
//*                                                     *
//*******************************************************
/*
//*
//*      DEFINE PRINT FILES
//*
//GO.FT06F001 DD SYSOUT=A
//GO.FT11F001 DD SYSOUT=A
//GO.FT12F001 DD SYSOUT=A
//*
//*      DEFINE OUTPUT FOR STANDARD FORMAT DATA FILE
//*
//GO.FT13F001 DD UNIT=3350,DSN=CN9999.AAA.HEA.SFD.PCPRE,
//       DISP=(NEW,CATLG),VOL=SER=FEA027,
//       SPACE=(TRK,(1,1))
/*
```

FIGURE 3.8

Job Setup for Execution of
Analysis Module

```
//AAAUHMGO JOB (9999,D02,,50),'NAME',MSGLEVEL=(1,1),
// TIME=(,59)
/*ROUTE PRINT REMOTE1
//*
//*              DEFINE PROGRAM
//*
//GO  EXEC PGM=HAM,REGION=180K
//STEPLIB DD DSN=CN9999.AAA.HEA.HAM.LOAD,
//   UNIT=3350,DISP=SHR
//*
//*              DEFINE LOCAL DATA FILE
//*
//GO.FT01F001 DD DSN=CN9999.AAA.HEA.LOCAL.DATA,
//   UNIT=3350,DISP=SHR
//*
//*              DEFINE SFD FILE
//*
//GO.FT10F001 DD UNIT=3350,
//    DSN=CN9999.AAA.HEA.SFD.HPRE,
//    DISP=(SHR,KEEP),VOL=SER=FEA027
//*
//*              DEFINE PRINT FILES
//*
//GO.FT06F001 DD SYSOUT=A
//GO.FT11F001 DD SYSOUT=A
//GO.FT12F001 DD SYSOUT=A
//GO.FT15F001 DD SYSOUT=A
//*
//*              DEFINE HISTORY FILE
//*
//GO.FT14F001 DD DSN=CN9999.AAA.HEA.HISTORY.FILE,
//   UNIT=2400,
//   DISP=(MOD,CATLG),
//   LABEL=(,SL),
//   DCB=(RECFM=VBS,LRECL=1146,BLKSIZE=1152)
//
```

FIGURE 3.9

Job Set Up for Copy of History File

```
//AAAUBACK JOB (9999,D02,1,1),'NAME',TIME=(,29)
//*
//*        EXECUTE COPY
//*
//HFBACK   EXEC PGM=IEBGENER,REGION=80K
//SYSPRINT DD SYSOUT=A
//SYSUT1   DD DSN=CN9999.AAA.HEA.HISTORY.FILE,
//         DISP=SHR
//SYSIN    DD DUMMY
//SYSUT2   DD DSN=CN9999.AAA.BACKUP.HISTORY.FILE,
//         UNIT=TAPE9,
//         LABEL=(,SL),
//         DISP=(NEW,KEEP),
//         DCB=(RECFM=VBS,LRECL=1104,BLKSIZE=1152)
```

0 0 0 0 5 1 0 0 2 5 8

UPDATED PROJECT CONSERVE

SYSTEM DOCUMENTATION

Program Maintenance Manual

Notice

The reader should note that the terms "Updated Project Conserve" and "Home Energy Audit" (HEA) are synonymous and refer to the newly updated system. The term "Project Conserve" refers to the program released by the Federal Energy Administration in 1977 which was the predecessor of the current program.

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1. Purpose

The purpose of this Program Maintenance Manual for the Home Energy Audit System is to provide the maintenance programmer with the information necessary to understand the programs that make up the system, their operating environment, and their maintenance procedures.

2. General Information

2.1 Summary

The Home Energy Audit System is designed to analyze the energy conserving/consuming characteristics of a single family home and provide a cost/savings report for various energy conserving actions in the home. The necessary information regarding the energy characteristics of homes is gathered on questionnaires. The gathered data are keypunched and submitted to an HEA preprocessing program designed to preprocess the appropriate questionnaire format. Local cost, climatic, and default home characteristics data for given ZIP codes are gathered independently and submitted to the HEA Local Data Program for preparation. The prepared questionnaire data and the prepared local data are input to the HEA Analysis Program which analyzes each home using the local data values for its ZIP Code.

The two main outputs of the system are: (1) a two-page Homeowner Report which is mailed to the participant; and (2) a history file recording the home characteristics and cost/savings estimates for each home processed. Each program in the system produces a report summarizing transactions processed. The system consists of four Fortran programs. The code is compatible with either Fortran Level G or Fortran Level H. Versions of the code are available for IBM, UNIVAC, or CDC systems. The four programs are:

(1) HEA Preprocessor

The HEA Preprocessor reads keypunched data describing the energy consuming/conserving characteristics of homes as gathered by the HEA questionnaire. The input data are edited to place alphabetic data in alphabetic fields and numeric data in numeric fields. Coded input data, if present, are checked for validity and decoded. Missing or illegal data are assigned a negative numeric value. Some required data are calculated from input data. The transformed and calculated data are written in a standard format on the Standard Format Data File for use as input to the HEA Analysis Program. A Job Execution Log Summarizes processing transactions.

(2) Project Conserve Preprocessor

The Project Conserve Preprocessor reads keypunched data describing the energy consuming/conserving characteristics of homes as gathered by the Project Conserve questionnaire. The input data are edited to place alphabetic data in alphabetic fields and numeric data in numeric fields. Coded input data, if present, are checked for validity and decoded. Missing or illegal data are assigned a negative numeric value. Some required data are calculated from input data. The transformed and calculated data are written in a standard format on the Standard Format Data File for use as input to the Project Conserve Analysis Program. A Job Execution Log Summarizes processing transactions.

(3) Local Data Subprogram

The Local Data Subprogram reads keypunched data defining five types of data for each ZIP Code or ZIP Code range to be included in the audit:

(a) analysis constants;
(b) minimum, maximum, and default values for home characteristics;
(c) fuel costs;
(d) construction costs; and
(e) climatic data.

The data are checked for validity and written on the Local Data File for use as input to the HEA Analysis Program. A printed summary of the local data included in the file for each ZIP Code or ZIP Code range is produced.

(4) Analysis Program

The Analysis Program reads, for each home to be analyzed, the Standard Format Data Record describing the home and the Local Data Record for its ZIP code, validates the Standard Format input data using the local data as a reference, and creates a set of data completely describing the home in its physiographic environoment. These data are used to compute the BTUs per year necessary to heat and cool the home. The data are then modified to reflect possible energy conserving improvements to the home and the computation of annual BTUs is repeated. Annual BTUs are calculated for six configurations in the home:

(1) The base configuration as validated by the input processing module;

(2) The base configuration with attic insulation added to bring the total up to the recommended minimum for the area;

(3) The base configuration with attic insulation added to bring the total up to the optimum recommended for the area;

(4) The base configuration with a complete set of storm windows and doors;

(5) The base configuration with complete weatherstripping and caulking; and

(6) The base configuration with modifications 3, 4, and 5.

The six sets of BTU requirements, the Local Data record, and the Standard Format Data record are used to produce a two-page Homeowner Report describing costs and savings for energy conserving actions and to write a History File record of the analysis results. A Job Summary Report summarizes processing transactions.

2.2 Environment

The Home Energy Audit System (HEA) was developed for the Department of Energy (ERDA/FEA) as a cooperative effort of the National Bureau of Standards and Applied Urbanetics, Inc.

The software was developed using the following computer facilities:

(1) The FEA computer facility located in Rockville, Maryland is operated by OSI exclusively for FEA. It consists of two IBM 370/168 central processing units connected in multiprocessor mode, with OS/MVS and JES2.

(2) The Computer Services Division of the Institute for Computer Sciences and Technology, National Bureau of Standards, in Gaithersburg, Maryland operates a UNIVAC 1108 Multiprocessor System with EXEC 8.

(3) (insert CDC data)

2.3 References

Contract Number 353602, as issued by the University of California Lawrence Berkeley Laboratory.

In addition, several published references were employed in the development of the system.

1. Air Conditioning and Refrigeration, Wm. H. Severns and J.R. Fellows, John Wiley and Sons, Inc., 1975.

2. ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, 1972.

3. Comparative Climatic Data Through 1976, U.S. Department of Commerce. NOAA, April 1977.

4. Handbook of Air Conditioning, Heating and Ventilating, C. Strock and R. L. Koral (Second Edition), Industrial Press, Inc., 1975.

5. Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada, T. Kusuda and K. Ishii, U.S. Department of Commerce, National Bureau of Standards, April 1977.

6. HUD Residential Solar Economic Performance Model, Division of Energy, Building Technology and Standards Policy Office of Development and Research. (HUD in cooperation with the Energy Research and Development Administration) June 1977.

7. Insulation Refit Kit for Domestic Water Heaters, ERDA, March 1977.

8. Project Conserve System Documentation. FEA, (prepared by Applied Urbanetics, Inc.) June 1977.

9. Residential Energy Consumption, Single Family Housing, R. W. Anderson, Hittman Associates, Inc., March 1973, Report Number HUD-HAI-2.

10. Retrofitting Existing Housing for Energy Conservation: An Economic Analysis, S. R. Petersen, U.S. Department of Commerce, National Bureau of Standards Building Science Series 64, December 1974.

3. Program Descriptions

3.1 HEA Preprocessor Program "HPRE" (FORTRAN)

3.1.1 Problem and Solution Method

The HEA Preprocessor Program is designed to read cards keypunched from HEA Questionnaires and write a Standard Format Data File to the following specifications:

(1) One record is generated for each questionnaire processed.

(2) Fields containing values derived from missing or illegal inputs are given the negative value SN, so that all fields contain a legal value.

(3) A ZIP Code is present.

(4) Data codes are converted to actual engineering units where required

(5) Data not specifically available from the questionnaire are either supplied or assigned the negative value, SN.

The Preprocessor solution method uses six steps:

(1) Reads a logical record;

(2) Validates the coded responses;

(3) Assigns a negative number (or blank) to unusable responses;

(4) Converts responses to standard format;

(5) Writes a record to the output Standard Format Data File;

(6) Notes all records which could not be processed and prints an appropriate transaction message.

All ranges and default values required for the edit checks are hard coded. The HEA Analysis Program will further check the data for ranges and assign default values using information taken from the Local Data File.

3.1.2 Input

The HEA Preprocessor has one input file which contains sorted questionnaire data grouped by questionnaire accession number. These data are recorded on the HEA questionnaire shown in Home Energy Audit System Appendix A. The data are keypunched and presented to the program as a set of one to three records per questionnaire. The record formats are shown in Home Energy Audit System Appendix B.

3.1.3 Processing

3.1.3.1 Program Logic

The Preprocessor partially validates the questionnaire responses and inserts a specific negative number, SN (or a blank in the case of alphabetic values), in missing or illegal values. If the ZIP Code is invalid, an exception is noted and the records for that questionnaire are not processed. The program checks responses only to ensure that data codes are within range and other answers are not a negative number other than SN. It then assigns a value to each element of the Standard Format Data record and writes the record to the Standard Format Data File.

The Preprocessor uses the following logical routines:

- BLOCK DATA routine which initializes arrays, values associated with data codes, and miscellaneous constants;
- Main Routine which initializes switches, writes the Job Execution Log heading and footer, reads the first questionnaire card, calls routines, writes records to the Standard Format Data File, and stops processing;
- READCD which reads the next set of questionnaire cards;
- ASSMBL which decodes alphanumeric inputs and assigns negative numbers to illegal or missing values;
- CKRANG which performs required range checks;
- ASSVAL which assigns values to Standard Format Data elements;
- SCAN which converts input alphanumeric data to numeric data;

- o PACK which packs input alphanumeric data stored one character per word to alphanumeric data stored four characters per word; and

- o NOTEXC which notes exceptions on the Job Execution Log.

The Preprocessor macro logic is shown in Appendix Y, Figure 1. The remainder of the paragraphs in this section describe the Preprocessor routines in more detail.

The Block Data subprogram initializes the following variables:

- o COLSC2 and COLSC3 indicate the beginning and ending columns for data punched on cards two and three, respectively;

- o BOXCK1 and BOXCK2 indicate whether answers from cards two and three, respectively, are coded responses;

- o NLIMI and NLIM2 indicate the range limits for coded responses on cards two and three, respectively;

- o NUMA provides alphanumeric equivalents for each of the nine digits;

- o SN, BLANK, and AST are constants set to -9999, ' ', and '*' respectively (SN is the number assigned to all missing, illegal, or out of range values);

- o MAXQRE, MINZIP, MAXZIP, QRE are the maximum number of questionnaires which can be processed in one run (1,000,000), the minimum and maximum acceptable zip codes (100 and 99999), and the arbitrary number identifying the source questionnaire type (1 for HEA questionnaires);

- o INCD, OUTM, OUTREP, and SFD are the FORTRAN logical file numbers for input card data (10), output messages (11), output Job Execution Log (12), and the Standard Format Data File (13), respectively.

The Main Routine of the HEA Preprocessor first initializes LOZIP, HIZIP, ICOUNT, and switches, writes the Job Execution Log headings, and reads the first card. LOZIP and HIZIP retain the lowest and highest zip code processed for reporting in the log. ICOUNT counts records successfully processed. The switches are:

- o EOFSW: true when end of file is read;
- o RDERSW: true when a non-recoverable read error is encountered;
- o PROCESS: initially true; set to false when an error fatal to the current accession number is encountered.

After initialization, MAIN enters the main processing loop which for each questionnaire:

- o calls READCD to read the cards for the accession number to be processed;
- o checks for missing cards;
- o calls ASSMBL to convert input data to processing formats;
- o calls CKRANG to perform all range checks;
- o calls ASSVAL to assign Standard Format Data values;
- o writes SFD record;
- o collects low and high ZIP Codes; and
- o counts records successfully processed.

When end of file is read, the current questionnaire is processed, LOZIP, HIZIP and ICOUNT are written to the Job Execution Log, and processing is halted.

Four error states can interfere with the normal flow of processing outlined above:

(1) During the initial card read, if no good card has been found after 10 tries a message is written and processing terminates.

(2) At any time, if a non-recoverable read error is encountered, (such as a character in a numeric field) processing terminates.

(3) During processing, if an error fatal to questionnaire processing is encountered, a note is made in the Job Execution Log, further processing of that questionnaire is skipped, and control passes to the end of file test. Possible errors fatal to a questionnaire are:

- accession number illegal;
- card number illegal or out of range;
- card 1 missing;
- card number duplicated; or
- ZIP Code illegal or out of range.

(4) If the main processing DO loop terminates before an end of file is encountered, a message is written and processing is halted. This will happen if MAXQRE is set too low.

The logic of the main routine is shown in Appendix Y, Figures 2, 3, and 4.

Subroutine READCD reads one set of up to three questionnaire cards with the same ID (accession number) and stores them in CARD1, CARD2, and CARD3 according to their card numbers. All cards are read as alphanumeric data (one character per word) and subsequently converted by subroutines SCAN and PACK to numeric quantities or to alphabetic data packed four characters per word. READCD calls SCAN to decode the card number and ID.

When READCD is called, the first card of the new set is in OLDCD, and its ID and card number are in OLDID and OLDNUM. READCD first moves OLDCD into CARD1, CARD2, or CARD3, sets CDFLAG (1, 2, or 3) to indicate a card of that number has been read, and sets CURRID equal to OLDID. It then enters a loop to read the remaining cards of the current ID, decode the ID and card number, and store the cards in CARD1, CARD2, and CARD3. Before relinquishing control, READCD stores the first card of the next ID in OLDCD and sets OLDID and OLDNUM to the ID and card number of that card, ready for the next call. READCD will try only a limited number of times (MTRIES, set to 25) to find a good card to start the next group.

Within the loop, possible situations and the reponses to them are:

(1) Non recoverable read error (fatal error, set RDERSW and return);

(2) End of file (set EOFSW and return);

(3) Illegal ID (note exception, ignore card, repeat loop);

(4) Card ID is legal and matches current ID:
   (A) Illegal or out of range or duplicate card number (note exception, mark ID as not to be processed, repeat loop);
   (B) Good card number (store card in CARD1, CARD2, or CARD3, set CDFLAG (1, 2, or 3), repeat loop);

(5) Card ID is legal and does not match current ID but ID has previously been marked as non-processable:
   (A) Illegal or out of range number (note exception, mark ID as not processable, repeat loop);
   (B) Good number (ignore card, repeat loop);

(6) Card ID is legal and does not match current ID and has not previously been marked as non-processable:
   (A) Illegal or out of range number (note exception, mark ID as not processable, repeat loop);
   (B) Good number (store card in OLDCD, store ID and card number in OLDID and OLDNUM, return); or

(7) More than MTRIES cards are read but situation (6B) does not occur (write message, set EOFSW to terminate processing normally as if end of file had been read, return).

The logic of subroutine READCD is shown in Appendix Y, Figure 5.

Subroutine ASSMBL assigns appropriate values to the mnemonic variables representing questionnaire input:

- Alphabetic variables receive the card input values packed four characters per word, or blanks if the pack attempt is unsuccessful;

- Numeric variables receive the integer equivalent of the card input values, or the negative number SN if the conversion is unsuccessful or the card input is blank.

The first value checked is ZIP Code. If a legal value for ZIP is not found, the switch PROCESS is set to false, a message is written to the Job Execution Log, and control is returned at once to the calling routine. If the ZIP Code is satisfactory, each remaining input value is processed independently. The logic of subroutine ASSMBL is shown in Appendix Y, Figure 6.

Subroutine CKRANG checks card two and card three variables for range. Variables are of two types:

1. Box check responses. The respondent has checked Box 1, Box 2, etc; each box is a code for a value. Some box check responses will be decoded by subroutine ASSVAL, the rest will be written as codes on the SFD File, but all must be within specific range limits or equal to SN. SN signals a missing or illegal answer.

2. Actual value responses. The respondent has filled in a number representing an actual value; for example the number of color TVs in the home. Actual value responses must be non-negative or equal to SN.

CKRANG checks each variable in turn against its appropriate limits. If a value is out of range, an exception is noted in the log and the value of the variable is set to SN. The arrays BOXCK1 and BOXCK2 define the box check type responses. The arrays NLIM1 and NLIM2 define the range limits for each response. The arrays NVAR1 and NVAR2 are equivalent to the variables to be tested.

The logic of the subroutine CKRANG is shown in Appendix Y, Figure 7.

Subroutine ASSVAL assigns values to all elements of the Standard Format Data File except for questionnaire type (QRE), name, street, city, state, and ZIP Code. QRE is a constant assigned by BLOCK DATA. Name, street, city, and state are alphabetic data assigned as they are decoded by PACK. ZIP Code was needed by earlier routines; it was assigned when decoded by READCD. All questionnaire variables have been checked by earlier routines.

The SFD elements are assigned independently of each other, in the order in which they are written on the file. Processing is by one of four types of procedure:

1. Straight Assignment. Many elements are assigned directly the value of the associated questionnaire variable. For example, STYLE = QTYPE.

2. Decoding. The following elements are box check type responses to the questionnaire, but actual value type elements in the SFD File:

   BDATE - date home built;

   FTSQ - square footage of living area;

AINAMT - amount of attic insulation;

FACE - direction faced by front of house;

BSWALL - percentage of basement wall underground;

DWTEMP - daytime winter thermostat setting;

NWTEMP - nighttime winter thermostat setting;

DSTEMP - daytime summer thermostat setting;

NSTEMP - nighttime summer thermostat setting;

HCOST - total annual cost for fuel used for heating; and

ACCOST - total annual cost for fuel used for cooling.

For these elements, the actual value is held in an array. The arrays are:

BDATES(4) - for BDATE;

FTSQS(10) - for FTSQ;

AINAMS(7) - for AINAMT;

FACES(4) - for FACE;

BSWALS(4) - for BSWALL;

WTEMPS(5) - for DWTEMP and NWTEMP;

STEMPS(4) - for DSTEMP and NSTEMP;

FCOSTS(10) - for HCOST and ACCOST.

If the questionnaire value is SN, the SFD value is SN also, otherwise the questionnaire value is used as an index into the array to get the SFD value. For example, FACE = FACES (QFACE).

The questionnaire elements QFTSQ, QHBILL, and QACBIL are input with 0 instead of 10; these are converted before being used as an index.

3. Calculation. Four variables are calculated from other data:

(a) The attic floor area (AAREA) is a function of the square footage (FTSQ), presence of an attic, and style:

STYLE	AAREA=
If an attic is present:	
1-one story	FTSQ
2-two story	FTSQ/2
3-three or more story	FTSQ/3
4-split level	2*FTSQ/3
5-1-1/2 story	2*FTSQ/3
If an attic is not present:	
1,2,3,4, and 6	0
5	FTSQ/3

(b) Storm windows (STORMW) per wall is the fraction (total storm windows) / (total windows) multiplied by the number of windows on each wall. The logic for this calculation is shown in Appendix Y, Figure 8.

(c) Oversized windows (BIGW) per wall are the total number of big windows (QBIGW) distributed evenly between the front (1) and rear (2) walls, with any extra window assigned to the front.

(d) Storm doors (STORMD) per wall are the number of storm doors (QSTRMD) distributed first to regular doors (QODOOR), then, if any remain, to glass doors (QGDOOR). The logic for this calculation is shown in Appendix Y, Figure 9.

4. <u>Simple conversion</u>. Some SFD variables bear a simpler relationship to associated questionnaire variables than those discussed in Section (3), but may not be assigned directly. For example:

REFLEC (ground surface reflectance)		QGCOV (ground cover)
1	=	2
2	=	1
3	=	3

These variables are:

ATTACH	QATACH
REFLEC	QGCOV
WDRAPE	QWDRAP
DDRAPE	QWDRAP
SOLTYP	QSCOL, QSGLAZ
SUSEHW	QSUSE
SUSESH	QSUSE
FRIDGE	QFRIDG
FFREEZ	QFREEZ, QFRIDG

Details of these simple relationships may easily be derived from inspection of the code, or from a comparison of the description of the associated variables (Appendix A and Appendix L in the HEA Appendices).

In all cases, if the questionnaire value is SN, the associated SFD variable is also set at SN. SUSESC (use of solar collector for space cooling) is always set to SN because no associated questionnaire variable is present. Future versions of the HEA system may incorporate solar cooling equipment considerations.

Flowcharts for the sections of code which calculate storm windows and storm doors are shown in Appendix Y, Figures 8 and 9. The remainder of the code is logically obvious; no flow chart is given.

Subroutine SCAN receives an array of 80 alphanumeric elements and two index numbers. It extracts the numeric digit equivalent to each array element between the index numbers, inclusive, and returns the value of the single integer represented by the digits extracted. The positional value of the digits is represented by their position in the array: i.e., a lower index implies a more leftward position.

SCAN takes each input array element between the indexes in turn, from lower index to higher, comparing each element to each of the elements in array NUMA. NUMA contains the alphabetic representations of the digits ('0', '1',...'9'). When a match is found, the index of the matching element is one higher than the numeric equivalent of the input array element. Each time a new digit is decoded, SCAN shifts the current combined integer one place to the left by multiplying by 10 and adds the new decoded digit.

If all indicated input elements are blank, SCAN returns SN as the value. If an error is found (blank in other than leading position, non-digit element, second index smaller than first) SCAN sets an error flag and returns SN as the value.

The logic of subroutine SCAN is shown in Appendix Y, Figure 10.

Subroutine PACK packs characters stored one per word into words with no unused trailing elements. PACK is a machine dependent routine.

PACK for IBM: Output words contain 4 characters per word. Two logical*1 arrays, each 4 elements in length, equivalenced to two integer variables, are used to reference individually each byte in the input and output words. The output array ARNAME is dimensioned at object time to the input value ARRLEN. The logic of the IBM version of PACK is shown in Appendix Y, Figure 11.

Subroutine NOTEXC receives a card image, stored in 80A1 format, an index of value one through four, and a flag containing either a blank or an asterisk. It writes into one of four columns, indicated by the index, the first five elements of the card image and the flag, using 6A1 format. The logic is so simple that no flowchart is provided.

3.1.3.2 Error Handling Provisions and Restrictions

The HEA Preprocessor is designed to run successfully under all input data conditions, with the following exceptions:

(1) Nonrecoverable read error on any read statement. The program prints the message

HEAPRE READCD 1910 F (or MAIN 1910 F): NONRECOVERABLE READ ERROR ON INPUT FILE

and halts processing

(2) More than 10 cards at the beginning of the file with an unusable card number, unusable ID, or ID the same as a card already found to have an unusable card number. The program prints the message

"HEAPRE MAIN 1010 F:
NO GOOD CARD FOUND IN 10 ATTEMPTS TO READ INPUT FILE.
PLEASE RECHECK FILE."

It then halts processing. The purpose of this restriction is to limit attempts to process a file which includes a consistent error. The limit may be changed by modifying statement 36, "DO 1000 K = 1, 10" in the main routine.

(3) End of file read on the input file before a good card is found. The program prints the message:

HEAPRE MAIN 1810 F: NO VALID CARDS ON INPUT FILE

and halts processing.

(4) More than MTRIES (set to 25) cards intervene between the last card of one ID and the next usable card. The program prints the message

HEAPRE READCD 7100 E: MORE THAN XXXXXX CARDS READ AND GOOD NEW SET NOT FOUND WHILE PROCESSING ACCESSION NUMBER XXXXXX

and terminates processing as if an end of file had been read. The purpose of this restriction is to limit attempts to process a file which includes a consistent error. The limit may be changed by modifying statement 21, "MTRIES = 25" in Subroutine READCD.

(5) More than MAXQRE processable questionnaires are included on the input file. MAXQRE is set to 1,000,000. If more than MAXQRE questionnaires are processed before end of file is reached, the program prints the message:

HEAPRE MAIN 5010 E: MORE THAN 1,000,000 SEPARATE ACCESSION NUMBERS IDENTIFIED.
THE LAST ACCESSION NUMBER PROCESSED IS XXXXXX PLEASE RESUBMIT REMAINDER OF FILE.

The purpose of this restriction is to enable an upper limit to be set to the size of the Standard Format Data File. MAXQRE may be changed by modifying statement 33 of the BLOCK DATA routine.

3.1.3.3 Internal Switches and Flags

PROCES. When true, indicates that processing of the current questionnaire is to continue. Is set to false under the following conditions:

1. During the main routine's attempt to read the first card, end of file was encountered or no good card was found in 10 tries. When tested, processing halts.

2. In READCD an illegal, out of range, or duplicate card number is found for the current ID. When tested by the main routine, causes transfer to the end of file test.

3. In the main routine's check for missing cards for the current ID, card 1 is missing. When tested, causes transfer to the end of file test.

EOFSW. Initially false. Set to true when end of file is encountered on a read statement, or when more than MTRIES (25) cards are read while setting up for the next ID to be processed. When tested after the main routine's attempt to read the first card, if true causes processing to terminate. When tested after a call to READCD and subsequent processing of the current ID, causes the Job Execution Log footer to be written and processing to terminate normally.

RDERSW. Initially false. Set to true when a nonrecoverable read error is encountered during a read statement. When tested, if true causes processing to halt.

CDFLAG. A three element logical array. Initially false. Each element is set to true when the corresponding card is identified for the current ID. When tested by the main routine after a call to READCD, if CDFLAG(1) is false (card 1 is missing) the current questionnaire is not processed. When CDFLAG(2) and CDFLAG(3) are tested by ASSMBL and CKRANG, if either is false processing of that card's data is bypassed within those routines.

Further details on the use of these switches may be derived from the flow charts, shown in Appendix Y.

3.1.3.4 Shared Storage

Except for the service routines SCAN, PACK, and NOTEXC, all communication among routines is by reference to common data in six common blocks:

(1) COMMON/QRE1/ holds QRE, ANUM, and the variables associated with card type 1 (Table HPRE 1);

(2) COMMON/QRE23/ holds the variables associated with cards type 2 and type 3 (Table HPRE 2);

(3) COMMON/SFDATA/ holds the variables for one Standard Format Data Record, beginning with QTYPE. The variables for the earlier part of the record are available in COMMON/QRE1/ (HEA Appendix L);

(4) COMMON/SWITCH/ holds all switches (Table HPRE 3);

(5) COMMON/HEAPRE/ holds all input cards and service data to be retained between calls to subroutines (Table HPRE 4); and

(6) COMMON/CONSTS/ holds all constant scalars and arrays used in the program (Table HPRE 5).

The variable names within each common block are the same for all routines.

For ease of reference, the following local arrays are equivalenced to common block elements:

(1) In the main routine:

CD1(18) to QRE - refers to the entire first section of the SFD record;

CD23(96) to BDATE - refers to the entire second and last section of the SFD record;

QCD1(17) to ANUM - refers to questionnaire variable from card #1;

QCD2(35) to QTYPE - refers to questionnaire variables from card #2;

QCD3(39) to QFACE - refers to questionnaire variables from card #3.

(2) In READCD:

CARDS(240) to CARD1 - refers to CARD1, CARD2, and CARD3.

(3) In ASSMBL:

C2VAR(35) to QTYPE - refers to questionnaire variables from card #2;

C3VAR(39) to QFACE - refers to questionnaire variables from card #3.

In CKRANG:

NVAR1(35) to QTYPE - refers to questionnaire variables from card #2;

NVAR2(39) to QFACE - refers to questionnaire variables from card #3.

3.1.4 Outputs

The main output of the HEA Preprocessor program is the Standard Format Data File which meets the following specifications:

1. One complete record is generated for each questionnaire processed.

2. Fields containing values derived from missing or illegal inputs are given the negative value SN so that all fields contain a legal value.

3. The ZIP Code is present and within range.

The detailed layout and content of the Standard Format Data File is shown in the Home Energy Audit System Appendix L.

The Standard Format Data File may be stored on any sequential device. It contains the names and addresses of the homeowners; therefore appropriate measures should be taken to protect the privacy of the individual.

A second output of the HEA Preprocessor program is the Job Execution Log, which shows:

1. The accession number of each card found to be in error, listed by card type and flagged if the error prevented processing of the ID;

2. The lowest ZIP Code and the highest ZIP Code successfully processed; and

3. The total number of IDs successfully processed.

A sample of the HEA Preprocessor Job Execution Log is shown in the Home Energy Audit System Appendix C.

A third output of the HEA Preprocessor program is a set of messages. The messages are listed in the Home Energy Audit System Appendix T.

3.1.5 Interfaces

The HEA Preprocessor Program interaces with no other software during its execution. The Preprocessor interfaces with the HEA Analysis Program in that the Standard Format Data File output by the Preprocessor is input to the Analysis Program.

3.1.6 Tables

The HEA Preprocessor Program defines the formats of the cards 2 and 3 through the use of tables:

- COLSC2(2,35) defines the beginning and ending columns of each of the answers punched on card 2.

- COLSC3(2,39) defines the beginning and ending columns of each of the answers punched in card 3.

- o BOXCK1(35) is a logical arrary containing .true. for each card 2 variable which is a box check type answer. Box check type answers have minimum and maximum acceptable range limits.

- o BOXCK2(39) is a logical array containing .true. for each card 3 variale which is a box check type answer. Box check type answers have minimum and maximum acceptable range limits.

- o NLIM1(2, 35) contains the lower and upper limits for each of the 35 card 2 variables. If a variable is not a box check type, the corresponding NLIM1 elements are set to 0,0.

- o NLIM2(2, 39) contains the lower and upper limits for each of the 39 card 3 variables. If a variable is not a box check type, the corresponding NLIM2 elements are set to 0, 0.

The values of these arrays are shown in Table 6, card 2 tables, and Table 7, card 3 tables.

3.1.7 Run Description

3.1.7.1 Loading

Loading procedures are dependent on the environment in which the system is installed.

3.1.7.2 Operating

Before running the HEA Preprocesor Program, the input data must be sorted so that all cards for each accession number are grouped together but not necessarily in card number order. Other than this, no special operating procedures are required.

3.1.7.3 Terminating and Error Handling

The HEA Preprocessor will terminate under four conditions:

1. End of file is read on the input file:

   (a) After at least one accession number has been processed successfully (normal termination). The Standard Format Data File (SFD file) will have at least one record.

(b) After at least one good card was read but before any processable accession numbers were found (for example, only one accession number was represented on the file and it included a duplicate card number). The program will terminate normally but the SFD file will receive no output. User response is to check input file.

(c) Before any good cards are read. The message

```
HEAPRE MAIN 1010 F:
NO GOOD CARD FOUND IN 10 ATTEMPTS
  TO READ INPUT FILE.
PLEASE RECHECK FILE.
```

is written and processing halted. The SFD file receives no output. User response is to check input file.

2. More than MTRIES (25) cards are read by READCD while looking for the first card of the next ID to be processed. The message

```
HEAPRE READCD 7010 E:  MORE THAN XXX CARDS READ
AND GOOD NEW SET NOT FOUND WHILE PROCESSING
  ACCESSION NUMBER XXXXXX
```

is written and processing halted as if an end of file had been read. User response is to check input file.

3. More than MAXQRE accession numbers are identified on the input file. The message

```
HEAPRE MAIN 5010 E:  MORE THAN XXXXXX
  SEPARATE ACCESSION NUMBERS IDENTIFIED.
THE LAST ACCESSION NUMBER PROCESSED IS XXXXXX
  PLEASE RESUBMIT REMAINDER OF FILE.
```

is written and processing terminated normally as if an end of file had been read. User response is either to resubmit the remainder of the file as a separate run or to increase the value of MAXQRE by modifying statement 33 of the BLOCK DATA routine, recompile the program, and resubmit the entire file.

4. A nonrecoverable read error is encountered on any READ attempt. The message:

```
HEAPRE READCD 9110 F (or MAIN 1910 F):
  NONRECOVERABLE READ ERROR ON INPUT FILE
```

is written and processing terminated at once. User response is to follow the suggestions given in the documenation for his specific computer installation.

Table HPRE 1

Common Block/QRE1/:Card 1 Variables and First 18 Elements of SFD Record

Start Loc.	Variable	Type	Range	Function/Remarks
1	QRE	I	1/1	Code of questionnaire type. Always "1" for HEA questionnaire.
2	ANUM	I	≥ 0	Accession number
3	NAME	I(5)		Packed alpha representation of respondent's name
8	STREET	I(5)		Packed alpha representation of respondent's street address
13	CITY	I(4)		Packed alpha representation of respondent's city
17	STATE	I		Packed alpha representation of respondent's state
18	ZIP	I	100/ 99999	Respondent's ZIP Code

Table HPRE 2

Common Block/QRE23/:Card 2 and Card 3 Variables

Start Loc.	Variable	Type	Range	Function/Remarks
1	QTYPE	I	1-6	Type of home coded as: 1 = one story 2 = two story 3 = three or more story 4 = split level 5 = 1 1/2 story 6 = mobile home
2	QATACH	I	1-3	Home attached to others coded as: 1 = no 2 = yes on one side 3 = yes on two sides
3	QDATE	I	1-4	Year home was built coded as: 1 = Before 1920 3 = 1946 - 1965 2 = 1920 - 1945 4 = After 1965
4	QSTRUC	I	1-2	Home if heavy construction coded as: 1 = yes 2 = no
5	QGAR	I	1-2	Garage under home coded as: 1 = yes 2 = no
6	QFTSQ	I	0-9	Total living area coded as: 1 = 800 or less 6 = 1601-1800 2 = 801-1000 7 = 1801-2000 3 = 1001-1200 8 = 2001-2200 4 = 1201-1400 9 = 2201-2400 5 = 1401-1600 0 = over 2400
7	QWCOL	I	1-3	Exterior wall color coded as: 1 = light 3 = dark 2 = medium
8	QRCOL	I	1-3	Color of roof coded as: 1 = light 3 = dark 2 = medium

Table HPRE 2 (continued)

Start Loc.	Variable	Type	Range	Function/Remarks
9	QRSH	I	1-3	Amount of roof shadow coded as: 1 = little or none 3 = most or all 2 = partially
10	QGCOV	I	1-3	Ground cover around home coded as: 1 = grass or other vegetation 2 = light colored material 3 = dark colored material
11	QDOCC	I	≥ 0	Number of persons in home as shown during day
12	QNOCC	I	≥ 0	Number of persons in home as shown during night
13	QHSYS	I	1-6	Type of central heating system coded as: 1 = natural gas 4 = fuel oil 2 = electricity 5 = heat pump 3 = propane 6 = other or none
14	QDWTEM	I	1-5	Daytime winter thermostat setting coded as: 1 = 55-59 4 = 69-75 2 = 60-64 5 = above 75 3 = 65-68
15	QNWTEM	I	1-5	Nighttime winter thermostat setting coded as: 1 = 55-59 4 = 69-75 2 = 60-64 5 = above 75 3 = 65-68
16	QHSERV	I	1-4	Heating system last serviced coded as: 1 = within 12 months 3 = never 2 = over 12 months 4 = unknown

Table HPRE 2 (continued)

Start Loc.	Variable	Type	Range	Function/Remarks
17	QHBILL	I	0-9	Total cost of heating fuel coded as: 1 = $200 or less 6 = $601-700 2 = $201-300 7 = $701-800 3 = $301-400 8 = $801-900 4 = $401-500 9 = $901-1000 5 = $501-600 0 = over $1000
18	QACSYS	I	1-5	Type of air conditioner coded as: 1 = electric central 2 = gas central 3 = heat pump 4 = window units 5 = none
19	QACBIL	I	0-9	Total cost of A/C fuel coded as: 1 = $200 or less 6 = $601-700 2 = $201-300 7 = $701-800 3 = $301-400 8 = $801-900 4 = $401-500 9 = $901-1000 5 = $501-600 0 = over $1000
20	QDSTEM	I	1-4	Daytime summer thermostat setting coded as: 1 = 70 or less 3 = 75-78 2 = 71-74 4 = above 78
21	QNSTEM	I	1-4	Nighttime summer thermostat setting coded as: 1 = 70 or less 3 = 75-78 2 = 71-74 4 = above 78
22	QSTRMW	I	≥ 0	Number of windows with storm windows
23	QSTRMD	I	≥ 0	Number of doors with storm doors
24	QSTRIP	I	1-3	Presence of weatherstripping/caulking coded as: 1 = all 3 = some 2 = none

Table HPRE 2 (continued)

Start Loc.	Variable	Type	Range	Function/Remarks
25	QBIGW	I	≥0	Number of large windows
26	QRATTL	I	1-3	Window condensation in winter coded as: 1 = regularly 3 = never 2 = sometimes
27	QSHOCK	I	1-3	Static shock in winter coded as: 1 = regularly 3 = never 2 = sometimes
28	QOPENW	I	1-2	Ventilate house on pleasant days coded as: 1 = yes 2 = no
29	QWDRAP	I	1-2	Presence of shades or drapes coded as: 1 = yes 2 = no
30	QSOL	I	1-2	Presence of solar collector coded as: 1 = yes 2 = no
31	QSAREA	I	≥0	Solar collector area
32	QSTILT	I	≥0	Degrees of solar collector tilt
33	QSUSE	I	1-3	Solar system used for: 1 = water heating 3 = both 2 = space heating
34	QSGLAZ	I	1-2	Solar collector glazing: 1 = single 2 = double
35	QSCOL	I	1-2	Solar collector color 1 = common black 2 = selective surface

Table HPRE 2 (continued)

Start Loc.	Variable	Type	Range	Function/Remarks
36	QFACE	I	1-4	House orientation coded as: 1 = north 3 = east 2 = south 4 = west
37	QLENG	I	≥ 0	Length of front of house
38	QFWIND	I	≥ 0	Number of front windows
39	QFSGD	I	≥ 0	Number of front glass doors
40	QFOD	I	≥ 0	Number of other front doors
41	QFSHAD	I	1-3	Front side shading coded as: 1 = little or none 2 = partially 3 = most or all
42	QBWIND	I	≥ 0	Number of rear windows
43	QBSGD	I	≥ 0	Number of rear glass doors
44	QBOD	I	≥ 0	Number of other rear doors
45	QBSHAD	I	1-3	Rear side shading coded as: 1 = little or none 2 = partially 3 = most or all
46	QRWIND	I	≥ 0	Number of right side windows
47	QRSGD	I	≥ 0	Number of right glass doors
48	QROD	I	≥ 0	Number of other doors on right side
49	QRSHAD	I	1-3	Right side shading coded as: 1 = little or none 2 = partially 3 = most or all

Table HPRE 2 (continued)

Start Loc.	Variable	Type	Range	Function/Remarks
50	QLWIND	I	≥0	Number of left side windows
51	QLSGD	I	≥0	Number of left side glass doors
52	QLOD	I	≥0	Number other doors on left side
53	QLSHAD	I	1-3	Left side shading coded as: 1 = little or none 2 = partially 3 = most or all
54	QATTIC	I	1-2	Presence of attic coded as: 1 = yes 2 = no
55	QATFLR	I	1-2	Permanent flooring in attic coded as: 1 = yes 2 = no
56	QATVEN	I	1-2	Presence of attic vents coded as: 1 = yes 2 = no
57	QATFAN	I	1-2	Presence of attic exhaust fan coded as: 1 = yes 2 = no
58	QATINA	I	1-7	Amount of attic insulation coded as: 1 = 1-2 inches 5 = 9-10 inches 2 = 3-4 inches 6 = 11-12 inches 3 = 5-6 inches 7 = over 12 inches 4 = 7-8 inches 8 = none 9 = unknown
59	QATINT	I	1-4	Type of insulation coded as: 1 = loose particles 2 = blankets or batts 3 = none present 4 = unknown
60	QBSMNT	I	1-3	Presence of basement coded as: 1 = yes 3 = partially 2 = no

Table HPRE 2 (continued)

Start Loc.	Variable	Type	Range	Function/Remarks
61	QCRAWL	I	1-3	Presence of crawl space coded as: 1 = yes 3 = partially 2 = no
62	QSOG	I	1-3	Presence of slab on grade coded as: 1 = yes 3 = partially 2 = no
63	QBWALL	I	1-4	Basement wall below grade coded as: 1 = nearly all 3 = about 1/2 2 = about 3/4 4 = less than half
64	QBHEAT	I	1-2	Presence of finished, heated basement coded as: 1 = yes 2 = no
65	QCRVNT	I	1-2	Crawl space ventilation coded as: 1 = yes 2 = no
66	QSTOVE	I	1-4	Type of stove coded as: 1 = gas 3 = propane 2 = electric 4 = other
67	QDRYER	I	1-4	Type of dryer coded as: 1 = gas 3 = other 2 = electric 4 = none
68	QWHEAT	I	1-4	Type of water heater coded as: 1 = gas 3 = fuel oil 2 = electric 4 = other
69	QTV	I	≥ 0	Number of color TVs
70	QGASLT	I	≥ 0	Number of outside gas lights
71	QFRIDG	I	≥ 0	Number of refrig/freezers
72	QFREEZ	I	≥ 0	Number of freezers

Table HPRE 2(continued)

Start Loc.	Variable	Type	Range	Function/Remarks
73	QFPL	I	≥ 0	Number of fireplaces
74	QDWASH	I	≥ 0	Number of dishwashers

Table HPRE 3

Common/SWITCH/:Program Switches

Start Loc.	Variable	Type	Function/Remarks
1	PROCES	L	True when processing may continue
2	EOFSW	L	True when end of file has been read
3	RDERSW	L	True when a non-recoverable read error has been encountered
4	CDFLAG	L(3)	Each element is true when a corresponding card has been found for the current questionnaire

Table HPRE 4

Common/HEAPRE/:Input Card Data

Start Loc.	Variable	Type	Function/Remarks
1	CARD1	I(80)	Holds card type 1 of the current questionnaire
80	CARD2	I(80)	Holds card type 2 of the current questionnaire
160	CARD3	I(80)	Holds card type 3 of the current questionnaire
240	NEWCD	I(80)	Input variable for card read statements
320	OLDCD	I(80)	Holding variable for the first card of the next questionnaire
400	OLDNUM	I	Holding variable for the decoded card number of the card in OLDCD
401	OLDID	I	Holding variable for the decoded accession number (ID) of the card in OLDCD
402	CURRID	I	The current accession number (ID)
403	LOZIP	I	Holding variable for the lowest ZIP Code yet processed
404	HIZIP	I	Holding variable for the highest ZIP Code yet processed

Table HPRE 5

Common/CONSTS/:Constants

Start Loc.	Variable	Type	Function/Remarks	Value Set in Block DATA Routine
1	SN	I	Assigned to missing or illegal inputs and missing outputs	-9999
2	BLANK	I	Used to identify blank columns in input array and to print blank spaces	' '
3	AST	I	Used to print '*' to signal error fatal to questionnaire	'*'
4	INCD	I	FORTRAN logical device number of card input file	10
5	OUTM	I	FORTRAN logical device number of message output file	11
6	OUTREP	I	FORTRAN logical deavice number of report output file	12
7	SFD	I	FORTRAN logical device number of output Standard Format Data File	13
8	MAXQRE	I	Upper limit to number of questionnaires to be processed	1,000,000
9	MINZIP	I	Minimum acceptable ZIP Code	100
10	MAXZIP	I	Maximum acceptable ZIP Code	99999

Table HPRE 5 (continued)

Common/CONSTS/:Constants

Start Loc.	Variable	Type	Function/Remarks	Value Set in Block DATA Routine
11	COLSC2	I(2,35)	See Table 6	
81	COLSC3	I(2,39)	See Table 7	
159	NLIM1	I(2,35)	See Table 6	
229	NLIM2	I(2,39)	See Table 7	
307	BDATES	I(4)	Values for coded questionnaire answer QBDATE	1915 1932 1952 1970
311	FTSQS	I(10)	Values for coded questionnaire answer QFTSQ	700 900 1100 1300 1500 1700 1900 2100 2300 2500
321	AINAMS	I4(7)	Values for coded questionnaire answer QATINT	2 4 6 8 10 0 -9999
325	FACES	I(4)	Values for coded questionnaire answer QFACE	180 0 270 90

Table HPRE 5 (continued)

Common/CONSTS/:Constants

Start Loc.	Variable	Type	Function/Remarks	Value Set in Block DATA Routine
329	BSWALS	I(4)	Values for coded questionnaire answer QBSWAL	100 75 50 25
333	WTEMPS	I(5)	Values for coded questionnaire answers QDWTEM and QNWTEM	57 62 66 73 78
338	STEMPS	I(4)	Values for coded questionnaire answers QDSTEM and QNSTEM	65 73 77 80
342	FCOSTS	I(10)	Values for coded questionnaire answers QHBILL and QACBIL	150 250 350 450 550 650 750 850 950 1200

Table HPRE 5 (continued)

Common/CONSTS/:Constants

Start Loc.	Variable	Type	Function/Remarks	Value Set in Block DATA Routine
352	NUMA	I(10)	Alphanumeric representation of digits for use by SCAN in decoding alpha input to numeric values	'0' '1' '2' '3' '4' '5' '6' '7' '8' '9'
362	BOXCK1	L(35)	See Table 6	
397	BOXCK2	L(39)	See Table 7	

Table HPRE 6

CARD 2 TABLES

Start Loc.	Variable Name	COLSC1 1, Elem (Begin)	COLSC1 2, Elem (End)	BOXCK1	NLIM1 1, Elem (Min)	NLIM1 2, Elem (Max)
1	QTYPE	7	7	T	1	6
2	QATACH	8	8	T	1	3
3	QDATE	9	9	T	1	4
4	QSTRUC	10	10	T	1	2
5	QGAR	11	11	T	1	2
6	QFTSQ	12	12	T	0	9
7	QWCOL	13	13	T	1	3
8	QRCOL	14	14	T	1	3
9	QRSH	15	15	T	1	3
10	QGCOV	16	16	T	1	3
11	QDOCC	17	18	F	0	0
12	QNOCC	19	20	F	0	0
13	QHSYS	21	21	T	1	6
14	QDWTEM	22	22	T	1	5
15	QNWTEM	23	23	T	1	5
16	QHSERV	24	24	T	1	4
17	QHBILL	25	25	T	0	9
18	QACSYS	26	26	T	1	5
19	QACBIL	27	27	T	0	9
20	QDSTEM	28	28	T	1	4
21	QNSTEM	29	29	T	1	4

Table HPRE 6 (Continued)

CARD 2 TABLES

Start Loc.	Variable Name	COLSC1 1, Elem (Begin)	COLSC1 2, Elem (End)	BOXCK1	NLIM1 1, Elem (Min)	NLIM1 2, Elem (Max)
22	QSTRMW	30	32	F	0	0
23	QSTRMD	33	34	F	0	0
24	QSTRIP	35	35	T	1	3
25	QBIGW	36	37	F	0	0
26	QRATTL	38	38	T	1	3
27	QSHOCK	39	39	T	1	3
28	QOPENW	40	40	T	1	2
29	QWDRAP	41	41	T	1	2
30	QSOL	42	42	T	1	2
31	QSAREA	43	45	F	0	0
32	QSTILT	46	47	F	0	0
33	QSUSE	48	48	T	1	3
34	QSGLAZ	49	49	T	1	2
35	QSCOL	50	50	T	1	2

Table HPRE 7

CARD 3 TABLES

Start Loc.	Variable Name	COLSC1 1, Elem (Begin)	COLSC1 2, Elem (End)	BOXCK1	NLIM1 1, Elem (Min)	NLIM1 2, Elem (Max)
1	QFACE	7	7	T	1	4
2	QLENG	8	10	F	0	0
3	QFWIND	11	12	F	0	0
4	QFSGD	13	13	F	0	0
5	QFOD	14	14	F	0	0
6	QFSHAD	15	15	T	1	3
7	QBWIND	16	17	F	0	0
8	QBSGD	18	18	F	0	0
9	QBOD	19	19	F	0	0
10	QBSHAD	20	20	T	1	3
11	QRWIND	21	22	F	0	0
12	QRSGD	23	23	F	0	0
13	QROD	24	24	F	0	0
14	QRSHAD	25	25	T	1	3
15	QLWIND	26	27	F	0	0
16	QLSGD	28	28	F	0	0
17	QLOD	29	29	F	0	0
18	QLSHAD	30	30	T	1	3
19	QATTIC	31	31	T	1	2
20	QATFLR	32	32	T	1	2

Table HPRE 7 (Continued)

CARD 3 TABLES

Start Loc.	Variable Name	COLSC1 1, Elem (Begin)	COLSC1 2, Elem (End)	BOXCK1	NLIM1 1, Elem (Min)	NLIM1 2, Elem (Max)
21	QATVENT	33	33	T	1	2
22	QATFAN	34	34	T	1	2
23	QATINA	35	35	T	1	9
24	QATINT	36	36	T	1	4
25	QBSMNT	37	37	T	1	3
26	QCRAWL	38	38	T	1	3
27	QSOG	39	39	T	1	3
28	QBWALL	40	40	T	1	4
29	QBHEAT	41	41	T	1	2
30	QCRVNT	42	42	T	1	2
31	QSTOVE	43	43	T	1	4
32	QDRYER	44	44	T	1	4
33	QWHEAT	45	45	T	1	4
34	QCOLTV	46	46	F	0	0
35	QGASLIT	47	47	F	0	0
36	QFRIDGE	48	48	F	0	0
37	QFREEZ	49	49	F	0	0
38	QFPL	50	50	F	0	0
39	QDWASH	51	51	F	0	0

3.2 Project Conserve Preprocessor Program "PCPRE" (FORTRAN)

3.2.1 Problem and Solution Method

The Preprocessor Program is designed to read cards keypunched from Project Conserve Questionnaires and write a Standard Format Data File to the following specifications:

(1) One record is generated for each questionnaire processed.

(2) Fields containing values derived from missing or illegal inputs are given the negative value SN, so that all fields contain a legal value.

(3) A ZIP Code is present.

(4) Data codes are converted to actual engineering units where required

(5) Data not specifically available from the questionnaire are either supplied or assigned the negative value, SN.

The Preprocessor solution method uses six steps:

(1) Reads a logical record;

(2) Validates the coded responses;

(3) Assigns a negative number (or blank) to unusable responses;

(4) Converts responses to standard format;

(5) Writes a record to the output Standard Format Data File;

(6) Notes all records which could not be processed and prints an appropriate transaction message.

All ranges and default values required for the edit checks are hard coded. The HEA Analysis Program will further check the data for ranges and assign default values using information taken from the Local Data File.

3.2.2 Input

The Project Conserve Preprocessor has one input file which contains sorted questionnaire data grouped by questionnaire accession number. These data are recorded on the Project Conserve questionnaire shown in Home Energy Audit System Appendix D. The data are keypunched and presented to the program as a set of one to two records per questionnaire. The record formats are shown in Home Energy Audit System Appendix E.

3.2.3 Processing

3.2.3.1 Program Logic

The Preprocessor partially validates the questionnaire responses and inserts a specific negative number, SN (or a blank in the case of alphabetic values), in missing or illegal values. If the ZIP Code is invalid, an exception is noted and the records for that questionnaire are not processed. The program checks responses only to ensure that data codes are within range and other answers are not a negative number other than SN. It then assigns a value to each element of the Standard Format Data record and writes the record to the Standard Format Data File.

The Preprocessor uses the following logical routines:

- BLOCK DATA routine which initializes arrays, values associated with data codes, and miscellaneous constants;
- Main Routine which initializes switches, writes the Job Execution Log heading and footer, reads the first questionnaire card, calls routines, writes records to the Standard Format Data File, and stops processing;
- READCD which reads the next set of questionnaire cards;
- ASSMBL which decodes alphanumeric inputs and assigns negative numbers to illegal or missing values;
- CKRANG which performs required range checks;
- ASSVAL which assigns values to Standard Format Data elements;
- SCAN which converts input alphanumeric data to numeric data;

- PACK which packs input alphanumeric data stored one character per word to alphanumeric data stored four characters per word; and

- NOTEXC which notes exceptions on the Job Execution Log.

The Preprocessor macro logic is shown in Appendix AA, Figure 1. The remainder of the paragraphs in this section describe the Preprocessor routines in more detail.

The Block Data subprogram initializes the following variables:

- COLSC2 indicates the beginning and ending columns for data punched on card two;

- BOXCK indicates whether answers from card two are coded responses;

- NLIM indicates the range limits for coded responses on card two;

- NUMA provides alphanumeric equivalents for each of the nine digits;

- SN, BLANK, and AST are constants set to -9999, ' ', and '*' respectively (SN is the number assigned to all missing, illegal, or out of range values);

- MAXQRE, MINZIP, MAXZIP, QRE are the maximum number of questionnaires which can be processed in one run (1,000,000), the minimum and maximum acceptable zip codes (100 and 99999), and the arbitrary number identifying the source questionnaire type (2 for Project Conserve questionnaires);

- INCD, OUTM, OUTREP, and SFD are the FORTRAN logical file numbers for input card data (10), output messages (11), output Job Execution Log (12), and the Standard Format Data File (13), respectively.

The Main Routine of the Project Conserve Preprocessor first initializes LOZIP, HIZIP, ICOUNT, and switches, writes the Job Execution Log headings, and reads the first card. LOZIP and HIZIP retain the lowest and highest zip code processed for reporting in the log. ICOUNT counts records successfully processed. The switches are:

- o EOFSW: true when end of file is read;
- o RDERSW: true when a non-recoverable read error is encountered;
- o PROCESS: initially true; set to false when an error fatal to the current accession number is encountered.

After initialization, MAIN enters the main processing loop which for each questionnaire:

- o calls READCD to read the cards for the accession number to be processed;
- o checks for missing cards;
- o calls ASSMBL to convert input data to processing formats;
- o calls CKRANG to perform all range checks;
- o calls ASSVAL to assign Standard Format Data values;
- o writes SFD record;
- o collects low and high ZIP Codes; and
- o counts records successfully processed.

When end of file is read, the current questionnaire is processed, LOZIP, HIZIP and ICOUNT are written to the Job Execution Log, and processing is halted.

Four error states can interfere with the normal flow of processing outlined above:

(1) During the initial card read, if no good card has been found after 10 tries a message is written and processing terminates.

(2) At any time, if a non-recoverable read error is encountered, (such as a character in a numeric field) processing terminates.

(3) During processing, if an error fatal to questionnaire processing is encountered, a note is made in the Job Execution Log, further processing of that questionnaire is skipped, and control passes to the end of file test. Possible errors fatal to a questionnaire are:

- accession number illegal;
- card number illegal or out of range;
- card 1 missing;
- card number duplicated; or
- ZIP Code illegal or out of range.

(4) If the main processing DO loop terminates before an end of file is encountered, a message is written and processing is halted. This will happen if MAXQRE is set too low.

The logic of the main routine is shown in Appendix AA, Figures 2, 3, and 4.

Subroutine READCD reads one set of one or two questionnaire cards with the same ID (accession number) and stores them in CARD1 and CARD2 according to their card numbers. All cards are read as alphanumeric data (one character per word) and subsequently converted by subroutines SCAN and PACK to numeric quantities or to alphabetic data packed four characters per word. READCD calls SCAN to decode the card number and ID.

When READCD is called, the first card of the new set is in OLDCD, and its ID and card number are in OLDID and OLDNUM. READCD first moves OLDCD into CARD1 or CARD2 sets CDFLAG (1 or 2) to indicate a card of that number has been read, and sets CURRID equal to OLDID. It then enters a loop to read the remaining cards of the current ID, decode the ID and card number, and store the cards in CARD1 or CARD2. Before relinquishing control, READCD stores the first card of the next ID in OLDCD and sets OLDID and OLDNUM to the ID and card number of that card, ready for the next call. READCD will try only a limited number of times (MTRIES, set to 25) to find a good card to start the next group.

Within the loop, possible situations and the reponses to them are:

(1) Non recoverable read error (fatal error, set RDERSW and return);

(2) End of file (set EOFSW and return);

(3) Illegal ID (note exception, ignore card, repeat loop);

(4) Card ID is legal and matches current ID:
   (A) Illegal or out of range or duplicate card number (note exception, mark ID as not to be processed, repeat loop);
   (B) Good card number (store card in CARD1 or CARD2 set CDFLAG (1 or 2), repeat loop);

(5) Card ID is legal and does not match current ID but ID has previously been marked as non-processable:
   (A) Illegal or out of range number (note exception, mark ID as not processable, repeat loop);
   (B) Good number (ignore card, repeat loop);

(6) Card ID is legal and does not match current ID and has not previously been marked as non-processable:
   (A) Illegal or out of range number (note exception, mark ID as not processable, repeat loop);
   (B) Good number (store card in OLDCD, store ID and card number in OLDID and OLDNUM, return); or

(7) More than MTRIES cards are read but situation (6B) does not occur (write message, set EOFSW to terminate processing normally as if end of file had been read, return).

The logic of subroutine READCD is shown in Appendix AA, Figure 5.

Subroutine ASSMBL assigns appropriate values to the mnemonic variables representing questionnaire input:

- Alphabetic variables receive the card input values packed four characters per word, or blanks if the pack attempt is unsuccessful;

- Numeric variables receive the integer equivalent of the card input values, or the negative number SN if the conversion is unsuccessful or the card input is blank.

The first value checked is ZIP Code. If a legal value for ZIP is not found, the switch PROCESS is set to false, a message is written to the Job Execution Log, and control is returned at once to the calling routine. If the ZIP Code is satisfactory, each remaining input value is processed independently. The logic of subroutine ASSMBL is shown in Appendix AA, Figure 6.

Subroutine CKRANG checks card two and card three variables for range. Variables are of two types:

1. Box check responses. The respondent has checked Box 1, Box 2, etc; each box is a code for a value. Some box check responses will be decoded by subroutine ASSVAL, the rest will be written as codes on the SFD File, but all must be within specific range limits or equal to SN. SN signals a missing or illegal answer.

2. Actual value responses. The respondent has filled in a number representing an actual value; for example the number of color TVs in the home. Actual value responses must be non-negative or equal to SN.

CKRANG checks each variable in turn against its appropriate limits. If a value is out of range, an exception is noted in the log and the value of the variable is set to SN. The arrays BOXCK defines the box check type responses. The array NLIM defines the range limits for each response. The array NVAR1 is equivalent to the variables to be tested.

The logic of the subroutine CKRANG is shown in Appendix AA, Figure 7.

Subroutine ASSVAL assigns values to all elements of the Standard Format Data File except for questionnaire type (QRE), name, street, city, state, and ZIP Code. QRE is a constant assigned by BLOCK DATA. Name, street, city, and state are alphabetic data assigned as they are decoded by PACK. ZIP Code was needed by earlier routines; it was assigned when decoded by READCD. All questionnaire variables have been checked by earlier routines.

The SFD elements are assigned independently of each other, in the order in which they are written on the file. Processing is by one of four types of procedure:

1. Straight Assignment. Many elements are assigned directly the value of the associated questionnaire variable, or SN if no associated questionnaire variable is present. For example, STVTYP = QSTOVE and GARAGE = SN. Attach is always assigned the value 0, to permit window and door distribution to walls.

2. Decoding. The following elements are box check type responses to the questionnaire, but actual value type elements in the SFD File:

   BDATE - date home built;

   FTSQ - square footage of living area;

4 AINAMT - amount of attic insulation;

DWTEMP - daytime winter thermostat setting;

NWTEMP - nighttime winter thermostat setting;

DSTEMP - daytime summer thermostat setting;

NSTEMP - nighttime summer thermostat setting;

HCOST - total annual cost for fuel used for heating; and

ACCOST - total annual cost for fuel used for cooling.

For these elements, the actual value is held in an array. The arrays are:

BDATES(4) - for BDATE;

FTSQS(10) - for FTSQ;

AINAMS(7) - for AINAMT;

WTEMPS(5) - for DWTEMP and NWTEMP;

STEMPS(4) - for DSTEMP and NSTEMP;

FCOSTS(10) - for HCOST and ACCOST.

If the questionnaire value is SN, the SFD value is SN also, otherwise the questionnaire value is used as an index into the array to get the SFD value. For example, BDATE = BDATES(QDATE).

The questionnaire elements QFTSQ, QHBILL, and QACBIL are input with 0 instead of 10; these are converted before being used as an index.

3. Calculation. Four variables are calculated from other data:

(a) The attic floor area (AAREA) is a function of the square footage (FTSQ), presence of an attic, and style:

STYLE	AAREA=
If an attic is present:	
1-one story	FTSQ
2-two story	FTSQ/2
3-three or more story	FTSQ/3
4-split level	2*FTSQ/3

If an attic is not present AAREA = 0

(b) Total windows, total glass doors, and total other doors are distributed evenly to all four walls, (ATTACH having previously been defined arbitrarily as 0). The remainder after even distribution is assigned to walls 1, 2, and 3 in order. The logic of this caculation is shown in Appendix AA, Figure 8.

(c) Storm windows (STORW) per wall is the fraction (total storm windows)/(total windows) multiplied by number of windows on each wall. The logic for this calculation is shown in Appendix AA, Figure 9.

(d) Oversized windows (BIGW) per wall are the total number of big windows (QCW & QPW) distributed evenly between the front (1) and rear (2) walls, with any extra window assigned to the front.

(e) Storm doors (STORMD) per wall are the number of storm doors (QSTRMD) distributed first to regular doors (QDWD + QWD + QWRD + QWGD + QDVD + QOD), then, if any remain, to glass doors (QSGD). The logic for this calculation is shown in Appendix AA, Figure 10.

4. Simple conversion. Many SFD variables bear a simpler relationship to associated questionnaire variables than those discussed in Section (3), but may not be assigned directly. For example:

STYLE	=	QSTYLE
1	=	1
2	=	4
3	=	2
4	=	3
SN	=	SN

These variables are:

STYLE	QSTYLE
ATTIC	QATTIC
STRIP	QSTRPW, QSTRPD
RATTLE	QRATTL, QAIRMD, QAIRMW
DWTEMP	QDWTEM, QEWTEM
HFUEL	QHFUEL
HSERVC	QHSERVC
DRYTYP	QDRYER
WATTYP	QWHEAT
FRIDGE	QFRIDG

Details of these simple relationships may easily be derived from inspection of the code, or from a comparison of the description of the associated variables (Appendix E and Appendix L in the HEA System Appendices).

In all cases, if the questionnaire value is SN, the associated SFD variable is also set at SN.

Flowcharts for the sections of code which calculate storm windows and storm doors are shown in Appendix AA, Figures 8, 9 and 10. The remainder of the code is logically obvious; no flow chart is given.

Subroutine SCAN receives an array of 80 alphanumeric elements and two index numbers. It extracts the numeric digit equivalent to each array element between the index numbers, inclusive, and returns the value of the single integer represented by the digits extracted. The positional value of the digits is represented by their position in the array: i.e., a lower index implies a more leftward position.

SCAN takes each input array element between the indexes in turn, from lower index to higher, comparing each element to each of the elements in array NUMA. NUMA contains the alphabetic representations of the digits ('0', '1',...'9'). When a match is found, the index of the matching element is one higher than the numeric equivalent of the input array element. Each time a new digit is decoded, SCAN shifts the current combined integer one place to the left by multiplying by 10 and adds the new decoded digit.

If all indicated input elements are blank, SCAN returns SN as the value. If an error is found (blank in other than leading position, non-digit element, second index smaller than first) SCAN sets an error flag and returns SN as the value.

The logic of subroutine SCAN is shown in Appendix AA, Figure 11.

Subroutine PACK packs characters stored one per word into words with no unused trailing elements. PACK is a machine dependent routine.

PACK for IBM: Output words contain 4 characters per word. Two logical*1 arrays, each 4 elements in length, equivalenced to two integer variables, are used to reference individually each byte in the input and output words. The output array ARNAME is dimensioned at object time to the input value ARRLEN. The logic of the IBM version of PACK is shown in Appendix AA, Figure 12.

Subroutine NOTEXC receives a card image, stored in 80A1 format, an index of value one through four, and a flag containing either a blank or an asterisk. It writes into one of four columns, indicated by the index, the first five elements of the card image and the flag, using 6A1 format. The logic is so simple that no flowchart is provided.

3.2.3.2 Error Handling Provisions and Restrictions

The Project Conserve Preprocessor is designed to run successfully under all input data conditions, with the following exceptions:

(1) Nonrecoverable read error on any read statement. The program prints the message

PCPRE READCD F (or MAIN 1910 F): NONRECOVERABLE READ ERROR ON INPUT FILE

and halts processing.

(2) More than 10 cards at the beginning of the file with an unusable card number, unusable ID, or ID the same as a card already found to have an unusable card number. The program prints the message

"PCPRE MAIN 1010 F:
NO GOOD CARD FOUND IN 10 ATTEMPTS TO READ INPUT FILE.
PLEASE RECHECK FILE."

It then halts processing. The purpose of this restriction is to limit attempts to process a file which includes a consistent error. The limit may be changed by modifying statement 36, "DO 1000 K = 1, 10" in the main routine.

(3) End of file read on the input file before a good card is found. The program prints the message:

PCPRE MAIN 1810 F: NO VALID CARDS ON INPUT FILE

and halts processing.

(4) More than MTRIES (set to 25) cards intervene between the last card of one ID and the next usable card. The program prints the message

PCPRE READCD 7100 E: MORE THAN XXXXXX CARDS READ AND GOOD NEW SET NOT FOUND WHILE PROCESSING ACCESSION NUMBER XXXXXX

and terminates processing as if an end of file had been read. The purpose of this restriction is to limit attempts to process a file which includes a consistent error. The limit may be changed by modifying statement 21, "MTRIES = 25" in Subroutine READCD.

(5) More than MAXQRE processable questionnaires are included on the input file. MAXQRE is set to 1,000,000. If more than MAXQRE questionnaires are processed before end of file is reached, the program prints the message:

PCPRE MAIN 5010 E: MORE THAN 1,000,000 SEPARATE
ACCESSION NUMBERS IDENTIFIED.
THE LAST ACCESSION NUMBER PROCESSED IS XXXXXX PLEASE
RESUBMIT REMAINDER OF FILE.

The purpose of this restriction is to enable an upper limit to be set to the size of the Standard Format Data File. MAXQRE may be changed by modifying statement 33 of the BLOCK DATA routine.

3.2.3.3 Internal Switches and Flags

PROCES. When true, indicates that processing of the current questionnaire is to continue. Is set to false under the following conditions:

1. During the main routine's attempt to read the first card, end of file was encountered or no good card was found in 10 tries. When tested, processing halts.

2. In READCD an illegal, out of range, or duplicate card number is found for the current ID. When tested by the main routine, causes transfer to the end of file test.

3. In the main routine's check for missing cards for the current ID, card 1 is missing. When tested, causes transfer to the end of file test.

EOFSW. Initially false. Set to true when end of file is encountered on a read statement, or when more than MTRIES (25) cards are read while setting up for the next ID to be processed. When tested after the main routine's attempt to read the first card, if true causes processing to terminate. When tested after a call to READCD and subsequent processing of the current ID, causes the Job Execution Log footer to be written and processing to terminate normally.

RDERSW. Initially false. Set to true when a nonrecoverable read error is encountered during a read statement. When tested, if true causes processing to halt.

CDFLAG. A two element logical array. Initially false. Each element is set to true when the corresponding card is identified for the current ID. When tested by the main routine after a call to READCD, if CDFLAG(1) is false (card 1 is missing) the current questionnaire is not processed. When CDFLAG(2) is tested by ASSMBL and CKRANG, if it is false processing of card 2's data is bypassed within those routines.

Further details on the use of these switches may be derived from the flow charts in Appendix AA.

3.2.3.4 Shared Storage

Except for the service routines SCAN, PACK, and NOTEXC, all communication among routines is by reference to common data in six common blocks:

(1) COMMON/QRE1/ holds QRE, ANUM, and the variables associated with card type 1 (Table PCPRE 1);

(2) COMMON/QRE2/ holds the variables associated with card type 2 (Table PCPRE 2);

(3) COMMON/SFDATA/ holds the variables for one Standard Format Data Record, beginning with QTYPE. The variables for the earlier part of the record are available in COMMON/QRE1/ (Appendix L);

(4) COMMON/SWITCH/ holds all switches (Table PCPRE 3);

(5) COMMON/PCPRE/ holds all input cards and service data to be retained between calls to subroutines (Table PCPRE 4); and

(6) COMMON/CONSTS/ holds all constant scalars and arrays used in the program (Table PCPRE 5).

The variable names within each common blank are the same for all routines.

For ease of reference, the following local arrays are equivalenced to common block elements:

(1) In the main routine:

CD1(18) to QRE - refers to the entire first section of the SFD record;

CD23(96) to BDATE - refers to the entire second and last section of the SFD record;

QCD1(17) to ANUM - refers to questionnaire variables from card #1;

QCD2(52) to QDATE - refers to questionnaire variables from card #2.

(2) In READCD:

CARDS(160) to CARD1 - refers to CARD1 and CARD2.

(3) In ASSMBL:
C2VAR(52) to QDATE - refers to questionnaire variables from card #2.

In CKRANG:
NVAR(52) to QDATE - refers to questionnaire variables from card #2;

3.2.4 Outputs

The main output of the Project Conserve Preprocessor program is the Standard Format Data File which meets the following specifications:

1. One complete record is generated for each questionnaire processed.

2. Fields containing values derived from missing or illegal inputs are given the negative value SN so that all fields contain a legal value.

3. The ZIP Code is present and within range.

The detailed layout and content of the Standard Format Data File is shown in the Home Energy Audit System Appendix L.

The Standard Format Data File may be stored on any sequential device. It contains the names and addresses of the homeowners; therefore appropriate measures should be taken to protect the privacy of the individual.

A second output of the Project Conserve Preprocessor program is the Job Execution Log, which shows:

1. The accession number of each card found to be in error, listed by card type and flagged if the error prevented processing of the ID;

2. The lowest ZIP Code and the highest ZIP Code successfully processed; and

3. The total number of IDs successfully processed.

A sample of the Project Conserve Preprocessor Job Execution Log is shown in the Home Energy Audit System Appendix F.

A third output of the Project Conserve Preprocessor program is a set of messages. The messages are listed in the Home Energy Audit System Appendix U.

3.2.5 Interfaces

The Project Conserve Preprocessor Program interaces with no other software during its execution. The Preprocessor interfaces with the HEA Analysis Program in that the Standard Format Data File output by the Preprocessor is input to the Analysis Program.

3.2.6 Tables

The Project Conserve Preprocessor Program defines the formats of card 2 through the use of tables:

- COLSC2(2,52) defines the beginning and ending columns of each of the answers punched on card 2.
- BOXCK(52) is a logical arrary containing .true. for each card 2 variable which is a box check type answer. Box check type answers have minimum and maximum acceptable range limits.
- NLIM(2, 52) contains the lower and upper limits for each of the 52 card 2 variables. If a variable is not a box check type, the corresponding NLIM elements are set to 0,0.

The values of these arrays are shown in Table 6.

3.2.7 Run Description

3.2.7.1 Loading

Loading procedures are dependent on the environment in which the system is installed.

3.2.7.2 Operating

Before running the Project Conserve Preprocesor Program, the input data must be sorted so that all cards for each accession number are grouped together. Other than this, no special operating procedures are required.

3.2.7.3 Terminating and Error Handling

The Project Conserve Preprocessor will terminate under four conditions:

1. End of file is read on the input file:

   (a) After at least one accession number has been processed successfully (normal termination). The Standard Format Data File (SFD file) will have at least one record.

   (b) After at least one good card was read but before any processable accession numbers were found (for example, only one accession number was represented on the file and it included a duplicate card number). The program will terminate normally but the SFD file will receive no output. User response is to check input file.

   (c) Before any good cards are read. The message

   ```
   PCPRE MAIN 1010 F:
   NO GOOD CARD FOUND IN 10 ATTEMPTS
     TO READ INPUT FILE.
   PLEASE RECHECK FILE.
   ```

   is written and processing halted. The SFD file receives no output. User response is to check input file.

2. More than MTRIES (25) cards are read by READCD while looking for the first card of the next ID to be processed. The message

   ```
   PCPRE READCD 7010 E:  MORE THAN XXX CARDS READ
   AND GOOD NEW SET NOT FOUND WHILE PROCESSING
     ACCESSION NUMBER XXXXXX
   ```

   is written and processing halted as if an end of file had been read. User response is to check input file.

3. More than MAXQRE accession numbers are identified on the input file. The message

   ```
   PCPRE MAIN 5010 E:  MORE THAN XXXXXX
     SEPARATE ACCESSION NUMBERS IDENTIFIED.
   THE LAST ACCESSION NUMBER PROCESSED IS XXXXXX
     PLEASE RESUBMIT REMAINDER OF FILE.
   ```

   is written and processing terminated normally as if an end of file had been read. User response is either to resubmit the remainder of the file as a separate run or to increase the value of MAXQRE by modifying statement 33 of the BLOCK DATA routine, recompile the program, and resubmit the entire file.

4. A nonrecoverable read error is encountered on any READ attempt. The message:

```
PCPRE READCD 9110 F (or MAIN 1910 F):
  NONRECOVERABLE READ ERROR ON INPUT FILE
```

is written and processing terminated at once. User response is to follow the suggestions given in the documenation for his specific computer installation.

SECTION 3.2.8

PROJECT CONSERVE PREPROCESSOR TABLES

TABLES PCPRE 1 - PCPRE 6

Table PCPRE 1

Common Block/QRE1/:Card 1 Variables and First 18 Elements of SFD Record

Start Loc.	Variable	Type	Range	Function/Remarks
1	QRE	I	2/2	Code of questionnaire type. Always "2" for PC questionnaire.
2	ANUM	I	≥ 0	Accession number
3	NAME	I(6)		Packed alpha representation of respondent's name
8	STREET	I(5)		Packed alpha representation of respondent's street address
13	CITY	I(3)		Packed alpha representation of respondent's city
17	STATE	I		Packed alpha representation of respondent's state
18	ZIP	I	100/ 99999	Respondent's ZIP Code

Table PCPRE 2

COMMON/QRE/: Card 2 Variables

Start Loc.	Variable	Type	Range	Function/Remarks
1	QDATE	I	1-4	Year home built 1 = prior to 1920 2 = 1921-1945 3 = 1946-1965 4 =1966-present
2	QSTYLE	I	1-4	Style of house 1 = 1 story 2 = split level 3 = two story 4 = 3 or more stories
3	QHSERV	I	1-5	Furnace last serviced 1 = less than 6 months 2 = 6 months - 1 year 3 = 1-2 years 4 = more than 2 years 5 = not serviced
4	QDWTEM	I	1-5	Winter daytime thermostat setting 1 = 65 or less 2 = 66-68 3 = 69-71 4 = 72-75 5 = above 75
5	QEWTEM	I	1-5	Winter evening thermostat setting 1 = 65 or less 2 = 66-68 3 = 69-71 4 = 72-75 5 = above 75
6	QNWTEM	I	1-5	Winter night thermostat setting 1 = 65 or less 2 = 66-68 3 = 69-71 4 = 72-75 5 = above 75
7	QFTSQ	I	Ø-9	Living area Ø = 800 or less square feet 1 = 801-1000 2 = 1001-1200 3 = 1201-1400 4 = 1401-1600

Table PCPRE 2 (continued)

COMMON/QRE/: Card Variables

Start Loc.	Variable	Type	Range	Function/Remarks
				5 = 1601-1800
				6 = 1801-2000
				7 = 2001-2200
				8 = 2201-2400
				9 = 2400 or more
8	QDWD	I	≥ 0	Number of double wood doors
9	QDW	I	≥ 0	Number of wood doors
10	QSGD	I	≥ 0	Number of sliding glass doors
11	QWGD	I	≥ 0	Number of wood-and-glass doors
12	QDVD	I	≥ 0	Number of doors with vestibule
13	QDD	I	≥ 0	Number of dutch doors
14	QSTRMD	I	≥ 0	Number of storm doors
15	QAIRMD	I	1-3	Air movement around doors
				1 = all
				2 = none
				3 = some
16	QSTRPD	I	1-3	Weatherstripping around doors
				1 = all
				2 = none
				3 = some
17	QCAC	I	1-2	Central A/C
				1 = yes
				2 = no
18	QACFUL	I	1-3	A/C fuel
				1 = electric central
				2 = gas central
				3 = one or more window or wall-mounted units
19	QDSTEM	I	1-4	Summer daytime thermostat setting
				1 = 70 or less
				2 = 71-74
				3 = 75-78
				4 = above 78
20	QNSTEM	I	1-4	Summer nighttime thermostat setting
				1 = 70 or less
				2 = 71-74
				3 = 75-78
				4 = above 78
21	QHFUEL	I	1-6	Type of heating fuel
				1 = gas

Table PCPRE 2 (continued)

COMMON/QRE/: Card Variables

Start Loc.	Variable	Type	Range	Function/Remarks
				2 = electricity 3 = propane 4 = oil 5 = coal 6 = kerosene
22	QHBILL	I	Ø-9	Yearly cost of fuel used for heating Ø = $200 or less 1 = 201-300 2 = 301-400 3 = 401-500 4 = 501-600 5 = 601-700 6 = 701-800 7 = 801-900 8 = 901-1000 9 = 1000 or more
23	QACBIL	I	Ø-9	Yearly cost of fuel used for air conditioning Ø = $200 or less 1 = 201-300 2 = 301-400 3 = 401-500 4 = 501-600 5 = 601-700 6 = 701-800 7 = 801-900 8 = 901-1000 9 = 1001 or more
24	QATTIC	I	1-2	Attic present 1 = yes 2 = no
25	QATHT	I	1-2	Attic heated 1 = yes 2 = no
26	QATFLR	I	1-2	Premanent attic floor 1 = yes 2 = no
27	QATVNT	I	1-2	Attic rented 1 = yes 2 = no
28	QATFAN	I	1-2	Attic fan 1 = yes 2 = no
29	QATINA	I	1-7	Inches of attic insulation 1 = 1-2 inches

Table PCPRE 2 (continued)

COMMON/QRE/: Card Variables

Start Loc.	Variable	Type	Range	Function/Remarks
				2 = 3-4 inches 3 = 5-6 inches 4 = 7-8 inches 5 = 9 or more inches 6 = none 7 = unknown
30	QATINT	I	1-4	Insulation form 1 = loose 2 = batting 3 = none 4 = unknown
31	QDHW	I	≥ 0	Number of double hung windows
32	QTW	I	≥ 0	Number of tilting windows
33	QCW	I	≥ 0	Number of casement windows
34	QSPN	I	≥ 0	Number of sliding pane windows
35	QPW	I	≥ 0	Number of picture or bay windows
36	QDHWW	I	1-2	Double hung window frame 1 = wood 2 = metal
37	QTWW	I	1-2	Tilting window frame 1 = wood 2 = metal
38	QCWW	I	1-2	Casement window frame 1 = wood 2 = metal
39	QSPWW	I	1-2	Sliding pane window frame 1 = wood 2 = metal
40	QPWW	I	1-2	Picture or bay window frame 1 = wood 2 = metal
41	QSTRMW	I	≥ 0	Number of storm windows
42	QRATTL	I	1-3	Windows rattle 1 = all 2 = none 3 = some
43	QAIRMW	I	1-3	Air movement around windows 1 = all 2 = none 3 = some
44	QSTRPW	I	1-3	Weatherstripping around windows 1 = all 2 = none 3 = some
45	QSTOVE	I	1-4	Cooking stove fuel 1 = gas 2 = electricity 3 = propane 4 = oil
46	QOVEN	I	1-4	Oven fuel 1 = gas 2 = electricity

Table PCPRE 2 (continued)

COMMON/QRE/: Card Variables

Start Loc.	Variable	Type	Range	Function/Remarks
				3 = propane 4 = oil
47	QWHEAT	I	1-4	Water heater fuel 1 = gas 2 = electricity 3 = propane 4 = oil
48	QDRYER	I	1-4	Clothes dryer fuel 1 = gas 2 = electricity 3 = propane 4 = oil
49	QCTV	I	1-2	Color TV 1 = yes 2 = no
50	QGASLT	I	1-2	Outside gas light 1 = yes 2 = no
51	QFRIDG	I	1-2	Frost free refrigerator 1 = yes 2 = no
52	QFREEZ	I	1-2	Frost free freezer 1 = yes 2 = no

Table PCPRE 3

Common/SWITCH/:Program Switches

Start Loc.	Variable	Type	Function/Remarks
1	PROCES	L	True when processing may continue
2	EOFSW	L	True when end of file has been read
3	RDERSW	L	True when a non-recoverable read error has been encountered
4	CDFLAG	L(3)	Each element is true when a corresponding card has been found for the current questionnaire

Table PCPRE 4

Common/PCPRE/: Input Card Data

Start Loc.	Variable	Type	Function/Remarks
1	CARD1	I(80)	Holds card type 1 of the current questionnaire
80	CARD2	I(80)	Holds card type 2 of the current questionnaire
160	NEWCD	I(80)	Input variable for card read statements
240	OLDCD	I(80)	Holding variable for the first card of the next questionnaire
320	OLDNUM	I	Holding variable for the decoded card number of the card in OLDCD
321	OLDID	I	Holding variable for the decoded accession number (ID) of the card in OLDCD
322	CURRID	I	The current accession number (ID)
323	LOZIP	I	Holding variable for the lowest ZIP Code yet processed
324	HIZIP	I	Holding variable for the highest ZIP Code yet processed

TABLE PCPRE 5

Common/CONSTS/:Constants

Start Loc.	Variable	Type	Function/Remarks	Value Set in Block DATA Routine
1	SN	I	Assigned to missing or illegal inputs and missing outputs	-9999
2	BLANK	I	Used to identify blank columns in input array and to print blank spaces	' '
3	AST	I	Used to print '*' to signal error fatal to questionnaire	'*'
4	INCD	I	FORTRAN logical device number of card input file	10
5	OUTM	I	FORTRAN logical device number of message output file	11
6	OUTREP	I	FORTRAN logical device number of report output file	12
7	SFD	I	FORTRAN logical device number of output Standard Format Data File	13
8	MAXQRE	I	Upper limit to number of questionnaires to be processed	1,000,000
9	MINZIP	I	Minimum acceptable ZIP Code	100
10	MAXZIP	I	Maximum acceptable ZIP Code	99999
11	COLSC2	I(2,52)	See Table 6	
159	NLIM	I(2,52)	See Table 6	

TABLE PCPRE 5 (Continued)

Common/CONSTS/:Constants

Start Loc.	Variable	Type	Function/Remarks	Value Set in Block DATA Routine
307	BDATES	I(4)	Values for coded questionnaire answer QDATE	1915 1932 1952 1970
311	FTSQS	I(10)	Values for coded questionnaire answer QFTSQ	700 900 1100 1300 1500 1700 1900 2100 2300 2500
321	AINAMS	I4(7)	Values for coded questionnaire answer QATINA	2 4 6 8 10 0 -9999
325	FACES	I(4)	Unused	180 0 270 90
329	BSWALS	I(4)	Unused	100 75 50 25

TABLE PCPRE 5 (Continued)

Common/CONSTS/:Constants

Start Loc.	Variable	Type	Function/Remarks	Value Set in Block DATA Routine
333	WTEMPS	I(5)	Values for coded questionnaire answers QDWTEM, QEWTEM, and QNWTEM	60 67 70 73 78
338	STEMPS	I(4)	Values for coded questionnaire answers QDSTEM and QNSTEM	68 73 77 80
342	FCOSTS	I(10)	Values for coded questionnaire answers QHBILL and QACBIL	150 250 350 450 550 650 750 850 950 1200
352	NUMA	I(10)	Alphanumeric representation of digits for use by SCAN in decoding alpha input to numeric values	'0' '1' '2' '3' '4' '5' '6' '7' '8' '9'
362	BOXCK	L(35)	See Table 6	

Table PCPRE 6

CARD 2 TABLES

Start Loc.	Variable Name	COLSC2 1, Elem (Begin)	COLSC2 2, Elem (End)	BOXCK	NLIM 1, Elem (Min)	NLIM 2, Elem (Max)
1	QDATE	7	7	T	1	4
2	QSTYLE	8	8	T	1	4
3	QHSERV	9	9	T	1	5
4	QDWTEM	10	10	T	1	5
5	QEWTEM	11	11	T	1	5
6	QNWTEM	12	12	T	1	5
7	QFTSQ	13	13	T	0	9
8	QDWD	14	15	F	0	0
9	QWD	16	17	F	0	0
10	QSGD	18	19	F	0	0
11	QWGD	20	21	F	0	0
12	QDVD	22	23	F	0	0
13	QDD	24	25	F	0	0
14	QSTRMD	26	27	F	0	0
15	QAIRMD	28	28	T	1	3
16	QSTRPD	29	29	T	1	3
17	QCAC	30	30	T	1	2
18	QACFUL	31	31	T	1	3
19	QDSTEM	32	32	T	1	4
20	QNSTEM	33	33	T	1	4
21	QHFUEL	34	34	T	1	6
22	QHBILL	35	35	T	0	9
23	QACBIL	36	36	T	0	9
24	QATTIC	37	37	T	1	2
25	QATHT	38	38	T	1	2
26	QATFLR	39	39	T	1	2
27	QATVNT	40	40	T	1	2
28	QATFAN	41	41	T	1	2
29	QATINA	42	42	T	1	7
30	QATINT	43	43	T	1	4
31	QDHW	44	45	F	0	0
32	QTW	46	47	F	0	0
33	QCW	48	49	F	0	0
34	QSPW	50	51	F	0	0
35	QPW	52	53	F	0	0
36	QDHWW	54	54	T	1	2
37	QTWW	55	55	T	1	2
38	QCWW	56	56	T	1	2
39	QSPWW	57	57	T	1	2
40	QPWW	58	58	T	1	2

Table PCPRE 6 (continued)

CARD 2 TABLES

Start Loc.	Variable Name	COLSC2 1, Elem (Begin)	COLSC2 2, Elem (End)	BOXCK	NLIM 1, Elem (Min)	NLIM 2, Elem (Max)
41	QSTRMW	59	60	F	0	0
42	QRATTL	61	61	T	1	3
43	QAIRMW	62	62	T	1	3
44	QSTRPW	63	63	T	1	3
45	QSTOVE	64	64	T	1	4
46	QOVEN	65	65	T	1	4
47	QWHEAT	66	66	T	1	4
48	QDRYER	67	67	T	1	4
49	QCTV	68	68	T	1	2
50	QGASLT	69	69	T	1	2
51	QFRIDG	70	70	T	1	2
52	QFREEZ	71	71	T	1	2

0 0 0 0 5 1 0 0 2 8 4

3.3 Local Data Subsystem

3.3.1 Problem and Solution Methodology

The Home Energy Audit Analysis Module requires many elements of data that are dependent on the geographical area for which the analysis is being conducted. The Local Data Subsystem enables the administering office or agency to tailor their data elements to the specific locale to be audited. The precision of each home's audit is highly dependent on how closely the associated record of Local Data approximates the real conditions and characteristics of the area.

Each record of the Local Data File contains many data elements that the administrating agency need not concern themselves with unless they desire to do so. Keeping this in mind, the Local Data Subsystem was designed to allow the persons concerned to select a ZIP Code area that is "close" to what they desire and make a minimal number of modifications to create a more precise record for the area in question. To enable the easy creation of records when no base records exist, a default record is hard coded into the program. The data values supplied for this default record are shown in Appendix M.

3.3.2 Inputs

Inputs to the Local Data Program consist of a new or existing Local Data File and card image modification records. If an existing Local Data File is used, ZIP Code ranges may be added (to a maximum of 700) or modified. ZIP Code ranges may be split or consolidated, but once a particular ZIP Code has an associated record that ZIP Code may not be deleted. If the Local Data File is new the program will determine this and expect the file to be empty.

If a new Local Data File is used a default base record is used as the basis for initial modifications until new records have been created. As long as a ZIP Code range exists on the Local Data File a ZIP Code within that range may be designated as a base record. The format of the Local Data Program modification records is shown in Appendix H. The first four fields on the modification cards are:

(1) Control Value - 0 - numeric data,
(cc 1)

1 - part one of the first line of text for pass-through message,

2 - part two of the first line of text for pass-through message,

3 - part one of the second line of text for pass-through message,

4 - part two of the second line of text for pass-through message;

(2) Low ZIP Code - (cc 2-6) the 5 digit ZIP Code that is the low end of the range for which this record is applicable;

(3) High ZIP Code - (cc 7-11) the 5 digit ZIP Code that is the high end of the range for which this record is applicable; and

(4) Base ZIP Code - (cc 12-16) 0 - indicates the default base record is to be used as the basis for modification,

- 5 - digit ZIP Code indicates the record of local data that is to be used as the basis for modification. If there is no corresponding record in the file a message is printed and the default base record is used.

The remaining fields on the card are dependent on the Control Value. If the Control Value is 0 these fields contain up to 6 pairs of 5 digit numbers indicating an element to be modified and the corresponding replacement value. If the Control Value is 1, 2, 3, or 4 the remaining 64 characters are taken as text for pass through messages.

The Local Data Program will operate more efficiently if all modification records for a particular ZIP Code range are contiguous.

3.3.3 Processing

3.3.3.1 Program Logic

The Local Data Subsystem consists of one FORTRAN program with four main sections. These sections are 1) The Initialization and Setup; 2) Index Editing; 3) Data Modification; and 4) Clean-up and Report Generation. The four sections combine to enable data modification, data validation, and report generation.

Various error conditions can cause the Local Data Program to terminate prematurely. To prevent the destruction of an existing Local Data File the program copies the Local Data File to a temporary file. Not until all modifications are made and validated is the temporary copy written back to the original file. The report generated uses the subroutine LDATA to obtain the data from the Local Data File, not the temporary copy. LDATA is the same routine as that used by the HEA Analysis Program.

Initialization and Setup initializes common variables to eliminate the requirement for a BLOCK DATA program. A record is read from the Local Data File to determine if it is a virgin file or if it should be copied to the temporary file. All of the modification records are copied to a mass storage file so records can be re-read if needed.

Index Editing Section - keeps track of the ZIP Code ranges and the contents and location of each ZIP Code range's associated record in the Local Data File. When new ranges are introduced or old ranges modified this section handles the necessary housekeeping.

Data Modification Section uses the arrays IPOINT and IVALID to validate each data value used for a modification and insures that the modifications are allowed. Warning messages are issued for both possible and definite error conditions. These messages are listed in Appendix V.

Clean-up and Report Generation consolidates the file, copies it to the Local Data File, and uses the subroutine LDATA to retrieve the data for the reports to be generated. LDATA is used by the HEA Analysis Program. Its use in the Local Data Subsystem serves as a test and validation of the contents of the Local Data File.

3.3.3.2 Variables and Constants

The following local variables are used in the main routine of the Local Data Program

Scalars

I - outside of the Index Edit Section I is used as a miscellaneous integer. In the Index Edit Section I is the current index being examined.

IBASE - contains the ZIP Code read in from a modificaton record.

ICHIGH - high ZIP Code on a modification record.

ICLOW - low ZIP Code on a modification record.

ICNTRL - contains the Control Value on a modification record.

IFHIGH - highest ZIP Code in Local Data File.

IFLOW - lowest ZIP Code in Local Data File.

IN - input unit number from which modification records are initially read (5).

INEXT - location in INDEX where next entry may be made.

IOHZ - high ZIP Code on last modification record processed.

IOLZ - low Zip Code on last modification record processed.

IOUT - unit number where error messages and Local Data File Summary Report are written.

IREC - record number where current record in core is to be written.

IRMAX - maximum number of ZIP Code ranges allowed (700).

ITEMP - temporary integer value storage.

ITEMPF - unit number of temporary file used to store modification records.

J - miscellaneous integer.

J1 - miscellaneous integer.

K - miscellaneous integer.

L - miscellaneous integer.

LUN1 - associated variable for the Local Data File.

LUN3 - associated variable for temporary copy of Local Data File.

M - miscellaneous integer usage.

MOD - in the Index Edit Section MOD is a counter for the number of index entries to be deleted or consolidated.

N - miscellaneous integer usage.

R - miscellaneous floating point usage.

Arrays

ELEMNT - array containing up to six element numbers from a modification record.

IALPHA - array used to hold positions 17-80 of modification records.

INPUT - array used to read modification records and write them to a temporary file.

IPOINT - array showing which elements of the VALID/IVALID array are to be used for validation of a modification data value.

LDRT - Local Data Record temporary holding array.

VALUE - array containing up to six floating point data values read from a modification record.

Equivalenced Arrays

IRBASE/BASE/ITPM - default base data for a Local Data record. ITPM is equivalenced to the 64 words of characters in the record.

IVALID/VALID - array showing the minimum, maximum, and type of each data element in a Local Data File record.

3.3.3.3 Formulas

No special or unique formulas are used by the Local Data Subsystem.

3.3.3.4 Error Handling Provision, Restrictions, and Limitations

There are seven conditions that will cause the Local Data Program to terminate prior to normal completion. To protect a Local Data File used for input, modifications are made to a temporary copy and the Local Data File is not overwritten until all modifications and data have been validated.

The following conditions may cause termination of the Local Data Program:

STOP 10	-	In creating an index from an existing Local Data File an erroneous value was found indicating the record had less or more than the allowed number of index entries. Entire file is probably bad.
STOP 30	-	In creating an index from an existing Local Data File there appeared to be more than five records of index information. The file may be bad.
STOP 40	-	In creating an index from an existing Local Data File an index record was read and found to be empty. The file may be bad.
STOP 625	-	After backspacing the temporary modification record file and attempting to re-read the record an EOF was encountered.
STOP 64	-	After completing all of the modifications the temporary Local Data File was found to be empty.
STOP 800	-	A ZIP Code in the index couldn't be found in the Local Data File.
STOP 900	-	Normal termination.

The following terminations may come from NREC or LDATA:

STOP 110	-	from NREC - no more records are available to store data in the temporary Local Data File.
STOP 110	-	from LDATA - in building an index array bad data was found. Local Data File is probably bad.

All other messages may be grouped into two categories; errors and possible errors. None of these conditions will terminate the program. The error messages in Appendix V explain the possible conditions and actions taken for these suspected or actual error conditions.

3.3.3.5 Internal Switches and Flags

To validate a data value used in a modification, IPOINT is used to find the minimum, maximum, and type of the element in question in the IVALID/VALID array.

The sign of the element in IPOINT determines if out-of-range modifications are allowed. A negative value in IPOINT indicates that out-of-range modifications are not allowed.

IREC other than zero indicates the record number in the Local Data File where the data in LDRW is to be written.

3.3.3.6 COMMON Areas

The following Labelled COMMON Blocks are used in the Local Data Program:

COMMON/LDI/IRTIP(700)
IRTIP is a 700 word array containing the Record To Index pointers. The COMMON Block is used by the Local Data Main Program and the function NREC.

COMMON/LDC/LDRW(461),INDEX(3,700)
LDRW is the array containing the Local Data Record. The format of this record is shown in Appendix M. INDEX shows the low ZIP Code, High ZIP Code and the associated record number in the Local Data File. The ZIP Codes in INDEX are in ascending order.

3.3.4 Output

There are two outputs produced by the Local Data Program:

1) Local Data File Report - Appendix I, and
2) Local Data File - Appendix M

The Local Data File Report consists of four sections:

1) The transaction section showing the modification records processed and any error messages generated. All error messages are listed in Appendix V.

2) Record to Index Pointers - a printout of the IRTIP array showing what INDEX entry references each record.

3) Local Data File Index - a listing of the ZIP Code ranges and the associated records contained in the Local Data File.

4) Local Data File Summary - a complete printout of every record contained in the Local Data File.

3.3.5 Interfaces

The Local Data Program has no program interfaces but has a data interface with the HEA Analysis Program. This interface is the Local Data File and is outlined in Appendix M. Both the Local Data Subsystem and the HEA Analysis Program use the subroutine LDATA to interface with the Local Data File.

3.3.6 Tables

The contents of IPOINT and BASE/IRBASE are included in the Local Data File Format shown in Appendix M.

3.3.7 Run Description

3.3.7.1 Compilation and Loading

The JCL to compile and load the Local Data Program is shown in Table 3.3.1. Because the Local Data Program will not normally be executed many times the user may decide to combine the compile, load, and execution into one job.

3.3.7.2 Execution

The JCL to execute the Local Data Program is shown in Table 3.3.2.

The user of the Local Data Subsystem may exercise more flexibility by having more than one version of the Local Data File. A record should be kept to show the date and reasons modifications were made.

3.3.7.3 Termination

The Local Data File Report is generated after the file is created and re-written. If the program terminates in the report section the Local Data File should be intact.

3.4 Analysis Program "HAM" (FORTRAN)

3.4.1 Problem and Solution Method

The HEA Analysis Program is designed to read Standard Format Data records describing homes and Local Data records for the homes' ZIP Codes, and write two page homeowner's reports describing the savings possible from energy conserving actions for the homes and a History file of analysis results.

To achieve this, the Analysis Program:

- Reads a record from the Standard Format Data File;
- Reads the corresponding ZIP Code record from the Local Data File;
- Range checks the standard format data against the local data;
- Assigns needed defaults to the standard format data;
- Identifies those Standard Format data which are irrelevant for the given home;
- Calculates and/or assigns values to the compute module input data;
- Performs thermodynamic analysis of the base house in the compute module;
- Modifies the compute module input data to reflect the addition of energy conservation modifications;
- Reruns the compute module with the modified data;
- Calculates and/or assigns values to the report data;
- Writes a two-page Homeowner Report; and
- Writes a History File record.

Altogether, annual BTUs may be calculated for six configurations in the home:

1. The base configuration as validated by the input processing module;

2. The base configuration with attic insulation added to bring the total up to the recommended minimum for the area;

3. The base configuration with attic insulation added to bring the total up to the optimum recommended for the area;

4. The base configuration with a complete set of storm windows and doors;

5. The base configuration with complete weatherstripping and caulking; and

6. The base configuration with modifications 3, 4, and 5.

3.4.2 Inputs

The Analysis Program has two input files: Local Data and Standard Format Data.

The Standard Format Data File is written by one of the Preprocessor programs in the HEA System. The Standard Format Data Record is described in Appendix L.

The Local Data File is written by the Local Data Program in the HEA System. The Local Data record is described in Appendix M.

3.4.3 Processing

3.4.3.1 Program Logic

3.4.3.1.1 Overview and MAIN Routine

The Analysis program is structured to include four modules:

1. Input Data Processing Module (Subroutines PREP, BCALC, and BCHANG):

   (a) PREP validates the input SFD record;

   (b) BCALC calculates the elements needed for input to the Compute Module; and

(c) BCHANG changes the Compute Module input elements to reflect energy-saving changes in the home configuration.

The Input Data Processing Module reads the Standard Format Data File, previously written by one of the Preprocessor programs, and the Local Data File, previously written by the Local Data Program. It validates the Standard Format Data, using maximum and minimum values taken from the Local Data File. The input module supplies default values, also taken from the Local Data File, for all invalid Standard Format Data inputs. It uses the validated Standard Format Data and data from the Local Data File to construct six sets of data completely describing one home. The first set describes the base home as reflected in the validated Standard Format Data. Five additional sets of data reflect one or more energy conserving modifications to the base configuration.

2. Compute Module (subroutine CM and routines called by CM): The Compute Module performs a dynamic analysis of the thermodynamic characteristics of a home described by the contents of the common block BLIST, and returns the home's annual heating and cooling requirements in BTUs.

3. Results Analysis Module (subroutine RESULT and routines called by RESULT): the Results Analysis Module uses the six pairs of heating and cooling requirements produced by the Input Processing Module and the Compute Module to compute possible annual savings of fuel and dollars that may be realized through various home improvement actions. Estimates of material and contractor costs involved in taking these actions are calculated using information contained in the Standard Format Data File and the Local Data File.

4. Report Generator Module (subroutine RPTGEN and routines called by RPTGEN): the Report Generator Module takes the results from the analysis of the home's energy consumption and savings potential and prints a Homeowner's Report. The Report includes a summary of the data collected on the questionnaire, the savings results and cost estimates as calculated in the Analysis Module, and a number of additional suggestions for energy conserving measures that should be considered by the homeowner.

A second output of the Report Generator Module is the History File record. Each record contains the questionnaire responses as recorded in the validated Standard Format Data File, the heating and cooling requirements produced by the Compute Module, and the cost and savings estimates calculated in the Analysis Module. One record is written for every home processed.

The main program calls the four modules as shown in Appendix EE, Figure 1.

Main Routine

In addition to the major modules, the main routine calls for two other subroutines and a BLOCK DATA routine:

1. LDATA reads a record from the Local Data File corresponding to the ZIP Code of the Standard Format Data record to be processed.

2. JOBLOG accumulates data for later printing in the Job Execution Log into four categories:

   (a) Records processed with no defaulted values;

   (b) Records processed with at least one defaulted value;

   (c) Records not processed: home neither heated nor cooled; and

   (d) Records not processed: ZIP Code not found in Local Data File.

3. BLOCK DATA initializes FORTRAN logical file numbers (SFD, OUTM, OUTREP, OUTLOG, OUTHIS, INCARD), constants (MAXQRE, CDATE, SN, FCONV), alpha constants (BLANK, AST), and sets KLD and ZIPDAT equal to 0.

For each record to be processed, the Main Routine reads a Standard Format Data record and its associated Local Data record, calls the Input Module routines to prepare data for thermodynamic analysis, calls the Compute Module to perform the analysis for each configuration of the home, and calls the results and report generator modules to write the homeowner reports. When all records have been processed, the main routine writes the Job Execution Log report and halts processing.

The logical flow of the HEA Analysis Program main routine is shown in Appendix EE, Figures 2 and 3.

Processing of the Input Processing Module, the Results Module, and the Report Generating Modules is discussed in detail in the sections which follow. All documentation for the Compute Module was written by the staff at the National Bureau of Standards. It is included in Appendix R.

3.4.3.1.2 Input Processing Module

Input Processing Module

The input processing module uses data from the Standard Format Data File for the home and the Local Data File for the home's ZIP Code to develop the set of data required as input to the compute module. These data are described in Appendix O. Unacceptable inputs are flagged with an asterisk in the array DFLAG. Input values which are irrelevant (for example, presence of an attic fan if "attic not present" is indicated) are flagged with an asterisk in the array IRR. The elements of the arrays DFLAG and IRR are shown in Appendix S.

The input processing module consists of three subroutines called by the main routine:

1. Subroutine PREP prepares the inputs. It checks for range, assigns default values, flags defaults with '*' in the array DFLAG, and flags irrelevant inputs (such as presence of attic fan if there is no attic) with '*' in the array IRR. Because of the interdependencies involved in the above-mentioned data entires, range checks and default assignments cannot always be handled independently. Instead, PREP is organized to prepare complete groups of logically related inputs:

   - data required for later calculations and basement and crawl space related inputs;
   - attic related inputs;
   - central heating related inputs;
   - air cooling related inputs;
   - wall related inputs;
   - solar collector related inputs; and
   - independent inputs.

Within logical groups, the validity of certain values depends on the presence of others. For example, if no attic is present, then AFAN = 1 (meaning an attic fan is present) in an implied answer, while AFAN = SN (meaning no answer given to question about attic fans) is a valid answer, whereas if an attic is present the opposite is true. We say that AFAN is a "dependency" of ATTIC.

PREP first calculates and/or validates some prerequisite data and their immediate dependencies:

- o Square footage of home living area (FTSQ) is validated;
- o Home style (STYLE) is validated;
- o Home building date (BDATE) is decoded;
- o Basement presence (BASMNT), crawl space presence (CRAWL), slab-on-grade presence (SLAB), and garage presence (GARAGE), are validated and values depending on them (BSHEAT, BSWALL and CVENT) are validated.
- o The fraction of floor which is basement (BSMFRC), crawl space (CRWFRC), and slab-on-grade (SOGFRC) is calculated from BASMNT, CRAWL, SLAB, and GARAGE. BSMFRC is used along with STYLE to calculate the number of floors (FLR). Then FLR and FTSQ are used to determine the flat projection of the house (FPOH), which is needed for later calculations.
- o Attic dependencies are as follows:
  - -style is mobile home or not (STYLE)
    - -presence of an unheated attic (ATTIC)
      - -presence of a permanent attic floor AFLOOR)
      - -attic floor area (AAREA)
      - -presence of an attic fan (AFAN)
        - -presence of an attic vent (AVENT)
        - -amount of attic insulation (AINAMT)
          - -type of attic insulation (AINTYP).

- Heat fuel dependencies are as follows:
  - heating fuel (HFUEL) is type "none or other" or not
    - daytime winter thermostat setting (DWTEMP)
    - nighttime winter thermostat setting (NWTEMP)
  - when heating unit last serviced (HSERVC)
  - annual cost of heating fuel (HCOST).

- Cooling fuel dependencies are as follows:
  - air conditioning type (ACTYP) is type "none" or not
  - daytime summer thermostat setting (DSTEMP)
  - when cooling unit last serviced (CSTEMP)
  - annual cost of cooling fuel (ACCOST)

- Wall dependencies are as follows:
  - number of attached walls (ATTACH)
    - windows per wall (WINDO(X))
      - storm windows per wall (STORMW(X))
      - window drapes per wall (WDRAPE(X))
      - oversized windows per wall (BIGW(X))
    - glass doors per wall (GDOOR(X))
    - regular doors per wall (ODOOR(X))
      - storm doors per wall (STORMD(X)) - depends on both GDOOR and ODOOR
    - shadow on each wall (SHADO(X))

- In validating wall dependencies, first ATTACH is validated. Then, for each exterior wall:

  - first SHADO, WINDO, GDOOR, and ODOOR are validated.
  - then, for each wall in which there are windows, STORMW and BIGW are converted from a number to a percent of the windows on that wall, and validated.
  - then total doors for the wall are summed. If there are any doors, STORMD is converted to a percent of the doors and validated.
  - then WDRAPE and DDRAPE, which are percents, are validated.

For each attached wall, all wall-dependent elements are resolved as irrelevant. If only one wall is attached, and WINDO(3), GDOOR(3), and ODOOR(3) are all zero or SN, while at least one of WINDO(4), GDOOR(4), or ODOOR(4) is

greater than zero, the program assumes that wall #3 is the attached wall. To simplify the validation code, the wall dependent values for walls 3 and 4 are temporarily switched. DFLAG and IRR elements for the affected data are not switched back, because they are never used in a wall specific manner.

- o Solar collector dependencies are as follows:
  - -whether solar collector is present or not (SOLPRS)
  - -type of solar collector (SOLTYP)
  - -area of solar collector (SAREA)
  - -tilt of solar collector (STILT)
  - -use of solar collector for hot water (SUSEHW)
  - -use of solar collector for space heating (SUSESH)
  - -use of solar collector for space cooling (SUSESC)

2. Subroutine CALCB derives the common block BLIST elements for input to the Compute Module from the prepared inputs and the Local Data File. All elements are assigned a valid value; an irrelevant entry may be assigned an arbitrary value. The elements are calculated in the order they appear in BLIST except where a data entry value is a prerequisite for determining the value of an earlier one, or where a later value is logically associated with an earlier one. The elements FLOORA (FPOH), FTSQ, FLR, BSMFRC, SOGFRC, and CRWFRC were earlier calculated by subroutine PREP, where they were needed for calculations.

   Most of the derivations are straight forward. Those presenting some complexity are described below:

   - o Room air change per hour (ACRM) varies from .5 to 2.0. It is derived from four SFD values, each given a different weight:

     (1) whether windows rattle in winter (RATTLE) is given a weight of 4/12, assigned to its complement fraction of snugness (SNGFRC). Thus, if RATTLE = 1, meaning windows do rattle, SNGFRC has the value 0, meaning no snugness; otherwise SNGFRC = 1.

(2) whether windows and doors are weatherstripped (STRIP) is given a weight of 2/12, assigned to the fraction of stripping (STRFRC).

If STRIP = 1, STRFRC = 1 (Stripped)
If STRIP = 2, STRFRC = 0 (Not stripped)
If STRIP = 3, STRFRC = .5 (Partially stripped).

(3) Presence of storm windows (STORMW) is given a weight of 4/12, assigned to the fraction of windows with storms (SWFRC). SWFRC is calculated as the sum of storm windows on all walls divided by the sum of windows on all walls.

(4) Presence of storm doors (STORMD) is given a weight of 2/12, assigned to the fraction of doors with storm (SDFRC). SDFRC Is calculated as the sum of storm doors on all walls divided by the sum of regular doors and glass doors on all walls.

ACRM is then .5 + 1.5 * (1 - (.333*SNGFRC + .334 * SWFRC + .166*SDFRC+.167*STRFRC)).

- Glass doors are treated as windows. Calculation of glass area on a given wall assumes that oversized windows (BIGW) are twice the area of regular windows and glass doors (GDOOR) are four times the size of regular windows. WINDO includes oversized windows but not glass doors; thus, the number of regular size equivalent windows is, for each wall(W): WINDO(W)+ BIGW(W)+4*GDOOR(W).

- The U value of glass on each wall is an average of the U value for double and single pane, weighted by the fraction of double and single pane glass on that wall. To obtain these, storm windows must first be distributed to regular and oversized windows (twice the area of regular windows) and storm doors distributed to other and glass doors (four times the area of regular windows). Door U values are not affected by the presence of storm doors.

Distribution of storm windows: the storm windows on each wall are first assigned to the regular windows on the wall; any remaining storm windows go to oversized windows.

Distribution of storm doors: the storm doors on each wall are first assigned to the regular doors on the wall; any remaining storm doors go to glass doors.

- Basement wall area (BWA) requires determination of the perimeter of the basement fraction of the lowest level in the home. The actual perimeter is indeterminable if the basement fraction (BSMFRC) is neither 0 nor 1, because the proportion of length to width of the basement is unknown. BCALC assumes the proportion of length to width of the basement is the same as that for the entire house.

- Winter indoor relative humidity has one value if the house is relatively dry, (SHOCK = 1) "frequently get shocks in the winter", and another if the house is relatively humid (SHOCK = 2) "never get shocks in winter". If SHOCK = 3, "sometimes get shocks in the winter," the indoor humidity index is determined by ACRM - relatively humid if the air change is less than the median value 1.25, relatively dry if ACRM is greater than 1.25

3. Subroutine BCHANG adjusts the Compute Module inputs to reflect possible retrofit changes to the house, and sets elements of the array CHANGE to indicate whether any adjustment is required. BCHANG is called six times for each SFD record to be processed:

   - Base case, house as configured by BCALC. BCHANG establishes temporary holding values for elements to be changed in later cases so they can be restored as necessary. (Room air change per hour, glass U values, ceiling U value). CHANGE (1) is always true.

- Change, if necessary, for minimum recommended attic insulation as specified in the Local Data File for the ZIP Code area of the home. BCHANG checks to see if the given R value of insulation in the attic floor (1/UCEIL) is less than the minimum required. If it is, CHANGE(2) is set to true, and the additional R required is determined. Additional R may have a value of 0, 11, 19, 22, 30, or 38 determined as follows:

Difference Minimum Recommended and Original Value	Additional R
Six or less	0
between 7 and 17	11
between 17.1 and 20	19
between 20.1 and 28	22
between 28.1 and 36	30
over 36	38

  If additional R is greater than 0, it is added to the original R and a new ceiling U value is calculated (1/total R)

  If the additional R is equal to 0, or if the given R value is not less than the minimum recommended, CHANGE (2) is set to false.

- Change, if necessary, for optimum attic insulation. The process is precisely the same as that in case (2) above, except that the criterion is optimum attic insulation from the Local Data File instead of minimum recommended attic insulation, and the new ceiling U value is saved for reference in case (6).

- Add storm windows and storm doors. If there are any windows or doors without storms, CHANGE (4) is set to true, otherwise to false. If CHANGE (4) is true, BCHANG changes the U value for glass to that for double pane, resets UCEIL to its original value (stored by the first call to BCHANG),

and recalculates ACRM based on 100% storm windows and doors, 100% weatherstripping, and the original value for RATTLE.

- Add weatherstripping and caulking. If STRIP is already equal to 1, CHANGE (5) is set to false, otherwise to true. If CHANGE (5) is true, BCHANG resets UCEIL to its original value (stored by the first call to BCHANG), resets glass U values for each wall to their original values (stored by the first call to BCHANG), and recalculates ACRM based on the original storm windows and storm doors, 100% snugness, and 100% weatherstripping.

- Optimum insulation, full storm windows and doors, good weatherstripping or caulking. If any of CHANGE(3), CHANGE(4), or CHANGE(5) are true, CHANGE(6) is also true; otherwise CHANGE(6) is false. If CHANGE(6) is true, BCHANG sets the U value for glass on all walls to the value for double pane, sets UCEIL to the value named in case (3), and recalculates ACRM based on 100% snugness, 100% storm windows and doors, and 100% weatherstripping.

3.4.3.1.3 Compute Module

The compute module uses data contained in the common block BLIST to calculate the annual BTUs needed for heating and cooling the home described. The module logic is described in Appendix R, heating and cooling requirement calculations.

3.4.3.1.4 Results Analysis Module

This module receives six sets of heating and cooling requirements from the compute module (one set for the base configuration of the home; four sets for modified configurations, each involving a particular home-improvement action, and one set for the combined effect of all actions).

Three routines are called to perform the initial analyses of the BTU requirements data:

1. BASCAS which converts the BTU requirements of the house as currently configured to equivalent fuel units according to the respective heating and cooling fuels

indicated. Using local fuel cost data from the Local Data File, dollar values are calculated to reflect the annual cost of fuel(s) to provide the heating and cooling requirements projected by the compute module.

The total cost for the fuel(s) used for heating and cooling as indicated on the questionnaire is adjusted for the base load effect according to the indicated fuel type(s) and the appliances that are in use.

The result of this adjustment is the indicated heating/cooling cost which is then compared to the calculated heating/cooling cost.

If the computed cost is less than or equal to the indicated cost, processing continues using the current figures. However, if the calculated cost exceeds the indicated cost, an adjustment is made to the cost of fuel per unit. This adjusted fuel cost will then be used in subsequent savings calculations for the home. The object here is to insure that the estimated savings never exceeds the homeowner's actual fuel bill.

2. BTUDOL which controls the conversion of the BTU heating and cooling requirements for the five sets of modified configurations into equivalent fuel units and dollar values. This routine (as does BASCAS above) utilizes two functions specifically designed to make the necessary conversions:

   FUNIT - to convert from BTUs to fuel units; and

   DOLVAL - to convert a quantity of fuel to its dollar value.

3. SAVBAK calculates fuel and dollar savings that would result from the taking of each home improvement action. This is done by computing the difference in fuel requirements (and associated cost) between the base configuration and each modified configuration of the home. These savings

estimates are checked against predetermined percentages of the annual fuel bill. In order to prevent excessive savings estimates, any calculated savings amount which exceeds the percentage limit for that action, is cut back to that limit.

After the initial analysis processing is completed, routines are called to calculate cost estimates for materials and contractor installation associated with each home improvement action.

1. COSTAI - for the addition of ceiling insulation for minimum and/or optimum locally recommended levels;

2. COSTWD - for the addition of storm windows and storm doors where currently lacking; and

3. COSTWS - for the addition of weatherstripping and caulking around all door and window openings.

Local costs for materials and contractor work are computed using cost information recorded on the Local Data File and other information about the home derived from the questionnaire.

After cost estimates are calculated, they are compared with the anticipated fuel savings using the function PAY which calculates the payback period, or years to recover the investment.

Additional routines are included to provide so-called "Additional Information" on the Homeowner Report. These routines are:

1. THERMO - which estimates savings percentages for thermostat adjustment in summer and/or winter;

2. HOTWAT - which calculates possible savings that may be realized by the use of a water heater insulation kit; and

3. SOLARS - which estimates savings and costs involved in the addition of a solar collector unit to augment the current space or water heating system.

Subroutine NOBTUS checks the input heating and cooling fuels to see if they are types which HAM can process. If either one is "none or other," NOBTUS sets the elements of COMMON/BTUREQ/ which pertain to the absent system equal to zero. NOBTUS then checks for negative saving (for example, sometimes adding storm windows will increase BTU heat gain during the summer). Values producing negative savings are set equal to the corresponding base case value. The logic of NOBTUS is self evident; no flow chart is given.

The logic of BASCAS is as follows:

Initialization -

- The array elements which will hold the values for fuel units and dollar values of the heating and cooling BTU requirements for the base configuration are initialized to zero.

- The heating requirements, stored as a negative figure (negative heat loss) are multiplied by negative one (-1.0) to ease subsequent calculation procedures.

Cost calculations -

- Costs for fuel units are taken from the Local Data array FLDA and stored in the array CUNITF where:

  CUNITF(1) = FLDA(421) = $/100 cu. ft. of Gas
  CUNITF(2) = FLDA(424) = $/Kwh of electricity
  CUNITF(3) = FLDA(423) = $/Gallon of propane
  CUNITF(4) = FLDA(422) = $/Gallon of fuel oil

- Heating and cooling cost variables, HTCOST and CLCOST, are set according to values contained in the Standard Format Data File

  Heating and cooling fuel type index variables, INDEXH and INDEXC, are set by using the function MODI.

- Heating and cooling BTU requirements for the base configuration are converted to their equivalent fuel units by using the function FUNIT. The parameters passed to FUNIT are:

  (1) the BTU requirements to be converted; and
  (2) an indicator designating heating or cooling.

- Heating and cooling fuel requirements for the base configureation are converted to their equivalent local dollar value by using the function DOLVAL. The parameters passed to DOLVAL are:

  (1) the fuel requirements to be converted; and
  (2) an indicator designating heating or cooling.

- The total cost for heating and cooling, TDBASE, is set as the sum of the dollar value for heating, DBASE(1), and for cooling, DBASE(2), of the base configuration.

Base load calculations -

- Base load factors, BASE, expressed as a percentage of annual fuel cost, are set using values from the Local Data array, FLDA:

  BASE(1) = FLDA(210) = gas, used for heating or cooling;
  BASE(2) = FLDA(211) = electricity, used for heating or cooling;
  BASE(3) = FLDA(213) = propane, used for heating;
  BASE(4) = FLDA(212) = oil, used for heating;
  BASE(5) = FLDA(214) = gas, used for heating and cooling;
  BASE(6) = FLDA(215) = electricity, used for heating and cooling; and
  BASE(7) = FLDA(216) = electricity, when used for a heat pump.

- An index variable, INDEX, is set to the value 1 which indicates processing will be done for the cooling fuel.

- An adjustment variable, IADJ, is set to 0. This variable is added to the fuel index variable when referencing the array BASE. The index value set by the function MODI will correspond to elements 1 through 4 of this array (for fuels used for heating or cooling, but not both). The adjustment variable will be used to reference elements 5 and 6 (for fuels used for heating and cooling), or element 7 (heat pump).

- The variable ITFUEL is given the index value for the cooling fuel type, INDEXC.

- A check is made to determine if the same fuel is used for heating and for cooling. If this is the case, the adjustment variable, IADJ, is set to 4. The index variable is set to 2 indicating that a heating fuel will be processed (skipping cooling fuel processing) and the variable ITFUEL is given the index value for the heating fuel type, INDEXH. If a heat pump is used to provide heating and cooling, the adjustment variable is set at 5 (ITFUEL = 2 for electricity; IADJ = 5; the sum will equal 7 to reference BASE(7)). If the fuel index type is equal to zero, then no processing is performed and control is returned to the calling routine.

- The base load percentage for a particular fuel is set according to the fuel type, ITFUEL, and fuel usage indicated by the adjustment variable, IADJ. Thus

  BASLOD = BASE(ITFUEL + IADJ)

- If the fuel is either gas or electricity, checks are made for the presence of various appliances which use that fuel and an additional percentage factor is added to the variable BASLOD:

  -gas or electric stove = .0003 added to BASLOD;
  -gas or electric clothes dryer = .0004 added to BASLOD;
  -gas or electric water heater = .03 added to BASLOD.

- If the fuel is propane and a propane stove is indicated, then BASLOD is increased by .0003. If the fuel is oil an oil water heater is indicated, then BASLOD is increased by .03.

- When electricity is the fuel being considered checks are made for additional electrical appliances which would affect the base load percentage factor:

  .0001 added to BASLOD for each color television
  .0001 added to BASLOD for each frost free refrigerator
  .0003 added to BASLOD for each frost free freezer
  .0001 added to BASLOD for each automatic dishwasher.

Adjustment of indicated fuel bill -

- If a cooling fuel is being processed the cooling fuel cost, CLCOST, is reduced by the base load percentage, BASLOD. The index variable, INDEX, is then set to 2 indicating a heating fuel is to be processed; and the fuel index variable, ITFUEL, is set to the value of the heating fuel type, INDEXH. Control is then sent to the step described above where the base load percentage for a particular fuel is set.

- If a heating fuel has been processed, the heating fuel cost, HTCOST, is reduced by the base load percentage factor, BASLOD.

- After all adjustments have been made to the indicated fuel cost(s), the total indicated cost, TICOST, is set as the sum of the adjusted heating cost, HTCOST, and the adjusted cooling cost, CLCOST.

- If the total indicated cost, TICOST, is greater than or equal to the computed total cost, TDBASE, control is returned to the calling routine.

Adjustment to fuel unit cost -

- o If the computed cost is greater than the cost indicated on the questionnaire, an adjustment is made to the calculated cost of fuel which will be used in subsequent calculations:

  - for a single fuel household, the heating fuel cost is divided by the total number of fuel units as calculated from the heating and cooling BTU requirements for the base configuration.

  - for a dual fuel household, the heating fuel cost is divided by the number of heating fuel units as calculated from the BTU heating requirments; and the cooling fuel cost is divided by the number of cooling fuel units as calculated from the BTU cooling requirements (NOTE- Because the cost of gas is per 100 cubic feet, the adjusted cost is multiplied by 100 if gas is the fuel being processed.)

- o The fuel costs for the base configuration are then recaluclated using the modified fuel costs.

- o Control then returns to the calling routine.

After the base configuration of the home is processed, the Results Analysis Program calls the subroutine BTUDOL to convert the BTU requirements calculated for five modified configurations to equivalent fuel units and dollar values. The logic of BTUDOL is as follows:

- o The array elements which will hold the values for fuel units and dollar values of the heating and cooling BTU requirements for the modified configurations are initialized to zero.

- Indicator variables are set:
  - IFTYPE, which indicates the fuel used (1 = heating; 2 = cooling) is initialized to the value 2;
  - J, which will be used to alternate the value of IFTYPE from between 1 and 2, is initialized to negative one (-1).

- Two DO loops are established, one nested within the other. The outer loop varies K from 1 to 2. The value 1 will indicate that a conversion from BTUs to fuel units is necessary. The value 2 will indicate that fuel units are to be converted to dollar values. The inner loop varies I from 1 to 10. This variable will reference the array elements of BTU, FARAY, and DARAY which contain five pairs of heating/cooling BTU requirements, fuel units, and dollar values, respectively, for the five sets of modified configurations.

- Within the inner loop, two functions are called:

  -FUNIT - to convert BTUs to fuel units; and
  -DOLVAL - to convert fuel units to a dollar value.

- The value of J (initialized to -1) is multiplied by negative one after each iteration through the inner loop. This value is then added to the variable IFTYPE at the beginning of each iteration to alternate the value between 1 and 2.

- Control returns after exiting the outer loop.

Subroutine SAVBAK is called following the conversion of BTU requirements for the five modified configurations of the home. This routine compares the fuel unit and dollar value figures of the modified home with the home as it is currently configured to arrive at possible fuel and dollar savings that would result from the various home-improvement actions.

- Indicator variables, NFH and NFC, are set to reflect the respective fuel types for heating and cooling.

- A DO loop is established which varies I from 1 to 5. This variable references each set of data for the five modified configurations of the home.

- Savings figures are calculated and placed in the array SUNITS. Three figures are calculated for each of the five modifications:

  -heating fuel units saved,
  -cooling fuel units saved, and
  -dollar savings for both fuels.

  Calculations compare fuel requirements of the modified configuration with the fuel requirements of the base configuration.

- Dollar savings for each modification are compared to a pre-determined percentage of the total fuel bill as indicated on the questionnaire. The percentage limits are as follows:

  -minimum insulation - 40% savings maximum,
  -optimum insulation - 40% savings maximum,
  -storm windows and doors - 25% savings maximum,
  -weatherstripping and caulking - 20% savings maximum,
  -combined effect (with optimum insulation)- 85% savings maximum.

  If the savings as calculated are greater than the above percentage of the total annual fuel cost, the savings estimates are cut back to this maximum amount.

- If the dollar savings must be cut back, an adjustment is then made to the fuel savings estimates. The ratio of cooling units to heating units is maintained as the fuel savings are reduced to reflect the adjusted dollar savings figure.

- After all savings figures have been calculated, and adjusted if necessary, the values are rounded using the function IROUND.

- Control is returned to the calling routine when rounding is complete.

Three subroutines handle the cost and payback calculations for the home improvement actions that are considered:

COSTAI - for the installation of insulation for the minimum locally recommended level and for the optimum locally recommended level;

COSTWD - for the addition of storm windows and storm doors where currently lacking, and

COSTWS - for the installation of weatherstripping and caulking around window and door openings.

Subroutine COSTAI logic is as follows:

- Array elements which will hold the cost estimates and payback period figures are initialized to zero.

- The minimum and optimum locally recommended R-values contained in the local data array are compared for equality (in which case only one insulation estimate is made). An index variable, INDEX, is set to the value 1 for minimum level processing, and to the value 2 for optimum level (or single level) processing.

- The modification array element for minimum or optimum insulation is checked to determine if the action has been processed through the Compute Module. If not, the cost and payback caclulations are skipped.

- An index variable, IRDX, is set to reference the cost information for the R-value which is to be added to meet the minimum or optimum standard.

- The array ADDVAL is then filled with the cost data from the local data array for the R-value to be added. Data is organized in this manner:

  ADDVAL (1) = low materials only cost/sq. foot
  ADDVAL (2) = high materials only cost/ sq. foot
  ADDVAL (3) = low contractor cost/sq foot
  ADDVAL (4) = high contractor cost/sq. foot

- Cost estimates are made for the four types of insulation costs by multiplying the square footage of the attic floor by the cost per square foot. Results are rounded using the function IROUND.

- The payback period or years necessary to recover the investment are calculated for the four cost estimates using the function PAY.

- After the optimum level has been processed control is returned to the calling routine.

Subroutine COSTWD:

- Array elements which will hold the cost estimates and payback period figures are initialized to zero.

- The modification array element for the addition of storm windows and storm doors is checked. If the action was not processed control is returned immediately.

- Storm windows are processed variables which will hold totals for various window types are initialized to zero.

- The number of each type of window per wall is added to the total:

  IWINDO = total number of all windows
  ISTRMW = total number of storm windows
  ILARGE = total number of oversized windows

- The number of windows without storms, ISGLAZ, is calculated. The number of regular size windows, IREGLR, is also calculated.

- If the total number of windows is equal to the total number of storm windows, then control moves on to process storm doors.

- If the number of windows without storms is less than or equal to the number of oversized windows, the program assumes these figures refer to the same windows. Control is then given to the section which processes storm doors.

- If the addition of storm windows is recommended, cost estimates are caluclated for:

  -low materials only cost,
  -high materials only cost,
  -low contractor cost,
  -high contractor cost.

  The calculation assumes that all oversized windows require storm windows. Thus, the total number of oversized windows is multiplied by the cost per large window (over 100 united inches) in the four cost categories. The difference between the number of regular windows and the number of storm windows present is multiplied by the cost per regular window in the four cost categories. These two figures make up the estimated cost for the addition of storm windows.

- Processing continues with the calculation of costs for storm door installation. Variables which will hold totals for the total number of doors, IDOORS, and the total number of storm doors, ISTRMD, are initialized to zero.

- The number of doors (not including glass doors) and storm doors on each wall is added to the above variables.

- If all doors have storm doors, then processing skips door cost calculations and goes directly to the payback calculation.

- The number of doors without storms, ISENZA, is then calculated. This number is multiplied by the cost per storm door in each of the four cost categories, and the result is added to the storm window cost already calculated. Results are rounded using the function IROUND.

- Payback periods in each cost category are calculated through use of the function PAY.

- Control is returned to the calling routine.

Subroutine COSTWS:

- Array elements which will hold cost and payback results and the crack length variable, KRACKL, are initialized to zero.

- The modification array element for weatherstripping is checked to determine if this action is necessary. If not, control is returned immediately.

- A weatherstripping factor, FACTOR, is set to 1.0 if no weatherstripping is indicated; and to 0.5 if "some" is indicated.

- The total number of windows and the total number of oversized windows is calculated by adding the number of these on each wall. From these figures the total number of regular windows is determined.

- The total cracklength for regular windows is calculated by multiplying the number of regular windows by 200 (inches).

- To this figure is added the product of the number of oversized windows multiplied by 400 (inches).

- The total number of doors is determined. This figure is multiplied by 180 (inches) and the result is added to the crack length variable.

- The total cracklength is adjusted by the weatherstripping factor.

- The cracklength is divided by 12 (inches) to convert to linear feet.

- Costs are calculated by multiplying the total linear feet by the cost per foot of weatherstripping/caulking in two cost categories (No contractor costs are given):

  -materials only, low cost
  -materials only, high cost

  Cost estimates are rounded using the function IROUND.

- Payback periods are calculated using the function PAY.

- Control is returned to the calling routine.

Three routines are provided to calculate data necessary for additional suggestions for energy-saving measures that may be taken in the home. These routines are:

THERMO - to determine an appropriate thermostat adjustment for summer and/or winter.

HOTWAT - to calculate the possible dollar savings and payback period involved in the use of a water heater insulation kit.

SOLARS - to determine whether the addition of a solar collector to supplement the water heating system is reasonable economically, and to calculate the collector size, cost, and possible dollar savings that would result.

Subroutine THERMO is designed to analyze thermostat settings for summer and winter. It determines if an adjustment to the day time and/or night time setting is appropriate and estimates a percentage of winter or summer fuel that may be saved through this adjustment. The logic is as follows:

- Fuel type variables are given code values:

  IWINTR = 1,
  ISUMMR = 2.

  These will be used as parameters in the function IRESET.

- Array elements which will hold recommended reset temperatures and percentage savings figures for winter and summer are initialized to zero.

- Settings are processed according to the following tables:

WINTER THERMOSTAT SETTING TABLE

Day Setting	Night Setting	Day Reset	Night Reset
69 or above	69 or above	68	60
	61 - 68	68	55
	60 or less	n/a	n/a
61 - 68	61 or above	n/a	55
	60 or less	n/a	n/a
60 or less	------	n/a	n/a

SUMMER THERMOSTAT SETTING TABLE

Day Setting	Night Setting	Day Reset	Night Reset
78 or above	78 or above	n/a	n/a
	77 or less	n/a	78
77 or less	78 or above	78	n/a
	77 or less	78	78

Subroutine SOLARS calculates cost effectiveness values for the installation of a retrofit solar collector for water heating:

(1) Units of water heating fuel to be saved each year;
(2) Dollars to be saved each year;
(3) Installation cost; and
(4) Recommended area for the collector.

SOLARS first converts the water heating fuel type to a modified index appropriate to addressing all fuel value arrays. If either a solar collector is already present, or the water fuel type is other than gas, oil, or electric, SOLARS sets all output values to zero and returns control to the calling routine. Otherwise, SOLARS uses the default values in the Local Data File to define a solar collector and then calculates the output values by:

(1) Calling SOLDAT and SEU (from the Compute Module) to determine the BTU's delivered by the collector each month;
(2) Calling HWHREQ to determine the BTU's used for heating water each month;
(3) Summing the minimum of (1) or (2) for each month to determine the BTU's saved per year;
(4) Converting the BTU's saved per year to output values, fuel units and dollars saved;
(5) Determining the output value installation cost as a function of the collector area and Local Data values for installation cost and cost per square foot;
(6) Calculating the payback period as installation cost/dollars saved.

If the payback period is greater than 20 years, all output values are set to zero before control is returned to the calling routine.

The logic of subroutine SOLARS is shown in Appendix EE.

Subroutine HOTWAT is designed to calculate the possible annual dollar savings resulting from the use of a water heater insulation kit. The following assumptions are made based on the publication "Insulation Refit Kit for Domestic Water Heaters," ERDA March 1977:

- the average cost of a commercial insulation kit is $20;
- average annual savings of 3600 cubic feet for a gas water heater and 450 kilowatt hours for an electric water heater are possible using the kit on an average sized water heater.

The routine logic is as follows:

- savings and payback variables are initialized;
- if neither a gas water heater nor an electric water heater are indicated, control is immediately returned;
- for each type of water heater, the estimated annual fuel savings amount is multiplied by the unit cost of fuel (the cost of gas is divided by 100 to give the cost per cubic foot);
- the result of this calculation, SHOTWT, is the annual dollar savings estimate;
- this variable is increased by 0.5 and converted to an integer value using the function IFIX;
- the rounded savings estimate, ISHTWT, is passed to the function PAY, along with the COST estimate of $20 to yield the payback period, or years to recover investment, PHOTWT.
- after the payback period is calculated control returns to the calling routine.

The Results Analysis Module makes use of a variety of functions in order to perform the cost/savings estimates. These functions are:

PAY - to calculate the payback period in years to recover an investment for a particular home-improvement action.

IROUND - to round fuel and dollar values.

IRESET - to calculate seasonal fuel savings resulting from thermostat adjustment.

FUNIT - to calculate the quantity of fuel necessary to provide a particular quantity of BTUs.

DOLVAL - to calculate the local cost for a particular quantity of fuel.

MODI - to set an index value used to reference fuel-related array elements according to fuel type.

The function PAY calculates the payback period in years for a particular energy-saving home-improvement in view of the annual dollar savings that will result. Two parameters are passed to the function:

KOST - the estimated cost of the home-improvement
ISVNGS - the anticipated annual dollar value of fuel saved as a result of the home-improvement.

The value of ISVNGS is checked for a positive value greater than zero. If the savings variable is negative or zero, the value of PAY is set to 0.0. If the savings figure is positive and greater than zero, the payback period is calculated by dividing the floating point value of KOST (using the FLOAT function) by the floating point value of ISVNGS. Control returns to the calling routine as soon as PAY is assigned a value.

The function PAY is used by the following routines:

COSTAI - for low and high material costs and low and high contractor costs for minimum and optimum attic insulation.

COSTWD - for low and high material costs, and low and high contractor costs for the installation of storm doors and windows.

COSTWS - for the low and high material costs for the addition of weatherstripping and caulking.

HOTWAT - for the use of a hot water heater insulation kit.

The function IROUND performs various rounding actions for fuel and dollar values:

- o Dollar amounts under $25 are rounded to the nearest whole number;
- o Dollar amounts over $25 are rounded to the nearest multiple of five;
- o Fuel amounts for oil and propane (gallons) are rounded to the nearest multiple of ten;
- o Fuel amount for gas and electricity (cubic feet and kilowatt hours respectively) are rounded to the nearest multiple of 100;

If rounding results in a value of zero, rounding will revert to:

- o the nearest whole number for values rounded to the nearest multiple of five; and
- o the nearest multiple of ten for values rounded to the nearest multiple of 100.

IROUND receives the following parameters:

IFLAG - which indicates a fuel or dollar value:

IFLAG = 0 DOLLAR VALUE
IFLAG = 1-4 FUEL INDEX VALUE

FVAL - the floating point value which is to be rounded.

The logic is as follows:

- o Rounding to the nearest hundred - If a fuel is indicated (IFLAG = 0) and the fuel is electricity (IFLAG = 2) or gas (IFLAG = 1), the variable ITEMP is set to the value of FVAL + 50.0 divided by 100. ITEMP is then multiplied by 100 to give the rounded result. If the result is zero, control passes to the following secton which rounds to the nearest ten.

- Rounding to the nearest ten - If a fuel is indicated (IFLAG = 0) and the fuel is oil (IFLAG = 3) or propane (IFLAG = 4), the variable ITEMP is set to the value of FVAL + 5.0 divided by 10. ITEMP is then multiplied by 10 to give the rounded result. If the result is zero, control passes to the following section which rounds to the nearest five.

- Rounding to the nearest five - If a dollar value is indicated (IFLAG = 0), the variable ITEMP is set to the value of FVAL + 2.5 divided by 5. ITEMP is then multiplied by 5 to give the rounded result. If the result is zero, control passes to the following section which rounds to the nearest whole number.

- Rounding to the nearest whole number - IROUND is set to the value of FVAL + 0.5

Control returns to the calling routine after successful rounding.

IROUND is called by the following routines:

SAVBAK - to round fuel and dollar savings estimates,
COSTAI - to round cost estimates,
COSTWD - to round cost estimates,
COSTWS - to round cost estimates.

The function IRESET is used to calculate the percentage of annual seasonal fuel bill that may be saved through an adjustment to the thermostat. The following parameters are passed to the function:

IA - the current day time setting
IB - the current night time setting
IC - the proposed day time setting
ID - the proposed night time setting
IE - the average outside temperature
ISEASN - a code indicating the seasonal adjustment:
1 = winter (lowered thermostat setting)
2 = summer (raised thermostat setting)

The function performs the following calculations:

- o Winter fuel savings - The difference between the current day and night settings and the proposed day and night settings (weighted 67% day and 33% night) is divided by the difference between the current day and night settings and the average outdoor temperature (weighted in the same manner). The result is multiplied by 100 to give a percent figure.

- o Summer fuel savings - The difference between the proposed day and night settings and the current day and night settings (weighted 67% day and 33% night) is divided by the difference between the average outdoor temperature and the current day setting and between the average outside temperature and the current night setting (weighted 67% and 33% respectively). The result is multiplied by 100 to give a percent figure.

If values of the settings would result in a zero divisor, then IRESET is assigned the value 0. The result of a calculation yields 100% savings or greater, the value of IRESET is cut back to 99%. IRESET is used solely by the routine THERMO.

The function FUNIT is used to calculate the quantity of a particular fuel that is necessary to provide a given quantity of BTUs. The parameters passed to FUNIT are:

BTUS - the number of BTUs from which the number of fuel units is to be calculated; and

IFTYPE - the fuel usage type coded as:
1-for winter (heating) fuel; or
2-for summer (cooling) fuel

The logic of the function is as follows:

- o A check is made for a zero or negative value of BTUS in which case FUNIT is set to zero and control is returned;

- An index variable, INDEX, is set to the value needed to reference the fuel type conversion factor in the array FCONV(4). This is done using the function MODI. The fuel type indicated on the SFD file and the fuel usage code are passed to this function to give the required index value;

- The value of FUNIT is set by dividing the number of BTU's (BTUS) by the appropriate fuel conversion factor (FCONV(INDEX)).

- Control is then returned to the calling routine.

FUNIT is used by these routines:

BASCAS - to convert BTU requirements of the base configuration to equivalent fuel requirements; and

BTUDOL - to convert BTU requirements of the five sets of modifications to equivalent fuel requirements.

The function DOLVAL is used to calculate local cost for a given quantity of fuel. The parameters passed to DOLVAL are:

FUNIT - the annual fuel requirements for heating or cooling a home; and

IFTYPE - the fuel usage type coded as:
1 - for winter (heating) fuel; or
2 - for summer (cooling) fuel.

The logic of the function is as follows:

- A check is made for a zero or negative value of FUNIT in which case FUNIT is set to zero and control is returned;

- An index variable, INDEX, is set to the value needed to reference the local cost array CUNITF(4). This is done using the function MODI. The fuel type indicated on the SFD file and the fuel usage code are passed to this function to give the required index value;

- A check is made to determine if the index value is zero in which case DOLVAL is set to zero and control is returned;

- If the index is not zero the value of DOLVAL is set by multiplying the number of fuel units (FUNIT) by the cost per unit fuel (CUNITF(INDEX)). Note - the cost of natural gas is stored per 100 cubic feet, so the array member is divided by 100 if gas is indicated (INDEX = 1).

- Control is then returned to the calling routine.

DOLVAL is used by these routines:

BASCAS - to convert fuel requirements of the base configuration to the equivalent local cost; and

BTUDOL - to convert fuel requirements of the five sets of modifications to the equivalent local cost.

The function MODI is designed to set an index variable to reference fuel-related array elements. The parameters passed to MODI are:

IVAL - the coded entry on the SFD file representing either a heating or cooling fuel type.

ITYPE - the fuel usage type coded as:

1 = winter (heating) fuel
2 = summer (cooling) fuel

The logic of the function is very straightforward. Two arrays are established - one for heating fuels (IHEAT) and one for cooling fuels (ICOOL). These arrays contain the appropriate index value in the position referenced by the fuel type code. The following table demonstrates the relationship of fuel codes and index values:

HEATING FUEL CODE/TYPE		INDEX
1 = Gas	=	1
2 = Electricity	=	2
3 = Propane	=	3
4 = Fuel Oil	=	4
5 = Heat Pump	=	2
6 = None or Other	=	0

COOLING FUEL CODE/TYPE		INDEX
1 = Gas	=	1
2 = Electric Central	=	2
3 = Heat Pump	=	2
4 = Window/Wall Units	=	2
5 = None	=	0

Thus the index values represent the following

INDEX		
0	=	none or other
1	=	gas
2	=	electricity
3	=	propane
4	=	fuel oil

These index values are used to reference the arrays:

-FCONV(4) - for fuel conversion factors (BTUs to fuel units)
-CUNITF(4)- local fuel costs per unit.

The function MODI is used to set index variables in the following routines:

BASCAS - to reference the fuel cost array, CUNITF;
SAVBAK - to reference the fuel cost array, CUNITF, and to pass a parameter to the function IROUND;
FUNIT - to reference the conversion factor array, FCONV; and
DOLVAL - to reference to fuel cost array, CUNITF.

3.4.3.1.5 Report Generator Module

This final module of the HEA Analysis Subsystem controls the two main outputs of the system:

1. The Homeowner Report; and

2. The History File.

Data gathered from the questionnaire regarding the characteristics of the home and the results of calculations performed by the Results Analysis Module provide the necessary input to produce these two forms of output.

The Homeowner's Report summarizes the results of the Home Energy Audit. It consists of two pages (see Appendix K). The first page contains the name and address of the respondent for mailing purposes. A brief introduction to the report explaining its purpose and use is printed for the homeowner.

Under normal circumstances, the first page will summarize the information which was taken from the questionnaire and used in the analyses. If the questionnaire is received from an area outside the geographic scope of the particular HEA System (i.e., no local data is available for the questionnaire location), a brief explanatory note is printed advising the homeowner to inquire when the HEA will be available for his or her location.

If any default values were assumed at any stage of processing, the substituted values will be noted on the summary page with an asterisk.

The second page of the Homeowner Report presents the results of the cost and savings analysis. For each home improvement action that is considered, a message is presented indicating one of three situations:

1. The home is currently well-equipped and does not require the particular improvement;

2. The improvement would save money, but over 20 years are required to recover the high materials cost, in which case a summary of savings and costs is outlined and a message indicating the low cost/benefit ratio is printed; or

3. The home improvement action is worth considering, in which case a summary of savings and costs is outlined.

Savings figures are provided for heating and/or cooling fuels in units accompanied by a yearly dollar savings estimate. Cost ranges are given for materials only (do-it-yourself) and contractor work with associated ranges of payback periods.

The actions considered are:

- Addition of ceiling insulation for the minimum locally recommended values;

- Addition of ceiling insulation for the optimum locally recommended value;

- The installation of storm doors and storm windows where not currently present; and

- The addition of weatherstripping and caulking around all door and window openings.

Because the combined effects are not cumulative as far as savings are concerned, a final message is printed giving the estimated savings if all the recommended actions are taken together.

The Homeowner Report contains a final section which presents one or more "helpful hints" to the homeowner. These messages, which are printed if applicable to the particular home in question, include:

- Savings estimates for thermostat adjustment in summer and/or winter;
- Savings estimates for the use of a water heater insulation kit;
- A message suggesting the use of plastic storm windows if the cost of installing regular storm windows is too high;
- An estimate of cost and savings involved in the addition of supplemental solar heating;
- A recommendation to clean and service the heating system on a more frequent basis; and
- An optional local message which is taken from the Local Data File.

In addition to the Homeowner Report, for each questionnaire that is processed by the HEA System a History File record is created. The History File is designed to make available a collection of data as gathered by and computed in the HEA system. Each record summarizes the housing characteristics and cost/savings estimates for each home processed. The record layout is presented in the HEA Appendix N. Normally the fields reserved for the respondent's name and address will be left blank in consideration of the privacy of the homeowner. However, the administering agency is given the option of including this information if it is deemed necessary.

After the history file record is written, the Report Generator module relinquishes control to the calling program.

The Report Generator Module consists of one routine only, RPTGEN.

3.4.3.2 Error Handling Provision and Restrictions

The Home Energy Audit Analysis Program is designed to run successfully under all input data conditions, with the following exceptions:

(1) Nonrecoverable read error on an attempt to read the Standard Format Data File. The program prints the message:

```
HEA HAM MAIN 8100 E:  NONRECOVERABLE
READ ERROR ENCOUNTERED ON QRE XX
```

where

XX = the ordinal number of the record being read.

It then prints the Job Summary Report and halts processing.

(2) More than MAXQRE records are included on the Standard Format Data (SFD) File. MAXQRE is set to 1,000,000. If more than MAXQRE records are included on the SFD File, the program prints the message:

```
HAM MAIN 7100 E:  MORE THAN XX QUESTIONNAIRES
  ON SI FILE.
LAST ACCESSION NUMBER PROCESSED WAS YYYYY
PLEASE RESUBMIT REMAINDER OF FILE.
```

It then prints the Job Summary Report and halts processing.

The purpose of this restriction is to enable an upper limit to be set to the size of a single run. MAXQRE may be changed by modifying statement 39 of the BLOCK DATA routine.

(3) A Local Data File record is accessed which is in error. The program prints the message:

```
HOME ENERGY AUDIT PROGRAM TERMINATED IN "LDATA"
  BECAUSE AN INDEX RECORD INDICATED IT CONTAINED
  XX ENTRIES
WHEN IT SHOULD HAVE HAD MORE THAN ZERO OR LESS
  THAN 142 ENTRIES.
```

It then immediately halts processing.

3.4.3.3 Internal Switches and Flags

IGOODZ. When equal to 1, indicates a good ZIP code was found on the Local Data File. When equal to 0, indicates no record for the current input SFD record was found. If IGOODZ = 0, Subroutine RESULT is not called and subroutine RPTGEN prints only explanatory text for out-of-area ZIP Code on the Homeowner Report.

CHANGE (Called MODS in RESULT AND RPTGEN modules). CHANGE is a six element logical array. Each element corresponds to one of the six states of the home to be considered:

1 - base case - home as described in SFD file;
2 - add sufficient attic insulation to reach the minimum suggested on the Local Data File;
3 - add sufficient insulation to reach the optimum given in the Local Data File;
4 - add storm windows and storm doors;
5 - add weatherstripping and caulking; and
6 - combine changes 3, 4, and 5.

CHANGE is set by subroutine BCHANG. CHANGE(1) is always true. CHANGE(2) through CHANGE(6) are true only when the corresponding retrofit options are valid; i.e., when the home is not already equipped with appropriate insulation, storm windows, weatherstripping, or combination of all three.

CHANGE is tested in five routines:

(1) MAIN: If CHANGE(I) is false, the I'th call to CM is bypassed and the BTU's required for the I'th case are set the same as the BTU's for the base case.

(2) COSTAI: If MODS(2) is false, the cost calculations for minimum attic insulation are bypassed. If MODS(3) is false, the cost calculations for optimum attic insulation are bypassed.

(3) COSTWD: If MODS(4) is false, the cost calculations for addition of storm windows and storm doors are bypassed.

(4) COSTWS: If MODS(5) is false, the cost calculations for addition of weatherstripping are bypassed.

(5) RPTGEN: If all of MODS(2) through MODS(6) are false, a message that all energy saving options have already been taken in the home is printed in place of an analysis of costs and savings for all options.

If any of MODS(2) through MODS(5) are false, a message that the corresponding option has already been taken is printed in place of an analysis of costs and savings for that option.

IRR is a 96 element array. Each element corresponds to one element in the Standard Format Data Record (see Appendix S in the HEA Appendices). Subroutine PREP assigns '*' to those elements of IRR corresponding to SFD values which are irrelevant to the configuration of the house; for example, inches of attic insulation (AINAMT) is irrelevant if no attic is present. Other elements of IRR contain blanks.

IRR is available to all routines in the program as an extra check on the status of the SFD variables.

DFLAG (called DEFALT in RPTGEN) is a 96 element array. Each element corresponds to one element in the Standard Format Data Record (see Appendix S in the HEA Appendices). Subroutine PREP assigns '*' to those elements of DFLAG corresponding to SFD values which have been assigned a default value. Other elements of DFLAG contain blanks.

DFLAG is tested by MAIN to determine whether SFD record was processed with at least one default value. The contents of DFLAG are printed in the Homeonwer's Report beside the associated home description item, indicating to the homeowner which values were defaulted.

Further details on the use of these switches may be derived from the flowcharts in Appendix EE.

3.4.3.4 Shared Storage

Reference to common data is the means of communication between all routines with the following exceptions:

BCHANG, which receives as a parameter the retrofit action to be considered (CASE);

JOBLOG, which receives as a parameter the status of the record processed (STAT);

LDATA, which receives as a parameter the ZIP Code for which a record is to be read (IZIP) and returns as a parameter an error indicator (ICODE).

Subroutines subordinate to CM, the Compute Module, which communicate by parameter; and

Functions subordinate to RESULT, the Results Analysis Module, which communicate by parameter.

Shared storage is organized into 17 common blocks:

(1)/SFDATA/ holds the variables for one Standard Format Data Record (Appendix L);

(2)/BLIST/ holds the input and output variables for the Compute Module (Appendix O);

(3)/BTUREQ/ holds the energy requirement for summer and winter for each of the six cases (Table HAM 1);

(4)/FUELUN/ holds the fuel requirements for heating and cooling for each of the six cases (Table HAM 2);

(5)/DOLLAR/ holds the dollar value of fuel requirements for heating and cooling for each of the six cases (Table HAM 3);

(6)/LDC/ holds the current Local Data Record (Appendix M);and switches (Table HAM 4);

(7)/FLAGSW/ holds flags and switches (Table HAM 5);

(8)/MCCOST/ holds low and high cost estimates for do-it-yourself and for contractor installation required for the energy-saving improvements (Table HAM 6);

(9)/PAYBAK/ holds low and high payback estimates for do-it-yourself and for contractor installation required for energy saving home improvement actions (Table HAM 7);

(10)/SAVFIG/ holds fuel and total dollar savings estimates for each modification (Table HAM 8);

(11)/FUELC/ holds calculated total fuel cost and the calculated costs for heating and cooling the home (Table HAM 9);

(12)/VALMSG/ holds constants used in printing the additional energy-saving suggestions on the Homeowner Report (Table HAM 10);

(13)/ADJUST/ holds the adjusted unit fuel costs (Table HAM 11);

(14)/CONVRT/ holds the conversion factors used to calculate fuel units necessary to provide a quantity of energy given in BTU's (Table HAM 12);

(15)/CONSTS/ holds constants used in routines outside of the Compute Module (Table HAM 13);

(16)/HOLDV/ holds variables to be saved when a subroutine relinquishes control (Table HAM 14); and

(17)/JLOG/ holds values needed for printing the Job Summary Report (Table HAM 15).

The variable names for shared storage shown in Tables 1 - 15 are those used in the main routine. Variant names are shown in Table HAM 16.

A number of local arrays are equivalenced to common block elements. Shared storage by means of equivalence statements is defined in four tables:

(1) Input Processing Module	-	Table HAM 17
(2) Compute Module	-	Table HAM 18
(3) Results Analysis Module	-	Table HAM 19
(4) Report Generator Module	-	Table HAM 20

3.4.3.5 Local Variables

Local variables are shown in tables as follows:

Main routine	-	Table HAM 21
Input Processing Module	-	Tables HAM 22 - HAM 25
Results Module	-	Tables HAM 26 - HAM 40

3.4.4 Outputs

The Analysis program produces three outputs:

1. Job Execution Log;

2. Homeowner Reports; and

3. History File.

The Job Execution Log format is shown in Appendix J. It reports:

- The number of Standard Format Data (SFD) records processed requiring no default values;

- The number of SFD records requiring at least one default assignment before processing;

- The number of SFD records not processed because the associated ZIP Code could not be found in the Local Data File;

- The number of SFD records not processed because the home was neither heated nor cooled;

- The total number of SFD records processed;
- The distribution of SFD records processed by ZIP Code; and
- A message signaling normal termination of the job.

A Homeowner Report is shown in Appendix K. This report consists of two pages of plain white, standard, continuous form paper stock. It averages between 80 and 95 print lines per home. The reports are to be mailed directly to the participating households. The report is formatted to position the name and address so as to appear in the window of a standard number 10 window envelope. The handling of the report should be carefully controlled to ensure the privacy of participating homeowners.

The History File record format is shown in Appendix N. This file contains the Standard Input Data, an array of flags indicating defaulted input data, the annual BTU requirement for each configuration of the home, the fuel volume, costs, savings, and retrofit costs estimated under each configuration of the home, the amount of attic insulation to be added, and the savings from insulating the water heater and adding a solar collector.

3.4.5 Interfaces

The HEA Analysis Program interfaces with no other program during its execution. It shares data interfaces with other HEA System programs.

(1) The Standard Format Data File input to the Analysis Program is written by one of the system Preprocessor Programs; and

(2) The Local Data File input to the Analysis Program is written by the HEA Local Data Subsystem.

3.4.6 Run Description

3.4.6.1 Loading

Loading procedures are dependent on the environment in which the system is installed.

3.4.6.2 Operating

Before running the HEA Analysis Program, (a) an HEA Preprocessor Program must be run to write a Standard Format Data File, and (b) an HEA Local Data Subsystem Program must be run to write a Local Data File for the ZIP Codes to be processed. Other than this, no special operating procedures are required.

3.4.6.3 Terminating and Error Handling

The HEA Analysis Program will terminate under four conditions:

(1) End of file is read on the SFD input file (normal termination): HAM prints the Job Summary report and halts processing.

(2) A nonrecoverable read error occurs on an attempt to read the SFD file:

- Prints the message:

  HEA HAM MAIN 8100 E: NONRECOVERAGE READ ERROR
  ENCOUNTERED ON QRE XX

  where

  XX = the ordinal number of the record being read;

- Prints the Job Summary Report, and
- Halts processing.

User reponse is to follow the procedures given in the documentation for his specific computer installation.

(3) More than MAXQRE records are read from the SFD file.

- Prints

  HAM MAIN 7100 E: MORE THAN XX QUESTIONNAIRES
  ON SI FILE.
  LAST ACCESSION NUMBER PROCESSED WAS YY
  PLEASE RESUBMIT REMAINDER OF FILE.

- Prints Job Summary Report
- Halts processing as if end of file had been read.

User response is either:

(a) Change the value of MAXQRE (statement 39 of the BLOCK DATA routine), recompile, and rerun; or

(b) Rerun the Preprocessor Program with the remainder of the File only and run the Analysis Program with the new SFD File created. The Homeowner reports, History File, and Job Summary Report produced by the truncated run of the Analysis Program will be valid for all records processed.

(4) A Local Data File record is accessed which is in error:

- Prints Message

  HOME ENERGY AUDIT PROGRAM TERMINATED IN LDATA BECAUSE
    INDEX RECORD INDICATED IT CONTAINED XX ENTRIES
  WHEN IT SHOULD HAVE HAD MORE THAN ZERO OR LESS THAN
    142 ENTRIES.

- Halts processing immediately. No Job Summary Report is written.

User response is to check the Local Data File according to procedures described in the Local Data Subsystem section of this manual.

Table HAM 1

Common/BTUREQ/:Energy Requirement

Start Loc.	Variable	Type	Function/Remarks
1	BBASE	F(2)	Energy required to heat (1) and cool (2) the base home (Btu's)
3	BATMIN	F(2)	Energy required to heat (1) and cool (2) the house with minimum attic insulation (Btu's)
5	BATOPT	F(2)	Energy required to heat (1) and cool (2) the house with optimum attic insulation (Btu's)
7	BSTORM	F(2)	Energy required to heat (1) and cool (2) the house with storm windows and doors (Btu's)
9	BSTRIP	F(2)	Energy required to heat (1) and cool (2) the house with weatherstripping and caulking (Btu's)
11	BCOMB	F(2)	Energy required to heat (1) and cool (2) the house with all options (Btu's)

Table HAM 2

Common/FUELUN/:Fuel Requirement

Start Loc.	Variable	Type	Function/Remarks
1	FBASE	F(2)	Fuel required to heat (1) and cool (2) the base house (KWH, gallons, or cu. feet)
3	FATMIN	F(2)	Fuel required to heat (1) and cool (2) the house with minimum attic insulation (KWH, gallons, or cu. feet)
5	FATOPT	F(2)	Fuel required to heat (1) and cool (2) the house with optimum attic insulation (KWH, gallons, or cu. feet)
7	FSTORM	F(2)	Fuel required to heat (1) and cool (2) the house with storm windows and doors (KWH, gallons, or cu. feet)
9	FSTRIP	F(2)	Fuel required to heat (1) and cool (2) the house with weatherstripping and caulking (KWH, gallons, or cu. feet)
11	FCOMB	F(2)	Fuel required to heat (1) and cool (2) the house with all options (KWH, gallons or cu. feet)

Table HAM 3

Common/DOLLAR/:Dollar cost of fuel required

Start Loc.	Variable	Type	Function/Remarks
1	DBASE	F(2)	Cost to heat (1) and cool (2) the base house (dollars)
3	DATMIN	F(2)	Cost to heat (1) and cool (2) the house with minimum attic insulation (dollars)
5	DATOPT	F(2)	Cost to heat (1) and cool (2) the house with optimum attic insulation (dollars)
7	DSTORM	F(2)	Cost to heat (1) and cool (2) the house with storm windows and doors (dollars)
9	DSTRIP	F(2)	Cost to heat (1) and cool (2) the house with weatherstripping and caulking (dollars)
11	DCOMB	F(2)	Cost to heat (1) and cool (2) the house with all options (dollars)

Table HAM 4

Common/LDC/:Local Data Record

Start Loc.	Variable	Type	Function/Remarks
1	KLD	I(461)	Contains local data values (see appendix M). Used in conjunction with an equivalenced array RLD (type F(461)). KLD is used to reference integer values of the record; KLD is used to reference real values of the record.
462	ZIPDAT	I(3,700)	For each of 700 (maximum) records on the Local Data File, identifies the low ZIP (1,x), the high ZIP (2,x), and the index number of the record. An index number of 0 indicates no further records are on the file. ZIPDAT is obtained by the first call to LDATA. It is not changed by subsequent calls.

Table HAM 5

Common/FLAGSW/:Flags and Switches

Start Loc.	Variable	Type	Function/Remarks
1	DFLAG	I(96)	Contains '*' to signal a default value in the corresponding variable in common/SFDATA/, beginning with BDATE. See Appendix L for the corresponding numbers.
97	IRR	I(96)	Contains '*' to signal that the corresponding variable in common/SFDATA/, beginning with BDATE, is irrelevant. See Appendix L for the corresponding numbers.
193	IGOODZ	I	Contains 1 if a current ZIP Code is found by the last call to LDATA, otherwise 0.
194	CHANGE	L(6)	True when the corresponding call to BCHANG caused a change to BLIST. CHANGE(1) is always true.

Table HAM 6

Common/MCCOST/:Cost of Retrofit Actions

Start Loc.	Variable	Type	Function/Remarks
1	CATMIN	F(4)	Costs of installing minimum attic insulation (dollars) (1) User-installed, low cost (2) User-installed, high cost (3) Contractor installed, low cost (4) Contractor installed, high cost
5	CATOPT	F(4)	Costs of installing optimum attic insulation (dollars) (1) User-installed, low cost (2) User-installed, high cost (3) Contractor installed, low cost (4) Contractor installed, high cost
9	CSTORM	F(4)	Costs of installing storm windows and doors (dollars) (1) User-installed, low cost (2) User-installed, high cost (3) Contractor installed, low cost (4) Contractor installed, high cost
13	CSTRIP	F(2)	Costs of installing weatherstripping and caulking (dollars) (1) User-installed, low cost (2) User-installed, high cost

Table HAM 7

Common/PAYBAK/:Payback Period

Start Loc.	Variable	Type	Function/Remarks
1	PATMIN	F(4)	Time to pay back costs of installing minimum attic insulation (years) (1) User-installed, low cost (2) User-installed, high cost (3) Contractor installed, low cost (4) Contractor installed, high cost
5	PATOPT	F(4)	Time to pay back costs of installing optimum attic insulation (years) (1) User-installed, low cost (2) User-installed, high cost (3) Contractor installed, low cost (4) Contractor installed, high cost
9	PSTORM	F(4)	Time to pay back costs of installing storm windows and doors (years) (1) User-installed, low cost (2) User-installed, high cost (3) Contractor installed, low cost (4) Contractor installed, high cost
13	PSTRIP	F(2)	Time to pay back costs of installing weatherstripping and caulking (years) (1) User-installed, low cost (2) User-installed, high cost
16	PHOTWT	F	Time to pay back cost of hot water insulation kit (years)

Table HAM 8

Common/SAVFIG/:Annual Savings

Start Loc.	Variable	Type	Function/Remarks
1	SATMIN	F(3)	Annual savings from installing minimum attic insulation (1) winter fuel (KWH, gallons, or cu. feet) (2) summer fuel (KWH, gallons, or cu. feet) (3) total money (dollars)
4	SATOPT	F(3)	Annual savings from installing optimum attic insulation (1) winter fuel (KWH, gallons, or cu. feet) (2) summer fuel (KWH, gallons, or cu. feet) (3) total money (dollars)
7	SSTORM	F(3)	Annual savings from installing storm windows and doors (1) winter fuel (KWH, gallons, or cu. feet) (2) summer fuel (KWH, gallons, or cu. feet) (3) total money (dollars)
10	SSTRIP	F(3)	Annual savings from installing weather-stripping and caulking (1) winter fuel (KWH, gallons, or cu. feet) (2) summer fuel (KWH, gallons, or cu. feet) (3) total money (dollars)
13	SCOMB	F(3)	Annual savings from installing all options (1) winter fuel (KWH, gallons, or cu. feet) (2) summer fuel (KWH, gallons, or cu. feet) (3) total money (dollars)
16	SHOT	F	Annual money savings from installing water heater insulation (dollars)

Table HAM 9

Common/FUELC/:Fuel Costs Based on Annual Bill

Start Loc.	Variable	Type	Function/Remarks
1	TICOST	F	Total amount cost for heating and cooling calculated from input fuel bills and appliances described
2	HTCOST	F	Total cost for heating calculated from input heating fuel bill and appliances described
3	CLCOST	F	Total cost for cooling calculated from input cooling fuel bill and appliances described

Table HAM 10

Common/VALMSG/:Miscellaneous RESULT Module Values

Start Loc.	Variable	Type	Function/Remarks
1	IMINR	I	R-value added to achieve minimum attic insulation
2	IOPTR	I	R-value added to achieve optimum attic insulation
3	SOLARH	F(3)	Solar collector values: (1) Percent of fuel to be saved (2) Cost of installation (dollars) (3) Collector area (sq. feet)
6	IRSETW	I(3)	Winter thermostat resetting: (1) New daytime thermostat setting (degrees) (2) New nighttime thermostat setting (degrees) (3) Percent of fuel to be saved
9	IRSETS	I(3)	Summer thermostat resetting: (1) New daytime thermostat setting (degrees) (2) New nighttime thermostat setting (degrees) (3) Percent of fuel to be saved

Table HAM 11

Common/ADJUST/:Costs per Unit Fuel

Start Loc.	Variable	Type	Function/Remarks
1	CUNITF	F(4)	Costs per unit fuel: (1) Gas (dollars/100 cu. feet) (2) Electricity (dollars/KWH) (3) Propane (dollars/gallon) (4) Oil (dollars/gallon)

Table HAM 12

Common/CONVRT/:Fuel Conversion Factors

Start Loc.	Variable	Type	Function/Remarks
1	FCONV	F(4)	Conversion factors from Btu's to fuel units required: (1) Gas (1031.0/Btu) (2) Electricity (3412.8/Btu) (3) Propane (911400.0/Btu) (4) Oil (138800.0/Btu) Values are assigned to FCONV in statement 41 of the BLOCK DATA routine.

Table HAM 13

Common/CONSTS/:Constants

Start Loc.	Variable	Type	Function/Remarks	Value Set in BLOCK DATA Routine
1	SFD	I	Fortran logical number of Standard Format Data File	10
2	OUTM	I	Fortran logical number of message output file	6
3	OUTREP	I	Fortran logical number of Homeowner Report output file	12
4	INCARD	I	Fortral logical number of card input file. Used only during debugging.	13
5	CDATE	I	Hard coded latest date home could have been built. Used in range checking BDATE. Set in statement 39 of BLOCK DATA routine.	1990
6	MAXQRE	I	Maximum number of records the program will process	1,000,000
7	SN	I	Arbitrary value to signal a missing input	-9999
8	BLANK	I	Contains ' '	' '
9	AST	I	Contains '*'	'*'
10	OUTLOG	I	Fortran logical number of Summary Report output file	15
11	OUTHIS	I	Fortran logical number of History File output file.	14

Table HAM 14

Common/HOLDV/:Holding Area

Start Loc.	Variable	Type	Function/Remarks
1	FPOH	F	Flat projection of the house. Needed by PREP and BCALC (sq. feet).
2	FLR	F	Number of floors in the house. Needed by PREP and BCALC.
3	CUCEIL	F(3)	Ceiling U-values: (1) Base case value (2) Unused. Corresponds to minimum insulation value (3) Ceiling with optimun attic insulation value Needed by several calls to BCHANG.
6	CACRM	F	Base case room air change per hour. Unused at present, but available if code modifications require.
7	CUG	F(4)	Base case U-value for glass on each wall. Needed by case 4 of BCHANG.

Table HAM 15

Common/JLOG/:Summary Report Values

Start Loc.	Variable	Type	Function/Remarks
1	RECS	I(4)	Counts records processed of each status: (1) No defaults (2) At least one default (3) Not processed -- neither heated or cooled (4) Not processed -- ZIP Code out of range
5	ZIPCNT	I(700)	Counts number of records processed within each ZIP Code range
705	RANGES	I	Number of ZIP Code ranges on Local Data File. Calculated from ZIPDAT.
706	LOZIP	I	Holds lowest ZIP Code yet processed
707	HIZIP	I	Holds highest ZIP Code yet processed

Table HAM 16

VARIANT NAMES FOR SHARED STORAGE

Routine	Common Block	Local Name	Main Routine Name
LDATA	/LDC/	LDR	KLD
		INDEX	ZIPDAT
CM	/BLIST/	ACHS	ACRM
		ORT1	WAZ1
		ORT2	WAZ2
		ORT3	WAZ3
		ORT4	WAZ4
		ISOLHW	SOLHW
		ISOLSH	SOLSH
		ISOLSC	SOLSC
		AFCL	CFLR
RESULT module	/SFDATA/	IANUM	ANUM
		IQRE	QRE
		IZIP	ZIP
		ISTAND(96)	All SFDATA elements from BDATE through DWASH
	/CONSTS/	IRPT	OUTREP
		IHIST	OUTHIS
	/FLAGSW/	MODS	CHANGE
	/LDATA/	LDA	KLD
RPTGEN	/SFDATA/	IANUM	ANUM
		IQRE	QRE
		IZIP	ZIP
		ISTAND(96)	All SFDATA elements from BDATE through DWASH
	/LDC/	LDA	KLD
	/FLAGSW/	DEFALT	DFLAG
		MODS	CHANGE
	/CONSTS/	IRPT	OUTREP
		IHIST	OUTHIS

Table HAM 17

EQUIVALENCES IN THE INPUT PROCESSING MODULE

Routine	Local Array	Equiv. Element*	Function
MAIN	SFDAT(114)	QRE	Refers to entire Standard Format Data Record
MAIN PREP BCALC BCHANG	RLD(461)	KLD(1)	Provides access to floating point numbers in Local Data Record
MAIN	B(309)	V	Refers to all Compute Module input elements
MAIN	BTU(2,6)	BBASE(1)	Refers to all elements of common/BTUREQ/
PREP	SILIST(96)	BDATE	Refers to all elements of Standard Format Data Record which may be defaulted
BCALC	BLIST(309)	V	Refers to all Compute Module input elements

* Common element with which array (1) shares storage.

Table HAM 18

EQUIVALENCES IN THE COMPUTE MODULE

Routine	Local Array	Equiv. Element*	Function
CM	B(350)	V	Refers to all input elements
	R(10)	SHBTU	Refers to all output elements

* Common element with which array (1) shares storage.

Table HAM 19

EQUIVALENCES IN THE RESULTS MODULE

Routine	Local Array	Equiv. Element	Function
BASCAS	FLDA	LDA(1)	Provides access to floating point values in local data array.
BASCAS	BCON	BBASE(1)	Allows sequential referencing of paired variables.
SAVBAK	ISUNIT	SUNITS(1)	Provides access to floating point values in savings figure array.
COSTAI	FLDA	LDA(1)	Provides access to floating point values in local data array.
COSTAI	KATTIC	CATTIC(1)	Allows access to integer values after rounding from floating point.
COSTAI	ISATIC	SATTIC(1)	Allows access to integer values after rounding from floating point.
COSTWD	FLDA	LDA(1)	Provides access to floating point values in local data array.
COSTWD	KSTORM	CSTORM(1)	Allows access to integer values after rounding from floating point.
COSTWD	ISSTRM	SSTORM(1)	Allows access to integer values after rounding from floating point.
COSTWS	FLDA	LDA(1)	Provides access to floating point values in local data array.
COSTWS	ISSTRP	SSTRIP(1)	Allows access to integer values after rounding from floating point.
COSFWS	KSTRIP	CSTRIP(1)	Allows access to integer values after rounding from floating point.
THERMO	FLDA	LDA(1)	Provides access to floating point values in local data array.

* Common element with which array (1) shares storage.

Table HAM 20

EQUIVALENCES IN THE REPORT GENERATOR MODULE

Routine	Local Array	Equiv. Element	Function
RPTGEN	KUNITS	CATMIN(1)	Allows access to integer values after rounding to floating point.
	ISUNIT	SATMIN(1)	Allows access to integer values after rounding to floating point.
	FLDA	LDA(1)	Provides access to floating point values in local data array.
	BUNITS	BBASE(1)	Allows sequential referencing of paired variables.
	FUNITS	FBASE(1)	Allows sequential referencing of paired variables.
	DOLARS	DBASE(1)	Allows sequential referencing of paired variables.
	SAVNGS	SATMIN(1)	Allows sequential referencing of paired variables.
	COSTS	CATMIN(1)	Allows sequential referencing of paired variables.

* Common element with which array (1) shares storage.

Table HAM 21

LOCAL VARIABLES FOR ROUTINE MAIN

Variables	Type	Function/Remarks
K	I	DO loop index variable
I	I	Main DO loop index variable
PTYPE	I	Processing status of current record passed to JOBLOG
J	I	DO loop index variable
ERR	I	ICODE value passed from LDATA. Serves as an error flag.
TOTREC	I	Temporary holding variable for total records read
ITEMP	I	Stand-in for constant in subroutine call

Table HAM 22

LOCAL VARIABLES FOR ROUTINE PREP

Variables	Type	Function/Remarks
NLET	I	Local constant = '*'
K	I	Index to implicit DO in write statement and DO loops
BDCODE	I	Code for building date (BDATE) ranges
BX	L	True when basement is present
CX	L	True when crawl space is present
SX	L	True when slab on grade floor is present
GX	L	True when attached garage is present
MIN	I	ACTYP minimum
MAX	I	ACTYP maximum
DEF	I	ACTYP default
ITEMP	I	Temporary integer used as index offset for heating and cooling types
EXT	I	Number of exterior walls
STPCT	F	Percentage of windows which have storm windows on a given wall
STFRC	F	Fraction of windows which have storm windows on a given wall
TDOOR	I	Total doors on a given wall
IWSW	I	= 1 when dependent values for walls 3 and 4 are switched
ITWIND	I	Temporary holding value for WINDO(3)
ITGD	I	Temporary holding value for GDOOR(3)

Table HAM 22 (Cont'd)

LOCAL VARIABLES FOR ROUTINE

Variables	Type	Function/Remarks
ITOD	I	Temporary holding value for ODOOR(3)
ITSHAD	I	Temporary holding value for SHADO(3)
ITSW	I	Temporary holding value for STORMW(3)
ITSTD	I	Temporary holding value for STORMD(3)
ITBW	I	Temporary holding value for BIGW(3)
ITWDRP	I	Temporary holding value for WDRAPE(3)
ITDDRP	I	Temporary holding value for DDRAPE(3)

Table HAM

LOCAL VARIABLES FOR ROUTINE

Variables	Type	Function/Remarks

Table HAM 23

LOCAL VARIABLES FOR ROUTINE BCALC

Variables	Type	Function/Remarks
ITEMP	I	Temporary integer value. Used for sum of windows, sum of doors, and index to fuel values.
SWFRC	F	Fraction of total windows which have storm windows
SDFRC	F	Fraction of total doors which have storm doors
SNGFRC	F	Complement to RATTLE. Measures snugness of house.
STRFRC	F	Fraction of house which is weatherstripped
L	I	Limit value for DO loop
K	I	DO index
AGK	F(4)	Holds AG1, AG2, AG3, and AG4
WNUM	I	Number of regular window equivalents on a given wall
FRCSHD	F	Fraction of glass which is shaded on a given wall
SCK	I(4)	Holds values of SC1, SC2, SC3, and SC4
SGSTRM	I	Number of sliding glass doors with storm doors on a given wall
SGSING	I	Number of sliding glass doors with single glass on a given wall
SGDOUB	I	Number of sliding glass doors with double glass on a given wall
REGW	I	Number of regular windows on a given wall
BSTRMW	I	Number of big windows with storm windows on a given wall
BWSING	I	Number of big windows with single glass on a given wall

Table HAM 23 (Continued)

LOCAL VARIABLES FOR ROUTINE BCALC

Variables	Type	Function/Remarks
RWDOUB	I	Number of regular windows with double glass on a given wall
SAR	F	Area of single glass on a given wall (sq. feet)
DAR	F	Area of double glass on a given wall (sq. feet)
TAR	F	Total glass area on a given wall (sq. feet)
SU	F	U-value for single glass
DU	F	U-value for double glass
UGK	F(4)	Holds UG1, UG2, UG3, and UG4
IN	I	Index to shadow factor
SHADWK	I(4)	Holds SHADW1, SHADW2, SHADW3, and SHADW4
F	F	Temporary holding variable for floating point values
TWAR	F	Total window area (sq. feet)
TDAR	F	Total door area (sq. feet)
ABW	F	Above ground basement wall area (sq. feet)
HEIGHT	F	Height of house walls (feet)
LENGTH	F(4)	Lengths of each wall (feet)
WALLK3	F(4)	Holds WALL13, WALL23, WALL33, and WALL43
WALLK4	F(4)	Holds WALL14, WALL24, WALL34, and WALL44
WALLK5	F(4)	Holds WALL15, WALL25, WALL35, and WALL45
WALLK6	F(4)	Holds WALL16, WALL26, WALL36, and WALL46
LEN	F	Length of house (feet)

Table HAM 23 (Continued)

LOCAL VARIABLES FOR ROUTINE BCALC

Variables	Type	Function/Remarks
ULOOSE	F	U-value for one inch of loose particle insulation
UBATT	F	U-value for one inch of batt insulation
UINCH	F	U-value for one inch of house type insulation
RINCH	F	R-value for one inch of house type insulation
RINS	F	R-value for presently installed insulation
RCEIL	F	R-value for ceiling and insulation
INDEFF	I	Index to efficiency factor
INDMOD	I	Index to modification factor
DORABS	F(3)	Contiguous set of door absorptivity values
STVWAT	F	Annual wattage used for one stove
DRYWAT	F	Annual wattage used for one dryer
HWTWAT	F	Annual wattage used for hot water heating
CTVWAT	F	Annual wattage used for one color TV
REFWAT	F	Annual wattage used for one refrigerator
FFGWAT	F	Annual wattage used for one frost-free refrigerator
FRZWAT	F	Annual wattage used for one freezer
FFZWAT	F	Annual wattage used for one frost-free freezer
DWWAT	F	Annual wattage used for one dishwasher

Table HAM 24

LOCAL VARIABLES FOR ROUTINE BCHANG

Variables	Type	Function/Remarks
CASE	I	Input case to be calculated
RCURR	F	R-value of ceiling for base case
RDELTA	F	Change in R to reach suggested value
SWFRC	F	Fraction of windows with storm windows on a given wall
SDFRC	F	Fraction of doors with storm doors on a given wall
SNGFRC	F	Complement to RATTLE - fraction of snugness
STRFRC	F	Fraction of weatherstripping
ITOT	I	Total number of windows
K	I	DO index

Table HAM 25

LOCAL VARIABLES FOR ROUTINE JOBLOG

Variables	Type	Function/Remarks
STAT	I	Processing status of current record 1 = no defaults 2 = at least 1 default 3 = neither heated nor cooled 4 = ZIP Code out of Local Data File range
I	I	Holding variable for DO index
K	I	DO index

Table HAM 26

LOCAL VARIABLES FOR ROUTINE BASCAS

Variables	Type	Function/Remarks
I	I	DO loop index
INDEXH	I	Standardized index value to heating fuel values
INDEXC	I	Standardized index value to cooling fuel values
TDBASE	F	Total heating/cooling fuel cost
IADJ	I	Adjustment value used in calculating index to fuel consumption base loads array BASE
INDEX	I	Adjusted index to base fuel units
ITFUEL	I	Temporary index, equals either INDEXH or INDEXC
BASLOD	F	Base load for the current fuel
BASE	F(7)	Holds fuel consumption base loads in standardized order

Table HAM 27

LOCAL VARIABLES FOR ROUTINE BTUDOL

Variables	Type	Function/Remarks
I	I	DO loop index to array position.
IFTYPE	I	Indicator for fuel type.
J	I	Increment used to reset IFTYPE.
K	I	DO loop index to fuel or dollar conversion

Table HAM 28

LOCAL VARIABLES FOR ROUTINE SAVBAK

Variables	Type	Function/Remarks
NFH	I	Standardized index to heating fuel values.
NFC	I	Standardized index to cooling fuel values.
I	I	DO loop index.
SLIMIT	F	Maximum dollars cost which may be saved.
RATIO	F	Ratio of cooling to heating fuel volumes.
ALIMIT	F(5)	Maximum proportion of fuel cost which may be saved.

Table HAM 29

LOCAL VARIABLES FOR ROUTINE COSTAI

Variables	Type	Function/Remarks
I	I	DO index
INDEX	I	Index to values for current modification (may be attic insulation minimum or attic insulation optimum)
IRDX	I	Index adjustment to costs of current R value insulation to be added
IADJ	I	Index adjustment to location in common block MCCOST where current values are to be stored.
K	I	Upper limit to payback period storage location
J	I	Lower limit to payback period storage location
ADDVAL	F(4)	Costs of adding one square foot of currently required insulation.

Table HAM 30

LOCAL VARIABLES FOR ROUTINE COSTWD

Variables	Type	Function/Remarks
I	I	DO index
ISENZA	I	Number of doors without storms
IWINDO	I	Total windows
ISTRMW	I	Total storm windows
ILARGE	I	Total large windows
ISGLAZ	I	Number of single glazed windows
IREGLR	I	Number of regular size windows
IDOORS	I	Total doors
ISTRMD	I	Total storm doors

Table HAM 31

LOCAL VARIABLES FOR ROUTINE COSTWS

Variables	Type	Function/Remarks
KRAKL	I	Integer total windows and door perimeter (inches)
FACTOR	F	Portion of windows and door perimeter needing weatherstripping
IWINDO	I	Total windows
ILARGE	I	Total oversize windows
I	I	DO index
IREGLR	I	Total regular size windows
IDOORS	I	Total doors
CRACKL	F	Perimeter requiring weatherstripping (inches, later feet)

Table HAM 32

LOCAL VARIABLES FOR ROUTINE THERMO

Variables	Type	Function/Remarks
IWINTR	I	Flag indicating winter = 1
ISUMMR	I	Flag indicating summer = 2
I	I	DO index
IAVTMP	I	Average outdoor temperature during a given period
IEND	I	Ending month of the heating season
ISTART	I	Starting month of the heating season

Table HAM 33

LOCAL VARIABLES FOR ROUTINE SOLARS

Variables	Type	Function/Remarks
TILT	F	Solar collection tilt from horizontal
ISTYP	I	Solar collector type 1 = low performance 2 = medium performance 3 = high performance
ISUSEW	I	Whether solar collector is used for hot water heating 1 = yes Ø = no
ISUSEH	I	Whether solar collector is used for space heating 1 = yes Ø = no
SY	F	Solar collector y axis efficiency factor
SX	F	Solar collector x axis efficiency factor
K	I	DO index
ASOLR	F	Solar collector area
TOWN	F	Place holding variable
TOUT	F	Output temperature of hot water heater
SAVBTU	F	Number of Btu's saved/year
SOLRU	F	Number of fuel units saved/year
SOLRD	F	Number of dollars saved/year
ITEMP	I	Temporary holding variable for an integer value
PAYBK	F	Payback period (years)
XIDT	F(12)	Total solar radiation on a typical day each month
XIDD	F(12)	Unused place holding array.
QS	F(12)	BTU's generated by solar collector on a typical day each month - later converted to monthly value.
DAYS	F(12)	Number of days/month

Table HAM 34

LOCAL VARIABLES FOR ROUTINE HOTWAT

Variables	Type	Function/Remarks
CFUEL	F	Cost for one unit of fuel.
ISHTWT	I	Integer value of hot water savings passed to function PAY.

Table HAM 35

LOCAL VARIABLES FOR ROUTINE PAY

Variables	Type	Function/Remarks
ISVNGS	I	Anticipated annual dollar savings
KOST	I	Estimate of home-improvement cost

Table HAM 36

LOCAL VARIABLES FOR ROUTINE IROUND

Variables	Type	Function/Remarks
IFLAG	I	Dollar or fuel value flag 1 = dollar 2 = fuel
ITEMP	I	Temporary value in rounding calculation
FVAL	F	Input floating point value (dollars or fuel)

Table HAM 37

LOCAL VARIABLES FOR ROUTINE IRESET

Variables	Type	Function/Remarks
IA	I	Current daytime setting
IB	I	Current nighttime setting
IC	I	Proposed daytime setting
ID	I	Proposed nighttime setting
IE	I	Outside temperature
ISEASN	I	Season: 1 = winter 2 = summer

Table HAM 38

LOCAL VARIABLES FOR ROUTINE FUNIT

Variables	Type	Function/Remarks
BTUS	F	Number of BTU's to be converted
IFTYPE	I	Fuel type: 1 = heating fuel 2 = cooling fuel
INDEX	I	Standardized index to fuel values

Table HAM 39

LOCAL VARIABLES FOR ROUTINE DOLVAL

Variables	Type	Function/Remarks
FUNIT	F	Quantity of fuel for heating and/or cooling
IFTYPE	I	Fuel type: 1 = winter 2 = summer
INDEX	I	Standardized index to fuel values

Table HAM 40

LOCAL VARIABLES FOR ROUTINE MODI

Variables	Type	Function/Remarks
ITYPE	I	Input type
IVAL	I	Input value
IHEAT	I(6)	Equivalent values for input heating value
ICOOL	I(5)	Equivalent values for input cooling value

4. Operating Environment

4.1 Internal Storage and Compilers

Internal storage required by the four programs in the HEA system:

Program	Equipment	
	IBM (bytes)	
Operating System	OS/VS with JES2	
HEA Preprocessor		
Compiler	(Fortran G)	220K
Linkage Editor		220K
PC Preprocessor		
Compiler	(Fortran G)	212K
Linkage Editor		224K
Local Data Subsystem		
Compiler	(Fortran G)	216K
Linkage Editor		220K
Analysis Module		
Compiler	(Fortran G)	228K
Linkage Editor		96K

4.2 External Storage

External storage required by the four programs in the HEA system:

Program	Data Set Name	Data Set Size	Device Type
HEA Preprocessor	Sorted Questionnaire File (input)	3 records per questionnaire	Sequential
	Standard Format Data File (output)	1 record per questionnaire	Sequential
PC Preprocessor	Sorted Questionnaire File (input)	2 records per questionnaire	Sequential
	Standard Format Data File (output)	1 record per questionnaire	Sequential
Local Data Subsystem	Local Data Card File (input)	1 record per modification	Sequential
	Local Data File (modify)	20 tracks	Direct Access
	Work File (temporary)	100 tracks	Sequential
	Work File (temporary)	20 tracks	Direct Access
Analysis Program	Standard Format Data File (input)	1 record per questionnaire	Sequential
	Local Data File (input)	20 tracks	Direct Access
	History File (output)		Sequential

5. Maintenance Procedures

5.1 Programming Conventions

There are no unusual programming conventions used in the Home Energy Audit Analysis System. All programs are written in a modular style. All code conforms as closely as is feasible to ANSI Standard FORTRAN, to facilitate conversion among IBM, CDC, and Univac equipment at a variety of installations. Exceptions are common extensions such as data initializations of arrays.

5.2 Verification Procedures

A Local Data File and two sets of test data are provided, one set for use with the HEA Preprocessor and one for use with the Project Conserve Preprocessor. Each set includes homes with different combinations, boundary data, and invalid data. The Local Data File includes appropriate ZIP Code ranges for both sets of test data.

The test procedure recommended is to execute the HEA Preprocessor with the HEA test data set and the Project Conserve Preprocessor with the Project Conserve test data set, creating two Standard Format Data Files. Then execute the Analysis Program once with each Standard Format Data File, using the test Local Data File. Compare the outputs with those shown in the HEA Test Analysis Report.

Complete instructions for testing and analysis of the test results are shown in the HEA Test Plan and the HEA Test Analysis Report.

5.3 Error Correction Procedures

Error Conditions and procedures for correcting them are discussed earlier in the manual under the separate descriptions of each of the four programs.

5.4 Special Maintenance Procedures

Debugging Traces

Trace statements used during program development have been left in the code, but commented out in the delivered version. They are very briefly described here; their use should be clear from an inspection of the code.

WARNING: Many traces generate voluminous output. In particular, the Compute Module is executed up to six times for each questionnaire processed and generates several pages of traces for each iteration. It is therefore recommended that only a few questionnaires be submitted for any run with full traces.

(1) HEA Preprocessor and Project Conserve Preprocessor: all trace statements are controlled by the logical array TRACE(10). TRACE is initialized as soon as program execution begins by reading a special card (format 7x,2(2x,L1)) from the questionnaire file. Thereafter all trace statements begin "IF (TRACE(X)) WRITE..." TRACE elements 1 through 8 control trace statements in each subroutine; TRACE elements 9 and 10 control lists of input questionnaire data and output SFD data.

(2) Input Processor Module of the Analysis Program: Traces are handled in exactly the same manner as in the Preprocessor. TRACE is dimensioned at nine elements. It is read from FORTRAN logical device number 13, which is otherwise unused. TRACE(6) and TRACE(9) control traces in the Compute Module.

(3) Compute Module of the Analysis Program. Traces are controlled by TRACE(6) and TRACE(9). TRACE(6) controls the setting of ICHECK =1, which in turn controls trace statements in the Compute Module. TRACE (9) controls printing of the input elements in the common block/BLIST/, which are also printed in a different format by TRACE(4).

(4) Results Analysis Module of the Analysis Program: Traces are not controlled, but are marked by "C#####" and "C TRACE" lines so these may easily be found in the source language program.

5.5 Listings and Flowcharts

Listings and flowcharts for each of the four programs are shown in the HEA Appendices:

Program	Appendix
HEA Preprocessor	
Listing	X
Flowcharts	Y
Project Conserve Preprocessor	
Listing	Z
Flowcharts	AA
Local Data Subsystem	
Listing	BB
Flowcharts	CC
Analysis Program	
Listing	DD
Flowcharts	EE