

NBSIR 75-690

A Compilation of Problems Related to the Performance of Mobile Homes

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Office of Housing Technology
Center for Building Technology
Institute for Applied Technology
National Bureau of Standards
Washington, D. C. 20234

April 1975

Interim Report

Prepared for
Office of Policy Development and Research
Department of Housing and Urban Development
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U. S. DEPARTMENT OF COMMERCE,

Secretary

NATIONAL BUREAU OF STANDARDS, Richard W. Roberts, Director

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Abstract

Performance of mobile home housing units is of broad concern to various groups within the United States. This study report, prepared by the National Bureau of Standards (NBS) under the sponsorship of the Department of Housing and Urban Development (HUD), presents data obtained from two separate data sources on problems encountered with mobile homes. The first data base for 2881 units was selected from maintenance records retained by HUD on 12,500 mobile homes used as emergency housing following the Hurricane Agnes disaster at Wilkes-Barre, Pennsylvania. The second source of data from 967 privately-owned units was collected from the files of various Federal, State, and private agencies responsible for regulation or consumer protection functions with regard to mobile homes.

These mobile home performance problem data were processed using computer techniques to facilitate evaluation. Although the nature and frequency of these problems are discussed in this report, no attempt was made to relate these results to current standards, enforcement processes or component durability (mortgage insurance concern). Analyses of this kind are planned for future reports in this series.

Key words: Computer techniques; enforcement process; housing; Hurricane Agnes; mobile homes; mobile home parks; performance data; standards

SI Conversion Units

In view of the present accepted practice in this country for building technology, common U.S. units of measurement have been used throughout this publication. In recognition of the position of the United States as a signatory to the General Conference on Weights and Measures, which gave official status to the metric SI system of units in 1960, appropriate conversion factors have been provided in the table below. The reader interested in making further use of the coherent system of SI units is referred to:

NBS SP330, 1972 Edition, "The International System of Units"

E380-72 ASTM Metric Practice Guide (American National Standard Z210.1)

Table of Conversion Factors to Metric (S.I.) Units

Physical Quantity	To convert from	to	multiply by
Length	inch	meter	$2.54* \times 10^{-2}$
	foot	m	$3.048* \times 10^{-1}$
Area	inch ²	m ²	$6.4516* \times 10^{-4}$
	foot ²	m ²	9.290×10^{-2}
Volume	inch ³	m ³	1.639×10^{-5}
	foot ³	m ³	2.832×10^{-2}
Temperature	Fahrenheit	Celsius	$t_c = (t_F - 32)/1.8$
Temperature difference	Fahrenheit	Kelvin	$K = (\Delta t_F)/1.8$
Pressure	inch Hg (60F)	newton/m ²	3.377×10^3
Mass	lbm	kg	4.536×10^{-1}
Mass/unit area	lbm/ft ²	kg/m ²	4.882
Moisture content rate	lbm/ft ² week	kg/m ² s	8.073×10^{-6}
Density	lbm/ft ³	kg/m ³	1.602×10^1
Thermal conductivity	Btu/hr ft ² (F/inch)	$\frac{W}{mK}$	1.442×10^{-1}
U-value	Btu/hr ft ² F	$\frac{W}{m^2K}$	5.678
Thermal resistance	F/(Btu/hr ft ²)	K/(W/m ²)	1.761×10^{-1}
Heat Flow	Btu/hr ft ²	W/m ²	3.155

*Exact value; others are rounded to fourth place.

1.0 INTRODUCTION

In recent years mobile homes have risen to a position of dominance in the lower-cost housing field in the United States. Although many Americans are presently living in mobile homes and find them adequate, the effectiveness of this type of dwelling unit in providing safe, adequate, and low-cost shelter has recently come under question by consumer groups, governmental agencies, etc. While considerable publicity has been given to the life-safety aspects of mobile homes such as fire and wind hazards, the major dissatisfaction of mobile home owners appears to lie in the area of durability and maintainability. This study was initiated to examine these performance aspects of mobile homes as observed by the users and those governmental agencies responsible for regulatory functions in the field.

The data on mobile home performance problems presented in this report were obtained from two distinct sources. The first and major portion of these data came from files established and maintained by HUD on the units procured to provide emergency housing for the victims of the 1972 Hurricane Agnes disaster. The second data source on privately-owned units was obtained from Federal and State agencies and private organizations. The procedures used for acquisition and analysis of the data are summarized in Sections 2 and 3 of this report and discussed in more detail in Reference [1] 1/.

No attempt is made in this report to analyze the data presented since this will be accomplished in a later report planned for this study project. Characteristics of the mobile home samples obtained from the two sources are covered in Section 4 and the mobile home performance problems reported are presented in Sections 5 and 6 of this report.

2.0 DATA ACQUISITION PROCEDURES

2.1 INTRODUCTION. Mobile home data obtained consisted of available performance data in the form of maintenance records, consumer complaints, enforcement agency inspection reports, etc. Because of the varying nature, location and availability of the data sources, procedures had to be established which would provide a cost-effective and timely means of data retrieval.

In the planning phases of the project, it was anticipated that the major portion of performance data would come from mobile homes used by HUD as emergency housing following the June, 1972 Hurricane Agnes disaster. When it became evident that these units were all manufactured at approximately the same time and were put into use under emergency conditions, it was decided to seek additional data sources in order to obtain a more representative data base. These added sources included other Federal agencies, state regulatory agencies, consumer groups, and private owners of mobile homes.

2.2 HUD MOBILE HOME DATA (Hurricane Agnes Mobile Homes)

2.2.1 HUD Response to Hurricane Agnes Disaster. The Department of Housing and Urban Development purchased approximately 18,000 mobile homes that were used as temporary housing for victims of the Hurricane Agnes disaster. The largest concentration of these mobile homes was in the Wilkes-Barre, Pennsylvania area where they totaled approximately 12,500 units. The urgent need for mobile homes was such that large quantity purchase contracts were negotiated and awarded, a primary requirement in the contract being that the delivery period be held to a minimum. Since the immediate need exhausted the local market of mobile homes, manufacturers and dealers from as far south as Florida and as far west

1/ References are listed at end of report.

as Texas, supplied mobile homes to the disaster relief effort.

The procedure for processing incoming mobile homes in the Wilkes-Barre area was as follows. Three large staging areas were established at convenient locations in the city, namely the Red, White, and Blue staging areas. Each mobile home entering the area was delivered to an assigned staging area. Upon arrival at the staging area each mobile home was visually inspected to determine if it could be assigned for immediate use or if some repairs were needed as a result of manufacturing omissions or possible transport damage. Repair crews were available to make the mobile homes "field ready", after which the homes were delivered to either private sites or to the various government-established mobile home parks that were being constructed in the area. Field crews were then given the task of blocking, leveling, skirting the units, hooking-up all utilities, and installing preconstructed wooden stairs at the entrance doors of the mobile homes. The short delivery time requirements, in many instances, precluded specifying that these mobile homes meet existing mobile home standards.

As soon as the mobile homes were available for occupancy, families were assigned and moved into them. The occupants used these units until their predisaster dwellings were rehabilitated or until other permanent housing became available. Any maintenance or repairs to the mobile homes needed during occupancy was accomplished by HUD repair crews or designated contractors. The occupant simply had to call in to the HUD Maintenance Office, giving his or her name and address, the HUD number assigned to his mobile home and request the needed repairs. A record of the call was made by filling out a repair work order. These repair work orders were then assigned to maintenance crews for disposition. Upon receipt of the order, the maintenance crew would proceed to the mobile home and make the necessary repairs, noting the extent of the repair, the time required, and materials used for each ordered repair. A copy of the repair order was then returned to the maintenance office and placed in a file folder that had been established for each mobile home under its HUD identification number. Using this procedure, a complete record was established for all repairs made to each mobile home while occupied or available for occupancy.

As permanent housing became available to the initial occupants, the units were either re-assigned to new tenants or kept available on a standby basis. As the need for temporary housing declined each empty unit was evaluated by HUD inspectors to a set of criteria established by HUD so that a decision regarding disposition of the unit could be made. The disposition options were as follows: refurbish the unit and store it for future disaster use; declare it surplus, making it available for transfer to other Federal Government agencies that expressed a need; or declare the unit unusable and allow it to be salvaged for repair of other units. A small number of units were sold to occupants who indicated a desire to purchase the units. A storage area was established to accept the vacated mobile homes as each of the parks was deactivated and until final disposition of the units could be completed.

2.2.2 Data Acquisition Procedures. Maintenance and refurbishment (criteria inspection) data, were brought to NBS on loan from HUD. Only data for approximately 10,000 of the 12,500 total units were included, as HUD required that files for all still occupied mobile homes remain in Wilkes-Barre.

The other source of data was HUD Finance Department records at Wilkes-Barre. It was necessary to have access to these files since they contained valuable mobile home identification information such as manufacturer, serial number, state and year of manufacture, purchase cost, number of occupants and length of occupancy.

2.2.3 Sample Selection Criteria. As noted previously, the files obtained from Wilkes-Barre included a HUD numbering system which uniquely identified each mobile home. The identification system was based on an eight digit number; the first four digits being the HUD contract number and the last four digits being the number of the mobile home purchased under that contract. For example, the mobile home with the HUD number 3092-0100 represents the 100th unit purchased under HUD contract 3092. The files were ordered consecutively, by HUD contract number and by unit number, within each contract. The number of mobile homes within a contract varied from one to several hundred.

Since it was not possible to evaluate data for the entire 10,000 units, an unbiased method of selecting a representative sample was devised by the Statistical Engineering Section of the NBS Institute of Basic Standards. This method consisted of randomly selecting 500 units at a time without replacement. Using this procedure, 3000 units were selected for detailed evaluation from the numerically-ordered files. The sample was deemed to be both manageable and representative of the 10,000 units there. The maintenance work orders for these 3000 units were ordered chronologically to facilitate computer coding of the performance problems. Refurbishment data were found for only 1560 of these 3000 units because a large amount of this data had been shipped from Wilkes-Barre with the mobile homes to other storage locations through the country.

The vast majority of the mobile home problems were extracted from the maintenance data. Only about 10% of the problems were obtained from the refurbishment data. Because of errors inherent in the manual processing of the Wilkes-Barre files, file folders for approximately 4% of the 3000 units in the sample were unavailable. This resulted in a final total of 2881 units for the HUD mobile home sample.

2.3 PRIVATELY OWNED MOBILE HOME DATA

2.3.1 Introduction. Acquisition of performance data on mobile homes from sources other than HUD was made a basic requirement of the project, as it was felt that these data were needed to augment the mobile home performance data obtained from Wilkes-Barre. Availability of the two data bases should enhance the general applicability of the overall study results and tend to minimize any variations caused by the differences between Federal Government and private procurement.

2.3.2 Data Source Selection Criteria. It was decided early in the planning phase of the study to concentrate on those states with large numbers of mobile homes such as California, Texas, and Florida. Using this approach it was possible to gain access to the maximum quantity of mobile home performance data for a minimum expenditure of time and expense for travel of project personnel. It is recognized that this data acquisition method does not render results that are statistically applicable to the total mobile home population of the United States. On the other hand, the results are generally representative of the performance problems encountered by mobile home users. The performance problems identified in the privately-owned mobile homes can be useful in defining the major problems and their relation to the ANSI A119.1 Mobile Home Standard [2] as well as to the enforcement processes.

Initial emphasis concentrated on the state agencies responsible for mobile home regulation and/or administration. Information from reference [3], a study of state regulatory programs for mobile homes and manufactured buildings, was found to be extremely useful as a guide to the names and addresses of responsible personnel of state agencies regulating mobile homes. The function of these agencies varied widely from state-to-state and included organizations attached to building code, consumer affairs, community development, labor or motor vehicle offices. Other sources with potential data banks on mobile home performance were contracted in addition to the state organizations. These contacts included Federal Agencies such as the Veterans Administration, mobile home owners organizations, privately owned mobile home parks with rental units, and various consumer groups. There was no attempt to interview private mobile home owners on an individual bases.

2.3.3 Data Acquisition Procedures. The initial contact with a potential source of mobile home performance data generally was made by a telephone call to the organization. The purpose of the study project was discussed and the organization's cooperation in making data available to NBS was requested. Assuming the reaction of the source was positive, a request was made to forward to NBS a sample copy of two or three documented cases of mobile home performance problems, along with an estimate of the total number of such cases available. As a follow-up action to the telephone call, a letter was transmitted to the individual contacted recapping the telephone conversation and again requesting the sample cases and other information. As a result of this procedure, responses with sample cases were received from 14 separate sources.

After initial discussions with a number of potential sources, it became clear that most agencies did not have sufficient staff or other resources to extract from their mobile home files the data needed by NBS. As a result it was decided to send project field teams to those sources which appeared to have maximum quantities of mobile home performance problems on file. Visit arrangements were coordinated with the selected source and usually a two man team was sent to retrieve the data. Normal procedure on arrival at the source's office was to review the total mobile home file available. Where the file was too voluminous to copy in its entirety a representative sample was selected. For each case selected, a copy was made of the owner's initial complaint letter and when available, the agency follow-up inspection report. In addition, mobile home identification data were recorded for each case. Using this procedure, performance data on a total of 967 privately-owned mobile home units were obtained.

3.0 DATA ANALYSIS METHODOLOGY

3.1 PROBLEM SUMMATION PRINTOUTS. The Problem Summation Printouts presented in Appendices A and B show sums of problems and percentages relative to the levels indicated in the Performance Problem List [1]. Figure 1 illustrates problem levels 1, 2 and 3 and Figure 2 isolates ANSI A119.1 (Construction) to illustrate levels 2 through 7. This problem level concept was employed to organize and assist in the evaluation of data and does not imply relative importance of a problem. As discussed in Section 3.2, problem data in the appendices are presented in decreasing order of frequency-of-occurrence.

3.1.1 Organization of the Problem Summation Printouts. These Problem Summation Printouts are organized around the following major subsections. Furniture problems are grouped under a general category.

- A. Problems Related to ANSI A119.1 Standard for Mobile Homes/Enforcement Process
- B. Routine Maintenance Problems
- C. Appliance and Equipment Problems

This allows documentation of all mobile home performance problems encountered.

The ANSI A119.1 Standard/Enforcement Processes Subsection represents virtually the entire 1974 edition of the Standard [2], with coding symbols being assigned for appropriate paragraphs. In the case of the Plumbing (Part C), Heating (Part D), and Electrical (Part E). Sections of the Standard, the paragraph numbers and key words appear just as they do in the Standard. Construction (Part B) differs in that it is organized around major construction components, such as roof, walls, doors, etc. Therefore, some standard paragraph numbers which pertain to several components are repeated. It should be noted that the problems reported under the ANSI A119.1 Standard/Enforcement Process Subsection are related to inadequacies or omissions in the Standard itself, or from a deficiency in the Standard's enforcement processes. No attempt is made in this report to segregate the problems into these two areas. Such an evaluation will be made in a later report of this series, where the significant problems will be examined in greater detail by considering all data accumulated in the project.

The Routine Maintenance Subsection is organized under the same general headings as the ANSI A119.1/Enforcement Process Subsection; i.e., construction, plumbing, heating and electrical. The Appliance and Equipment Subsection is grouped by appliance; i.e., furnace, range, hot water heater, refrigerator, exhaust fan and smoke detector. Since components of each appliance are listed, it was possible to pinpoint the component problem where the detail of the data permitted. Routine Maintenance Subsection and Appliance and Equipment Subsection problems can be either adjustment, repair or replacement of the item under consideration.

3.1.2 Rank Ordered Problem Summation Printout. In Appendices A and B the sequential ordering of the lines has been arranged such that the problems appear in descending numerical order of their frequency-of-occurrence within each level. Coding symbols having no recorded problems; i.e., entries of 0, have been grouped after the entry with the fewest associated problems. The order in which these zero-valued items appear is of no significance.

3.2 USE OF PROBLEM SUMMATION PRINTOUTS - The Problem Summation Printouts in Appendices A and B each are separated into the following three groupings organized by level of problem detail as shown on the indicated figures.

Figure 3 - 1st through 3rd level

Figure 4 - 2nd through 4th level

Figure 5 - 2nd through 7th level

Each grouping deals with the same number of problems, but shows progressively more detail in going from the first through the third grouping.

Columns labeled (A), (B), (C), (D), (Homes), (%Homes), and (Level) defined below are the same for Figures 3, 4, and 5.

Column (A) - The coding symbol assigned to identify a particular problem as recorded on the Performance Problem List.

Column (B) - A brief description of the problem or area of concern including the appropriate part or paragraph number in the ANSI A119.1 - 1974 Standard.

Column (C) - The number of problems that have been coded with the coding symbol identified on that line in Column A. Reported information on the problem has not allowed coding below the level of detail of the particular line. For example, in Figure 3, consider problem code NPLM (Plumbing - Routine Maintenance); 34 of the 223 problems were recorded under the general plumbing category, while problem description allowed the remaining 189 problems to be recorded with greater detail (See Page 77).

Column (D) - The summation of all problems at a discrete level. For example, Figure 3 shows the total number of problems associated with Routine Maintenance is 1490 which is made up of the following:

Construction	1127
Plumbing	223
Electrical	131
Heating	7
Undefined R.M.	2
<hr/>	
Total	1490

The number of problems at a given level is the summation of problems at the next lower level. As an example, the number of level 1 problems (6206) consists of the following level 2 problems: 4071 ANSI A119.1/Enforcement Process problems, 1490 Routine Maintenance problems, 367 Mechanical/Electrical Appliance problems, and 278 Furniture problems.

Column (Homes) - This column indicates the number of mobile homes in the sample that had one or more of the problems identified on each line (708 mobile homes for Construction-ANSI A119.1/Enforcement Processes in Figure 3).

Column (% Homes) - The entries in this column indicate the percentage of the total number of mobile homes reviewed in the sample which had the problem identified on each line. For example, under Part B-Construction (ANSI A119.1/Enforcement Process) in Figure 3:

$$\frac{708 \text{ homes with problems}}{967 \text{ homes in sample}} \times 100 = 73.2\%$$

Column (Level) - These entries define the level of detail of the problem for each line.

Columns labeled (% 2nd) and (% 1st) in Figure 3 are defined below:

In Figure 3 consider the example of "Construction (CONS) - ANSI Standard A119.1/Enforcement Process."

Column (% 2nd) - The entries in this column are the percentages of 2nd level problems that are contained at the third level of detail.

$$\frac{\text{Level 3 problems}}{\text{Level 2 problems}} = \frac{1805}{4071} \times 100 = 44.3\%$$

Column (% 1st) - The entries in this column are the percentages of 1st level problems that are contained at each lower level of detail.

$$\frac{\text{Level 3 problems}}{\text{Level 1 problems}} = \frac{1805}{6206} \times 100 = 29.1\%$$

Columns labeled (% 3rd), (% 2nd), and (% 1st) in Figure 4 are defined below:

In Figure 4 consider the example of "Exterior Walls (EXTW) - Construction - ANSI Standard A119.1/Enforcement Process."

Column (% 3rd) - The entries in this column are the percentages of 3rd level problems which are contained at each level of detail.

$$\frac{\text{Level 4 problems}}{\text{Level 3 problems}} = \frac{235}{1805} \times 100 = 13.0\%$$

Column (% 2nd) - Percentages relate 3rd and 4th levels to the 2nd level of detail.

$$\frac{\text{Level 4 problems}}{\text{Level 2 problems}} = \frac{235}{4071} \times 100 = 5.8\%$$

Column (% 1st) - Percentages relate 2nd, 3rd, and 4th levels to the 1st level.

$$\frac{\text{Level 4 problems}}{\text{Level 1 problems}} = \frac{235}{6206} \times 100 = 3.8\% \quad (\text{See Figure 3 for Level 1})$$

Columns labeled (% 7th), (% 6th), (% 5th), (% 4th), and (% 3rd) on Figure 5 are defined below:

Consider the example of "Rain Leak at Vent Pipe (Heating) - (RLMP3.) - Roof System - Construction, ANSI Standard A119.1/Enforcement Process."

Column (% 7th) - Entries in this column are percentages denoting the portions of 7th level problems for each 8th level problem. This column is blank in Figure 5 since there are no 8th level problems for this example.

Columns (% 6th), (% 5th), (% 4th), (% 3rd) - Entries in these columns relate the number of problems at a given level to preceding levels (6, 5, 4, and 3).

$$\frac{\text{Level 7 problems}}{\text{Level 6 problems}} = \frac{23}{56} \times 100 = 41.1\% \quad (\text{Column \% 6th})$$

$$\frac{\text{Level 7 problems}}{\text{Level 5 problems}} = \frac{23}{304} \times 100 = 7.6\% \quad (\text{Column \% 5th})$$

$$\frac{\text{Level 7 problems}}{\text{Level 4 problems}} = \frac{23}{511} \times 100 = 4.5\% \text{ (Column \% 4th)}$$

$$\frac{\text{Level 7 problems}}{\text{Level 3 problems}} = \frac{23}{1805} \times 100 = 1.3\% \text{ (Column \% 3rd)}$$

4.0 MOBILE HOME SAMPLE CHARACTERISTICS

4.1 HUD (WILKES-BARRE) MOBILE HOME SAMPLE. Using the procedures discussed in Section 2.2 of this report, mobile home performance problem data were acquired on 2881 units. Significant characteristics of the mobile homes which made up this sample data base are discussed in the following paragraphs.

4.1.1 State-of-Manufacture. "State-of-Manufacture" was identified for 1592 units about 55% of the total mobile homes in the sample with the distribution by State shown in Table 1. State-of-manufacture information was not available for 1289 units which are listed as unknown in Table 1.

Mobile homes for which "State-of-Manufacture" was identified were constructed in 26 different States. The five States providing the largest number of units were Alabama, Georgia, Indiana, North Carolina, and Pennsylvania accounting for 1036 units or about 36% of the total sample.

4.1.2 Seals of Certifying Agencies. Certification seals are attached to mobile homes by regulatory officials of various organizations or agencies to indicate compliance with a State or National code or standard. In this report, such a seal has been assumed to indicate that the mobile home was constructed according to ANSI A119.1 or variations thereof. Table 2 identifies the types of seals attached to the homes and the number of seals of each type. There were 125 seals of State agencies, 56 of Third-Party organizations, 992 mobile home trade association (MHMA/TCA) seals and 14 miscellaneous (manufacturer) seals. There were 443 mobile homes purchased to a HUD specification requiring compliance with ANSI A119.1; however, there were no information to indicate that seals were affixed to these units or if they indeed complied with ANSI A119.1. Also, physical inspection showed 484 mobile homes did not have seals affixed. There was no seal information available on 789 mobile homes and they may, or may not, have been constructed according to ANSI A119.1. The 2903 mobile homes with seal data exceeded the 2881 units in the sample since some units have more than one seal.

4.1.3 Mobile Home Manufacturers - Figure 6 is a plot of the number of the manufacturers versus mobile home units per manufacturer. Of the 2881 mobile homes in the sample, the manufacturer was known for 1945 units (68%). These 1945 units were built by 143 manufacturers with 104 of these providing 10 mobile homes or less. There were only 39 manufacturers providing 11 or more units accounting for 1594 mobile homes.

4.1.4 Year of Manufacture. Figure 7 presents the distribution within the sample of the number of units as a function of the year of manufacture. Verified year of manufacture data were obtained for 1361 of the 2881 units in the sample with 1304 units being manufactured in 1972. With the knowledge of the procurement procedures used by HUD for these units, it can be assumed that the vast majority of the unknown units also were manufactured in 1971 or 1972.

4.1.5 Mobile Home Width - All 2881 mobile homes in the HUD sample were 12 feet wide.

4.2 PRIVATELY-OWNED MOBILE HOME SAMPLE. Using the procedures discussed in Section 2.3 of this report, mobile home performance problem data were obtained on a total of 967 separate units. The pertinent characteristics of the mobile homes which made up this sample are discussed in the paragraphs that follow.

4.2.1 State-of-Manufacture. Table 3 lists the number of the units in the sample by "State-of-Manufacture" or as of unknown origin. Mobile home units contained in this sample for which the "State-of-Manufacture" could be identified numbered 729 or about 75% of the total sample. The "State-of-Manufacture" could not be ascertained for the remaining 238 units and are classified as unknown.

The mobile home units with identified "State-of-Manufacture" were constructed in a total of 29 different States. Six of the larger States (California, Texas, Florida, Georgia, Oregon, and Washington) accounted for about 62% of the sample or 595 units.

4.2.2 Seals of Certifying Agencies. A listing of units with attached State and other agency seals is presented in Table 4. State regulatory agency seal data were obtained for 710 units in the sample. These units with identified seals represented eleven (11) States and amounted to about 73% of the total units in the sample. State seal data were not available for the remaining 256 units. It should be noted that four State (Alabama, California, Texas, and Florida), accounted for 584 units with State seals or slightly over 60% of the total units in the sample.

4.2.3 Mobile Home Manufacturers. Figure 8 presents the distribution of the number of mobile home manufacturers as a function of mobile home units per manufacturer in the sample. Mobile home units in the sample were built by 178 different manufacturers. It was not possible to identify manufacturers for six units in the 967 unit sample. It is apparent from this chart that the bulk of the mobile home manufacturers (88%) produced 10 units or less, yet accounted for only 39% of the total homes in the sample.

4.2.4 Year of Manufacture. Figure 9 shows the distribution within the sample of the number of units as a function of year of manufacture. Approximately 90% of the mobile homes in the sample were manufactured in the years 1971, 1972 and 1973; and 5.9% in the years 1968, 1969, 1970 and 1974. The year of manufacture was not available for 5.6% of the total.

4.2.5 Mobile Home Width. Figure 10 presents the distribution of mobile homes in the sample as a function of width. About 38% of the units in the sample were 12 foot wides, and 29% were doublewides, 8.7% were 14 foot wides, and 24% were of unknown width.

5.0 HUD WILKES-BARRE MOBILE HOME SAMPLE PROBLEM DATA

5.1 INTRODUCTION. Review of the performance problem data for the HUD Wilkes-Barre mobile home sample resulted in the evaluation and cataloging of 22,248 reported problems for the 2881 mobile homes in the sample. Use of the computer techniques discussed in Section 3.0 of this report and in Reference [1] rendered the complete data summaries contained in Appendix A.

A breakdown of reported mobile home problems by major problem category is summarized in Table 5. This table presents the number and percent of problems, number and percent of mobile homes having the problem and the average number of problems per unit in the sample. The largest group of problems were related to Routine Maintenance (10,178 or 45.7% of all problems), second largest group was ANSI Standard A119.1/Enforcement Process (6537 or 29.4%), and third was Mechanical/Electrical Appliances and Equipment (4767 or 21.4%). Furniture problems were grouped separately and accounted for 766 problems or 3.4% of the total. The remainder of this Section will highlight in each major problem category those areas which exhibit the highest frequency of occurrence. If greater detail is required in any particular problem area the reader is referred to Appendix A.

5.2 ROUTINE MAINTENANCE PROBLEMS - A summary of Routine Maintenance problems (10,178) is presented in Table 6 which shows the major problem categories to be ranked as follows; Construction (5175 or 50.8% of all Routine Maintenance Problems), Plumbing (2940 or 28.9%), Electrical (1382 or 13.6%), and Heating (681 or 6.7%). It should be noted that not all of the Routine Maintenance problems are of direct concern to the manufacturer since some are site-related (such as improper blocking and utility hook-ups, etc.) and not under his control. Problems within each category are discussed below:

5.2.1 CONSTRUCTION - The percentage next to each component compares the problem to all Routine Maintenance construction problems (5175).

5.2.1.1 Exterior Doors - Exterior door problems occurred most frequently (2167 or 41.9%) with the majority related to door hardware (1083) and improper fit (385).

5.2.1.2 Windows - A total of 1029 (19.9%) window problems were reported associated with reglazing (345), hardware (242), storm windows (134), and improper fit (119).

5.2.1.3 Exterior Stairs - Wooden exterior stair problems (489 and 9.4%) involved broken treads or handrails and leveling and alignment problems.

5.2.1.4 Partition Doors - Problems related to interior partition doors numbered 471 (9.1%) with the major areas being improper fit (146) and hardware (108).

5.2.1.5 Skirting - There were 370 problems (7.1%) related to skirting involving mainly the replacement and repair of skirting damaged during occupancy.

5.2.1.6 Blocking - Improper blocking of the unit was observed in 289 instances (5.6%) with racking of doors occurring 38 times.

5.2.1.7 Others - Detail of other construction problems in the Routine Maintenance area are tabulated in Appendix A.

5.2.2 PLUMBING - Plumbing problems totaled 2940 and accounted for 28.9% of all reported Routine Maintenance problems. For each of the following plumbing components, the percentage relates the problem to all Routine Maintenance plumbing problems.

5.2.2.1 Water Supply Piping - Water supply piping problems totaled 1192 (40.5%) including 766 exterior piping problems, of which 304 were frozen pipes.

5.2.2.2 Fixtures - Fixtures contributed 959 reported problems (32.6%). There were 388 kitchen sink problems with a majority of these of an undefined nature; however, 113 faucet assembly problems were reported. The 253 toilet problems consisted mainly of clogged drains (114) and flush tank malfunctions (90). There were 187 lavatory problems which were mainly undefined except for 57 faucet assembly problems. The majority of faucet problems for both kitchen sinks and lavatories pertained to the replacement of washers.

5.2.2.3 Sewer - Sewer problems totaled 411 (14%) and consisted mainly of clogged or frozen sewer lines.

5.2.3 ELECTRICAL - Electrical problems totaled 1382 and accounted for 13.6% of all Routine Maintenance problems. For each of the following electrical components, the given percentages relate the problem to all Routine Maintenance electrical problems.

5.2.3.1 Distribution Panel Board - There were 584 problems (42.3%) associated with distribution panel boxes related mainly to the replacement of fuses, fustats and circuit breakers.

5.2.3.2 Receptacle Outlets - There were 289 (20.9%) receptacle outlet problems (interior and exterior) consisting primarily of heat tape (218) and interior receptacle (47) malfunctions.

5.2.3.3 Power Pole/Lifeline - The 157 problems (11.4%) in this category were concerned with the attachment or reattachment of the lifeline to the powerpole, all of which are exterior to the mobile home.

5.2.3.4 Switches and Interior Lighting Fixtures - There were 89 switch problems and 47 interior light fixture problems.

5.2.4 HEATING - Heating problems totaled 681 and accounted for 6.7% of all reported Routine Maintenance problems. For each of the following heating components, the given percentage relates the problem to all Routine Maintenance heating problems.

5.2.4.1 Gas Supply Piping - There were 440 gas supply piping problems representing 64.6% of all Routine Maintenance heating problems.

5.2.4.2 Installed Space Heaters - The installation of 107 space heaters (15.7%) was an indication of an inadequacy or failure of the factory equipped heating system and/or construction details related to thermal performances (insulation, caulking, etc.).

5.2.4.3 Oil Supply Piping - The 89 oil supply piping problems accounted for 13.1% of all Routine Maintenance heating problems.

5.3 ANSI A119.1/ENFORCEMENT PROCESS RELATED PROBLEMS - A summary of problems related to ANSI A119.1/Enforcement Process (6537) is presented in Table 7. The problem distribution is as follows: Construction (3303 or 50.5% of ANSI A119.1/Enforcement Process problems), Plumbing (2525 or 38.6%), Electrical (490 or 7.5%), and Heating (219 or 3.4%).

5.3.1 CONSTRUCTION - For each of the following construction problems, the given percentage relates the problem to all ANSI A119.1/Enforcement Process construction problems (3303).

5.3.1.1 Exterior Walls - Of the exterior wall problems (1107 or 33.5%), the majority (715) were associated with rain leaks through the exterior covering and around doors and windows. There were 216 problems involving the fastening of the exterior covering to the wall framing and 160 problems related to excessive heat loss through exterior walls.

5.3.1.2 Roof System - There were 771 (23.3%) roof system problems reported with rain leaks being the major problem area with 746 reported problems.

5.3.1.3 Partition Walls - A total of 563 (17%) interior partition wall problems were reported predominately related to fastening of interior paneling to wall framing. These accounted for 550 of all interior partition wall problems.

5.3.1.4 Transit Considerations - There were 318 (9.6%) problems grouped under Transit Considerations. The major portion of these was related to the metal longitudinal members and outriggers (127), the A-frame (53), and the running gear assembly (137) which includes tires, brakes, springs, etc.

5.3.1.5 Exterior Doors - Of the 257 (7.8%) exterior door problems, 100 were concerned with weather resistance/water leaks, 6 with durability and air infiltration, and 151 were undefined.

5.3.1.6 Windows - The 144 window problems (4.4%) consisted mainly of poor weather resistance/rain leaks at the juncture of the window frame and the exterior wall.

5.3.1.7 Floor System - Of the 139 floor system problems (4.2%), 82 were attributed to inadequacies of the weather resistant barrier (bottom board) underneath the floor system and 37 to unsatisfactory durability of the floor covering.

5.3.2 PLUMBING - For each of the following plumbing problems, the given percentages relate the problem to all ANSI A119.1/Enforcement Process plumbing problems (2525).

5.3.2.1 Fixtures - There are 1435 problems (56.8%) pertaining to plumbing fixtures. This consisted of 640 toilet malfunctions, including 187 flushing device problems and 138 loose floor connections; 184 shower stall problems related to water tightness; and 610 to problems broadly related to quality of fixtures. These latter problems were primarily concerned with repair and/or replacement of faucets.

5.3.2.2 Joint and Connection Tightness - There were 944 (37.4%) reported water pipe leaks (supply and drain).

5.3.2.3 Protective Requirements - There were 107 frozen piping and 22 rodent resistance problems accounting for 5.1% of all ANSI A119.1/Enforcement Process plumbing problems.

5.3.3 ELECTRICAL - For each of the following electrical components, the given percentages relate the problem to all ANSI A119.1/Enforcement Process electrical problems (490).

5.3.3.1 Wiring Methods - There were 168 problems (34.3%) related to wiring methods, mostly dealing with branch circuit malfunctions.

5.3.3.2 Lighting Fixtures and Receptacle Outlets - There were 117 lighting fixture problems (23.9%) and 84 receptacle outlet problems (17.1%) related to standards for equipment and installation.

5.3.3.3 Grounding and Bonding - There were 51 grounding and bonding problems (10.4%) related mostly to electrification of the exterior metal skin of the mobile home.

5.3.3.4 Outdoor Outlets and Fixtures - A total of 39 outdoor outlet and fixture problems (8%) were reported.

5.3.4 HEATING - For each of the following heating components, the given percentages relate the problem to all ANSI A119.1/Enforcement Process heating problems (219).

5.3.4.1 Appliances - The 205 reported problems (93.6%) associated with appliances consisted of 102 problems related to accessibility of hot water heaters, 76 problems with the vent and combustion air system, 18 problems with the circulating air system, and 9 problems related to location of air inlets or outlets.

5.3.4.2 Liquid Petroleum (LP) Gas Safety Device - There were 13 faulty LP gas safety devices reported (5.9%).

5.4 MECHANICAL/ELECTRICAL APPLIANCE AND EQUIPMENT PROBLEMS - A summary of problems in this category is presented in Table 8. The 4767 problems are distributed as follows: furnace (2146 or 45%), hot water heater (1444 or 30.3%), range (792 or 16.6%), exhaust fan (180 or 3.8%), refrigerator (153 or 3.2%), smoke detector (37 or 0.8%), and electric baseboard heating units (13 or 0.3%).

5.4.1 FURNACE (HOT AIR, GAS, OIL)

5.4.1.1 Pilot/Electronic Ignition - A total of 456 pilot problems were reported with the largest portion (384) involving relighting of pilots.

5.4.1.2 Controls - There were 336 problems related to furnace controls. These were distributed as follows: blower (177), burner (96), internal wiring (40), and (23) of undefined location. The limit switch was the major problem area of the blower while for the burner the thermocouple, control valve, and electrode were most troublesome.

5.4.1.3 Fuel Gun - Of the 283 fuel gun problems 127 were related to the nozzle/orifice, 95 to gas leaks, and 12 to oil leaks.

5.4.1.4 Others - The other problem areas with the furnace included thermostats (240), blower assembly (62), gas regulator (35), furnace doors (31), burner assembly (27) and filters (26).

5.4.2 HOT WATER HEATER

5.4.2.1 Electric Hot Water Heaters - The 746 problems in this category were made up primarily of problems with pressure relief valves (199), heat elements (141), controls (125), and tank leaks (70).

5.4.2.2 Gas Hot Water Heaters - The 239 problems consisted of tank leaks (52), pilot light (47), pressure relief valves (44), burner (41) and controls (32).

5.4.3. RANGE (GAS AND ELECTRIC) - The 792 range problems consisted of gas pilot light problems (205), gas leaks (152), burner problems (109), controls (83), and hardware such as doors, knobs, hinges (37).

5.4.4 EXHAUST FAN - There were 180 reported exhaust fan malfunctions.

5.4.5 REFRIGERATOR - The 153 problems consist of 120 general undefined problems, 16 door gasket problems, 11 control problems, and 6 problems related to the compressor/refrigerant/fan systems.

5.4.6 SMOKE DETECTOR - There were 37 problems with smoke detectors.

5.4.7 ELECTRIC BASEBOARD HEATING - Eleven of the 13 problems reported for these units were in the thermostat controls area.

5.5. FURNITURE PROBLEMS - A total of 766 problems relating to mobile home furniture were recorded, representing 3.4% of the 22,248 problems reported for the 2881 units of the HUD sample.

6.0 PRIVATELY-OWNED MOBILE HOME SAMPLE PROBLEM DATA

6.1 INTRODUCTION. Review of the performance problem data for the privately-owned mobile home sample resulted in the evaluation and cataloging of 6206 problems for the 967 mobile home units in the sample. Use of the computer techniques discussed in Section 3.0 of this report and in Reference [1] rendered the complete data summaries contained in Appendix B. The basic problem data is rank ordered by number of problems within each of the problem categories.

Table 9 summarizes the breakdown of reported mobile home problems in the major problem categories. It can be noted that the largest group of problems (4071 or 65.6% of all problems) were judged to pertain to the ANSI Standard A119.1/Enforcement Process related category. Routine Maintenance problems totaled 1490 (24.0% of all problems), and Mechanical/Electrical Appliances and Equipment problems totaled 367 (5.9% of all problems). Additionally, there were 278 Furniture problems representing 4.5% of all problems.

The remainder of this Section will discuss those areas which exhibited the highest frequency-of-occurrence of reported problems within in each major problem category. For greater detail in a particular problem area refer to Appendix B.

6.2 ANSI A119.1/ENFORCEMENT PROCESS RELATED PROBLEMS. A summary breakdown of reported problems in this major problem category is presented in Table 10. These problems are grouped as follows: Construction (1805 or 44.3% of ANSI A119.1/Enforcement Process problems), Plumbing (1150 or 28.2%), Heating System (592 or 14.5%), and Electrical (524 or 12.9%). Discussion of the more significant problems in each ANSI category is presented in the following paragraphs.

6.2.1 CONSTRUCTION. For the following construction components, the percentages relate the problem to all ANSI A119.1/Enforcement Process construction problems (1805).

- 6.2.1.1 Roof Systems - Problems with the roof systems occurred most frequently (511 problems or 28.3%) and were concerned mostly with rain leaks (304). Fastening of roof structural systems was the next highest roofing problem area (108).
- 6.2.1.2 Floor Systems - There were 371 reported floor problems (20.6%) with the durability or attachment of the floor covering most prevalent (138).
- 6.2.1.3 Partition Walls - A total of 335 partition wall problems (18.6%) were reported, with fastening of partition wall components, such as paneling to wall framing, accounting for 318.
- 6.2.1.4 Exterior Walls - There were 235 exterior walls problems (13.0%). As in the case of partition walls, most exterior wall problems (121) were concentrated in the area of fastening of structural components (mainly exterior covering to wall framing). Rain leaks/weather resistance of the exterior wall was reported as a problem in 70 cases.
- 6.2.1.5 Exterior Doors - Problems were reported for exterior doors in 169 instances (9.4%), with the major portion (129) associated with water leaks/weather resistance.
- 6.2.1.6 Windows - There were 145 window problems (8%) recorded, with water leaks/weather resistance (136) the most common complaint.
- 6.2.2 PLUMBING. For the following plumbing components, the percentages relate the problem to all ANSI A119.1/Enforcement Process plumbing problems (1150).
- 6.2.2.1 Plumbing Fixtures - Problems were reported most frequently with plumbing fixtures (550 or 47.8%). About 69% of the plumbing fixture problems were related to toilets (flushing device, floor connection) and shower stalls (water tightness), while another 26% were concerned with the quality of the fixtures.
- 6.2.2.2 Joints and Connections Tight - There were 201 reported cases (17.5%) of joints and connections not being tight.
- 6.2.2.3 Protective Requirement - Improper plumbing protective methods (160 or 13.9%) consisted mainly of failure to provide proper seals at exterior openings for rodent resistance (159). Only one case of pipe freezing was reported.
- 6.2.2.4 Drainage System - Of the 78 (6.8%) reported drainage system problems, 57 were concerned with improper horizontal grade of the piping.
- 6.2.2.5 Traps and Cleanouts - The 59 problems in this plumbing category consisted of 48 problems concerning the removability or the grade of the trap arm, and 11 problems concerning improper access to cleanouts.
- 6.2.2.6 Water Distribution System, Vents and Venting, Hangers and Supports - All together these categories had only 101 reported problems (8.8%) concerning water heater safety devices and relief valve drains, malfunctioning drainage vents, and inadequate piping support.
- 6.2.3 HEATING SYSTEM. For the following heating components, the percentages relate the problem to all ANSI A119.1/Enforcement Process heating problems (592).
- 6.2.3.1 Appliances - Heating system problems occurred most frequently in the appliance sub-category (460 or 77.7%). There were 187 problems noted in the circulating air systems, while another 182 problems were observed in the vent, ventilation and combustion air systems. Improper installation of appliances accounted for another 70 problems.
- 6.2.3.2 Piping System - Problems in the gas piping system occurred in 104 cases (17.6%) with the most prevalent problem being the improper sealing of exterior openings around pipes, ducts, vents, etc., to resist entrance of rodents which occurred 55 times. Improper piping hangers and supports were noted in 22 other cases.
- 6.2.4 ELECTRICAL. For the following electrical components, the percentages relate the problem to all ANSI A119.1/Enforcement Process electrical problems (524).

6.2.4.1 Wiring Methods - Wiring methods deficiencies (215 or 41%) were related to fastening of boxes, fittings, and cabinets, followed closely by improper cable support and protection.

6.2.4.2 Lighting Fixtures - A total of 61 problems (11.6%) related to lighting fixtures were detected with 90% of these problems concerned with defective or sub-standard fixtures. About 10% of the fixture problems were related to combustible wall or ceiling finishes or recessed lighting fixtures.

6.2.4.3 Branch Circuits Required - Of the 55 problems (10.5%) related to branch circuits, 45 were concerned with laundry facility branch circuit requirements. The remainder of the branch circuit deficiencies were related to fixed appliances on a circuit without lighting fixtures, range branch circuits or branch circuits for portable appliances.

6.2.4.4 Electrical Marking - Improper electrical markings on the distribution panel, circuit breakers, and supply cord entrance were reported in 39 cases (7.4%).

6.2.4.5 Disconnecting Means and Branch Circuit Protective Equipment - There were 33 problems (6.3%) reported, with the majority concerned with improper overcurrent protection devices and circuit breaker protection equipment.

6.2.4.6 Grounding and Bonding - Improper grounding and bonding occurred in 31 cases (5.9%), with 13 involving grounding and bonding of interior circuits of the units. The remaining problems were related to service grounding, non-current carrying metal bonding, insulated neutral, or the exact location of the bonding problem was unspecified.

6.2.4.7 Outdoor Outlets, Fixtures, Air-Cooling Equipment, etc - Improper type of outdoor receptacles accounted for virtually all of the 21 problems reported for this category (4.0%). In most cases, the receptacles were not approved for outdoor use.

6.2.4.8 Receptacle Outlets Required - In 20 instances (3.8%), wall location of required receptacles did not comply with the ANSI A119.1 Standard.

6.2.4.9 Receptacle Outlet Installation - In 17 cases (3.2%) receptacle outlet installation was not in accordance with the ANSI A119.1 Standard.

6.2.4.10 Other Electrical - The remaining electrical problems amounted to only 6.0% of all reported ANSI/Enforcement Process electrical problems.

6.3 ROUTINE MAINTENANCE PROBLEMS. The distribution of reported problems in the Routine Maintenance category is presented in Appendix B and is summarized in Table 11. The largest number of problems (1127 or 75.6% of the 1490 Routine Maintenance Problems) were recorded in the construction area. The number of problems in other areas is as follows; plumbing (223 or 15%), electrical (131 or 8.8%), and heating (7 or 0.5%). Highlights of the more significant problems in each of the Routine Maintenance categories are discussed in the following paragraphs.

6.3.1 CONSTRUCTION. For the following construction components, the percentages relate the problem to all Routine Maintenance construction problems (1127).

6.3.1.1 Windows - There were 452 (40.1%) problems related to windows. Problems with screens (140), hardware (133), and improper window fit (95) occurred most often.

6.3.1.2 Exterior Doors - Maintenance repairs to exterior doors were recorded in 286 cases (25.4%) with the bulk concerned with improper fit, door hardware, and screen doors.

6.3.1.3 Partition Doors - Of the 250 problems (22.2%) concerning partition doors, the majority were associated with improper fit and hardware malfunctions.

6.3.1.4 Blocking - Improper blocking of the unit was observed in 74 cases (6.6%) with leveling by re-blocking the usual service required. Racking of doors caused by uneven blocking was reported in several cases.

6.3.1.5 Hot Water Heater Compartment - Repairs to doors and insufficient thermal insulation within these compartments were the source of the 30 problems (2.7%).

6.3.1.6 Floor (Heating Duct Vent) - Restrictions to air flow at the heating duct floor vent caused by improper duct construction or foreign material in the duct was noted 13 time. (1.2%).

6.3.1.7 Others - Remaining construction related Routine Maintenance problems accounted for less than 2% of all problems in this category.

6.3.2 PLUMBING. For the following plumbing components, the percentages relate the problem to all Routine Maintenance plumbing problems (223).

6.3.2.1 Fixtures - Routine servicing of plumbing fixtures accounted for 168 problems (75.3%). The most frequently repaired fixture was the kitchen sink, with bathtub showerheads, toilets and lavatories following in that order.

6.3.2.2 Sewers, Washing Machines, Dishwasher, and Water Supply Piping - About 10% of the plumbing Routine Maintenance problems were concerned with these areas and another 15% were related to unspecified parts of the mobile home plumbing system.

6.3.3 ELECTRICAL. For the following electrical components, the percentages relate the problem to all Routine Maintenance electrical problems (131). Of these problems, 56 were in unspecified parts of the electrical system.

6.3.3.1 Distribution Panel Board - Only 31 maintenance problems (24%) were reported for distribution panel boards with the majority related to malfunctioning circuit breakers.

6.3.3.2 Switches - Slightly over 12% of all electrical Routine Maintenance problems (16 problems) occurred in electrical switches.

6.3.3.3 Receptacle Outlets - Another 12% of all electrical Routine Maintenance problems (15 problems) were related to receptacle outlets. About half of these receptacle outlet problems were reported for outdoor installations.

6.3.3.4 Interior Lighting Fixtures - Only 9% of all electrical Routine Maintenance problems (12) were attributed to interior lighting fixtures.

6.3.4 HEATING SYSTEM. Only 7 heating system maintenance problems were reported (less than 1.0% of all routine maintenance problems). The 3 identified heating system maintenance problems were in the area of the gas supply piping, while 4 were concerned with undefined parts of the heating system.

6.4 MECHANICAL/ELECTRICAL APPLIANCE AND EQUIPMENT PROBLEMS. A total of 367 problems were related to this category and they represented 5.9% of all 6206 problems reported for the privately-owned mobile home data sample. The distribution of problems in this category is presented in Appendix B and is summarized in Table 12. Discussion of the problems reported in each grouping under this category are presented in the following paragraphs.

6.4.1 Range-Gas/Electric - The kitchen range contributed 112 problems, representing 30.5% of all reported Appliance-Equipment problems. Oven doors and hardware, burners, gas leaks, pilot lights, and timer controls were the most troublesome areas.

6.4.2 Furnace - Hot Air, Gas or Oil - Furnace related problems totaled 87 and represented 23.7% of all Appliance-Equipment problems. Almost 75% of the furnace problems whose location could be pinpointed were concerned with wall thermostats, furnace doors, and internal control system wiring.

6.4.3 Exhaust Fan - Kitchen exhaust fans malfunctions totaled 72 or 19.6% of all Appliance-Equipment problems.

6.4.4 Hot Water Heater - Problems with hot water heaters numbered 52 or 14.2% of all problems in this category. Almost all of the problems (36) were connected with electric (34) rather than gas hot water heaters (2).

6.4.5 Refrigerator - There were 32 problems with refrigerators, representing 8.7% of all appliance-equipment malfunctions.

6.4.6 Electric Baseboard Heating - Only one problem with an electric baseboard heating unit was reported out of the 367 appliance-equipment malfunctions reported in the data sample. There were only two mobile homes in the sample with this type of heat.

6.5 FURNITURE PROBLEMS. Unsatisfactory performance of furniture was noted in 278 cases, which amounted to 4.5% of all problems reported in the privately-owned mobile home sample.

7.0 CONCLUDING REMARKS

Mobile home performance data have been presented in this report for two separate data bases. The first was for 2881 HUD-owned units used as temporary housing following the 1972 Hurricane Agnes disaster at Wilkes-Barre, Pennsylvania and the second was for 967 privately-owned units whose owners had brought their mobile home problems to the attention of government or private organizations who could assist in the resolution of these problems.

The Problem Summation Printouts (See Appendices A and B) present the data in each major category (ANSI A119.1/Enforcement Process, Routine Maintenance, and Appliance and Equipment) in order of "frequency-of-occurrence". This format allows the reader to quickly ascertain those problem items in each data base which appeared most often. Appropriate reference to the ANSI A119.1 Standard paragraph numbers also are included.

It is important to keep in mind that the number of units in these two data bases is small when compared to the total number of mobile homes now occupied in the United States. Also, the emphasis in this project, by design, has concentrated on problems with mobile homes and does not reflect the many cases where mobile home occupants have been satisfied with the performance of their units. This approach was used to fulfill the primary project objectives of pinpointing those areas in the standards, manufacturing process, and enforcement procedures which may be improved as a benefit to the mobile home owner and to the industry as well.

Although complete analysis of the mobile home performance problems contained in these two data bases is planned for a future project report, some preliminary general observations can be noted. Routine Maintenance problems occurred most frequently in the HUD data base while ANSI Standard A119.1/Enforcement Process category problems were most prevalent in the privately-owned mobile home data base. This result was as expected since the HUD data base was derived from maintenance and refurbishment records, while the privately-owned mobile home data base largely was obtained from files of regulatory-related organizations whose main concern was code violations and/or the adjudication of consumer complaints. Within the ANSI Standard A119.1/Enforcement Process category in both data bases, Part B - Construction, contained the largest number of reported problems, suggesting that this area should be carefully examined for possible modifications to improve the overall performance of mobile homes as they are utilized by the occupant under field conditions.

8. References

- [1] J. H. Pielert, W. E. Greene, L. F. Skoda, W. G. Street; Performance of Mobile Homes - Data Acquisition and Methodology; National Bureau of Standards (U.S.) NBSIR 75-641, February 1975.
- [2] Standard for Mobile Homes (NFPA 501B-1973 and ANSI A119.1-1974) available from National Fire Protection Association, 470 Atlantic Avenue, Boston, Massachusetts 02210; Mobile Home Manufacturers Association, 14650 Lee Road, Chantilly, Virginia 22021; and the Trailer Coach Association, 3855 E. LaPalma Avenue, Anaheim, California 92806.
- [3] P. W. Cooke, H. K. Tejuja, R. D. Dikkers, L. P. Zelenka; State Building Regulatory Programs for Mobile Homes and Manufactured Buildings - A Summary; National Bureau of Standards (U.S.) Technical Note 853, September 1974.

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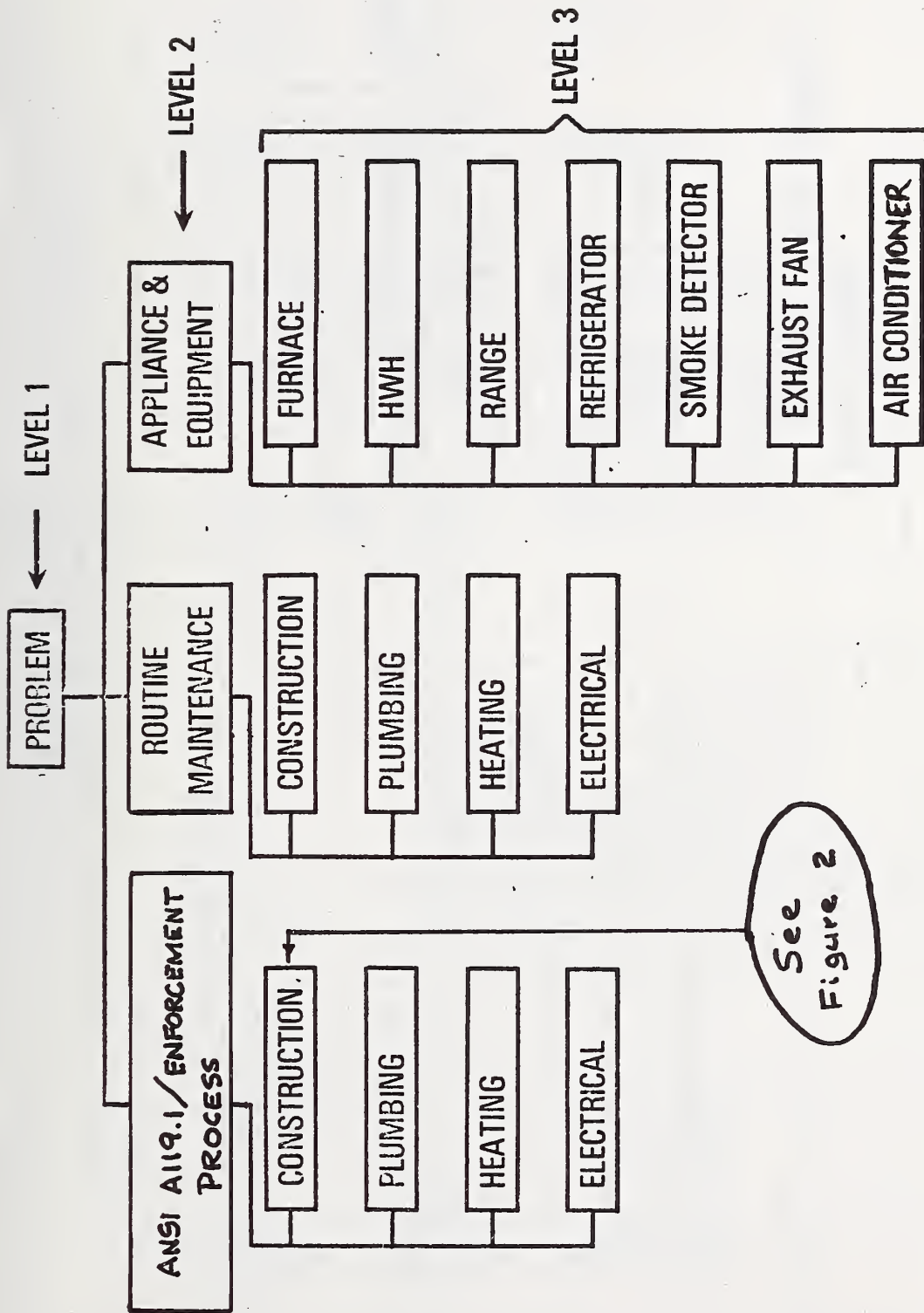


Figure 1. Organization of Performance Problem List (Levels 1, 2 and 3).

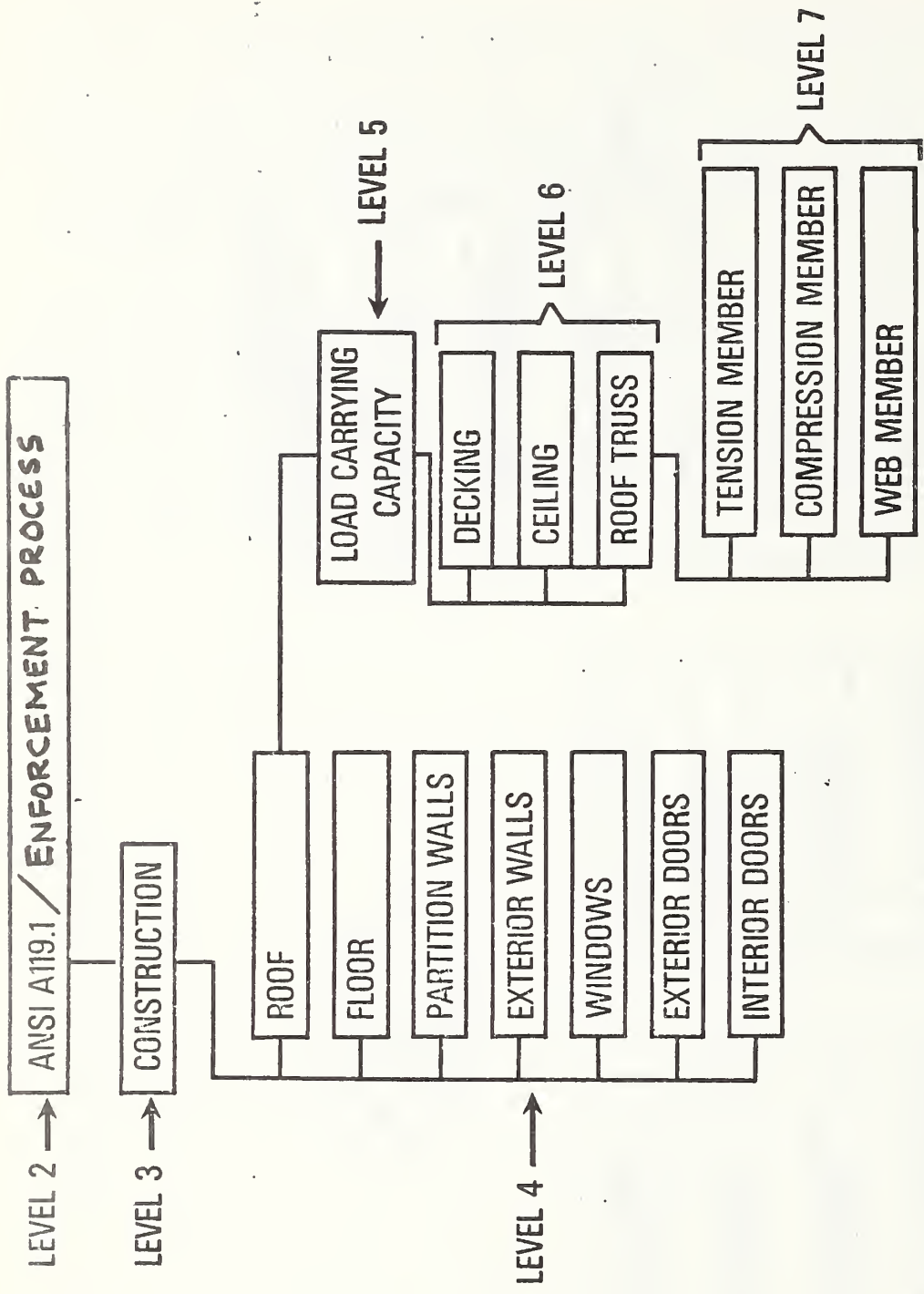


Figure 2. Organization of Performance Problem List (Levels 2 through 7).

FIRST LEVEL SUMMATION:
TOTAL NUMBER OF PROBLEMS

NO.
6206

(LEVEL)
1

(A)	(B)	(C)	(D)	(%2ND)	(%1ST)	(%HOMES)	(%HOMES)	(LEVEL)
ANSI	ANSI STANDARD	A119.1/ENFORCEMENT PROCESS	NO.					
CONS	PART B	CONSTRUCTION	1805	44.3	29.1	708	891	2
PLUM	PART C	PLUMBING	1150	28.2	18.5	580	73.2	3
HEAT	PART D	HEATING SYSTEM	592	14.5	9.5	316	60.0	3
ELEC	PART E	ELECTRICAL	524	12.9	8.4	326	32.7	3
NANS	ROUTINE MAINTENANCE (R.M.)		1490	24.0		688	71.1	2
NCON	CONSTRUCTION		1127	75.6	18.2	579	59.9	3
NPLM	PLUMBING		223	15.0	3.6	186	19.2	3
NELC	ELECTRICAL		131	8.8	2.1	112	11.6	3
NHTG	HEATING		7	.5	.1	7	.7	3
APEO	MECHANICAL/ELECTRICAL APPLIANCES -EQUIPMENT		367	5.9		271	28.0	2
ARGE	RANGE - GAS/ELECTRIC		112	30.5	1.8	97	10.0	3
AFHA	FURNACE-HOT AIR,GAS OR OIL		87	23.7	1.4	77	8.0	3
AEEH	EXHAUST FAN		72	19.6	1.2	71	7.3	3
AHWH	HOT WATER HEATERS		52	14.2	.8	50	5.2	3
ACRF	REFRIGERATOR		32	8.7	.5	28	2.9	3
AFEB	ELECTRIC BASEBOARD HEATING UNITS		1	.3	.0	1	.1	3
ASDE	SMOKE DETECTOR		0	.0	.0	0	.0	3
FURN	FURNITURE		278	4.5		239	24.7	2

TOTAL NUMBER OF MOBILE HOMES REVIEWED =

967

Figure 3. Typical Performance Problem Summation - Levels 1 through 3.

FOURTH LEVEL SUMMATION:		NO. (%3RD) (%2ND) (%1ST)	(HOMES)	(%HOMES)	(LEVEL)
(A)	(B)	(C)	(D)		
***** ANSI STANDARD A119.1/ENFORCEMENT PROCESS *****					
ANSI	4071	65.6	891	92.1	2

CCNS	PART 8 CONSTRUCTION	(6)	1805	44.3 29.1	708 73.2
ROOF	86/87 ROOF SYSTEM	(5)	511	28.3 12.6 8.2	377 39.0
FLOOR	86/87 FLOOR SYSTEMS	(26)	371	20.6 9.1 6.0	291 30.1
INTW	86/87 PARTITION WALLS	(0)	335	18.6 5.4	289 29.9
EXTW	86/87 EXTERIOR WALLS	(2)	235	13.0 5.8 3.8	193 20.0
DEXT	86/87/88 DOORS EXTERIOR	(0)	169	9.4 4.2 2.7	159 16.4
WINDW	86/87/88 WINDOWS	(0)	145	8.0 3.6 2.3	138 14.3
TRAN	8-APP. TRANSIT CONSIDERATIONS	(0)	27	1.5 .7 .4	27 2.8
DINT	88.3.2/3 DOOR INTERIOR	(1)	5	.3 .1 .1	5 .5
TIDN	86.5.1 TIEDOWNS	(0)	1	.1 .0 .0	1 .1
FWEQ	89.1 FIRE WARNING EQUIPMENT	(0)	0	.0 .0 .0	0 .0
SREQ	88.4 SPECIAL REQUIREMENTS	(0)	0	.0 .0 .0	0 .0
PLUM	PART C PLUMBING	(0)	1150	28.2 18.5	580 60.0
PFIA	C9 PLUMBING FIXTURES	(0)	550	47.8 13.5 8.9	373 41.2
JCTI	C7.1 JOINTS + CONNECTIONS/TIGHT IGAS, WATER	(201)	201	17.5 4.9 3.2	171 17.7
PREQ	C5.2 PROTECTIVE REQUIREMENT	(0)	160	13.9 3.9 2.6	147 15.2
DSYS	C12 DRAINAGE SYSTEM	(5)	78	6.8 1.9 1.3	71 7.3
TANC	C8 TRAPS AND CLEANOUTS	(0)	59	5.1 1.4 1.0	53 5.5
WDTN	C11 WATER DISTRIBUTION SYSTEM	(1)	38	3.3 .9 .6	37 3.8
VANV	C13 VENTS AND VENTING	(7)	36	3.1 .9 .6	32 3.3
PHAS	C10 HANGERS AND SUPPORTS	(8)	27	2.3 .7 .4	27 2.8
ATDF	C5.1-5 ALIGN OF FITTINGS/DIRECTION OF FLOW	(1)	1	.1 .0 .0	1 .1
PFAP	C5.1-4 PROHIBITED FITTINGS AND PRACTICES	(0)	0	.0 .0 .0	0 .0
HEAT	PART D HEATING SYSTEM	(28)	592	14.5 9.5	316 32.7
HAPL	D6 APPLIANCES	(0)	460	77.7 11.3 7.4	279 28.9
HPSY	D5 PIPING SYSTEM	(0)	104	17.6 2.6 1.7	83 8.6
HLPG	D4.2.5 LP GAS SAFETY DEVICES	(0)	0	.0 .0 .0	0 .0
ELEC	PART E ELECTRICAL	(0)	524	12.9 8.4	326 33.7
EWOR	E11 WIRING METHODS	(69)	215	41.0 5.3 3.5	174 18.0
EXUR	E20 LIGHTING FIXTURES	(55)	61	11.6 1.5 1.0	53 5.5
EXCR	E7 BRANCH CIRCUITS REQUIRED	(0)	55	10.5 1.4 .9	53 5.5
EMKE	E25 ELECTRICAL MARKING	(3)	39	7.4 1.0 .6	35 3.6
EDIS	E9 DISCONNECTING MEANS AND BRANCH CIRCUIT	(8)	33	6.3 .8 .5	33 3.4
EGDB	E23 GROUNDING AND BONDING	(8)	31	5.9 .8 .5	28 2.9
EBFA	E22 OUTDOOR OUTLETS, FIXTURES, AIR-COOLING	(1)	21	4.0 .5 .3	19 2.0
EREC	E6 RECEPTACLE OUTLETS REQUIRED	(1)	20	3.8 .5 .3	18 1.9
EFRO	E19 RECEPTACLE OUTLETS	(0)	17	3.2 .4 .3	17 1.8
ESWL	E18 WALL SWITCHES	(15)	15	2.9 .4 .2	13 1.3
EPWO	E10 POWER SUPPLY	(5)	6	1.1 .1 .1	6 .6
FUND	E12 UNDER CHASSIS WIRING	(0)	6	1.1 .1 .1	6 .6
ERXY	E5.0 MATERIALS AND EQUIPMENT	(1)	3	.6 .1 .0	3 .3
EFPL	E13 SWITCHES AND RECEPTACLE PLATES	(1)	1	.2 .0 .0	1 .1
ETER	E17 CONNECTION TO TERMINALS AND SPLICES	(0)	1	.2 .0 .0	1 .1
ECON	E14 CONDUCTORS IN OUTLET BOXES	(0)	0	.0 .0 .0	0 .0

Figure 4. Typical Performance Problem Summation - Levels 2 through 4.

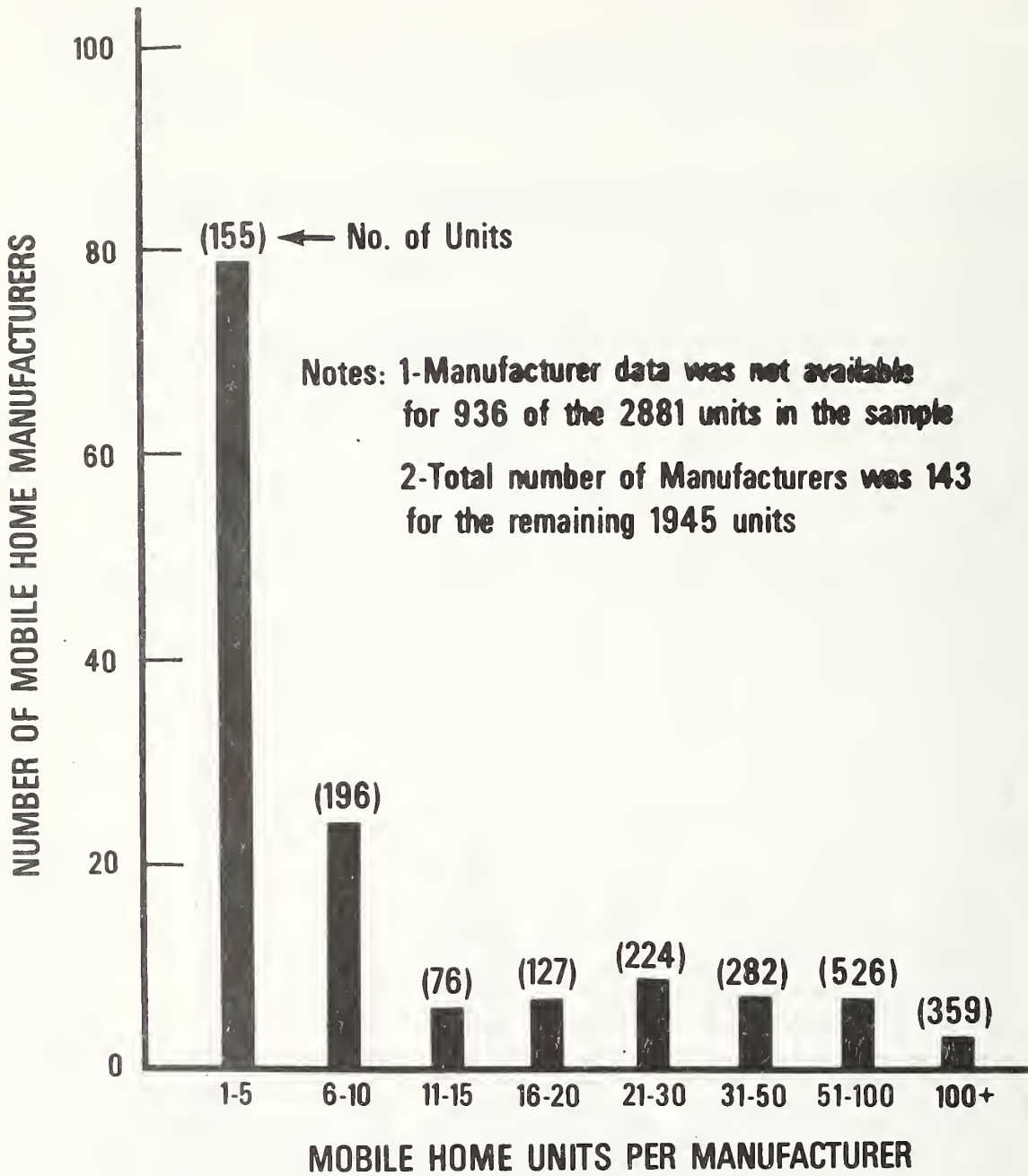


Figure 6. Distribution of Mobile Home Manufacturers as Function of Mobile Home Units Per Manufacturer in the HUD (Wilkes-Barre) Sample

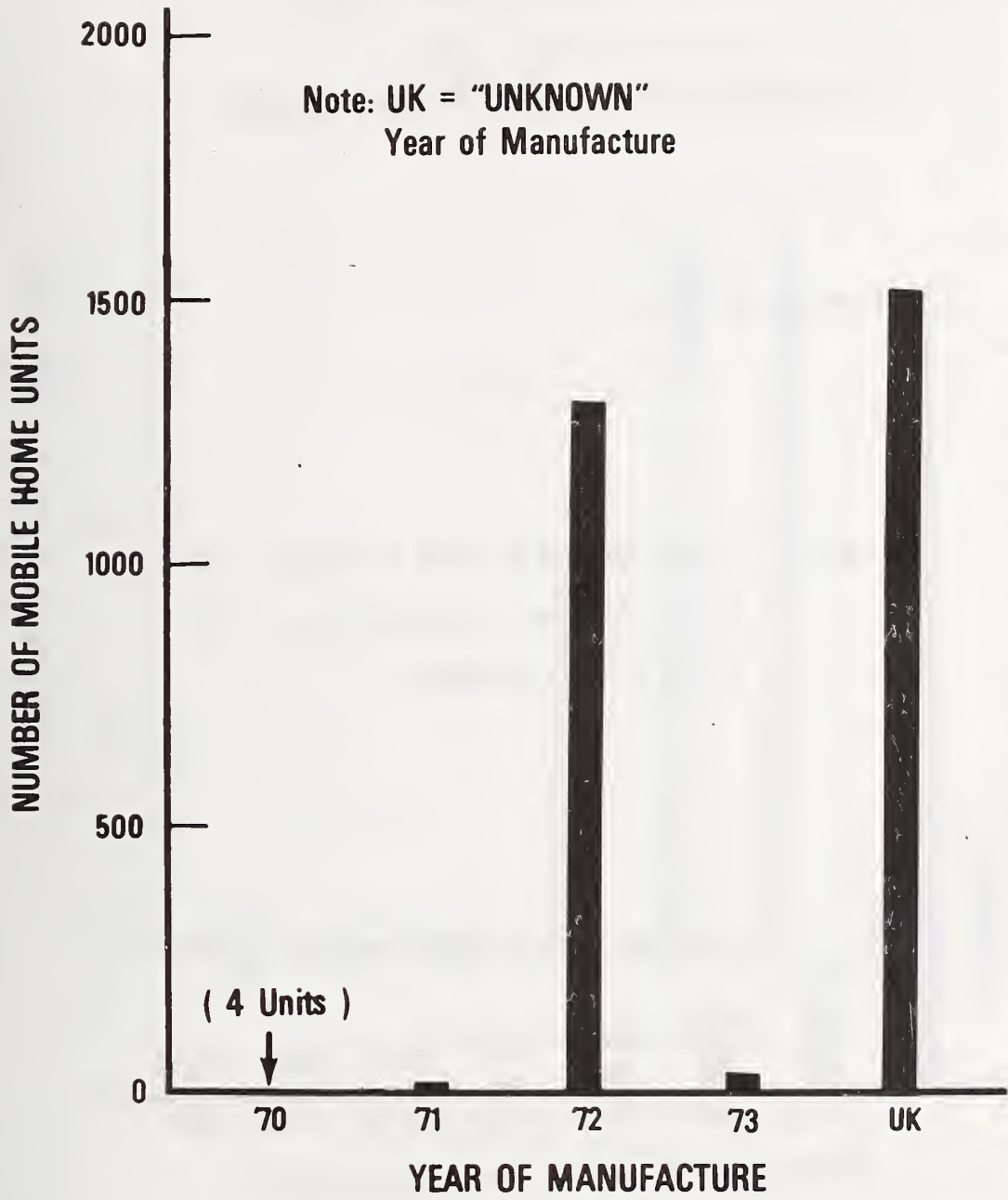


Figure 7. Number of Mobile Home Units in HUD Data Sample as Function of Year of Manufacture

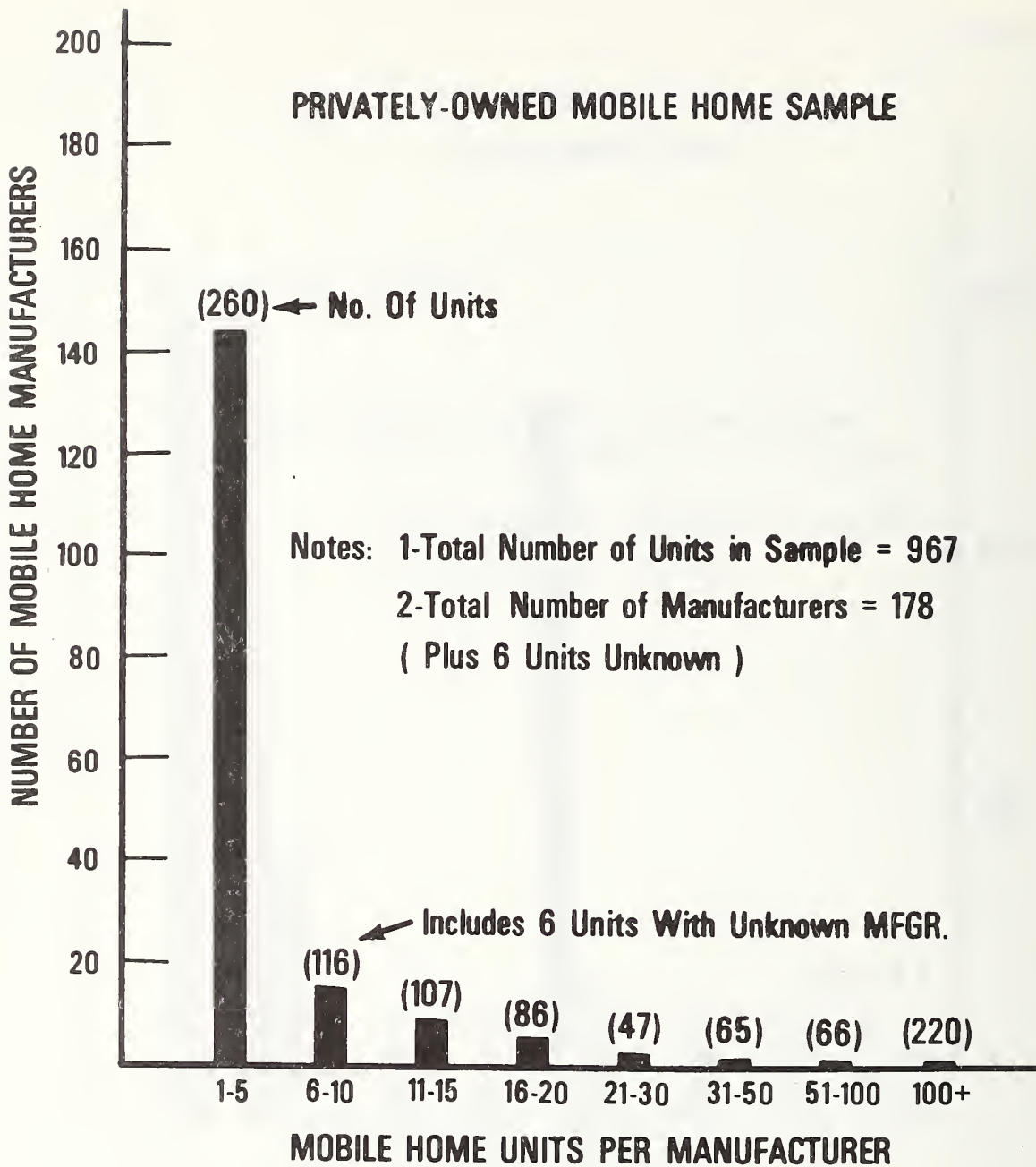


Figure 8. Distribution of Mobile Home Manufacturers as Function of Units Per Manufacturer (Private Sample)

Notes: 1-Total Number of Units in Sample = 967
2-UK = Year of Manufacture Unknown
3-(%) = Percent of Units in Sample

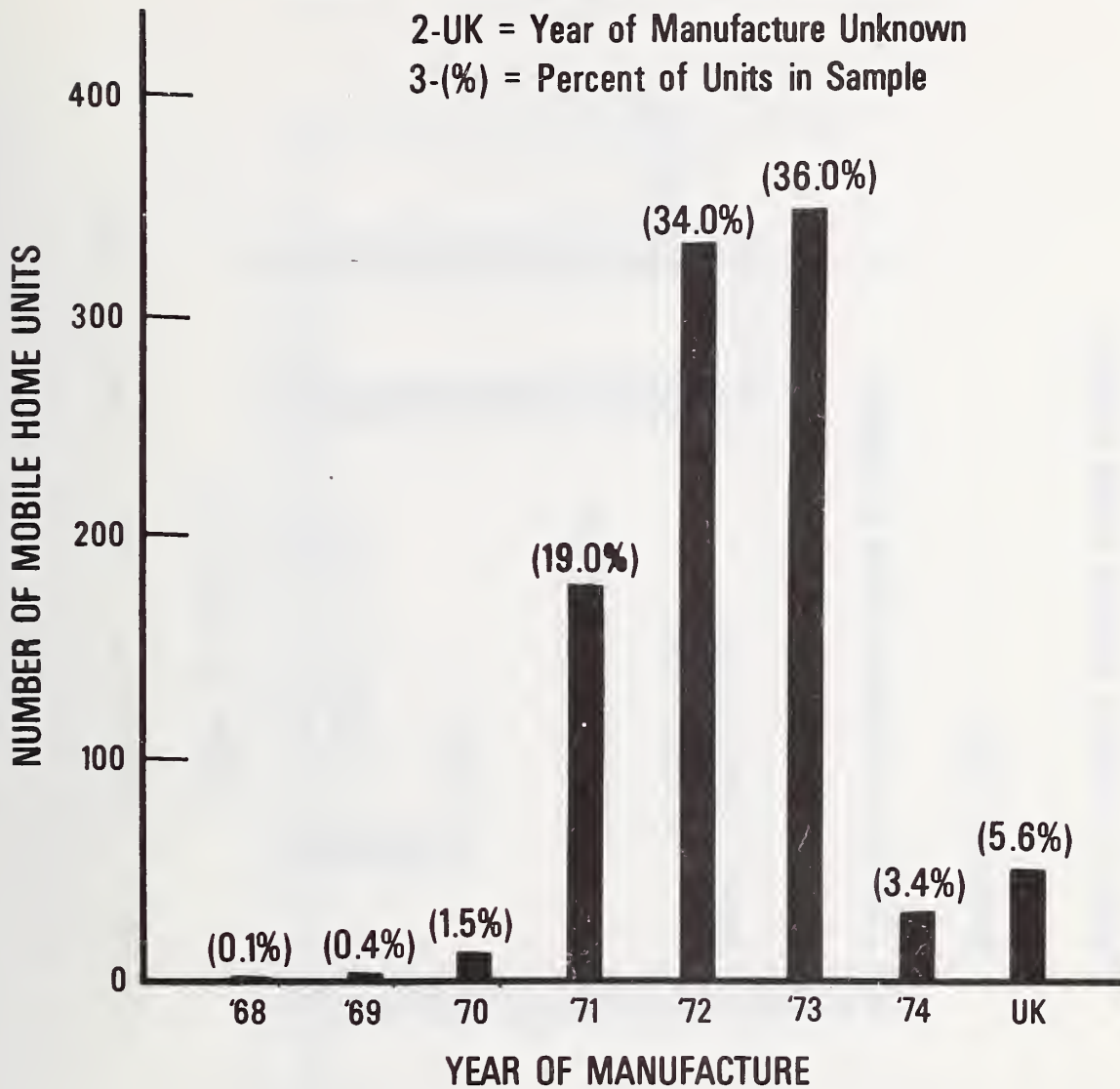


Figure 9. Distribution of Mobile Home Units in Privately-Owned Sample by Year of Manufacture

PRIVATELY-OWNED MOBILE HOME SAMPLE

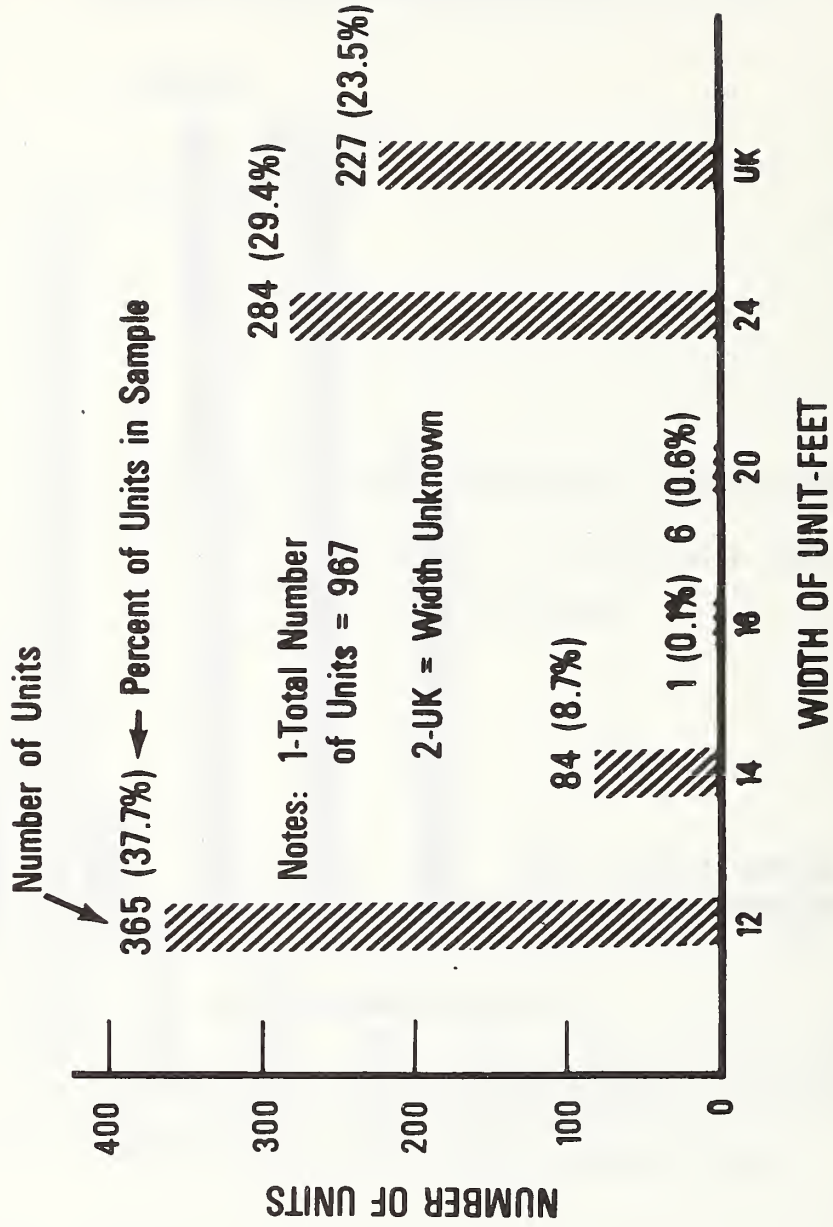


Figure 10. Distribution of Units in Sample by Width

TABLE 1STATE OF MANUFACTURE AND NUMBER
OF UNITS FOR THE HUD (WILKES-BARRE)
MOBILE HOME SAMPLE

<u>STATE</u>	<u>NUMBER OF UNITS</u>
Alabama	201
Alaska	1
Arkansas	46
Florida	70
Georgia	139
Idaho	1
Illinois	35
Indiana	303
Kansas	18
Kentucky	11
Louisiana	14
Maryland	1
Michigan	77
Minnesota	32
Mississippi	46
Missouri	1
New York	21
North Carolina	111
Ohio	62
Oklahoma	1
Pennsylvania	282
South Carolina	47
Tennessee	29
Texas	2
Virginia	40
Wisconsin	1
Unknown	1289
	<hr/>
Total =	2881

TABLE 2

Seals of Certifying Agencies
 HUD Wilkes-Barre Sample (2881 units)

Agency	Type of Agency	Number of Units with Seals
Alabama	State	73
Florida	State	6
Georgia	State	27
Mississippi	State	9
Tennessee	State	7
Virginia	State	3
TOTAL STATE SEALS -		125
Pittsburgh Testing Lab	Third Party	1
Underwriters Lab	Third Party	36
Nationwide Consumer Testing Lab	Third Party	19
TOTAL THIRD PARTY SEALS -		56
MHMA/TCA ^{1/}	Trade Association	992
HUD Specification ^{2/}	Federal	443
Others (Misc.)	Manufacturers	14
TOTAL OTHER SEALS -		1449
TOTAL SEALS =		1630 ^{3/}
Units With No Seals Attached ^{4/} =		484
Units With No Seal Information ^{5/} =		789

1/ Trade Associations - Mobile Home Manufacturers Association and Trailer Coach Association

2/ HUD Purchase Contract required compliance with ANSI A119.1.

3/ Exceeds 1608 mobile homes with seal data because some units have more than one seal.

4/ Available data indicated that units had no attached seals.

5/ No information available to indicate if mobile homes had seals.

TABLE 3. State of manufacture versus number of units in the privately-owned mobile home sample.

State of Manufacture	No. of Units
Alabama	34
Alaska	1
Arizona	1
Arkansas	2
California	160
Colorado	4
Florida	92
Georgia	76
Idaho	30
Indiana	1
Kansas	1
Kentucky	1
Louisiana	9
Maryland	1
Michigan	1
Minnesota	4
Mississippi	13
Missouri	4
North Carolina	7
Oklahoma	6
Oregon	61
Pennsylvania	2
South Dakota	2
Tennessee	1
Texas	148
Virginia	5
Washington	58
Wisconsin	3
Wyoming	1
Unknown	238
(Total Units in Sample)	(967)

TABLE 4

Seals of Certifying Agencies
Private Mobile Home Sample (967 units)

Agency	Type of Agency	Number of Units
Alabama	State	223
Arkansas	State	1
California	State	161
Colorado	State	4
Delaware	State	1
Florida	State	76
Georgia	State	43
Minnesota	State	8
Texas	State	124
Virginia	State	18
Washington	State	51

TOTAL STATE SEALS = 710

MHMA/TCA^{1/} SEALS= 203

TOTAL SEALS 913^{2/}

Units With No Seal Information = 256

1/ Trade associations (Mobile Home Manufacturers Association and Trailer Coach Association)

2/ Number of seals exceed the 711 mobile homes with seal data since some units have both state and MHMA/TCA Seals.

TABLE 5

SUMMARY OF REPORTED MOBILE HOME PROBLEMS - WILKES-BARRE DATA (2881 UNITS)

ALL CATEGORIES

CATEGORY OF PROBLEM	Problem Level	Number of Reported Problems	Percent of Total Reported Problems	Mobile Home Units Reporting Problems in Category		Average Number of Problems per Unit in Sample
				Number of Units	Percent of all Units in Sample	
(TOTAL)	1	(22248)	(100.0)	-	(7.7%)	
Routine Maintenance	2	10178	45.7	2235	79.3	3.53
ANSI Standard All9.1-1974/ Enforcement Process	2	6537	29.4	1939	67.3	2.27
Mechanical/Electrical Appliances & Equipment	2	4767	21.4	1790	62.1	1.65
Furniture	2	766	3.4	527	18.3	.27

NOTE: See Appendix A for additional detail.

TABLE 6

ROUTINE MAINTENANCE RELATED MOBILE HOME PROBLEMS - WILKES-BARRE DATA (2881 UNITS)

ROUTINE MAINTENANCE CATEGORY	LEVEL	ROUTINE MAINTENANCE RELATED PROBLEMS		MOBILE HOME UNITS WITH PROBLEMS		AVERAGE NUMBER OF PROBLEMS PER UNIT IN SAMPLE
		Number	% of Total	Number	% of Total	
(TOTAL)	2	(10178)	(100%)			(3.53)
Part B - Construction	3	5175	50.8	1769	61.4	1.79
Part C - Plumbing	3	2940	28.9	1443	50.1	1.02
Part E - Electrical	3	1382	13.6	893	31.0	.48
Part D - Heating	3	681	6.7	515	17.9	.24

NOTE: See Appendix A for additional detail.

TABLE 7

ANSI STANDARD A119.1/ENFORCEMENT PROCESS RELATED PROBLEMS - HUD WILKES-BARRE DATA (2281 UNITS)

ANSI STANDARD A119.1 1974 PART	LEVEL	ANSI STANDARD A119.1/ ENFORCEMENT PROCESS RELATED PROBLEMS		MOBILE HOME UNITS WITH PROBLEMS		AVERAGE NUMBER OF PROBLEMS PER UNIT IN THE SAMPLE
		Number	% of Total	Number	% of Total	
(TOTAL)	2	(6537)	(100%)	--	--	(2.27)
Part B - Construction	3	3303	50.5	1358	47.1	1.14
Part C - Plumbing	3	2525	38.6	1257	43.6	.88
Part E - Electrical	3	490	7.5	391	13.6	.17
Part D - Heating	3	219	3.4	201	7.0	.08

NOTE: See Appendix A for additional detail.

TABLE 8

MECHANICAL/ELECTRICAL APPLIANCES - EQUIPMENT RELATED MOBILE HOME PROBLEMS

HUD WILKES-BARRE DATA (2881 UNITS)

MECHANICAL/ELECTRICAL APPLIANCE - EQUIPMENT COMPONENT	LEVEL	MECHANICAL/ELECTRICAL APPLIANCE - EQUIPMENT RELATED PROBLEMS		MOBILE HOME UNITS WITH PROBLEMS		AVERAGE NUMBER OF PROBLEMS PER UNIT IN THE SAMPLE
		Number	% of Total	Number	% of Total	
TOTAL	2	(4767)	(100%)			(1.65)
Furnace, Hot Air, Gas/Oil	3	2146	45.0	1133	39.3	.75
Hot Water Heaters	3	1444	30.3	939	32.6	.50
Range-Gas/Electric	3	792	16.6	544	18.9	.28
Exhaust Fan	3	180	3.8	168	5.8	.06
Refrigerator	3	153	3.2	133	4.6	.05
Smoke Detector	3	37	.8	35	1.2	.01
Electric Baseboard Heating Units	3	13	.3	12	.4	.004
Undefined		2	--	--	--	.

NOTE: See Appendix A for additional detail.

TABLE 9

SUMMARY OF REPORTED MOBILE HOME PROBLEMS - PRIVATELY OWNED MOBILE HOME SAMPLE (967)

CATEGORY OF PROBLEM	LEVEL	RELATED PROBLEMS		MOBILE HOME UNITS WITH PROBLEMS		AVERAGE NUMBER OF PROBLEMS PER UNIT IN SAMPLE
		Number	% of Total	Number	% of Total	
(TOTAL)	1	(6206)	(100.0)	-	-	(6.42)
ANSI Standard A119.1/ Enforcement Process Related	2	4071	65.6	891	92.1	4.20
Routine Maintenance	2	1490	24.0	688	71.1	1.54
Mechanical/Electrical Appliances and Equipment	2	367	5.9	271	28.0	0.38
Furniture	2	278	4.5	239	24.7	0.30

NOTE: See Appendix B for additional detail.

TABLE 10

ANSI STANDARD A119.1/ENFORCEMENT PROCESS RELATED PROBLEMS - PRIVATELY-OWNED MOBILE HOME SAMPLE (967 Units)

ANSI Standard A119.1/ Enforcement Process Part	LEVEL	RELATED PROBLEMS		MOBILE HOME UNITS WITH PROBLEMS		AVERAGE NUMBER OF PROBLEMS PER UNIT IN SAMPLE
		Number	% of Total	Number	% of Total	
(TOTAL)	2	(4071)	(100.0)	-	-	(4.20)
Part B - Construction	3	1805	44.3	708	73.2	1.86
Part C - Plumbing	3	1150	28.2	580	60.0	1.19
Part D - Heating System	3	592	14.5	316	32.7	0.61
Part E - Electrical	3	524	12.9	326	33.7	.54

NOTE: See Appendix B for additional detail.

TABLE 11

ROUTINE MAINTENANCE RELATED MOBILE HOME PROBLEMS - PRIVATELY-OWNED MOBILE HOME SAMPLE (967)

ROUTINE MAINTENANCE CATEGORY	LEVEL	ROUTINE MAINTENANCE RELATED PROBLEMS		MOBILE HOME UNITS WITH PROBLEMS		AVERAGE NUMBER OF PROBLEMS PER UNIT IN SAMPLE
		Number	% of Total	Number	% of Total	
Part B - Construction	3	1127	75.6	579	59.9	1.16
Part C - Plumbing	3	223	15.0	186	19.2	0.23
Part E - Electrical	3	131	8.8	112	11.6	0.14
Part D - Heating	3	7	0.5	7	0.7	0.01
Undefined	—	2	0.1	—	—	—
TOTAL	2	1490	100.0	—	—	1.54

NOTE: See Appendix B for additional detail.

TABLE 12

MECHANICAL/ELECTRICAL APPLIANCES - EQUIPMENT RELATED MOBILE HOME PROBLEMS

PRIVATELY-OWNED MOBILE HOME SAMPLE (967)

MECHANICAL/ELECTRICAL APPLIANCE-EQUIPMENT COMPONENTS	LEVEL	RELATED PROBLEMS		MOBILE HOME UNITS WITH PROBLEMS		AVERAGE NUMBER OF PROBLEMS PER UNIT IN SAMPLE
		Number	% of Total	Number	% of Total	
Range - Gas/Electric	3	112	30.5	97	10.0	0.12
Furnace, Hot Air, Gas/Oil	3	87	23.7	77	8.0	0.09
Exhaust Fan	3	72	19.6	71	7.3	0.08
Hot Water Heater	3	52	14.2	50	5.2	0.05
Refrigerator	3	32	8.7	28	2.9	0.03
Electric Baseboard Heat	3	1	0.3	1	0.1	--
Smoke Detector	3	0	0.0	--	0.0	--
Undefined	--	11	3.0	--	--	0.01
TOTAL	2	367	100.0	--	--	0.38

NOTE: See Appendix B for additional detail.

APPENDIX A

Rank Ordered Problem Summation Printouts For:
(2881 HUD Mobile Homes)

FIRST LEVEL SUMMATION:
TOTAL NUMBER OF PROBLEMS

NU.
22248

SECOND AND THIRD LEVEL SUMMATIONS:

				%2ND	%1ST	HOMES	\$HOMES	LEVEL
NANS	ROUTINE MAINTENANCE	(0)	10178		45.7	2285	79.3	2
NCON	CONSTRUCTION	(11)	5175	50.8	23.3	1769	61.4	3
NPLM	PLUMBING	(344)	2940	28.9	13.2	1443	50.1	3
NELC	ELECTRICAL	(200)	1382	13.6	6.2	893	31.0	3
NHTG	HEATING	(45)	681	6.7	3.1	515	17.9	3
ANSI	ANSI STANDARD A119.1	(0)	6537		29.4	1939	67.3	2
CONS	PART B CONSTRUCTION	(0)	3303	50.5	14.8	1358	47.1	3
PLUM	PART C PLUMBING	(0)	2525	38.6	11.3	1257	43.6	3
ELEC	PART E ELECTRICAL	(0)	490	7.5	2.2	391	13.6	3
HEAT	PART D HEATING SYSTEM	(0)	219	3.4	1.0	201	7.0	3
APEQ	MECHANICAL/ELECTRICAL APPLIANCES -EQUIPMENT	(2)	4767		21.4	1790	62.1	2
AFHA	FURNACE,HOT AIR,GAS UR OIL	(637)	2146	45.0	9.6	1133	39.3	3
AFHW	HOT WATER HEATERS	(459)	1444	30.3	6.5	939	32.6	3
ARGE	RANGE - GAS/ELECTRIC	(202)	792	16.6	3.6	544	18.9	3
AEEK	EXHAUST FAN	(180)	180	3.8	.8	168	5.8	3
ACHF	REFRIGERATOR	(120)	153	3.2	.7	133	4.6	3
ASDE	SMOKE DETCTOR	(37)	37	.8	.2	35	1.2	3
AFEB	ELECTRIC BASEBOARD HEATING UNITS	(2)	13	.3	.1	12	.4	3
FURN	FURNITURE		766		3.4	527	18.3	2

TOTAL NUMBER OF MOBILE HOMES REVIEWED =

2881

NO.	#3RD	#2ND	#1ST	HOMES	%HOMES	LEVEL
***** ROUTINE MAINTENANCE *****						
* NANS	(0)	10178	45.7	2285	79.3	2 *
***** CONSTRUCTION *****						
NCON	(11)	5175	50.8	1769	61.4	3
***** EXTERIOR DOORS *****						
NCXD	(345)	2167	41.9	21.3	9.7	4
NCWD	(138)	1029	19.9	10.1	4.6	4
NCES		489	9.4	4.8	2.2	4
NCPD	(217)	471	9.1	4.6	2.1	4
NCSM		370	7.1	3.6	1.7	4
NCBL	(142)	289	5.6	2.8	1.3	4
NCHH	(5)	170	3.3	1.7	.8	4
NCFL	(8)	125	2.4	1.2	.6	4
NCHG		40	.8	.4	.2	4
NCTD		14	.3	.1	.1	4
***** PLUMBING *****						
NPLM	(344)	2940	28.9	13.2	50.1	3
***** WATER SUPPLY PIPING *****						
NPWS	(426)	1192	40.5	11.7	5.4	4
NPFX	(11)	959	32.6	9.4	4.3	4
NPBT		411	14.0	4.0	1.8	4
NPBR		23	.8	.2	.1	4
NPWH	(9)	9	.3	.1	.0	4
NPDW	(2)	2	.1	.0	.0	4
NPEX		0	.0	.0	.0	4
***** ELECTRICAL *****						
NELC	(200)	1382	13.6	6.2	31.0	3
***** DISTRIBUTION PANEL BOARD *****						
NEOP	(119)	584	42.3	5.7	2.6	4
NERC	(14)	289	20.9	2.8	1.3	4
NFPW		157	11.4	1.5	.7	4
NFSW	(84)	89	6.4	.9	.4	4
NEIF	(47)	47	3.4	.5	.2	4
NEEF		9	.7	.1	.0	4
NESR		7	.5	.1	.0	4
NEGR		0	.0	.0	.0	4
NERC		0	.0	.0	.0	4
***** HEATING *****						
NHTG	(45)	681	6.7	3.1	17.9	3
***** GAS SUPPLY PIPING *****						
NHGP		440	64.6	4.3	2.0	4
NHSP		107	15.7	1.1	.5	4
NHQP	(84)	89	13.1	.9	.4	4
NHGR		0	.0	.0	.0	4
NHRJ		0	.0	.0	.0	4
***** ANSI STANDARD A119.1 *****						
* ANSI	(0)	6537	29.4	1939	67.3	2 *
***** PART B CONSTRUCTION *****						
CONS	(0)	3303	50.5	14.8	47.1	3
***** EXTERIOR WALLS *****						
EXTW	(0)	1107	33.5	16.9	5.0	4
RCOF	(2)	771	23.3	11.8	3.5	4

FOURTH LEVEL SUMMATION:				NO.	%3PD	%2ND	%1ST	HOMES	%HOMES	LEVEL
INTW	R6/87	PARTITION WALLS	(0)	563	17.0	8.6	2.5	453	15.7	4
TRAN	8-APP.	TRANSIT CONSIDERATIONS	(1)	318	9.6	4.9	1.4	219	7.6	4
DEXT	R6/87/88	DCORS EXTERIOR	(151)	257	7.8	3.9	1.2	240	8.3	4
WINDW	R6/87/88	WINDOWS	(53)	144	4.4	2.2	.6	131	4.5	4
FLOL	R6/87	FLOOR SYSTEMS	(2)	139	4.2	2.1	.6	129	4.5	4
DINT	B8.3.2/3	DOOR INTERIOR	(0)	4	.1	.1	.0	4	.1	4
FREQ	B9.1	FIRE WARNING EQUIPMENT	(0)	0	.0	.0	.0	0	.0	4
TIDN	R6.5.1	TIEDOWNS	(0)	0	.0	.0	.0	0	.0	4
SREQ	B8.4	SPECIAL REQUIREMENTS	(0)	0	.0	.0	.0	0	.0	4
PLUM	PART C	PLUMBING	(0)	2525	38.6	11.3		1257	43.6	3
PFIA	C9	PLUMBING FIXTURES	(0)	1435	56.8	22.0	6.5	898	31.2	4
JCTI	C7.1	JOINTS + CONNECTIONS/TIGHT (GAS, WATER	(944)	944	37.4	14.4	4.2	671	23.3	4
PREO	C5.2	PROTECTIVE REQUIREMENT	(0)	129	5.1	2.0	.6	116	4.0	4
DSYS	C12	DRAINAGE SYSTEM	(0)	5	.2	.1	.0	4	.1	4
WATN	C11	WATER DISTRIBUTION SYSTEM	(0)	3	.1	.0	.0	3	.1	4
VANT	C13	VENTS AND VENTING	(2)	3	.1	.0	.0	2	.1	4
PFAP	C5.1.4	PROHIBITED FITTINGS AND PRACTICES	(2)	2	.1	.0	.0	1	.0	4
TANC	C8	TRAPS AND CLEANOUTS	(0)	2	.1	.0	.0	2	.1	4
PHAS	C10	HANGERS AND SUPPORTS	(0)	2	.1	.0	.0	2	.1	4
ATDF	C5.1.5	ALIGN OF FITTINGS/DIRECTION OF FLOW	(0)	0	.0	.0	.0	0	.0	4
ELEC	PART E	ELECTRICAL	(0)	490	7.5	2.2		391	13.6	3
FWR	E11	WIRING METHODS	(168)	168	34.3	2.6	.8	153	5.3	4
EXUR	E20	LIGHTING FIXTURES	(117)	117	23.9	1.8	.5	102	3.5	4
LEFG	E19	RECEPTACLE OUTLETS	(0)	84	17.1	1.3	.4	71	2.5	4
EGOB	E23	GROUNDING AND BONDING	(0)	51	10.4	.8	.2	50	1.7	4
FBFA	E22	OUTDOOR OUTLETS, FIXTURES, AIR-COOLING	(0)	39	8.0	.6	.2	37	1.3	4
ESWL	E18	WALL SWITCHES	(31)	31	6.3	.5	.1	28	1.0	4
CPXY	E5.0	MATERIALS AND EQUIPMENT	(0)	0	.0	.0	.0	0	.0	4
EREC	E6	RECEPTACLE OUTLETS REQUIRED	(0)	0	.0	.0	.0	0	.0	4
EBGR	F7	BRANCH CIRCUITS REQUIRED	(0)	0	.0	.0	.0	0	.0	4
EDIS	F9	DISCONNECTING MEANS AND BRANCH CIRCUIT	(0)	0	.0	.0	.0	0	.0	4
EPOW	E10	POWER SUPPLY	(0)	0	.0	.0	.0	0	.0	4
EUND	F12	UNDER CHASSIS WIRING	(0)	0	.0	.0	.0	0	.0	4
EPL	E13	SWITCHES AND RECEPTACLE PLATES	(0)	0	.0	.0	.0	0	.0	4
ECON	E14	CONDUCTORS IN OUTLET BOXES	(0)	0	.0	.0	.0	0	.0	4
EPOL	E16	POLARIZATION	(0)	0	.0	.0	.0	0	.0	4
ETER	E17	CONNECTION TO TERMINALS AND SPLICES	(0)	0	.0	.0	.0	0	.0	4
EMKE	E25	ELECTRICAL MARKING	(0)	0	.0	.0	.0	0	.0	4
HEAT	PART D	HEATING SYSTEM	(0)	219	3.4	1.0		201	7.0	3
HAPL	D6	APPLIANCES	(0)	205	93.6	3.1	.9	187	6.5	4
HLPG	D4.2.5	LP GAS SAFETY DEVICES	(0)	13	5.9	.2	.1	13	.5	4
HPSY	D5	PIPING SYSTEM	(0)	1	.5	.0	.0	1	.0	4

* APEQ	MFCHEMICAL/ELECTRICAL APPLIANCES -EQUIPMENT	(2)	4767	21.4	1790	62.1				2 *

AFHA	FURNACE,HOT AIR,GAS OR OIL	(637)	2146	45.0	9.6	39.3		1133	39.3	3
AFPL	PILOT/ELECTRONIC IGNITION	(72)	456	21.2	9.6	12.5		359	12.5	4

 * MANS ROUTINE MAINTENANCE (0) 10178 *****
 ***** 2285 7) 3 *****

NCON	CONSTRUCTION	(11)	5175	1769	61.4	3
NCXD	EXTERIOR DOORS	(345)	2167	41.9	1166	40.5
NCXH	HARDWARE		1083	20.9	756	26.2
NCXF	IMPOOPER FIT		385	7.4	319	11.1
NCST	STOPM		132	2.6	113	3.9
NCXR	REFLAZED		91	4.2	82	2.8
NCSP	FROZEN		46	.9	43	1.5
NCXS	SCPFENS		43	2.0	38	1.3
NCGD	CANOPY		42	.8	39	1.4
NCWD	WINDOWS	(138)	1029	19.9	692	24.0
NCWR	REGLAZED		345	6.7	281	9.8
NCWH	HARDWARE		242	4.7	196	6.8
NCWT	STORM		134	2.6	117	4.1
NCWF	IMPEOPER FIT		119	2.3	100	3.5
NCWS	SCPFENS		51	1.0	46	1.6
NCES	EXTERIOR STAIRS		489	9.4	385	13.4
NCDF	PARTITIONS DOORS	(217)	471	9.1	363	12.6
NCDF	IMPEOPER FIT		146	2.8	123	4.3
NCPH	HARDWARE		108	2.1	98	3.4
NCSP	SKIPITING		370	7.1	280	9.7
NCBL	BLOCKING	(142)	289	5.6	239	8.3
NCLE	LEVELING		109	2.1	98	3.4
NCRR	RACKING OF DOORS		38	.7	36	1.2
NCCH	HOT WATER HEATER COMPARTMENT	(5)	170	3.3	157	5.4
NCGD	COMPARTMENT DOOR		128	2.5	121	4.2
NCMI	INSULATION		37	.7	35	1.2
NCFL	FLOOR	(8)	125	2.4	106	3.7
NCFV	HEATING DUCT VENT		117	2.3	101	3.5
NCMG	SITE GRADING		40	.8	40	1.4
NCMD	TIE DOWN STRAPS LOOSE, ETC		14	.3	13	.5
NPLM	PLUMRING	(344)	2940		1443	50.1
NPXS	WATFF SUPPLY PIPING			40.5	839	29.1
NPXE	EXTERIOR	(426)	1192	26.1	597	20.7
NPXH	FROZEN	(462)	766	64.3	271	9.4
NPWI	INTERIOR	(0)	304	39.7	0	.0
NPWA	FROZEN		0	.0	0	.0
NPFX	FIXTURES	(11)	959	.0	0	.0
NPKS	KITCHEN SINK	(245)	388	32.6	649	22.5
NPKA	FAUCET ASSEMBLY		113	40.5	341	11.8
NPKE	FLANGE SEAL		20	11.8	109	3.8
NPXC	CLOGGED DRAIN		10	2.1	20	.7
NPXD1	DRAIN		0	2.6	10	.3
NPXD2	DRAIN LEAK		0	.0	0	.0
NPXD3	DRAIN FROZEN		0	.0	0	.0
NPFI	TOILETS	(0)	253	.0	0	.0
NPXX	CLOGGED DRAIN		114	26.4	210	7.3
NPXI	FLUSH TANK		90	11.4	95	3.3
NPPI	TANK TOP		26	35.6	86	3.0
NPPT	TANK TOP		26	10.3	24	.8

FCURTH THROUGH EIGHTH LEVEL SUMMATIONS:

	NU.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
NPTA	23	9.1	2.4			.8	21	.7	6
NPTF	0	.0	.0			.0	0	.0	6
NPXY1.	0	.0	.0			.0	0	.0	6
NPXY2.	0	.0	.0			.0	0	.0	6
NPXY3.	0	.0	.0			.0	0	.0	6
NPTW	0	.0	.0			.0	0	.0	6
NPTK	0	.0	.0			.0	0	.0	6
NPTS	0	.0	.0			.0	0	.0	6
NPBS	187	30.5	19.5			6.4	171	5.9	5
NPBA	57	9.1	1.8			1.9	53	1.8	6
NPBC	17	2.7	.5			.2	16	.6	6
NPBF	0	.0	.0			.0	0	.0	6
NPRD1.	0	.0	.0			.0	0	.0	6
NPRD2.	0	.0	.0			.0	0	.0	6
NPRD3.	0	.0	.0			.0	0	.0	6
NPCB	120	25.0	12.5			4.1	111	3.9	5
NPCA	30	13.3	1.7			1.0	29	1.0	6
NPCR	16	.0	.0			.5	15	.5	6
NPCC	0	.0	.0			.0	0	.0	6
NPCD1.	0	.0	.0			.0	0	.0	6
NPCD2.	0	.0	.0			.0	0	.0	6
NPCD3.	0	.0	.0			.0	0	.0	6
NPBT	411					14.0	340	11.8	4
NPFP	23					.8	21	.7	4
NPMM	9					.3	9	.3	4
NPMS	0					.0	0	.0	5
NPMD	0					.0	0	.0	5
NPDM	2					.1	2	.1	4
NPDS	0					.0	0	.0	5
NPEX	0					.0	0	.0	4
NELC	1382						893	31.0	3

ELECTRICAL

NEDP	584					42.3	442	15.3	4
NEDF	377					27.3	268	10.0	5
NEDH	50					8.6	49	1.7	5
NEDT	38					6.5	33	1.1	5
NEDC	289					20.9	256	8.9	4
NERD	228					16.5	206	7.2	5
NEHT	218					15.8	200	6.9	6
NELF	8					2.8	8	.3	6
NERI	47					16.3	42	1.5	5
NERF	10					.7	10	.3	6
NEPP	157					3.5	141	4.9	4
NFSW	89					11.4	78	2.7	4
NESE	5					6.4	5	.2	5
NETF	0					.4	0	.0	5
NEFN	9					3.4	9	.3	4
NEEF	7					.7	7	.2	4
NFSR	0					.5	0	.0	4
NEGR	0					.0	0	.0	4
NEBC	0					.0	0	.0	4
NHTG	681						515	17.9	3
NHGP	440						367	12.7	4

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

NHSP INSTALLED SPACE HEATERS
 NHOP OIL SUPPLY PIPING
 NHOF FROZEN
 NHGR GAS PRESSURE REGULATOR
 NHRJ ROOF JACK

NO. %7TH %6TH %5TH %4TH %3RD HOMES %HOMES LEVEL
 107 15.7 96 3.3 4
 89 11.1 69 2.4 4
 5 5.6 5 .2 5
 0 0 .0 0 4
 0 0 .0 0 4

 * ANSI STANDARD A119.1

CONNS PART B CONSTRUCTION (0) 3303 1358 47.1 3

CONNS	PART B	CONSTRUCTION	(0)	3303	1358	47.1	3
EXTW	86/87	EXTERIOR WALLS	(0)	1107	725	25.2	4
EXWR2	87.1	WEATHER RESISTANCE - RAIN LEAKS	(48)	715	457	15.9	5
EXWP3	87.1	WINDOWS		387	320	11.1	6
EXWR1	87.1	DOORS		259	215	7.5	6
EXWR4	87.1	PENETRATION OF EXTERIOR COVERING		21	20	.7	6
EXWR5	87.1	INTERSECTION OF WALL AND ROOF		0	0	.0	6
EXWR5	87.1	INTERSECTION OF WALL AND FLOOR		0	0	.0	6
EXSS1	86.5/6.6	INTERSECTION OF STRUCTURAL SYSTEMS	(0)	221	198	6.9	5
EXSS2	86.5/6.6	FASTENING OF STRUCTURAL SYSTEMS		216	193	6.7	6
EXSS3	86.5/6.6	EXTERIOR COVERING TO WALL FRAMING		5	5	.2	6
EXSS4	86.5/6.6	INTERIOR COVERING TO WALL FRAMING		0	0	.0	6
EXSS5	86.5/6.6	WALL TO ROOF		0	0	.0	6
EXSS5	86.5/6.6	WALL TO FLOOR		0	0	.0	6
EXSS5	86.5/6.6	WALL TO WALL		0	0	.0	6
EXHL1	87.5	HEAT LOSS	(0)	160	158	5.5	5
EXHL2	87.5	INSULATION		160	158	5.5	6
EXFL2	87.5.4	AIR INFILTRATION	(0)	0	0	.0	6
EXDR1	87.1	DURABILITY	(0)	6	6	.2	5
EXDR2	87.1	EXTERIOR COVERING		4	4	.1	6
EXDR3	87.1	INTERIOR COVERING		2	2	.1	6
EXDP4	87.1	CAULKING		0	0	.0	6
EXDR5	87.1	EXTERIOR FASTENERS		0	0	.0	6
EXDR5	87.1	INTERIOR FASTENERS		0	0	.0	6
EXCC1	86.6	LOAD CARRYING CAPACITY	(0)	5	5	.2	5
EXCC3	86.6	EXTERIOR COVERING		2	2	.1	5
EXCC2	86.6	INTERIOR COVERING		2	2	.1	6
EXFS	86.6	WALL FRAMING		1	1	.0	6
EXFM	87.3	INTERIOR FLAME SPREAD - INTERIOR COVERIN		0	0	.0	5
EXCR	87.6	METALLIC ROOF BONDING/EXTERIOR COVERINGS		0	0	.0	5
EXCR1	87.2	CONDENSATION RESISTANCE	(0)	0	0	.0	5
EXCR2	87.2	VAPOR BARRIER IN CEILING		0	0	.0	6
EXCR2	87.2	NO VAPOR BARRIER IN CEILING		0	0	.0	6
ROOF	86/87	ROOF SYSTEM	(2)	771	517	17.9	4
PLWF	87.1	RAIN LEAK - WATER RESISTANCE MEM. PENE	(650)	746	500	17.4	5
RLMP2	87.1	MEMBRANE PENETRATION	(19)	87	72	2.5	6
PLMP3	87.1	AT VENT PIPE [PLUMBING]		26	25	.9	7
RLMP1	87.1	AT VENT PIPE [HEATING]		25	25	.9	7
RLMP4	87.1	AT MEMBRANE JOINT [WITHIN FIELD OF R		17	16	.6	7
RLMP5	87.1	AT DOUBLE WIDE JOINT		0	0	.0	7
RIEW	87.1	AT TIP OUT JOINT		0	0	.0	7
RDUR	87.1	INTERSECTION OF ROOF AND EXTERIOR WALL	(1)	18	16	.6	6
RDUR2	86.5	DURABILITY		13	12	.4	6
RDUR1	86.5	CAULKING		4	4	.1	6
RFSS	86.5	FASTENING OF STRUCTURAL SYSTEMS	(0)	3	3	.1	6

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

		NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	#HOMES	LEVEL
DEDU	DURABILITY	5			1.9	.2		4	.1	5
DEHL	HEAT LOSS - AIR INFILTRATION	1			.4	.0		1	.0	5
DELC	LOAD CARRYING CAPACITY - RACKING	0			.0	.0		0	.0	5
DESZ	SIZE	0			.0	.0		0	.0	5
DENL	NUMBER AND LOCATION	0			.0	.0		0	.0	5
WINDW	WINDJWS	144	(53)		61.1	4.4		131	4.5	4
WNR	WEATHER RESISTANCE - WATER LEAK	88			1.4	2.7		78	2.7	5
WNGR	DURABILITY	2			.7	.1		2	.1	5
WNL	GLAZING	1			.0	.0		1	.0	5
WNCR	CONDENSATION RESISTANCE	0			.0	.0		0	.0	5
WNHL	HEAT LOSS - AIR INFILTRATION	0			.0	.0		0	.0	5
WNCC	LOAD CARRYING CAPACITY - RACKING	0			.0	.0		0	.0	5
WNSZ	SIZE	0			.0	.0		0	.0	5
WNR	BATHROOM	0			.0	.0		0	.0	5
FLGR	FLOOR SYSTEMS	139	(2)		59.0	4.2		129	4.5	4
FLWR	WEATHER RESISTANCE	82	(2)		57.6	2.5		80	2.8	5
FLWP1.	UNDERNEATH OF FLOOR SYSTEM	80			97.6	2.4		78	2.7	6
FDUR	DURABILITY	37	(1)		26.6	1.1		37	1.3	5
FDUR1.	FLOOR COVERING	28			75.7	.8		28	1.0	6
FDUR2.	FLOOR COVERING TO DECKING	5			13.5	.2		5	.2	6
FDUR3.	DECKING	3			8.1	.2		3	.1	6
FASS	FASTENING OF STRUCTURAL SYSTEMS	11	(0)		7.9	.3		11	.4	5
FASS2.	FLOOR SYSTEM TO METAL FRAME	7			63.6	.2		7	.2	6
FASS1.	DECKING TO FLOOR JOISTS	4			36.4	.1		4	.1	6
FASS3.	FLOOR SYSTEM TO EXTERIOR WALLS	0			.0	.0		0	.0	6
FASS4.	WEATHER BARRIER	0			.0	.0		0	.0	6
FDEF	DEFLECTION	0	(0)		2.2	.1		0	.0	5
FDEF2.	FLOOR JOISTS	2			1.4	.1		2	.1	6
FDEF1.	DECKING	1			33.3	.7		1	.0	6
FLHL	HEAT LOSS	3	(2)		2.2	.1		1	.0	6
FLHL1.	INSULATION	1			33.3	.7		1	.0	5
FLHL2.	AIR INFILTRATION	0			.0	.0		0	.0	6
FLGC	LOAD CARRYING CAPACITY	1	(0)		100.0	.7		1	.0	5
FLCC1.	DECKING	0			.0	.0		0	.0	6
FLCC2.	FLOOR JOISTS	0			.0	.0		0	.0	6
FLIF	INTERIOR FLAME SPREAD-FLOOR COVERING	0	(0)		.0	.0		0	.0	5
FLIF1.	HOT WATER HEATER COMPARTMENT FLOOR	0			.0	.0		0	.0	5
FLRP	RODENT RESISTANCE	0			.0	.0		0	.0	6
FLDN	DRILLING/NOTCHING OF STRUCTURAL MEMBERS	0			.0	.0		0	.0	5
DINT	DOOR INTERIUR	4	(0)		75.0	.1		4	.1	5
DIDU	DURABILITY	3			25.0	.0		3	.1	5
DILH	LOCKS, HARDWARE	1			.0	.0		1	.0	5
FWEQ	FIRE WARNING EQUIPMENT	0	(0)		.0	.0		0	.0	4
FWEQ1.	LISTED DETECTOR	0			.0	.0		0	.0	5
FWEQ2.	TROUBLE SIGNAL	0			.0	.0		0	.0	5
FWEQ3.	LOCATION	0			.0	.0		0	.0	5
TIDN	TIEDOWNS	0	(0)		.0	.0		0	.0	4
TIDN1.	WEATHER RESISTANCE	0			.0	.0		0	.0	5
TIDN2.	LOAD CAPACITY	0			.0	.0		0	.0	5
TIDN3.	SPACING	0			.0	.0		0	.0	5
SREO	SPECIAL REQUIREMENTS	0	(0)		.0	.0		0	.0	5
SREQ1.	MINIMUM AREAS	0			.0	.0		0	.0	5
SREQ2.	MINIMUM WIDTH	0			.0	.0		0	.0	5
SREQ3.	TOILET COMPARTMENT	0			.0	.0		0	.0	5
SREQ4.	HALLWAYS	0			.0	.0		0	.0	5

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

PLUM	PART C	PLUMBING	(	(	0)	2525	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
PFIA	C9	PLUMBING FIXTURES	(	(	0)	1435					56.8	898	31.2	4
PFIX	C9.2	FIXTURES	(	(	0)	824					32.6	623	21.6	5
TCIL	C9.2.1	TOILETS	(	(	314)						57.4	505	17.5	6
TCIL2.	C9.2.1.2	TOILET FLUSHING DEVICES									77.7	169	5.9	7
TCIL5.	C9.2.1.5	FLOOR CONNECTION									29.2	119	4.1	7
TOIL1.	C9.2.1.1	TOILET DESIGN									21.6	1	.0	7
TCIL3.	C9.2.1.3	OVERFLOW PIPES - FLUSH TANKS									.0	0	.0	7
TOIL4.	C9.2.1.4	PROHIBITED TOILETS									.0	0	.0	7
TOIL6.	C9.2.1.6	WATER CLOSET									.0	0	.0	7
SHRS	C9.2.2	SHOWER STALLS	(	(	0)	184					7.3	163	5.7	6
SHRS2.	C9.2.2.2	WATERTIGHTNESS OF JOINT AT DRAIN									22.3	120	4.2	7
SHRS3.	C9.2.2.3	WATERTIGHTNESS OF SHOWER/ENCL				130					5.1	50	1.7	7
SHRS1.	C9.2.2.1	SHOWER STALL CONSTRUCTION				54					2.1	0	.0	7
SPRS4.	C9.2.2.4	PREFABRICATED PLUMBING FIXTURES				0					.0	0	.0	7
DISH	C9.2.3	DISHWASHING MACHINES	(	(	0)	0					.0	0	.0	7
OISH2.	C9.2.3.2	PROHIBITED CONNECTIONS OF DRAIN				0					.0	0	.0	7
WACD	C9.2.4	CLOTHES WASHING MACHINE	(	(	0)	0					.0	0	.0	7
WACD1.	C9.2.4.1	DRAIN				0					.0	0	.0	7
WACD2.	C9.2.4.2	STANDARD PIPE SPECIFICATIONS				0					.0	0	.0	7
WACD3.	C9.2.4.3	PROHIBITED CONNECTIONS OF DRAIN				0					.0	0	.0	7
PFGR	C9.1	GENERAL REQUIREMENT	(	(	0)	610					42.5	449	15.6	5
PFGR1.	C9.1.1	QUALITY OF FIXTURES				608					99.7	448	15.6	6
PFGR3.	C9.1.3	FIXTURE CONNECTION				2					.3	2	.1	6
PFGR2.	C9.1.2	STRAINERS				0					.0	0	.0	6
PFGR4.	C9.1.4	CONCEALED CONNECTIONS				0					.0	0	.0	6
PFGR5.	C9.1.5	DIRECTIONAL FITTING				0					.0	0	.0	6
IGPF	C9.3	INSTALLATION OF PLUMBING FIXTURES	(	(	0)	1					100.0	1	.0	5
IGPF3.	C9.3.3	BRACKETS				1					.0	1	.0	6
IGPF1.	C9.3.1	ACCESS				0					.0	0	.0	6
ICPF2.	C9.3.2	ALIGNMENT				0					.0	0	.0	6
JCT1	C7.1	JOINTS + CONNECTIONS/TIGHT IGAS, WATER	(	(	944)	944					37.4	671	23.3	4
JCT11.	C7.1.1	ASSEMBLING PIPE				0					.0	0	.0	5
JCT12.	C7.1.2	THREADED JOINTS				0					.0	0	.0	5
JCT13.	C7.1.3	SOLDERED JOINTS				0					.0	0	.0	5
JCT14.	C7.1.4	PLASTIC PIPE, FITTING AND JOINTS				0					.0	0	.0	5
JCT15.	C7.1.5	UNION JOINTS				0					.0	0	.0	5
JCT16.	C7.1.6	FLARED				0					.0	0	.0	5
JCT17.	C7.1.7	CAST IRON SOIL PIPE JOINTS				0					.0	0	.0	5
PREQ	C5.2	PROTECTIVE REQUIREMENT	(	(	0)	129					5.1	116	4.0	4
PREQ4.	C5.2.4	FREEZING				107					4.2	95	3.3	5
PREQ5.	C5.2.5	RODENT RESISTANCE				22					17.1	22	.8	5
PREQ1.	C5.2.1	CUTTING STRUCTURAL MEMBERS				0					.0	0	.0	5
PREQ2.	C5.2.2	EXPOSED PIPING				0					.0	0	.0	5
PREQ3.	C5.2.3	RUAO DAMAGE				0					.0	0	.0	5
DSYS	C12	DRAINAGE SYSTEM	(	(	0)	5					.2	4	.1	4
DSGR	C12.7	GRADE OF HORIZONTAL DRAINAGE PIPING				5					.2	4	.1	5
DSML	C12.1	MATERIALS	(	(	0)	0					100.0	0	.0	5
DSML1.	C12.1.1	PIPE				0					.0	0	.0	6
DSML2.	C12.1.2	FITTINGS				0					.0	0	.0	6
DSML21.	C12.1.2.1	FITTINGS FOR SCREW PIPE [MATERIALS				0					.0	0	.0	7
DSML22.	C12.1.2.2	FITTINGS FOR COPPER TUBING MATERIALS				0					.0	0	.0	7
DSML23.	C12.1.2.3	SOCKET FITTINGS FOR PLASTIC PIPE				0					.0	0	.0	7

FLURTH	THROUGH	EIGHTH	LEVEL	SUMMATIONS:	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
DSML24.		C12.1.2.4		JOINING COPPER TURING TO THREADED PIPE	0						0	.0	7
DSML25.				DEFECTIVE FITTING	0						0	.0	7
DCUT		C12.2		DRAIN OUTLETS	0						0	.0	5
DCUT1.		C12.2.1		LOCATION OF DRAIN	0						0	.0	6
DCUT2.		C12.2.2		CLEARANCE FROM DRAIN OUTLET	0						0	.0	6
DCUT3.		C12.2.3		HOSE COUPLERS AND CAPS	0						0	.0	6
DCUT31.		C12.2.3.1		QUICK DISCONNECT TYPE	0						0	.0	7
DCUT32.		C12.2.3.2		SIZE COMPARED TO PIPING, WATER-TIGHT C	0						0	.0	7
DCUT33.		C12.2.3.3		MINIMUM DIAMETER - DRAIN CONNECTION	0						0	.0	7
DCUT4.		C12.2.4		PRESSEMBLY OF DRAIN LINES	0						0	.0	6
DFCN		C12.3		FIXTURE CONNECTION	0						0	.0	5
DFCN1.		C12.3.1		TOILET CONNECTION	0						0	.0	6
DPSZ		C12.4		SIZE OF DRAINAGE PIPE	0						0	.0	5
DPSZ1.		C12.4.1		FIXTURE LOAD	0						0	.0	6
DPSZ11.		C12.4.1.1		MIN PIPE DIA - 1-1/2" 1 TO 3 FIX	0						0	.0	7
DPSZ12.		C12.4.1.2		MIN PIPE DIA - 2" 4 OR MORE FIX	0						0	.0	7
DPSZ13.		C12.4.1.3		3" MIN DIA PIPE FOR TOILETS	0						0	.0	7
DSWV		C12.5		WET-VENTED DRAINAGE SYSTEM	0						0	.0	5
DSWV1.		C12.5.1		HORIZONTAL PIPING	0						0	.0	6
DSWV2.		C12.5.2		SIZE - PIPING AND NUMBER OF FIXTURES	0						0	.0	6
DSWV3.		C12.5.3		LENGTH OF TRAP ARM (TABLE C-3)	0						0	.0	6
DSHF		C12.6		OFFSETS AND BRANCH FITTINGS	0						0	.0	5
DSBF1.		C12.6.1		CHANGES IN DIRECTION - FITTING TYPES	0						0	.0	6
DSBF2.		C12.6.2		HORIZONTAL TO VERTICAL	0						0	.0	6
DSBF3.		C12.6.3		HORIZONTAL TO HORIZONTAL	0						0	.0	6
WDTN		C11		WATER DISTRIBUTION SYSTEM	3				100.0		3	.1	4
WHSO		C11.3		WATER HEATER SAFETY DEVICES	3				66.7		3	.1	5
WHRV		C11.3.1		RELIEF VALVES	2				66.7		2	.1	6
WHRV3.		C11.3.1.3		RELIEF VALVE DRAIN	2				66.7		2	.1	7
WHRV31.				IMPROPER LOCATION	0						0	.0	8
WHRV32.				THREADED END	0						0	.0	8
WHRV33.				TERMINATES IN FLOOR	0						0	.0	8
WHRV34.				UNDERSIZE PIPE	0						0	.0	8
WHRV35.				TERMINATES ABOVE FLOOR	0						0	.0	8
WHRV1.		C11.3.1.1		TEMPERATURE AND PRESSURE RELIEF VALVES	0						0	.0	7
WHRV2.		C11.3.1.2		PRESSURE AND TEMPERATURE LIMITS OF VAL	0						0	.0	7
WHR2		C11.3.2		WATER HEATERS	1				33.3		1	.0	6
WHR1.		C11.3.2.1		TAPPING FOR PRES/TEMP RELIEF VALVE	0						0	.0	7
WSPL		C11.1		WATER SUPPLY	0						0	.0	5
WSPL1.		C11.1.1		SUPPLY PIPING SIZE	0						0	.0	6
WSPL2.		C11.1.2		HOT WATER SUPPLY	0						0	.0	6
WOSC		C11.2		WATER OUTLETS AND SUPPLY CONNECTIONS	0						0	.0	5
WOSC1.		C11.2.1		WATER CONNECTION PIPE SIZE, LOCATION	0						0	.0	6
WOSC2.		C11.2.2		PROHIBITED CONNECTIONS	0						0	.0	6
WOSC21.		C11.2.2.1		INSTALLATION SHALL PREVENT BACKFLOW	0						0	.0	7
WOSC22.		C11.2.2.2		NO CONNECTION TO DRAINAGE OR VENT	0						0	.0	7
WOSC3.		C11.2.3		RIM OUTLETS - SPACING ABOVE FLOOD LEVEL	0						0	.0	6
WOSC4.		C11.2.4		APPLIANCE CONNECTIONS/PROTECT BY AIR GAP	0						0	.0	6
WOSC5.		C11.2.5		FLUSHMETER VALVES/MANUAL FLUSH VALVE	0						0	.0	6
WOSC6.		C11.2.6		FLUSH TANK	0						0	.0	6
WDM1		C11.4		MATERIALS	0						0	.0	5
WDM11.				CORROSION OF DISSIMILAR METALS	0						0	.0	6
WDM2.				CORROSION OF PIPE	0						0	.0	6
PMAT		C11.4.1		PIPING MATERIAL (IRON, STEEL, CU)	0						0	.0	6
PMAT1.		C11.4.1.1		PLASTIC PIPING	0						0	.0	7
F-MAT		C11.4.2		FITTINGS (CHANGES IN DIRECTION SIZE)	0						0	.0	6

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

		NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
FMAT1.	C11.4.2.1									
	FITTINGS FOR SCREW PIPING									
FMAT2.	C11.4.2.2									
	FITTINGS FOR COPPER TUBING									
XMAT	C11.4.3									
	PROHIBITED MATERIAL									
PINS	C11.5									
	INSTALLATION OF PIPING									
PINS1.	C11.5.1									
	WORKMANSHIP									
PINS2.	C11.5.2									
	SCREW PIPE									
PINS3.	C11.5.3									
	SCOLDER FITTINGS (JOINTS IN COPPER TUBE									
PINS4.	C11.5.4									
	FLARED FITTINGS - USE OF FLARING TOOL									
PINS5.	C11.5.5									
	PLASTIC PIPE AND FITTINGS									
PSWS	C11.6									
	SIZE OF WATER SUPPLY PIPING									
PSWS1.	C11.6.1									
	MINIMUM SIZE (TABLE C-3)									
PSWS2.	C11.6.2									
	SIZING PROCEDURE									
PSWS21.	C11.6.2.1									
	SIZE OF BRANCH (REFER TO TABLE C-3									
PSWS22.	C11.6.2.2									
	WATER HEATER AND FOOD WASTE DISPOSAL									
LVAL	C11.7									
	LINE VALVES (CROSS SECTIONAL AREA)									
VANV	C13									
	VENTS AND VENTING									
VVTL	C13.5									
	VENT TERMINAL									
VVTL3.	C13.5.3									
	VENT CAPS									
VVTL1.	C13.5.1									
	ROOF EXTENSION									
VVTL2.	C13.5.2									
	FLASHING									
VVGL	C13.1									
	GENERAL - SIPHONAGE AND BACK PRESSURE									
VMAT	C13.2									
	MATERIALS									
VMAT1.	C13.2.1									
	PIPE									
VMAT2.	C13.2.2									
	FITTINGS									
VMAT21.	C13.2.2.1									
	FITTINGS FOR SCREW PIPE									
VMAT22.	C13.2.2.2									
	FITTINGS FOR COPPER TUBING									
VMAT23.	C13.2.2.3									
	FITTINGS FOR PLASTIC PIPE									
VMAT24.	C13.2.2.4									
	ADAPTERS (COPPER TUBING TO THREADED PIPE									
VMAT25.	C13.2.2.5									
	LISTED RECTANGULAR TUBING CAN BE USED									
VVSP	C13.3									
	SIZE OF VENT PIPING									
VVSP1.	C13.3.1									
	MAIN VENT - MINIMUM DIAMETER OF PIPING									
VVSP2.	C13.3.2									
	INDIVIDUAL VENTS									
VVSP3.	C13.3.3									
	COMMON VENT									
VVSP4.	C13.3.4									
	INTERSECTING VENTS									
VVSP5.	C13.3.5									
	DISTANCE OF FIXTURE TRAP FROM VENT									
VVGC	C13.4									
	GRADE AND CONNECTIONS									
VVGC1.	C13.4.1									
	HORIZONTAL VENTS									
VVGC2.	C13.4.2									
	GRADE									
PFAP	C5.1.4									
	PROHIBITED FITTINGS AND PRACTICES									
PFAP1.	C5.1.4.1									
	DRAINAGE/VENT PIPING - DRILLED OR TAPED									
PFAP2.	C5.1.4.2									
	VENT PIPES NOT AS DRAIN PIPES									
PFAP3.	C5.1.4.3									
	OBSTRUCTIVE FITTINGS, CONNECTIONS, ETC									
PFAP4.	C5.1.4.4									
	MATERIAL IMPERFECTIONS (CONCEALED)									
PFAP5.	C5.1.4.5									
	IMPROPER LOCATION OF PIPE, FIT/EQUIP									
PFAP6.	C5.1.4.6									
	GALVANIZED PIPE BENT OR WELDED									
TANC	C6									
	TRAPS AND CLEANOUTS									
TRAP1.	C8.1									
	TRAPS									
TRAP1.1	C8.1.1									
	TRAPS REQUIRED									
TRAP3.	C8.1.3									
	PROHIBITED TRAPS									
TRAP2.	C8.1.2									
	DUAL FIXTURES									
TRAP4.	C8.1.4									
	MATERIALS AND DESIGNS									
TRAP5.	C8.1.5									
	TRAP SEAL									
TRAP6.	C8.1.6									
	SIZE									
TRAP7.	C8.1.7									
	LOCATION									
TRAP8.	C8.1.8									
	LENGTH OF TAILPIECE									
TRAP9.	C8.1.9									
	INSTALLATION									

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:		NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
TRAP91.	C8.1.9.1	0						0		7
TRAP92.	C8.1.9.2	0						0		7
TRAP93.	C8.1.9.3	0						0		7
TRAP94.	C8.1.9.4	0						0		7
	C8.2	0						0		5
	C8.2.1	0						0		6
	C8.2.1.1	0						0		7
	C8.2.1.2	0						0		7
	C8.2.1.3	0						0		7
	ACTC	0						0		6
	C8.2.2	0						0		6
	C8.2.3	0						0		6
	C8.2.4	0						0		6
	C10	2						2		4
	C10.2	2						2		5
	C10.1	0						0		5
	C10.3	0						0		5
	C10.3.1	0						0		6
	C10.3.2	0						0		6
	C5.1.5	0						0		4
ELEC PART E		490						391	13.6	3
ELECTRICAL		(0)						153	5.3	4
WIRING METHODS		(168)						0		5
EWOR	E11.1	0						0		5
EWTC	F11.2	0						0		5
EWPC	E11.3	0						0		5
EWIM	E11.4	0						0		5
EWHL	E11.5	0						0		5
EWFB	E11.6	0						0		5
EWCS	E11.7	0						0		5
EWLR	E11.8	0						0		5
EWPS	E11.9	0						0		5
EWBR	E11.10	0						0		5
EWCU	E11.11	0						0		5
EWSN	E11.12	0						0		5
EWCP	E20	0						0		5
EWPR	E20.1	0						0		5
EXUR	E20.1.1	0						0		5
FXGF1.	E20.1.2	0						0		5
FXGE2.	E20.2	0						0		5
FXRL	E20.2.1	0						0		5
EXRL1.	E20.2.2	0						0		5
EXRL2.	E20.2.3	0						0		5
EXPL3.	E20.2.4	0						0		5
EXRL4.	E20.3	0						0		5
EAF1	E20.4	0						0		5
FHSF	E20.4.1	0						0		5
FHSF1.	E20.4.2	0						0		5
FHSF2.	E19	84						0		6
EFRO	E19.1	84						0		6
EFIN	E23	51						0		6
EGDB	E23.1	51						0		6
EGSE	E23.1.1	0						0		6
EGSE1.	E23.1.2	0						0		6
EGSE2.	E23.1.3	0						0		6
EGSE3.		0						0		6

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
FNIN									
ENIN1.		(0)		.0	.0	.0	0	.0	5
ENIN2.				.0	.0	.0	0	.0	6
EIGN		(0)		.0	.0	.0	0	.0	6
EIGD1.		(0)		.0	.0	.0	0	.0	5
EIGD2.				.0	.0	.0	0	.0	4
EIGD3.				.0	.0	.0	0	.0	6
EIGD4.				.0	.0	.0	0	.0	7
EIGD5.				.0	.0	.0	0	.0	7
EIGD6.				.0	.0	.0	0	.0	7
EIGD7.				.0	.0	.0	0	.0	7
EIGD8.				.0	.0	.0	0	.0	6
EIGD9.				.0	.0	.0	0	.0	6
EIGD10.				.0	.0	.0	0	.0	6
EIGD11.				.0	.0	.0	0	.0	7
EIGD12.				.0	.0	.0	0	.0	7
EIGD13.				.0	.0	.0	0	.0	7
EIGD14.				.0	.0	.0	0	.0	7
EIGD15.				.0	.0	.0	0	.0	7
EIGD16.				.0	.0	.0	0	.0	7
EIGD17.				.0	.0	.0	0	.0	7
EIGD18.				.0	.0	.0	0	.0	6
EIGD19.				.0	.0	.0	0	.0	6
EIGD20.				.0	.0	.0	0	.0	5
EIGD21.				.0	.0	.0	0	.0	6
EIGD22.				.0	.0	.0	0	.0	6
EIGD23.				.0	.0	.0	0	.0	6
EIGD24.				.0	.0	.0	0	.0	6
EIGD25.				.0	.0	.0	0	.0	6
EIGD26.				.0	.0	.0	0	.0	6
EIGD27.				.0	.0	.0	0	.0	6
EIGD28.				.0	.0	.0	0	.0	6
EIGD29.				.0	.0	.0	0	.0	6
EIGD30.				.0	.0	.0	0	.0	6
EIGD31.				.0	.0	.0	0	.0	6
EIGD32.				.0	.0	.0	0	.0	6
EIGD33.				.0	.0	.0	0	.0	6
EIGD34.				.0	.0	.0	0	.0	6
EIGD35.				.0	.0	.0	0	.0	6
EDIS				.0	.0	.0	0	.0	4
EDPD				.0	.0	.0	0	.0	5
FOLF				.0	.0	.0	0	.0	5
FOWS				.0	.0	.0	0	.0	5
EDRT				.0	.0	.0	0	.0	5
EDMK				.0	.0	.0	0	.0	5
EDFT				.0	.0	.0	0	.0	5
EDNE				.0	.0	.0	0	.0	5
EDDP				.0	.0	.0	0	.0	5
EDRP				.0	.0	.0	0	.0	5
E23.2									
E23.2.1									
E23.2.2									
E23.3									
E23.3.1									
E23.3.2									
E23.3.2.1									
E23.3.2.2									
E23.3.2.3									
E23.3.2.4									
E23.3.2.5									
E23.3.2.6									
E23.3.2.7									
E23.3.3									
E23.3.4									
E23.4									
E23.4.1									
E23.4.2									
E23.4.3.									
E27									
E22.1		(0)			100.0	8.0	37	1.3	4
E22.2						8.0	37	1.3	5
E18		(31)			.0	6.3	28	1.0	4
E18.1		(0)			.0	.0	0	.0	5
E18.1					.0	.0	0	.0	6
E18.1					.0	.0	0	.0	6
E5.0		(0)			.0	.0	0	.0	4
FRXY1.		(0)			.0	.0	0	.0	5
EPXY11.					.0	.0	0	.0	6
EPXY2.					.0	.0	0	.0	5
EREC					.0	.0	0	.0	4
EKLW					.0	.0	0	.0	5
ERLW1.					.0	.0	0	.0	6
ERLW2.					.0	.0	0	.0	6
ERLW3.					.0	.0	0	.0	6
ERLW4.					.0	.0	0	.0	6
ERSR					.0	.0	0	.0	5
ENCR					.0	.0	0	.0	4
ENCR1.					.0	.0	0	.0	5
ENCR2.					.0	.0	0	.0	5
ENCR3.					.0	.0	0	.0	5
ENCR31.					.0	.0	0	.0	6
ENCR32.					.0	.0	0	.0	6
ENCR33.					.0	.0	0	.0	6
ENCR34.					.0	.0	0	.0	6
ENCR35.					.0	.0	0	.0	6
EDIS					.0	.0	0	.0	4
EDPD					.0	.0	0	.0	5
FOLF					.0	.0	0	.0	5
FOWS					.0	.0	0	.0	5
EDRT					.0	.0	0	.0	5
EDMK					.0	.0	0	.0	5
EDFT					.0	.0	0	.0	5
EDNE					.0	.0	0	.0	5
EDDP					.0	.0	0	.0	5
EDRP					.0	.0	0	.0	5
INSULATED NEUTRAL									
INSULATION OF GROUNDED CIRCUIT									
GROUNDED RANGES AND DRYERS									
INTERIOR GROUNDING - ELECTRICAL									
GROUNDING OF EXPOSED METAL PARTS									
GROUNDING OF ELECTRICAL EQUIPMENT									
SECURING TO GROUNDED STRUC METAL									
METALLIC RACEWAY TO METALLIC O/R									
CONDUCTORS AND A METALLIC BOX									
CONDUCTORS/NON-METALLIC BOX									
GROUNDING AT LIGHT FIXTURE									
NON-METALLIC SHEATHED CABLE									
GROUNDING FIXTURE TO METALLIC RACEWAY									
MULTIPLE GROUNDING CONDUCTORS									
GROUNDING OF NONCURRENT - CARRYING MET		(0)							
EXPUSED NONCURRENT - CARRYING METAL									
TYPE OF GROUNDING TERMINALS									
GROUNDING OF METALLIC PIPES/DUCTS									
OUTDOOR OUTLETS, FIXTURES, AIR-COOLING		(0)				8.0	37	1.3	4
TYPE OF OUTDOOR FIXTURES AND EQUIPMENT						8.0	37	1.3	5
OUTDOOR AC OR HEATING RECEPTACLE - TAG									
WALL SWITCHES		(31)					28	1.0	4
SWITCH RATINGS		(0)					0	.0	5
LIGHTING CIRCUITS									
MOTORS OR OTHER LOADS									
MATERIALS AND EQUIPMENT		(0)							
LISTED AND APPROVED		(0)							
ALUMINUM/COPPER DEVICES									
APPLIANCE ACCESSABILITY									
RECEPTACLE OUTLETS REQUIRED		(0)							
LOCATION ON WALLS		(0)							
COUNTER TUPS IN KITCHENS									
ADJACENT TO APPLIANCES									
COUNTER TOP SPACES FOR BUILT-IN									
COUNTER TOP SPACES UNDER WALL-CABINETS									
LOCATIONS IN SHOWER OR BATHUR SPACES									
BRANCH CIRCUITS REQUIRED		(0)							
LIGHTING									
PORTABLE APPLIANCES									
GENERAL APPLIANCES		(0)							
FIXED APPLIANCES/CIRCUIT WITH L/O									
FIXED APPLIANCES/CIRCUIT WITHOUT L/O									
SINGLE PORTABLE APPLIANCE									
RANGE BRANCH CIRCUIT									
WHEN LAUNDRY FACILITIES PROVIDED									
DISCONNECTING MEANS AND BRANCH CIRCUIT		(0)							
OVERCURRENT PROTECTION DEVICE									
LOCATION ABOVE FLOOR									
WORKING SPACE									
RATING, TYPE, GROUNDING									
MARKINGS									
FUSE TYPES									
NEC ARTICLE 210									
OVERCURRENT PROTECTION									
RECEPTACLE PROTECTION									

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

EDCB	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
E9.10	0						0	0.0	5
E10	0						0	0.0	4
E10.4	0						0	0.0	5
E10.9	0						0	0.0	5
E12	0						0	0.0	4
E12.1	0						0	0.0	5
E12.2	0						0	0.0	5
E13	0						0	0.0	4
E13.1	0						0	0.0	5
E13.2	0						0	0.0	5
E13.3	0						0	0.0	5
E13.4	0						0	0.0	5
E14	0						0	0.0	4
E14.1	0						0	0.0	5
E14.2	0						0	0.0	5
E16	0						0	0.0	4
E16.1	0						0	0.0	5
E16.2	0						0	0.0	5
E16.3	0						0	0.0	5
E17	0						0	0.0	4
E17.1	0						0	0.0	5
E17.2	0						0	0.0	5
E25	0						0	0.0	4
E25.1	0						0	0.0	5
E25.2	0						0	0.0	5
E25.3	0						0	0.0	5

HEAT	PART D	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
H4PL		205					93.6	187	6.5	4
HAAC		102				49.8	46.6	101	3.5	5
HAAC.2.		102		100.0		49.8	46.6	101	3.5	6
HAAC1.		0						0	0.0	6
HAAC3.		0						0	0.0	6
HAAC4.		0						0	0.0	6
HAVA		76				37.1	34.7	71	2.5	5
HAVE		53				37.1	34.7	71	2.5	6
HAVE4.		22		69.7		25.9	24.2	49	1.7	7
HAVE3.		18		28.9		10.7	10.0	22	0.8	7
HAVE31.		3		81.8		8.8	8.2	18	0.6	8
HAVE32.		1		13.6		1.5	1.4	3	0.1	8
HAVE2.		0						0	0.0	7
HAVE1.		0						0	0.0	7
HAVE5.		0						0	0.0	7
HAVE6.		0						0	0.0	7
HACA		18				8.8	8.2	18	0.6	5
HACS		1						1	0.0	6
HACS3.		1		100.0		5.6	5.5	1	0.0	6
HACS1.		0						0	0.0	7
HACS2.		0						0	0.0	7
HARA		0						0	0.0	7
HARA1.		0						0	0.0	6
HARA2.		0						0	0.0	7
HARA21.		0						0	0.0	8
HARA22.		0						0	0.0	8
HARA23.		0						0	0.0	8

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
HARG3.	06.10.2.3						0	0	7
HARA4.	06.10.2.4						0	0	7
HARS	06.10.3						0	0	6
HASU	06.10.4						0	0	6
HARG1.	06.10.5.1	(0)					0	0	7
HARG2.	06.10.5.2						0	0	7
HARG3.	06.10.5						0	0	7
HARG4.	06.10.5						0	0	7
HARG5.	06.10.5						0	0	7
HARG6.	06.10.5						0	0	7
HAI3	06.3						0	0	7
HANP	06.3.3						9	8	5
HANP2.	06.3.3.2	(0)		100.0	4.4	4.1	9	8	6
HANP1.	06.3.3.1		100.0	100.0	4.4	4.1	9	8	7
HAIN	06.3.1						0	0	7
HAIN1.							0	0	6
HAMS	06.3.2						0	0	6
HAGL	06.1						0	0	5
HAVT	06.1.2						0	0	6
HACN	06.1.3						0	0	6
HACD	06.2						0	0	6
HADE	06.2.1						0	0	5
HAPD	06.2.2						0	0	6
HAPD	06.2.3						0	0	6
HAPC	06.2.4						0	0	6
HAI3	06.5						0	0	5
HAI3	06.6						0	0	5
HAKM1.	06.6.1						0	0	6
HAKM2.	06.6.1						0	0	6
HAKM3.	06.6.1						0	0	6
HAKM4.	06.6.1						0	0	6
HAFU	06.6.2						0	0	6
HAFU1.	06.6.2						0	0	6
HAFU2.	06.6.2						0	0	6
HAFU3.	06.6.2						0	0	6
HAFU4.	06.6.2						0	0	6
HAI3	06.8						0	0	5
HAI3	06.9						0	0	4
HAPG	04.2.5					5.9	13	13	4
HPSY	D5						1	1	4
HGFS	D5.1				100.0		1	1	5
HGFG	D5.1.1						0	0	6
HGPG1.	D5.1.1.1						0	0	7
HGPM	D5.1.2						0	0	6
HGPM1.	D5.1.2.1						0	0	7
HGPM2.	D5.1.2.2						0	0	7
HGPM3.	D5.1.2.3						0	0	7
HGPM4.	D5.1.2.4						0	0	7
HGPM5.							0	0	7
HGPD	D5.1.3						0	0	6
HGPD1.	D5.1.3.1						0	0	7
HGP7	D5.1.4						0	0	6
HGJ1.	D5.1.5						0	0	6
HGJ2.	D5.1.6						0	0	6
HGJ3.	D5.1.7						0	0	6

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
HGCT	D5.1.8						0	.0	6
HGHI	D5.1.9						0	.0	6
HGHS	D5.1.10						0	.0	6
HGLS1.	D5.1.10.1						0	.0	7
HGLS2.	D5.1.10.2						0	.0	7
HGID	D5.1.11						0	.0	6
HGSC	D5.1.12						0	.0	7
HGSCI.	D5.1.12.1						0	.0	6
HGAC1.	D5.1.13						0	.0	7
HGAC2.							0	.0	6
HGVS							0	.0	6
HGIC	D5.1.14						0	.0	6
HGFG	D5.1.15						0	.0	6
HGCP	D5.1.16						0	.0	6
HGHS	D5.1.17						0	.0	6
HGHL	D5.1.18						0	.0	6
HGTL1.	D5.1.19						0	.0	7
HGTL2.	D5.1.19.1						0	.0	7
HOP3.	D5.1.19.2						0	.0	5
HOP4.	D5.2						0	.0	6
HOP5.	D5.2.1						0	.0	6
HOP6.	D5.2.2						0	.0	7
HOPM1.	D5.2.2.1						0	.0	7
HOPM2.	D5.2.2.2						0	.0	7
HOPM3.	D5.2.2.3						0	.0	7
HOPM4.	D5.2.2.4						0	.0	7
HOSP	D5.2.3						0	.0	6
HOCJ	D5.2.4						0	.0	6
HOJT	D5.2.5						0	.0	6
HOCF	D5.2.6						0	.0	6
HCCU	D5.2.7						0	.0	6
HGGP	D5.2.8						0	.0	6
HOSH	D5.2.9						0	.0	6
HCTL	D5.2.10						0	.0	6

 * APEQ MECHANICAL/ELECTRICAL APPLIANCES -EQUIPMENT (2) 4767 1790 62.1 *****

AFHA	FURNACE, HOT AIR, GAS OR OIL	(637)	2146	1133	39.3	3
AFPL	PILOT/ELECTRONIC IGNITION	(72)	456	21.2	359	12.5
AFPL1.	RELIGHT PILOT	(23)	384	84.2	310	10.8
AFCL	CONTROLS	(37)	177	15.7	262	9.1
AFBW	BLGWP		137	52.7	148	5.1
AFLS	LIMIT SWITCH		3	77.4	117	4.1
AFRR	RESET BUTTON		96	1.7	3	.1
AFBU	BURNER	(16)	38	28.6	83	2.9
AFTC	THERMOCOUPLE		14	39.6	35	1.2
AFCV	CONTROLS VALVE		14	14.6	14	.5
AFRE	ELECTRODE		10	4.2	13	.5
AFCA	CAD CELLS		4	10.4	9	.3
AFCR	RESET BUTTON		40	4.2	3	.1
AFTW	INTERNAL WIRING	(37)	3	11.9	38	1.3
AFES	ON/OFF EMERGENCY SWITCH		283	7.5	3	.1
AFFG	FUEL GUN	(29)		.9	242	8.4
				13.2		4

F-CURTH THROUGH EIGHTH LEVEL SUMMATIONS:

		NO.	%7TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
AFNN	NOZZLE / ORIFICE				44.9	5.9	118	4.1	5
AFW	WRONG INITIALLY INSTALLED	(67)		47.2	21.2	2.8	60	2.1	6
AFFL	GAS LEAK				33.6	4.4	91	3.2	5
AFEP	PUMP				6.0	.8	16	.6	5
AFFO	GIL LEAK				4.2	.6	11	.4	5
AFFM	PUMP MOTOR				1.1	.1	3	.1	5
AFWT	WALL THERMOSTAT	(199)				11.2	205	7.1	4
AFTA	TRANSFORMER				17.1	1.9	38	1.3	5
AFBL	BLOWER ASSEMBLY	(62)			.0	2.9	57	2.0	4
AFRD	BELT DRIVE				.0	.0	0	.0	5
AFBB	BEARINGS				.0	.0	0	.0	5
AFGR	GAS REGULATOR					1.6	35	1.2	4
AFDR	FURNACE DOORS					1.4	30	1.0	4
AFAB	BURNER ASSEMBLY					1.3	27	.9	4
AFTR	FILTER					1.2	25	.9	4
AFSC	FUEL SUPPLY CONNECTION					.3	7	.2	4
AFRM	BLOWER MOTOR	(6)			.0	.3	6	.2	4
AFRG	BEARINGS				.0	.0	0	.0	5
AFMM	MOTOR MOUNT				.0	.0	0	.0	5
AHWW	HOT WATER HEATERS	(459)	1444				939	32.6	3
AHEL	ELECTRIC HOT WATER HEATER	(202)	746			51.7	510	17.7	4
AHER	PRESSURE RELIEF VALVE		139		26.7	13.8	185	6.4	5
AHEH	HEAT ELEMENT		141		18.9	9.8	119	4.1	5
AHEC	CONTROLS	(32)	125		16.8	8.7	102	3.5	5
AHEM	THERMOSTAT		61		48.8	4.2	53	1.8	6
AHEB	RESET BUTTON		18		14.4	1.2	16	.6	6
AHEE	HEATING ELEMENT		14		11.2	1.0	11	.4	6
AHTK	TANK	(3)	70		9.4	4.8	69	2.4	5
AHTE	LEAK		67		95.7	4.6	66	2.3	6
AHFP	PRESSURE REGULATOR		6		.8	.4	6	.2	5
AHFS	ANTI-SIPHON VALVE		3		.4	.2	3	.1	5
AHGS	GAS HOT WATER HEATER	(16)	239			16.6	175	6.1	4
AHTG	TANK	(1)	52		21.8	3.6	50	1.7	5
AHTL	LEAK		51		19.7	3.3	49	1.7	6
AHPL	PILOT	(11)	47		98.1	2.5	40	1.4	5
AHPP	RELIGHT PILOT		36		76.6	3.0	32	1.1	6
AHRV	PRESSURE RELIEF VALVE		44		18.4	2.8	39	1.4	5
AHRR	BURNER	(3)	41		17.2	1.8	37	1.3	5
AHRL	LEAK		26		63.4	10.9	24	.8	6
AHNZ	NOZZLE/ORIFICE		9		22.0	.6	8	.3	6
AHRG	REGULATOR		3		7.3	.2	3	.1	6
AHCL	CONTROLS	(6)	32		13.4	2.2	25	.9	5
AHCT	THERMOSTAT		12		37.5	.8	10	.3	6
AHCR	RESET BUTTON		10		31.3	.7	9	.3	6
AHCB	BURNER		4		12.5	.3	3	.1	6
AHPG	PRESSURE REGULATOR		5		2.1	.3	4	.1	5
AHAV	ANTI-SIPHON VALVE		2		.8	.1	2	.1	5
ARGE	RANGE - GAS/ELECTRIC	(202)	792				544	18.9	3
AKPL	PILOT	(79)	205		61.5	25.9	175	6.1	4
APPRI.	RELIGHT PILOT		126			15.9	112	3.9	5
ARGL	GAS LEAK		152			19.2	129	4.5	4
ARRU	BURNER	(58)	109			13.8	98	3.4	4

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
ARV	36				33.0	4.5	31	1.1	5
ARBS	15				13.8	1.9	14	.5	5
ARCL	(38)				10.5	10.5	76	2.6	4
ARCT	18				21.7	2.3	16	.6	5
AROR	17				20.5	2.1	17	.6	5
ARSB	10				12.0	1.3	10	.3	5
ARTI	0				.0	.0	0	.0	5
ARHW	37	(3)			4.7	4.7	35	1.2	4
ARHO	22				59.5	2.8	22	.8	5
ARHK	11				29.7	1.4	10	.3	5
ARHD	1				2.7	.1	1	.0	5
ARHH	0				.0	.0	0	.0	5
APIW	4				.5	.5	3	.1	4
AEX	180						168	5.8	3

	(120)	153	133	4.6	3
ACRF					
ACRG		16	16	10.5	.6
ACRL	(10)	11	11	7.2	.4
ACRS		1	1	.7	.0
ACRD		0	0	.0	.0
ACRA		0	0	.0	.0
ACRC		2	2	1.3	.1
ACRR	(1)	2	2	1.3	.1
ACRZ		1	1	.7	.0
ACRI		0	0	.0	.0
ACRT		0	0	.0	.0
ACRH		0	0	.0	.0
ACRN		2	2	1.3	.0
ACRM		0	0	.0	.0
ASDE		37	35	1.2	3

	(2)	13	12	.4	3
AFER					
AFST	(2)	8	8	61.5	.3
AFTF		6	6	46.2	.2
AFNC	(0)	3	3	23.1	.1
AFPT		3	3	100.0	.1
AFMT		0	0	.0	.0

ELECTRIC BASEBOARD HEATING UNITS

	(2)	8 <th>6 <th>3 <th>3 <th>0 </th></th></th></th>	6 <th>3 <th>3 <th>0 </th></th></th>	3 <th>3 <th>0 </th></th>	3 <th>0 </th>	0
AFST						
AFTF						
AFNC						
AFPT						
AFMT						

APPENDIX B

Rank Ordered Problem Summation Printouts For:
(967 Privately-owned Mobile Homes)

FIRST LEVEL SUMMATION:
 TOTAL NUMBER OF PROBLEMS

NO.
 6206

SECOND AND THIRD LEVEL SUMMATIONS:		NO.	%2ND	%1ST	HOMES	%HOMES	LEVEL
ANSI	ANSI STANDARD A119.1	(0) 4071		65.6	891	92.1	2
CONS	PART B CONSTRUCTION	(6) 1805	44.3	29.1	708	73.2	3
PLUM	PART C PLUMBING	(0) 1150	28.2	18.5	580	60.0	3
HEAT	PART D HEATING SYSTEM	(28) 592	14.5	9.5	316	32.7	3
ELFC	PART E ELECTRICAL	(0) 524	12.9	8.4	326	33.7	3
NANS	ROUTINE MAINTENANCE	(2) 1490		24.0	688	71.1	2
NCON	CONSTRUCTION	(1) 1127	75.6	18.2	579	59.9	3
NPLM	PLUMBING	(34) 223	15.0	3.6	186	19.2	3
NELC	ELECTRICAL	(56) 131	8.8	2.1	112	11.6	3
NHTG	HEATING	(4) 7	.5	.1	7	.7	3
APEO	MECHANICAL/ELECTRICAL APPLIANCES -EQUIPMENT	(11) 367		5.9	271	28.0	2
ARGE	RANGE - GAS/ELECTRIC	(65) 112	30.5	1.8	97	10.0	3
AFHA	FURNACE,HOT AIR,GAS OR OIL	(38) 87	23.7	1.4	77	8.0	3
AEEA	EXHAUST FAN	(72) 52	19.6	1.2	71	7.3	3
AHWV	HOT WATER HEATERS	(14) 52	14.2	.8	50	5.2	3
ACRF	REFRIGERATOR	(28) 32	8.7	.5	28	2.9	3
AFEB	ELECTRIC BASEBOARD HEATING UNITS	(1) 1	.3	.0	1	.1	3
ASDE	SMOKE DETECTOR	(0) 0	.0	.0	0	.0	3
FURN	FURNITURE	278		4.5	239	24.7	2

TOTAL NUMBER OF MOBILE HOMES REVIEWED =

967

FCURTH LEVEL SUMMATION:

LEVEL

%HOMES

HOMES

%1ST

%2ND

%3RD

NO.

%1ST

%2ND

%3RD

NO.

%1ST

%2ND

%3RD

 * ANSI STANDARD A19.1

CCNS	PART B	CONSTRUCTION	(	6)	1805	44.3	29.1	708	73.2	3
ROOF	86/87	ROOF SYSTEM	(	5)	511	28.3	12.6	377	39.0	4
FLOOR	86/87	FLOOR SYSTEMS	(	26)	371	20.6	9.1	291	30.1	4
INTW	86/87	PARTITION WALLS	(	0)	335	18.6	8.2	289	29.9	4
EXTW	86/87	EXTERIOR WALLS	(	2)	235	13.0	5.8	193	20.0	4
DEXT	86/87/88	DGORS EXTERIOR	(	0)	169	9.4	4.2	159	16.4	4
WINDW	86/87/88	WINDOWS	(	0)	145	8.0	3.6	138	14.3	4
TRAN	8-APP.	TRANSIT CONSIDERATIONS	(	0)	27	1.5	.7	27	2.8	4
DINT	88.3.2/3	DOOR INTERIOR	(	1)	5	.3	.1	5	.5	4
TIDN	86.5.1	TIEDOWNS	(	0)	1	.1	.0	1	.1	4
FWFO	89.1	FIRE WARNING EQUIPMENT	(	0)	0	.0	.0	0	.0	4
SREQ	88.4	SPECIAL REQUIREMENTS	(	0)	0	.0	.0	0	.0	4
PLUM	PART C	PLUMBING	(	0)	1150	28.2	18.5	580	60.0	3
PFIA	C9	PLUMBING FIXTURES	(	0)	550	47.8	13.5	398	41.2	4
JCTI	C7.1	JOINTS + CONNECTIONS/TIGHT IGAS, WATER	(	20)	201	17.5	4.9	171	17.7	4
PREQ	C5.2	PROTECTIVE REQUIREMENT	(	0)	160	13.9	3.9	147	15.2	4
DSYS	C12	DRAINAGE SYSTEM	(	5)	78	6.8	1.9	71	7.3	4
TANC	C8	TRAPS AND CLEANOUTS	(	0)	59	5.1	1.4	53	5.5	4
WDTN	C11	WATER DISTRIBUTION SYSTEM	(	1)	38	3.3	.9	37	3.8	4
VANV	C13	VENTS AND VENTING	(	7)	36	3.1	.9	32	3.3	4
PHAS	C10	HANGERS AND SUPPORTS	(	8)	27	2.3	.7	27	2.8	4
ATDF	C5.1.5	ALIGN OF FITTINGS/DIRECTION OF FLOW	(	1)	1	.1	.0	1	.1	4
PFAP	C5.1.4	PROHIBITED FITTINGS AND PRACTICES	(	0)	0	.0	.0	0	.0	4
HEAT	PART D	HEATING SYSTEM	(	28)	592	14.5	9.5	316	32.7	3
HAPL	D6	APPLIANCES	(	0)	460	77.7	11.3	279	28.9	4
HPSY	D5	PIPING SYSTEM	(	0)	104	17.6	2.6	83	8.6	4
HLPG	D4.2.5	LP GAS SAFETY DEVICES	(	0)	0	.0	.0	0	.0	4
ELEC	PART E	ELECTRICAL	(	0)	524	12.9	8.4	326	33.7	3
EWOR	E11	WIRING METHODS	(	69)	215	41.0	5.3	174	18.0	4
EXUR	E20	LIGHTING FIXTURES	(	55)	61	11.6	1.5	53	5.5	4
ERCR	F7	BRANCH CIRCUITS REQUIRED	(	0)	55	10.5	1.4	53	5.5	4
EMKE	E25	ELECTRICAL MARKING	(	3)	39	7.4	1.0	35	3.6	4
EDIS	E9	DISCONNECTING MEANS AND BRANCH CIRCUIT	(	8)	33	6.3	.8	33	3.4	4
EGDB	E23	GROUNDING AND BONDING	(	8)	31	5.9	.8	28	2.9	4
EBFA	E22	CUTDOOR OUTLETS, FIXTURES, AIR-COOLING	(	1)	21	4.0	.5	19	2.0	4
ERFC	E6	RECEPTACLE OUTLETS REQUIRED	(	1)	20	3.8	.5	18	1.9	4
FFRO	E19	RECEPTACLE OUTLETS	(	0)	17	3.2	.4	17	1.8	4
ESWL	F18	WALL SWITCHES	(	15)	15	2.9	.4	13	1.3	4
EPOW	E10	POWER SUPPLY	(	5)	6	1.1	.1	6	.6	4
FUND	E12	UNDER CHASSIS WIRING	(	0)	6	1.1	.1	6	.6	4
FRXY	E5.0	MATERIALS AND EQUIPMENT	(	1)	3	.6	.1	3	.3	4
EFPL	E13	SWITCHES AND RECEPTACLE PLATES	(	1)	1	.2	.0	1	.1	4
ETER	E17	CONNECTION TO TERMINALS AND SPLICES	(	0)	1	.2	.0	1	.1	4
ECON	E14	CONDUCTORS IN OUTLET BOXES	(	0)	0	.0	.0	0	.0	4

EPOL	E16	POLARIZATION	(	0)	0	.0	.0	.0	0	.0	4

*	NANS	ROUTINE MAINTENANCE	(	2)	1490	24.0	688	71.1	*****		

NCON	CONSTRUCTION		(	1)	1127	75.6	18.2	579	59.9	3	

NCON	WINDOWS		(	58)	452	40.1	30.3	7.3	333	34.4	4
NCON	EXTERIOR DOORS		(	47)	286	25.4	19.2	4.6	242	25.0	4
NCON	PARTITIONS DOORS		(	27)	250	22.2	16.8	4.0	197	20.4	4
NCON	BLOCKING		(	15)	74	6.6	5.0	1.2	70	7.2	4
NCON	HOT WATER HEATER COMPARTMENT		(	0)	30	2.7	2.0	.5	26	2.7	4
NCON	FLOOR		(	1)	13	1.2	.9	.2	13	1.3	4
NCON	SKIPTING			9	.8	.6	.1	.9	.9	4	
NCON	EXTERIOR STAIRS			7	.6	.5	.1	.4	.4	4	
NCON	TIE DOWN STRAPS LOOSE, ETC			5	.4	.3	.1	.5	.5	4	
NCON	SITE GRADING			0	.0	.0	.0	.0	.0	4	

NPLM	PLUMBING		(	34)	223	15.0	3.6	186	19.2	3	

NPFX	FIXTURES		(	0)	168	75.3	11.3	2.7	142	14.7	4
NPRT	SEWER			8	3.6	.5	.1	.8	.8	4	
NPMW	WASHING MACHING		(	5)	5	2.2	.3	.1	5	.5	4
NPDW	DISH WASHER		(	5)	5	2.2	.3	.1	5	.5	4
NPWS	WATER SUPPLY PIPING		(	1)	3	1.3	.2	.0	3	.3	4
NPEX	EXTERIOR DRAIN-FURNACE WATER HEATER			0	.0	.0	.0	.0	0	.0	4
NPPP	PRESSURE REGULATOR			0	.0	.0	.0	.0	0	.0	4

NELC	ELECTRICAL		(	56)	131	8.8	2.1	112	11.6	3	

NFDW	DISTRIBUTION PANEL BOARD		(	8)	31	23.7	2.1	.5	31	3.2	4
NFSW	SWITCHES		(	15)	16	12.2	1.1	.3	15	1.6	4
NERC	RECEPTICAL OUTLETS		(	7)	15	11.5	1.0	.2	13	1.3	4
NFIF	INTERIOR LIGHTING FIXTURES		(	12)	12	9.2	.8	.2	12	1.2	4
NESR	SERVICE			1	.8	.1	.0	.1	1	.1	4
NESP	POWER POLE/LIFELINE			0	.0	.0	.0	.0	0	.0	4
NFGR	EXTERNAL GROUNDING			0	.0	.0	.0	.0	0	.0	4
NEBC	BRANCH CIRCUIT MALFUNCTION			0	.0	.0	.0	.0	0	.0	4
NEEF	EXTERIOR LIGHT FIXTURE			0	.0	.0	.0	.0	0	.0	4

NHTG	HEATING		(	4)	7	.5	.1	.7	7	.7	3

NHGP	GAS SUPPLY PIPING			3	42.9	.2	.0	.0	3	.3	4
NHOP	OIL SUPPLY PIPING			0	.0	.0	.0	.0	0	.0	4
NHGR	GAS PRESSURE REGULATOR		(	0)	0	.0	.0	.0	0	.0	4
NHSP	INSTALLED SPACE HEATERS			0	.0	.0	.0	.0	0	.0	4
NHPJ	ROOF JACK			0	.0	.0	.0	.0	0	.0	4

*	APEQ	MECHANICAL/ELECTRICAL APPLIANCES -EQUIPMENT	(	11)	367	5.9	271	28.0	*****		

ARGE	RANGE - GAS/ELECTRIC		(	65)	112	30.5	1.8	97	10.0	3	

ARHW	HARDWARE		(	5)	25	22.3	6.8	.4	21	2.2	4

FOURTH LEVEL SUMMATION:

		NO.	%3RD	%2ND	%1ST	HOMES	%HOMES	LEVEL
ARBUR	BURNER	(7)	8.0	2.5	.1	9	.9	4
ARGL	GAS LEAK	(3)	8.0	2.5	.1	8	.8	4
APPL	PILOT	(0)	2.7	.8	.0	3	.3	4
ARCL	CONTROLS	(0)	.9	.3	.0	1	.1	4
ARLW	INTERNAL WIRING	(0)	.0	.0	.0	0	.0	4
AFHA	FURNACE, HOT AIR, GAS OR OIL	(38)	87	23.7	1.4	77	8.0	3
AFWT	WALL THERMOSTAT	(18)	18	20.7	.3	18	1.9	4
AFDR	FURNACE DOORS	(0)	11	12.6	.2	11	1.1	4
AFCL	CONTROLS	(3)	8	9.2	.1	8	.8	4
AFBL	BLOWER ASSEMBLY	(2)	4	4.6	.1	4	.4	4
AFRM	BLOWER MOTOR	(0)	2	2.3	.5	2	.2	4
AFFG	FUEL GUN	(0)	2	2.3	.5	2	.2	4
AFTR	FILTER	(0)	2	2.3	.5	2	.2	4
AFAB	BURNER ASSEMBLY	(0)	1	1.1	.3	1	.1	4
AFSC	FUEL SUPPLY CONNECTION	(0)	1	1.1	.3	1	.1	4
AFPL	PILOT/ELECTRONIC IGNITION	(0)	0	.0	.0	0	.0	4
AFGR	GAS REGULATOR	(0)	0	.0	.0	0	.0	4
AEEX	EXHAUST FAN	(14)	72	19.6	1.2	71	7.3	3
AHWM	HOT WATER HEATERS	(10)	52	14.2	.8	50	5.2	3
AHEL	ELECTRIC HOT WATER HEATER	(0)	36	69.2	.6	35	3.6	4
AHGS	GAS HOT WATER HEATER	(0)	2	3.8	.5	2	.2	4
ACRF	REFRIGERATOR	(3)	32	8.7	.5	28	2.9	3
ACRR	REFRIGERANT SYSTEM	(0)	3	9.4	.8	2	.2	4
ACRG	GASKETING (DOORS)	(0)	1	3.1	.3	1	.1	4
ACRC	COMPRESSOR	(0)	0	.0	.0	0	.0	4
ACRM	COMPRESSOR MOTOR	(0)	0	.0	.0	0	.0	4
ACRL	CONTROLS	(0)	0	.0	.0	0	.0	4
ACRN	FAN	(0)	0	.0	.0	0	.0	4
AFER	ELECTRIC BASEBOARD HEATING UNITS	(1)	1	.3	.0	1	.1	3
AFMT	HEATING ELEMENT	(0)	0	.0	.0	0	.0	4
AFST	THERMOSTAT	(0)	0	.0	.0	0	.0	4
AFNC	CONTROLS	(0)	0	.0	.0	0	.0	4
ASDE	SMOKE DETECTOR	(0)	0	.0	.0	0	.0	3

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:		NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
FASS3.	86.5				0.3	1.1	.2	4	.4	6
FASS4.	86.5				2.1	.3	.1	1	.1	6
FDFE	86.10	(3)			8.9	1.8	1.8	33	3.4	5
FDEF2.	86.10				54.5	4.9	1.0	18	1.9	6
FDEF1.	86.10				36.4	3.2	.7	12	1.2	6
FLWR	87.1	(1)			96.4	7.5	1.6	27	2.8	5
FLWR1.	87.1					7.3	1.5	26	2.7	6
FLCC	86.9	(2)			60.0	4.0	.8	14	1.4	5
FLCC2.	86.9				26.7	2.4	.5	9	.9	6
FLCC1.	86.9	(0)			66.7	1.1	.2	4	.4	6
FLHL	87.5				33.3	2.2	.4	10	1.0	5
FLHL1.	87.5					1.1	.2	8	.8	6
FLHL2.	87.5					1.1	.4	4	.4	6
FLDN	86.9.1	(0)				.5	.1	2	.2	5
FLIF	87.3					.0	.0	0	.0	5
FLIF1.	87.3					.0	.0	0	.0	6
INTW	86/87	(0)					18.6	289	29.9	4
INSS	86.5/6.7	(4)			94.9	94.9	17.6	281	29.1	5
INSS1.	86.5/6.7				95.0	90.1	16.7	275	28.4	6
INSS5.	86.5/6.7				1.9	1.8	.3	6	.6	6
INSS2.	86.5/6.7				1.3	1.2	.2	4	.4	6
INSS3.	86.5/6.7				.6	.6	.1	2	.2	6
INSS4.	86.5/6.7				.0	.0	.0	0	.0	6
INCC	86.7	(2)			80.0	3.0	.6	7	.7	5
INCC2.	86.7					2.4	.4	5	.5	6
INCC1.	86.7					.0	.0	0	.0	6
INDR						1.8	.3	6	.6	5
INFS	87.3					.3	.1	1	.1	5
INDN	86.6.1					.0	.0	0	.0	5
EXTW	86/87	(2)					13.0	193	20.0	4
EXSS	86.5/6.6	(1)			51.5	6.7	6.7	116	12.0	5
FXSS1.	86.5/6.6				86.8	44.7	5.8	101	10.4	6
EXSS5.	86.5/6.6				7.4	3.8	.5	9	.9	6
EXSS3.	86.5/6.6				2.5	1.3	.2	3	.3	6
FXSS4.	86.5/6.6				1.7	.9	.1	2	.2	6
FXSS2.	86.5/6.6				.8	.4	.1	1	.1	6
EXWR	87.1	(0)				29.8	3.9	62	6.4	5
EXWR1.	87.1				57.1	17.0	2.2	40	4.1	6
EXWR2.	87.1				27.1	8.1	1.1	19	2.0	6
EXWR3.	87.1				15.7	4.7	.6	11	1.1	6
EXWR4.	87.1				.0	.0	.0	0	.0	6
EXWR5.	87.1				.0	.0	.0	0	.0	6
EXHL	87.5					8.1	1.1	16	1.7	5
FXHL2.	87.5.4	(1)			57.9	4.7	.6	10	1.0	6
EXHL1.	87.5				36.8	3.0	.7	7	.7	6
EXDR	87.1	(0)				5.5	.7	13	1.3	5
FXDR1.	87.1				61.5	3.4	.4	8	.8	6
EXDR4.	87.1				23.1	1.3	.2	3	.3	6
EXDR2.	87.1				15.4	.9	.1	2	.2	6
EXDR3.	87.1				.0	.0	.0	0	.0	6
EXDR5.	87.1				.0	.0	.0	0	.0	6
EXCC	86.6	(1)				3.8	.5	9	.9	5
FXCC2.	86.6				66.7	2.6	.3	6	.6	6
FXCC1.	86.6				11.1	.4	.1	1	.1	6
EXCC3.	86.6				11.1	.4	.1	1	.1	6
EXCR	87.2	(1)				.4	.1	1	.1	5

FCUPTH	THROUGH	EIGHTH	LEVEL	SUMMATIONS:	NU.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
EXCR1.	B7.2			VAPOR BARRIER IN CEILING	0			.0	.0	.0	0	.0	6
EXCR2.	B7.2			NO VAPOR BARRIER IN CEILING	0			.0	.0	.0	0	.0	6
FXFS	B7.3			INTERIOR FLAME SPREAD - INTERIOR COVERING	0			.0	.0	.0	0	.0	9
EXRM	B7.6			METALLIC ROOF BONDING/EXTERIOR COVERINGS	0			.0	.0	.0	0	.0	9
DEXT	B6/B7/B8	(	0)	DOORS EXTERIOR	169				76.3	9.4	159	16.4	4
DEWP	B7.1			WEATHER RESISTANCE - WATER LEAK	129				21.3	7.1	126	13.0	5
DEDU				DURABILITY	36				1.8	2.0	35	3.6	5
DEHL	B7.5.4			HEAT LOSS - AIR INFILTRATION	3				.6	.1	1	.1	5
DELC	B6.3			LOAD CARRYING CAPACITY - RACKING	1				.0	.0	0	.0	5
DESZ	B8.3.1			SIZE	0				.0	.0	0	.0	5
DENL	B8.3.1			NUMBER AND LOCATION	0				.0	.0	0	.0	5
WNDW	B6/B7/B8	(	0)	WINDOWS	145				93.8	8.0	138	14.3	4
WNWP	B7.1/B8.5			WEATHER RESISTANCE - WATER LEAK	136				3.4	7.5	134	13.9	5
WNHL	B7.5.4			HEAT LOSS - AIR INFILTRATION	5				1.4	.3	5	.5	5
WNCC	B6.3			LOAD CARRYING CAPACITY - RACKING	2				.7	.1	1	.1	5
WNGL	B8.3.1			GLAZING	1				.7	.1	1	.1	5
WNCR	B7.2/B8.5			CONDENSATION RESISTANCE	0				.0	.0	0	.0	5
WNZR	B8.3.1			SIZE	0				.0	.0	0	.0	5
WNBR	B8.1.2			BATHROOM	0				.0	.0	0	.0	5
TRAN	R-APP.			TRANSIT CONSIDERATIONS	27				.0	1.5	27	2.8	4
TRAN1.	B.1	(	14)	A FRAME ASSEMBLY	17				63.0	.9	17	1.8	5
TRAN13.				TRANSVERSE MEMBERS	3			17.6	11.1	2.2	3	.3	6
TRAN12.				LONGITUDINAL MEMBERS	0			.0	.0	.0	0	.0	6
TRAN11.	B.10			LOW VOLTAGE WIRING	10				37.0	.6	10	1.0	5
TRAN2.	B.2			COUPLING MECHANISM	0				.0	.0	0	.0	5
TRAN3.	B.3			RUNNING GEAR ASSEMBLY	0				.0	.0	0	.0	5
TRAN4.	B.4			SPRING/SPRING HANGERS	0				.0	.0	0	.0	5
TRAN5.	B.5			AXLES	0				.0	.0	0	.0	5
TRAN6.	B.6			HUBS AND BEARINGS	0				.0	.0	0	.0	5
TRAN7.	B.7			WHEELS/RIMS	0				.0	.0	0	.0	5
TRAN8.	B.8			TIRES	0				.0	.0	0	.0	5
TRAN9.	B.8			BRAKES	0				.0	.0	0	.0	5
TRAN10.	B.9.1	(	0)	MAXIMUM STOPPING DISTANCE	0			.0	.0	.0	0	.0	5
DINT	B8.3.2/3	(	1)	DOOR INTERIOR	5				.0	.3	5	.5	4
DILH	B8.3.2/3			LOCKS, HARDWARE	4				80.0	.2	4	.4	5
DIDU				DURABILITY	0				.0	.0	0	.0	5
TIDN	B6.5.1	(	0)	TIEDOWNS	1				.0	.1	1	.1	4
TIDN2.	B6.5.1			LOAD CAPACITY	1				100.0	.1	1	.1	5
TIDN1.	B6.5.1.4			WEATHER RESISTANCE	0				.0	.0	0	.0	5
TIDN3.	B6.5.2			SPACING	0				.0	.0	0	.0	5
FWEQ	B9.1	(	0)	FIRE WARNING EQUIPMENT	0				.0	.0	0	.0	4
FWFQ1.	B9.1			LISTED DETECTOR	0				.0	.0	0	.0	5
FWEQ2.	B9.1			TROUBLE SIGNAL	0				.0	.0	0	.0	5
FWEQ3.	B9.1			LOCATION	0				.0	.0	0	.0	5
SRFQ	B8.4	(	0)	SPECIAL REQUIREMENTS	0				.0	.0	0	.0	4
SREQ1.	B8.4.1			MINIMUM AREAS	0				.0	.0	0	.0	5
SREQ2.	B8.4.2			MINIMUM WIDTH	0				.0	.0	0	.0	5
SRFQ3.	B8.4.3			TOILET COMPARTMENT	0				.0	.0	0	.0	5
SRFQ4.	B8.4.4			HALLWAYS	0				.0	.0	0	.0	5
PLUM	PART C	(	0)	PLUMBING	1150						580	60.0	3
PFA	C9	(	0)	PLUMBING FIXTURES	550					47.8	398	41.2	4
PFFX	C9.2	(	0)	FIXTURES	404				73.5	35.1	323	33.4	5
TCIL	C9.2.1	(	32)	TOILETS	192			47.5	34.9	16.7	167	17.3	6

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
TCIL5.	84	43.8	20.8	15.3	7.3	79	8.2	7	
TOIL2.	61	31.8	15.1	11.1	5.3	54	5.6	7	
TCIL6.	14	7.3	3.5	2.5	1.2	14	1.4	7	
TOIL1.	1	.5	.2	.2	.1	1	.1	7	
TOIL3.	0	.0	.0	.0	.0	0	.0	7	
TOIL4.	0	.0	.0	.0	.0	0	.0	7	
SHRS	(2)	46.0	33.8	16.2	176	18.2	6		
SHRS3.	136	73.1	33.7	11.8	133	13.8	7		
SHRS7.	37	19.9	9.2	6.7	36	3.7	7		
SHRS1.	11	5.9	2.7	2.0	11	1.1	7		
SHRS4.	0	.0	.0	.0	0	.0	7		
DISH	(4)	4.5	3.3	1.6	18	1.9	6		
DISH2.	10	55.6	2.5	1.8	10	1.0	7		
DISH1.	4	22.2	1.0	.7	4	.4	7		
WACD	(0)	2.0	1.5	.7	8	.8	6		
WACD2.	8	75.0	1.5	.5	6	.6	7		
WACD1.	6	25.0	.5	.4	2	.2	7		
WACD3.	2	.0	.0	.0	2	.2	7		
PFG1.	(0)	97.9	26.4	12.6	110	11.4	5		
PFG1.	142	25.8	12.3	107	11.1	6			
PFG3.	3	2.1	.5	.3	3	.3	6		
PFG2.	0	.0	.0	.0	0	.0	6		
PFG4.	0	.0	.0	.0	0	.0	6		
PFG5.	0	.0	.0	.0	0	.0	6		
IOPF.	(0)	100.0	.2	.1	1	.1	5		
IOPF3.	1	.2	.1	.1	1	.1	6		
IOPF1.	0	.0	.0	.0	0	.0	6		
IOPF2.	0	.0	.0	.0	0	.0	6		
JCTI	(20)	17.5	17.5	17.5	171	17.7	4		
JCT11.	0	.0	.0	.0	0	.0	5		
JCT12.	0	.0	.0	.0	0	.0	5		
JCT13.	0	.0	.0	.0	0	.0	5		
JCT14.	0	.0	.0	.0	0	.0	5		
JCT15.	0	.0	.0	.0	0	.0	5		
JCT16.	0	.0	.0	.0	0	.0	5		
JCT17.	0	.0	.0	.0	0	.0	5		
PREQ	(0)	13.9	13.9	13.9	147	15.2	4		
PREQ5.	159	99.4	99.4	99.4	146	15.1	5		
PREQ4.	1	.6	.6	.6	1	.6	5		
PREQ1.	0	.0	.0	.0	0	.0	5		
PREQ2.	0	.0	.0	.0	0	.0	5		
PREQ3.	0	.0	.0	.0	0	.0	5		
DSYS	(5)	6.8	6.8	6.8	71	7.3	4		
DSGR	57	73.1	5.0	5.0	55	5.7	5		
DSML	(0)	10.3	10.3	10.3	8	.8	5		
DSML2.	(1)	87.5	87.5	87.5	7	.7	6		
DSML23.	7	9.0	9.0	9.0	7	.7	7		
DSML21.	0	.0	.0	.0	0	.0	7		
DSML22.	0	.0	.0	.0	0	.0	7		
DSML24.	0	.0	.0	.0	0	.0	7		
DSML25.	0	.0	.0	.0	0	.0	7		
DSML1.	0	.0	.0	.0	0	.0	6		
DOUT	(4)	7.7	7.7	7.7	6	.6	5		
DOUT1.	2	33.3	2.6	2.6	2	.2	6		
DOUT2.	0	.0	.0	.0	0	.0	6		
DOUT3.	(0)	.0	.0	.0	0	.0	6		

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES %HOMES	LEVEL
DOUT31.	0						0	7
DOUT32.	0						0	7
DOUT33.	0						0	7
DOUT4.	0						0	6
DSWV	2				2.6		2	5
DSWV2.	1		50.0		1.3		1	6
DSWV3.	1		50.0		1.3		1	6
DSWV1.	0						0	5
DFCN	0						0	6
DFCN1.	0						0	5
DPSZ	0						0	6
DPSZ1.	0						0	5
DPSZ11.	0						0	6
DPSZ12.	0						0	7
DPSZ13.	0						0	7
DSBF	0						0	5
DSBF1.	0						0	6
DSBF2.	0						0	6
DSBF3.	0						0	6
TANC	0						0	6
TRAP	59				81.4	5.1	53	4
TRAP9.	48				61.0	4.2	43	5
TRAP94.	36				3.1	3.1	35	6
TRAP91.	15		41.7	75.0	25.4	1.3	14	7
TRAP93.	14		38.9	29.2	23.7	1.2	14	7
TRAP92.	1		2.8	2.1	1.7	.1	1	7
TRAP3.	2		.0	.0	.0	.0	2	6
TRAP4.	2		4.2	4.2	3.4	.2	2	6
TRAP5.	2		4.2	4.2	3.4	.2	2	6
TRAP7.	2		4.2	4.2	3.4	.2	2	6
TRAP2.	1		2.1	2.1	1.7	.1	1	6
TFAP1.	0						0	6
TRAP6.	0						0	6
TRAP8.	0						0	6
CLOT	0						0	6
ACTC	11				18.6	1.0	11	5
LOGF	11			100.0	18.6	1.0	11	6
LOGCF1.	0						0	6
LOGF2.	0						0	7
LOGCF3.	0						0	7
CMAT	0						0	6
CDES	0						0	6
WDTN	38					3.3	37	4
WHPV	11				28.9	1.0	11	5
WHPV3.	10				26.3	.9	10	6
WHPV31.	8				21.1	.7	8	7
WHPV34.	3		37.5	90.9	7.9	.2	3	8
WHPV32.	2		25.0	27.3	5.3	.2	2	8
WHPV33.	1		12.5	9.1	2.6	.1	1	8
WHPV35.	1		12.5	9.1	2.6	.1	1	8
WHPV1.	0						0	8
WHPV2.	0						0	7
WHTR	1				2.6	.1	1	7
WHTR1.	1				2.6	.1	1	7
WSP1	8		100.0	9.1	21.1	.7	8	5

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

	NO.	%7TH	%5TH	%4TH	%3RD	HUMES	%HOMES	LEVEL
WSPL1.	4		50.0	10.5	.3	4	.4	6
WSPL2.	0		.0	.0	.0	0	.0	6
WOSC	8			21.1	.7	8	.8	5
WOSCL.	6		75.0	15.8	.5	6	.6	6
WOSC21.	0		.0	.0	.0	0	.0	6
WOSC22.	0		.0	.0	.0	0	.0	7
WOSC3.	0		.0	.0	.0	0	.0	7
WOSC4.	0		.0	.0	.0	0	.0	6
WOSC5.	0		.0	.0	.0	0	.0	6
WOSC6.	0		.0	.0	.0	0	.0	6
PINS	6			15.8	.5	6	.6	5
PINS1.	3		50.0	7.9	.3	3	.3	6
PINS5.	3		50.0	7.9	.3	3	.3	6
PINS2.	0		.0	.0	.0	0	.0	6
PINS3.	0		.0	.0	.0	0	.0	6
PINS4.	0		.0	.0	.0	0	.0	6
WDM1.	3			7.9	.3	3	.3	5
WDM2.	2		66.7	5.3	.2	2	.2	6
PMAT1.	1		.0	.0	.0	1	.1	9
WDM1.1.	0		.0	.0	.0	0	.0	7
FMAT1.	0		.0	.0	.0	0	.0	6
FMAT2.	0		.0	.0	.0	0	.0	7
XMAT	0		.0	.0	.0	0	.0	6
PSMS	1			2.6	.1	1	.1	5
PSMS1.	0		.0	.0	.0	0	.0	6
PSMS2.	0		.0	.0	.0	0	.0	6
PSMS21.	0		.0	.0	.0	0	.0	7
PSMS22.	0		.0	.0	.0	0	.0	7
LVAL	0		.0	.0	.0	0	.0	5
VMV	36				3.1	32	3.3	4
VVGL	12			33.3	1.0	12	1.2	5
VVTL	10			27.8	.9	10	1.0	5
VVTL1.	5		50.0	13.9	.4	5	.5	6
VVTL2.	1		10.0	2.8	.1	1	.1	6
VVTL3.	1		10.0	2.8	.1	1	.1	6
VVSP	3			8.3	.3	3	.3	5
VVSP1.	1		33.3	2.8	.1	1	.1	6
VVSP2.	1		33.3	2.8	.1	1	.1	6
VVSP3.	1		33.3	2.8	.1	1	.1	6
VVSP4.	0		.0	.0	.0	0	.0	6
VVGC	0		.0	.0	.0	0	.0	6
VVGC1.	3			8.3	.3	3	.3	5
VVGC2.	1		33.3	2.8	.1	1	.1	6
VMAT	1		33.3	2.8	.1	1	.1	6
VMAT2.	1			2.8	.1	1	.1	5
VMAT23.	1			2.8	.1	1	.1	6
VMAT21.	1		100.0	2.8	.1	1	.1	7
VMAT22.	0		.0	.0	.0	0	.0	7
VMAT24.	0		.0	.0	.0	0	.0	7
VMAT25.	0		.0	.0	.0	0	.0	7
PHAS	0		.0	.0	.0	0	.0	6
	27				2.3	27	2.8	4

FCURTH	THROUGH	EIGHTH	LEVEL	SUMMATIONS:	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
PHAS2.	C10.2			PIPING SUPPORTS/INTERVALS	11				40.7	1.0	11	1.1	5
PHAS3.	C10.3			HANGEFS AND ANCHORS	8				29.6	.7	8	.8	5
PHAS32.	C10.3.2		(5)	ATTACHMENT TO STRUCTURE	3			37.5	11.1	.3	3	.3	6
PHAS31.	C10.3.1			STRENGTH REQUIREMENTS	0			.0	.0	.0	0	.0	5
PHAS1.	C10.1			STRAINS AND STRESS DURING/AFTER INSTAL	0				.0	.0	0	.0	5
AIDF	C5.1.5			ALIGN OF FITTINGS/DIRECTION OF FLOW	1					.1	1	.1	4
PFAP	C5.1.4		(0)	PROHIBITED FITTINGS AND PRACTICES	0					.0	0	.0	4
PFAP1.	C5.1.4.1			ORAINAGE/VENT PIPING - DRILLED OR TAPEO	0				.0	.0	0	.0	5
PFAP2.	C5.1.4.2			VENT PIPES NOT AS DRAIN PIPES	0				.0	.0	0	.0	5
PFAP3.	C5.1.4.3			OBSTRUCTIVE FITTINGS, CONNECTIONS,ETC	0				.0	.0	0	.0	5
PFAP4.	C5.1.4.4			MATERIAL IMPERFECTIONS (CONCEALED)	0				.0	.0	0	.0	5
PFAP5.	C5.1.4.5			IMPROPER LOCATION OF PIPE, FIXT/EQUIP	0				.0	.0	0	.0	5
PFAP6.	C5.1.4.6			GALVANIZED PIPE BENT OR WELOED	0				.0	.0	0	.0	5
HEAT	PART 0		(28)	HEATING SYSTEM	592						316	32.7	3
HAPL	06		(0)	APPLIANCES	460					77.7	279	28.9	4
HACA	06.10		(1)	CIRCULATING AIR SYSTEM	187				40.7	31.6	148	15.3	5
HACS	06.10.1		(26)	SUPPLY SYSTEM	74			39.6	16.1	12.5	69	7.1	6
HACS3.	06.10.1.3			AIR TIGHTNESS OF SUPPLY DUCT SYSTEM	40		54.1	21.4	8.7	6.8	40	4.1	7
HACS2.	06.10.1.2			SIZING OF DUCT	6		8.1	3.2	1.3	1.0	6	.6	7
HACS1.	06.10.1.1			DUCT MATERIAL	2		2.7	1.1	.4	.3	2	.2	7
HAPG	06.10.5		(8)	REGISTERS	67			35.8	14.6	11.3	62	6.4	6
HARG6.	06.10.5			DUCT TURE RISER	33		49.3	17.6	7.2	5.6	32	3.3	7
HARG2.	06.10.5.2			STRUCTURAL REQUIREMENTS	9		13.4	4.8	2.0	1.5	9	.9	7
HARG4.	06.10.5			DIRT, FLOOR COVERING AND DUCT	9		13.4	4.8	2.0	1.5	9	.9	7
HAPG3.	06.10.5			RISER MISSING OR DAMAGED	6		9.0	3.2	1.3	1.0	6	.6	7
HARG5.	06.10.5			AIR BLOCKAGE	2		3.0	1.1	.4	.3	2	.2	7
HARG1.	06.10.5.1			FLAMMABILITY REUMTS FOR PLASTIC	0		.0	.0	.0	.0	0	.0	7
HARA	06.10.2		(3)	RETURN AIR SYSTEM	25			13.4	5.4	4.2	25	2.6	6
HARA4.	06.10.2.4			PERMANENT UNCLOSEABLE OPENINGS	11		44.0	5.9	2.4	1.9	11	1.1	7
HARA1.	06.10.2.1			RETURN AIR OPENINGS	6		24.0	3.2	1.3	1.0	6	.6	7
HARA2.	06.10.2.2		(4)	DUCT MATERIALS	5		20.0	2.7	1.1	.8	5	.5	7
HARA22.	06.10.2.2.2			FLAME SPREAD NOT MORE THAN 200	1	20.0	4.0	.5	.2	.2	1	.1	8
HARA21.	06.10.2.2.1			CLASS 0 OR CLASS 1 AIR DUCTS	0	.0	.0	.0	.0	.0	0	.0	8
HARA23.	06.10.2.2.3			INTERIOR OF COMBUSTIBLE MATERIAL	0	.0	.0	.0	.0	.0	0	.0	8
HARA3.	06.10.2.3			SIZING	0		.0	.0	.0	.0	0	.0	7
HAYS	06.10.3			JOINTS AND SEAMS	17			9.1	3.7	2.9	17	1.8	6
HASU	06.10.4			SUPPORTS	3			1.6	.7	.5	3	.3	6
HAVA	06.4		(9)	VENTING, VENTILATION AND COMBUSTION	182				39.6	30.7	149	15.4	5
HAVE	06.4.1		(2)	VENTING SYSTEM	173			95.1	37.6	29.2	141	14.6	6
HAVE3.	06.4.1		(34)	JOINTS OF VENT SYSTEM SECURE	96		55.5	52.7	20.9	16.2	88	9.1	7
HAVE32.	06.4.1			HOT WATER HEATER	44	45.8	25.4	24.2	9.6	7.4	44	4.6	8
HAVE31.	06.4.1			FURNACE	18	18.8	10.4	9.9	3.9	3.0	18	1.9	8
HAVE2.	06.4.1			SYSTEM CONSISTING OF LISTED COMPON	56		32.4	30.8	12.2	9.5	54	5.6	7
HAVE5.	06.4.3			VENTING SYSTEM TERMINATION	12		6.9	6.6	2.6	2.0	12	1.2	7
HAVE4.	06.4.2			VENTING SHALL NOT TERMINATE UNOER	4		2.3	2.2	.9	.7	4	.4	7
HAVE6.	06.4.4			VENTILATION OF KITCHEN	3		1.7	1.6	.7	.5	3	.3	7
HAVE1.	06.4.1			SYSTEM LISTED AS PART OF APPLIANCE	0		.0	.0	.0	.0	0	.0	7
HAI1C	06.3		(1)	INSTALLATION OF APPLIANCES	70			84.3	15.2	11.8	66	6.8	5
HAMS	06.3.2			SEPARATION OF COMBUSTION SYSTEM	59			5.7	12.8	10.0	56	5.8	6
HAIN	06.3.1			LISTING AND INSTRUCTIONS	4			5.7	.9	.7	4	.4	6
HAIN1.	06.3.3		(0)	MIS-LOCATION OF FURNACE THERMOSTAT	4			5.7	.9	.7	4	.4	6
HANP2.	06.3.3.2			NEGATIVE PRESSURE CREATED BY AIR	2			2.9	.4	.3	2	.2	6
HANP1.	06.3.3.1			LOCATION OF AIR INLETS AND OUTLETS	2		100.0	2.9	.4	.3	2	.2	7
				AIR CIRCULATING FAN OPERATION	0		.0	.0	.0	.0	0	.0	7

FOURTH	THROUGH	EIGHTH	LEVEL	SUMMATIONS:	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
HAAC	D6.7	ACCESSIBILITY - INSPECTION, SERVICE, E	(7)	13					2.8	2.2	13	1.3	5
HAAC2.	D6.7	HOT WATER HEATER-POOR ACCESS		5				38.5	1.1	.8	5	.5	6
HAAC1.	D6.7	FURNACE-POOR ACCESS		1				7.7	.2	.2	1	.1	6
HAAC3.	D6.7	DRYER-POOR ACCESS		0				.0	.0	.0	0	.0	6
HAAC4.	D6.7	AIR CONDITIONER-POOR ACCESS		0				.0	.0	.0	0	.0	6
HALN	D6.8	LOCATION - RELATIVE TO COMBUSTIBLES		3				.0	.7	.5	3	.3	5
HACD	D6.2	CLOTHES DRYER	(0)	2				.0	.4	.3	2	.2	5
HADE	D6.2.1	EXHAUST		1				50.0	.2	.2	1	.1	6
HAPD	D6.2.2	PROHIBITED DUCT CONNECTION		1				50.0	.2	.2	1	.1	6
HAED	D6.2.3	EXHAUST DUCT NOT BENEATH MOBILE HOME		0				.0	.0	.0	0	.0	6
HAPC	D6.2.4	PROHIBITED CONNECTIONS IN DUCT		0				.0	.0	.0	0	.0	6
HAMK	D6.6	MARKING	(0)	2				.0	.4	.3	2	.2	5
HAMK1.	D6.6.1	FURNACE CLEARANCES AND OPERATIONS		2				100.0	.4	.3	2	.2	6
HAMK2.	D6.6.1	HOT WATER HEATER CLEARANCES AND OPERATIO		0				.0	.0	.0	0	.0	6
HAMK3.	D6.6.1	DRYER CLEARANCES AND OPERATIONS		0				.0	.0	.0	0	.0	6
HAMK4.	D6.6.1	AIR CONDITIONER CLEARANCES AND OPERATION		0				.0	.0	.0	0	.0	6
HAFU	D6.6.2	TYPE OF FUEL MARKING		0				.0	.0	.0	0	.0	6
HAFU1.	D6.6.2	FURNACE		0				.0	.0	.0	0	.0	6
HAFU2.	D6.6.2	HOT WATER HEATER		0				.0	.0	.0	0	.0	6
HAFU3.	D6.6.2	DRYER		0				.0	.0	.0	0	.0	6
HAFU4.	D6.6.2	AIR CONDITIONER		0				.0	.0	.0	0	.0	6
HAGL	D6.1	GENERAL - LISTED	(1)	1				.0	.2	.2	1	.1	5
HAVT	D6.1.2	VENTED TYPE		0				.0	.0	.0	0	.0	6
HACN	D6.1.3	CONVERSION FROM ONE FUEL TO ANOTHER		0				.0	.0	.0	0	.0	6
HAID	D6.5	INSTRUCTION		0				.0	.0	.0	0	.0	5
HACL	D6.9	CLEARANCES		0				.0	.0	.0	0	.0	5
HPSY	D5	PIPING SYSTEM	(0)	104					99.0	17.6	83	8.6	4
HGPS	D5.1	GAS PIPING SYSTEMS	(1)	103					17.4	17.4	82	9.5	5
HGPG	D5.1.1	GENERAL	(0)	55				53.4	52.9	9.3	54	5.6	6
HGPG1.	D5.1.1.1	RODENT RESISTANCE		22				100.0	53.4	9.3	54	5.6	7
HGHD	D5.1.1.1.1	HANGERS AND SUPPORTS		7				21.4	21.2	3.7	21	2.2	6
HGID	D5.1.1.1.1.1	IDENTIFICATION OF GAS SUPPLY CONNECTION		4				6.8	6.7	1.2	4	.4	6
HGAC	D5.1.1.1.1.1.1	APPLIANCE CONNECTION	(0)	4				3.9	3.8	.7	4	.4	6
HGAC2.	D5.1.1.1.1.1.1.1	FLEXIBLE CONNECTOR THRU UNDERSIDE OF U		4				3.9	3.8	.7	4	.4	6
HGAC1.	D5.1.1.1.1.1.1.1.1	APPLIANCE CONNECTION	(0)	4				.0	.0	.0	0	.0	7
HCVS	D5.1.1.4	VALVES - SHUTOFF LISTED TYPE		4				3.9	3.8	.7	2	.2	6
HGPM	D5.1.2	MATERIALS - USED/REPAIRED DEFECTS	(2)	3				33.3	2.9	.5	3	.3	6
HGPM5.	D5.1.2.1	CORROSION OF METALS		1				1.0	1.0	.2	1	.1	7
HGPM1.	D5.1.2.2	STEEL OR WROUGHT IRON PIPE		0				.0	.0	.0	0	.0	7
HGPM2.	D5.1.2.2	FITTINGS FOR GAS PIPING		0				.0	.0	.0	0	.0	7
HGPM3.	D5.1.2.3	COPPER TUBING		0				.0	.0	.0	0	.0	7
HGPM4.	D5.1.2.4	STEEL TUBING		0				.0	.0	.0	0	.0	7
HGJC	D5.1.7	PIPE JOINT COMPOUND - SCREW JOINTS		2				1.9	1.9	.3	2	.2	6
HGPD	D5.1.3	PIPING DESIGN - LP GAS/NATURAL GAS	(1)	1				1.0	1.0	.2	1	.1	6
HGPD1.	D5.1.3.1	CROSS OVER FOR GAS PIPING		0				.0	.0	.0	0	.0	7
HGPZ	D5.1.4	GAS PIPE SIZING (TABLE D-2, PG 71)		1				1.0	1.0	.2	1	.1	6
HGCT	D5.1.8	CONCEALED TUBING INSIDE WALLS, FLOOR		1				1.0	1.0	.2	1	.1	6
HGHJ	D5.1.9	CONCEALED JOINTS		1				1.0	1.0	.2	1	.1	6
HGLS	D5.1.10	LOCATION OF GAS SUPPLY CONNECTION	(1)	1				1.0	1.0	.2	1	.1	6
HGLS1.	D5.1.10.1	LP-GAS SYSTEMS		0				.0	.0	.0	0	.0	7
HGLS2.	D5.1.10.2	COMBINATION LP-GAS AND NATURAL GAS		0				.0	.0	.0	0	.0	7
HGJP	D5.1.5	JOINTS FOR GAS PIPE		0				.0	.0	.0	0	.0	6
HGJT	D5.1.6	JOINTS FOR TUBING		0				.0	.0	.0	0	.0	6
HGSC	D5.1.12	GAS SUPPLY CONNECTORS	(0)	0				.0	.0	.0	0	.0	6
HGSC1.	D5.1.12.1	LP-GAS		0				.0	.0	.0	0	.0	7
HGIC	D5.1.15	GAS INLET CAP		0				.0	.0	.0	0	.0	6

FCURTH	THROUGH	EIGHTH	LEVEL	SUMMATIONS:	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
HGEG	D5.1.16			ELECTRICAL GROUND	0						0		6
HGCP	D5.1.17			PIPE COUPLINGS AND UNIONS	0						0		6
HGTL	D5.1.19	(0)		TESTING FOR LEAKAGE	0						0		6
HGTL1.	D5.1.19.1			BEFORE APPLIANCES ARE CONNECTED	0						0		7
HGTL2.	D5.1.19.2	(0)		AFTER APPLIANCES ARE CONNECTED	0						0		7
HOPS	D5.2			OIL PIPING SYSTEM	1				1.0		1		5
HOSH	D5.2.9			STRAP HANGERS	1			100.0	1.0		1		6
HCPG	D5.2.1			GENERAL	0						0		6
HCPM	D5.2.2	(0)		MATERIAL - NO USED AND/OR REPAIRED	0						0		6
HCPM1.	D5.2.2.1			STEEL UR WROUGHT-IRON PIPE	0						0		7
HCPM2.	D5.2.2.2			FITTINGS FOR OIL PIPING	0						0		7
HCPM3.	D5.2.2.3			COPPER TUBING	0						0		7
HCPM4.	D5.2.2.4			STEEL TUBING	0						0		7
HCPSP	D5.2.3			SIZE OF OIL PIPING	0						0		6
HUJP	D5.2.4			JOINTS FOR OIL PIPING	0						0		6
HCJT	D5.2.5			JOINTS FOR TUBING	0						0		6
HOCF	D5.2.6			PIPE JOINT COMPOUND	0						0		6
HOCU	D5.2.7			COUPLINGS	0						0		6
HCGP	D5.2.8			GRADE OF PIPING	0						0		6
HOTL	D5.2.10			TESTING FOR LEAKAGE	0						0		6
HLPG	D4.2.5			LP GAS SAFETY DEVICES	0						0		4
ELEC	PART E	(0)		ELECTRICAL	524						326	33.7	3

WIRING METHODS:	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
E11	215					41.0	174	18.0	4
E11.5	61				28.4	11.6	54	5.6	5
E11.9	28				13.0	5.3	26	2.7	5
E11.12	27				12.6	5.2	25	2.6	5
E11.6	8				3.7	1.5	8	.8	5
E11.4	7				3.3	1.3	7	.7	5
E11.1	5				2.3	1.0	5	.5	5
E11.6	4				1.9	.8	4	.4	5
E11.7	4				1.9	.8	4	.4	5
E11.10	1				.5	.2	1	.1	5
E11.11	1				.5	.2	1	.1	5
E11.2	0				0	0	0	0	5
E11.3	0				0	0	0	0	5
E11.8	0				0	0	0	0	5
E20	61					11.6	53	5.5	4
E20.1	5				8.2	1.0	5	.5	4
E20.1.1	5				8.2	1.0	5	.5	6
E20.1.2	0				0	0	0	0	6
E20.2	1				1.6	.2	1	.1	5
E20.2.1	0				0	0	0	0	6
E20.2.2	0				0	0	0	0	6
E20.2.3	0				0	0	0	0	6
E20.2.4	0				0	0	0	0	6
E20.3	0				0	0	0	0	5
E20.4	0				0	0	0	0	5
E20.4.1	0				0	0	0	0	6
E20.4.2	0				0	0	0	0	6
E7	55					10.5	53	5.5	4
E7.1.3	51				92.7	9.7	51	5.3	5
E7.1.3(E)	45				88.2	8.6	45	4.7	6
E7.1.3(B)	3				5.9	.6	3	.3	6
E7.1.3(D)	1				2.0	.2	1	.1	6

FCURTH	THROUGH	EIGHTH	LEVEL	SUMMATIONS:	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
FACR31.	E7.1.3(A)			FIXED APPLIANCES/CIRCUIT WITH L/O	0			-0	-0	-0	0	-0	6
FACR33.	E7.1.3(C)			SINGLE PORTABLE APPLIANCE	0			-0	-0	-0	0	-0	6
FACR2.	E7.1.2			PORTABLE APPLIANCES	4			7.3	7.3	.8	4	-4	5
FBCR1.	E7.1.1			LIGHTING	0			-0	-0	-0	0	-0	5
FMKE	E25	(	3)	ELECTRICAL MARKING						7.4	35	3.6	4
FMP	E25.3			METAL NAME PLATE	24			61.5	61.5	4.6	24	2.5	5
EMCR	E25.1			MAIN CIRCUIT BREAKER	11			28.2	28.2	2.1	11	1.1	5
EMFS	E25.2			MAXIMUM FUSE SIZE	1			2.6	2.6	-2	1	-1	5
EDIS	E9	(	8)	DISCONNECTING MEANS AND BRANCH CIRCUIT				39.4	39.4	2.5	13	1.3	5
EDPD	F9.1			OVERCURRENT PROTECTION DEVICE	6			18.2	18.2	1.1	6	-6	5
EDCB	E9.10			CIRCUIT BREAKER PROTECTION	5			15.2	15.2	1.0	5	-5	5
EDMK	E9.5			MARKINGS	1			3.0	3.0	.2	1	.1	5
EDLF	E9.2			OVERCURRENT PROTECTION	0			-0	-0	-0	0	-0	5
EDMS	E9.3			LOCATION ABOVE FLOOR	0			-0	-0	-0	0	-0	5
EDRT	E9.4			WORKING SPACE	0			-0	-0	-0	0	-0	5
EDFT	F9.6			RATING, TYPE, GROUNDING	0			-0	-0	-0	0	-0	5
EDNF	F9.7			FUSE TYPES	0			-0	-0	-0	0	-0	5
EDRP	F9.9			NEC ARTICLE 210	0			-0	-0	-0	0	-0	5
EG08	F23			RECEPTACLE PROTECTION	0			-0	-0	-0	0	-0	5
EIGD.	F23.3	(	8)	GROUNDING AND BONDING	31			41.9	41.9	5.9	28	2.9	4
EIGD2.	E23.3.2	(	2)	INTERIOR GROUNDING -- ELECTRICAL	13			53.8	53.8	2.5	12	1.2	5
EIGD21.	E23.3.2.1	(	3)	GROUNDING OF ELECTRICAL EQUIPMENT	7			28.6	28.6	1.3	7	.7	6
EIGD25.	E23.3.2.5			SECURING TO GROUNDED STRIP METAL	2			15.4	15.4	.4	2	.2	7
EIGD22.	E23.3.2.2			GROUNDING AT LIGHT FIXTURE	2			15.4	15.4	.4	2	.2	7
EIGD23.	E23.3.2.3			METALLIC RACEWAY TO METALLIC O/B	0			-0	-0	-0	0	-0	7
EIGD24.	E23.3.2.4			CONDUCTORS AND A METALLIC BOX	0			-0	-0	-0	0	-0	7
EIGD26.	E23.3.2.6			CONDUCTORS/NON-METALLIC BOX	0			-0	-0	-0	0	-0	7
EIGD27.	E23.3.2.7			NON-METALLIC SHEATHED CABLE	0			-0	-0	-0	0	-0	7
EIGD1.	E23.3.1			GROUNDING FIXTURE TO METALLIC RACEWAY	2			15.4	15.4	.4	2	.2	6
EIGD4.	E23.3.4			GROUNDING OF EXPOSED METAL PARTS	2			15.4	15.4	.4	2	.2	6
FIGD3.	F23.3.3			GROUNDING CORD CONNECTED APPLIANCES	0			-0	-0	-0	0	-0	6
EGSE	E23.1	(	4)	MULTIPLE GROUNDING CONDUCTORS	6			-0	-0	-0	0	-0	6
EGSF1.	E23.1.1			SEVICE GROUNDING	1			16.7	16.7	1.1	6	.6	5
EGSF2.	F23.1.2			GROUNDING WIRE CONNECTION	1			3.2	3.2	.2	1	.1	6
EGSE3.	E23.1.3			GROUNDING OF DISTRIBUTION PANEL	1			16.7	16.7	.2	1	.1	6
FIBN3.	F23.4	(	2)	GROUNDING BUSS TERMINALS	0			-0	-0	-0	0	-0	6
FIBN1.	E23.4.3.			BUNDLING OF NONCURRENT -- CARRYING MET	3			9.7	9.7	.6	3	.3	5
FIBN2.	F23.4.2			GROUNDING OF METALLIC PIPES/DUCTS	1			33.3	33.3	.2	1	.1	6
FMIN	E23.2	(	1)	EXPOSED NONCURRENT -- CARRYING METAL	0			-0	-0	-0	0	-0	6
ENIN1.	F23.2.1			TYPE OF GROUNDING TERMINALS	0			-0	-0	-0	0	-0	6
ENIN2.	E23.2.2			INSULATED NEUTRAL	1			3.2	3.2	.2	1	.1	5
EBFA	F22			INSULATION OF GROUNDED CIRCUIT	0			-0	-0	-0	0	-0	6
EBAC	E22.1	(	1)	GROUNDED RANGES AND DRYERS	21			-0	-0	-0	0	-0	6
ERFC	E6	(	1)	OUTDOOR OULETS, FIXTURES, AIR-COOLING,	20			95.2	95.2	3.8	18	1.9	5
ERLW1.	F6.1(A)	(	12)	TYPE OF OUTDOOR FIXTURES AND EQUIPMENT	0			-0	-0	-0	0	-0	5
ERLW3.	E6.1(C)			OUTDOOR AC OR HEATING RECEPTACLE - TAG	19			95.0	95.0	3.6	17	1.8	4
ERLW4.	E6.1(D)			RECEPTACLE OULETS REQUIRED	3			15.8	15.8	.6	3	.3	6
EKLW2.	E6.1(B)			LOCATION ON WALLS	2			10.5	10.5	.4	2	.2	6
FRS8	E6.2			COUNTER TOPS IN KITCHENS	0			-0	-0	-0	0	-0	6
EFRO	E19	(	0)	COUNTER TOP SPACES FOR BUILT-IN	0			-0	-0	-0	0	-0	5
EFIN	E19.1	(	15)	COUNTER TOP SPACES UNDER WALL-CABINETS	17			100.0	100.0	3.2	17	1.8	4
ESWL	E18	(	15)	ADJACENT TO APPLIANCES	15			-0	-0	-0	0	-0	4
				LOCATIONS IN SHOWER OR BATHTUB SPACES	0			-0	-0	-0	0	-0	5
				RECEPTACLE OULETS	17			3.2	3.2	3.2	17	1.8	4
				INSTALLATION IN ACCORDANCE	17			3.2	3.2	3.2	17	1.8	5
				WALL SWITCHES	15			2.9	2.9	2.9	13	1.3	4

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

		NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
FSWR	E18.1	(0)	0			.0	.0	0	.0	5
ESWR1.	E18.1	(0)	0		.0	.0	.0	0	.0	6
ESWR2.	E18.1	(5)	6		.0	.0	.0	0	.0	6
EPOW	F10	(5)	6			1.1	1.1	6	.6	4
FPEF	E10.9	(0)	1		16.7	.2	.2	1	.1	5
FPOD	E10.4	(0)	0		.0	.0	.0	0	.0	5
FUND	E12	(0)	6		100.0	1.1	1.1	6	.6	4
FUPE	E12.1	(0)	6			1.1	1.1	6	.6	5
FUCT	E12.2	(0)	0		.0	.0	.0	0	.0	5
FRXY	E5.0	(1)	3			.6	.6	3	.3	4
EPXY1.	E5.1	(1)	2		66.7	.4	.4	2	.2	5
FRXY11.	F5.1	(1)	1		50.0	33.3	.2	1	.1	6
FRXY2.	E5.2	(0)	0		.0	.0	.0	0	.0	5
EFLP	E13	(1)	1			.2	.2	1	.1	4
EFSG	F13.1	(0)	0		.0	.0	.0	0	.0	5
EFMT	E13.2	(0)	0		.0	.0	.0	0	.0	5
EFLF	F13.3	(0)	0		.0	.0	.0	0	.0	5
EFMG	F13.4	(0)	0		.0	.0	.0	0	.0	5
ETER	E17	(0)	1			.2	.2	1	.1	4
ETCP	E17.1	(0)	1		100.0	.2	.2	1	.1	5
FTSJ	E17.2	(0)	0		.0	.0	.0	0	.0	5
ECON	E14	(0)	0		.0	.0	.0	0	.0	4
ECBS	E14.1	(0)	0		.0	.0	.0	0	.0	5
ECFC	F14.2	(0)	0		.0	.0	.0	0	.0	5
EPOL	E16	(0)	0		.0	.0	.0	0	.0	4
EPGC	E16.1	(0)	0		.0	.0	.0	0	.0	5
FPOU	E16.2	(0)	0		.0	.0	.0	0	.0	5
EPGR	E16.3	(0)	0		.0	.0	.0	0	.0	5

 * NANS ROUTINE MAINTENANCE *****
 * ***** (2) 1490 *****

CONSTRUCTION	(	1)	1127	579	59.9	3
WINDOWS	(	58)	452	333	34.4	4
SCREENS	(	140	140	139	14.4	5
HARDWARE	(	133	133	118	12.2	5
IMPROPER FIT	(	95	95	94	9.7	5
REGLAZED	(	17	17	17	1.8	5
STORM	(	9	9	9	.9	5
EXTERIOR DOORS	(	47)	286	242	25.0	4
IMPROPER FIT	(	110	110	106	11.0	5
HARDWARE	(	87	87	80	8.3	5
SCREENS	(	18	18	17	1.8	5
STORM	(	10	10	10	1.0	5
CANDOPY	(	9	9	9	.9	5
REGLAZED	(	5	5	5	.5	5
FROZEN	(	0	0	0	.0	5
PARTITIONS DOORS	(	27)	250	197	20.4	4
IMPROPER FIT	(	130	130	119	12.3	5
HARDWARE	(	93	93	76	7.9	5
BLOCKING	(	15)	74	70	7.2	4
LEVELING	(	54	54	52	5.4	5
RACKING OF DOORS	(	5	5	5	.5	5
HOT WATER HEATER COMPARTMENT	(	0)	30	26	2.7	4

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
NCHD	20				66.7	1.8	19	2.0	5
NCHI	10				33.3	.9	10	1.0	5
NCFL	13	(1)			92.3	1.2	13	1.3	4
NCFL	12					1.1	12	1.2	5
NCSM	9					.8	9	.9	4
NCS	7					.6	4	.4	4
NCTD	5					.4	5	.5	4
NCMG	0					.0	0	.0	4
NPLM	223	(34)					186	19.2	3

NPFX	168	(0)			36.3	75.3	142	14.7	4
NPKS	61	(39)			21.3	27.4	55	5.7	5
NPKF	13				14.8	5.8	12	1.2	6
NPKA	9				.0	4.0	9	.9	6
NPKD1.	0				.0	.0	0	.0	6
NPKD2.	0				.0	.0	0	.0	6
NPKD3.	0				.0	.0	0	.0	6
NPKC	0				.0	.0	0	.0	6
NPCB	49	(38)			29.2	22.0	46	4.8	5
NPCR	6				12.2	2.7	6	.6	6
NPCA	5				10.2	2.2	4	.4	6
NPCC	0				.0	.0	0	.0	6
NPCD1.	0				.0	.0	0	.0	6
NPCD2.	0				.0	.0	0	.0	6
NPCD3.	0				.0	.0	0	.0	6
NPFT	34	(0)			20.2	15.2	30	3.1	5
NPXX	10				29.4	4.5	9	.9	6
NPTA	10				29.4	4.5	9	.9	6
NPTT	9				26.5	4.0	8	.8	6
NPTP	5				14.7	2.2	5	.5	6
NPTF	0				.0	.0	0	.0	6
NPXY1.	0				.0	.0	0	.0	6
NPXY2.	0				.0	.0	0	.0	6
NPXY3.	0				.0	.0	0	.0	6
NPTW	0				.0	.0	0	.0	6
NPTK	0				.0	.0	0	.0	6
NPTS	0				.0	.0	0	.0	6
NPBS	24	(13)			14.3	10.8	23	2.4	5
NPBC	6				25.0	2.7	6	.6	6
NPBA	5				20.8	2.2	5	.5	6
NPBF	0				.0	.0	0	.0	6
NPRD1.	0				.0	.0	0	.0	6
NPRD2.	0				.0	.0	0	.0	6
NPRD3.	0				.0	.0	0	.0	6
NPBT	8				.0	3.6	8	.8	4
NPMW	5	(5)			.0	2.2	5	.5	4
NPMS	0				.0	.0	0	.0	5
NPMO	0				.0	.0	0	.0	5
NPDW	5	(5)			.0	2.2	5	.5	4
NPDS	0				.0	.0	0	.0	5
NPWS	3	(1)			66.7	1.3	3	.3	4
NPWE	2	(1)			50.0	.9	2	.2	5
NPWB	1	(0)			.0	.4	1	.1	6
NPWI	0				.0	.0	0	.0	6
NPWA	0				.0	.0	0	.0	6

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

NPEX EXTERIOR DARIN-FURNACE, WATER HEATER
 NPPR PRESSURE REGULATOR

NELC ELECTRICAL

DISTRIBUTION PANEL BOARD

CIRCUIT BREAKERS

FUSES

FUSIAT

SWITCHES

FACPLATE

RECEPTICAL OUTLETS

OUT DOOR

LIGHT FIXTURE

HEAT TAPE

INTERIOR

FACEPLATE

INTERIOR LIGHTING FIXTURES

NOT SECURELY ATTACHED

SERVICE

POWER POLE/LIFELINE

EXTERNAL GROUNDING

BRANCH CIRCUIT MALFUNCTION

EXTERIOR LIGHT FIXTURE

NHTG HEATING

N-GP GAS SUPPLY PIPING

NHOP OIL SUPPLY PIPING

NHOF FROZEN

NHGR GAS PRESSURE REGULATOR

NHSP INSTALLED SPACE HEATERS

NHRJ ROOF JACK

 * APEO MECHANICAL/ELECTRICAL APPLIANCES -EQUIPMENT

ARGE RANGE - GAS/ELECTRIC

ARHW HARDWARE

APHO OVEN DOORS

ARHK KNOBS

ARHH HINGES

ARHD DRAWS

ARPU BURNER

ARBV OVEN

ARFL SURFACE

ARGL GAS LEAK

ARPL PILOT

ARPR1. RELIGHT PILOT

ARCL CONTROLS

ARTI TIMER

ARTH THERMOSTAT

ARSB SURFACE BURNER

AROB OVEN BURNER

NO. %7TH %6TH %5TH %4TH %3RD HOMES %HOMES LEVEL

NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
NPEX	0	0	0	0	0	0	0.0	4
NPPR	0	0	0	0	0	0	0.0	4
NELC	(56)	131				112	11.6	3
NEDP	(8)	31			23.7	31	3.2	4
NECB		23		74.2	17.6	23	2.4	5
NEDF		0		.0	.0	0	.0	5
NEDT		0		.0	.0	0	.0	5
NESW	(15)	16			12.2	15	1.6	4
NESF		1		6.3	.8	1	.1	5
NERC	(7)	15			11.5	13	1.3	4
NERD	(0)	7			5.3	6	.6	5
NELF		6		46.7	4.6	5	.5	6
NFHT		1		85.7	.8	1	.1	6
NERI	(0)	1		14.3	.8	1	.1	5
NERF		1			.8	1	.1	6
NEIF	(12)	12		100.0	9.2	12	1.2	4
NEIN		0		.0	.0	0	.0	5
NESR		1			.8	1	.1	4
NEPP		0			.0	0	.0	4
NEGR		0			.0	0	.0	4
NERC		0			.0	0	.0	4
NEEF		0			.0	0	.0	4
NHTG	(4)	7				7	.7	3
N-GP		3			42.9	3	.3	4
NHOP	(0)	0			.0	0	.0	4
NHOF		0		.0	.0	0	.0	5
NHGR		0			.0	0	.0	4
NHSP		0			.0	0	.0	4
NHRJ		0			.0	0	.0	4

* APEO MECHANICAL/ELECTRICAL APPLIANCES -EQUIPMENT						271	28.0	2 *

ARGE	(65)	112				97	10.0	3
ARHW	(5)	25			22.3	21	2.2	4
APHO		19		76.0	17.0	15	1.6	5
ARHK		1		4.0	.9	1	.1	5
ARHH		0		.0	.0	0	.0	5
ARHD		0		.0	.0	0	.0	5
ARPU	(7)	9			8.0	9	.9	4
ARBV		1		11.1	.9	1	.1	5
ARFL		1		11.1	.9	1	.1	5
ARGL	(3)	9			8.0	8	.8	4
ARPL		3		.0	2.7	3	.3	4
ARPR1.	(0)	0		100.0	.9	0	.0	5
ARCL		1		.0	.9	1	.1	4
ARTI		1		.0	.9	1	.1	5
ARTH		0		.0	.0	0	.0	5
ARSB		0		.0	.0	0	.0	5
AROB		0		.0	.0	0	.0	5

FOURTH THROUGH EIGHTH LEVEL SUMMATIONS:

ARIW	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
INTERNAL WIRING	0					.0	0	.0	4
FURNACE, HOT AIR, GAS OR OIL	(38)	87					77	8.0	3
WALL THERMOSTAT	(18)	18			20.7		18	1.9	4
TRANSFORMER		0			.0		0	.0	5
FURNACE DOORS	(0)	11			12.6		11	1.1	4
CONTROLS	(6)	8			9.2		8	.8	4
INTERNAL WIRING		6			75.0		6	.6	5
ON/OFF EMERGENCY SWITCH	(0)	0		.0	.0		0	.0	6
BURNER		1			12.5		1	.1	5
THERMOCOUPLE	(0)	1		100.0	12.5		1	.1	6
CONTROLS VALVE		0		.0	.0		0	.0	6
RESET BUTTON		0		.0	.0		0	.0	6
CAD CELLS		0		.0	.0		0	.0	6
ELECTRODE		0		.0	.0		0	.0	6
BLOWER	(0)	1		12.5	1.1		1	.1	5
LIMIT SWITCH		1		12.5	1.1		1	.1	6
RESET BUTTON		0		.0	.0		0	.0	6
BLOWER ASSEMBLY	(3)	4		.0	4.6		4	.4	4
BELT DRIVE		1		25.0	1.1		1	.1	5
BEARINGS		0		.0	.0		0	.0	5
BLOWER MOTOR	(2)	2		.0	2.3		2	.2	4
BEARINGS		0		.0	.0		0	.0	5
MOTOR MOUNT		0		.0	.0		0	.0	5
FUEL GUN	(0)	2		100.0	2.3		2	.2	4
GAS LEAK		2		.0	2.3		2	.2	5
PUMP		0		.0	.0		0	.0	5
PUMP MOTOR		0		.0	.0		0	.0	5
NOZZLE / ORIFICE	(0)	0		.0	.0		0	.0	5
WRONG INITIALLY INSTALLED		0		.0	.0		0	.0	6
OIL LEAK		0		.0	.0		0	.0	5
FILTER		2		.0	2.3		2	.2	4
BURNER ASSEMBLY		1		.0	1.1		1	.1	4
FUEL SUPPLY CONNECTION		1		.0	1.1		1	.1	4
PILOT/ELECTRONIC IGNITION	(0)	0		.0	.0		0	.0	4
RELIGHT PILOT		0		.0	.0		0	.0	5
GAS REGULATOR		0		.0	.0		0	.0	4
EXHAUST FAN		72					71	7.3	3

AHWW	NO.	%7TH	%6TH	%5TH	%4TH	%3RD	HOMES	%HOMES	LEVEL
HOT WATER HEATERS	(14)	52					50	5.2	3
ELECTRIC HOT WATER HEATER	(10)	36				69.2	35	3.6	4
TANK	(0)	16			44.4	30.8	16	1.7	5
LEAK		16		100.0	44.4	30.8	16	1.7	6
PRESSURE RELIEF VALVE		6			16.7	11.5	6	.6	5
HEAT ELEMENT		4			11.1	7.7	4	.4	5
PRESSURE REGULATOR		0			.0	.0	0	.0	5
ANTI-SIPHON VALVE		0			.0	.0	0	.0	5
CONTROLS	(0)	0			.0	.0	0	.0	5
HEATING ELEMENT		0		.0	.0	.0	0	.0	5
RESET BUTTON		0		.0	.0	.0	0	.0	6
THERMOSTAT		0		.0	.0	.0	0	.0	6
GAS HOT WATER HEATER	(0)	2			.0	3.8	2	.2	4

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16. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.) Performance of mobile homes as housing units is of broad concern to mobile home owners. This study report prepared at the National Bureau of Standards (NBS) and funded by the Department of Housing and Urban Development (HUD) presents mobile home problem data obtained from two separate data sources. The first data base for 2881 units was selected from maintenance records retained by HUD on 12,500 mobile homes used as emergency housing following the Hurricane Agnes disaster at Wilkes-Barre, Pennsylvania. The second source consisted of data for 967 privately-owned units collected from the files of various Federal, state, and private agencies responsible for regulation or consumer protection functions with regard to mobile homes. The mobile home performance problem data was processed using computer techniques to produce problem summation tables which facilitated evaluation. Although the mobile home problems experienced in various categories are highlighted in this report, no attempt was made to relate these results to current standards, regulatory or mortgage insurance (durability) processes. Analyses of this kind are planned for future reports in this series.			
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