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Single-Family Residential Fire and Live Loads Survey

Lionel A. Issen

Center for Fire Research
National Engineering Laboratory
U.S. Department of Commerce
National Bureau of Standards
Washington, DC 20234

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Report
(FAA-H-37-72, Task 200)

Prepared for:

Division of Energy, Building Technology and Standards
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U.S. DEPARTMENT OF COMMERCE, Philip M. Klutznick, *Secretary*
Jordan J. Baruch, *Assistant Secretary for Productivity, Technology, and Innovation*
NATIONAL BUREAU OF STANDARDS, Ernest Ambler, *Director*

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

SI CONVERSION UNITS

In recognition of the position of the U.S.A. as a signatory to the General Conference of Weights and Measures, which gave official status to the metric SI system of units in 1960, the author assists readers interested in making use of the coherent system of SI units by giving conversion factors applicable to U.S. units used in this paper.

Length

1 in. = 0.0254* meter

1 ft. = 0.3048* meter

Area

1 $in.^2$ = 6.4516* x 10^{-4} $meter^2$

1 $ft.^2$ = 0.09290 $meter^2$

Force

1 lb. (lbf) = 4.448 newton

Pressure, Stress

1 psf = 47.88 pascal

Thermal

1 Btu = 1.054 x 10^3 joule

*Exactly

SINGLE-FAMILY RESIDENTIAL FIRE AND LIVE LOADS SURVEY

Lionel A. Issen

ABSTRACT

A fire and live load survey of 359 residences, consisting of 61 single family attached (SFA), 200 single family detached (SFD), and 98 mobile homes (MH), was made in the metropolitan Washington, D. C. area using an inventory technique rather than actual weighing of the room contents. The survey was performed to gain information on live and fire loads which would be used to develop a realistic fire test exposure curve for single family homes (SFA, SFD, and MH), and to gain experience in household surveys that would be useful in a similar nationwide survey. The fire load is reported in terms of composition and of an equivalent 8000 Btu/lb fuel. The live loads and movable contents fire loads were similar for the three occupancies, but the room finish fire load was higher in mobile homes due to the more extensive use of plywood in the interior wall finish. The weighted mean (according to floor area) of the live load observed in the survey for each of the three classes of housing was approximately 10 lb/sq. ft. The corresponding weighted mean movable contents fire loads were approximately: SFA, 7 lb/sq. ft.; SFD, 7 lb/sq. ft.; MH, 6 lb/sq. ft. The total weighted mean fire loads (contents and finish) were approximately: SFA, 13 lb/sq. ft.; SFD, 13 lb/sq. ft.; MH, 18 lb/sq. ft. The nominal 0.95 fractile live and fire loads were also calculated.

Key words: Field surveys; fire; fire loads; furnishings; household surveys; live loads; mobile homes; residential surveys; transfer functions.

1. INTRODUCTION

1.1 Background

In the United States, residential fire losses are a continuing severe problem. The data in table 1-1 by Klem [1][1] show that during the reporting period only about 28% of the reported fires occurred in residences and mobile homes, but these fires included 78% of the deaths and 58% of the dollar fire losses. Thus there is a need to understand the residential (and mobile home) fire problem so that steps may be taken to reduce these losses.

In 1976 a survey of fire and live loads in single-family residences and mobile homes was made in the greater Washington, D.C. metropolitan area. The data from the survey are intended to provide current information[2], which could be used to develop more valid fire exposure curves for use in standard fire tests [3] of residential and mobile home building components.

In order to develop fire exposure curve or curves which would simulate the growth and development of fires in single-family residences and mobile homes, information on (a) the combustible contents, and (b) room geometries and thermal properties are required. This information would allow different scenarios to be investigated for the development of fire exposure curves for single-family residences and mobile homes. This information can only be obtained by a survey of the actual fire loads in the pertinent occupancies. During the course of this survey Fang [4] has used some of this data to develop a realistic fire exposure curve for residential occupancies.

A literature review of fire and live load surveys by the author [5,6] indicated that very little fire load data existed for residences. Since its publication Ingbergs's survey [2] has continued to be of interest, and in 1973 was reprinted to meet continuing demand and made available through the National Technical Information Service. Ingberg surveyed 13 apartments and single-family occupancies in which all live and fire load items were weighed or measured. However, since the 1930s, life styles, furnishings, and our understanding of fire growth have changed.

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[1] Numbers in brackets refer to references listed at the end of this report.

[2] The last American fire load survey was made in the 1930's [2].

1.2 Survey Overview

The survey of residences included 61 single-family attached (SFA), 200 single-family detached (SFD), and 98 mobile homes (MH) for a total of 359 units. A geographic distribution of the surveyed units is shown in table 1-2.

The residential survey was made using an inventory technique similar to the one developed by Culver [7] for his survey of office buildings. This technique requires information on the size, composition, and weights of furnishings. This information was collected from the furnishing industry, and internal NBS sources [7,8,9]. The survey was performed by students attending George Washington University with a total of 62 students participating. At any time there were usually about five to seven teams of two students each.

1.3 Differences Between Different Housing Classes

In the model building codes little distinction in terms of fire resistance requirements is made between single-family attached and single-family detached housing. The only distinction in the fire requirement is that the party wall between attached housing must be fire rated. The results of this survey for single-family attached and single-detached residences are separated so that any differences between the observed loading in these two types of housing may be examined. The data for mobile homes is treated separately because their construction is significantly different from most single-family residences, and they come under different code requirements [10].

Additional data, other than the fire and live loads, on the surveyed housing is included in this report as it may bear on related decision-making by users of this survey.

There may be regional and socio-economic factors that influence the live and fire loading which could be uncovered in a more extensive and detailed survey in several different geographical areas.

Summaries of the live loads, fire loads, and components of the fire load are discussed in section 8 below.

2. SURVEY METHODOLOGY

2.1 The Inventory Method for Load Surveys

Most previous surveys appear to have used direct weighing techniques [6]. Though some attempts have been made to use inventory survey methods, the first comprehensive application of inventory survey methods was made by Culver [7,11] in a survey of fire and live loads in U.S. office buildings.

In an inventory survey method, a set of descriptors is used to identify the location, class, material and characteristics of the furnishing items. By visual examination and selected length measurements, a trained surveyor records information on each item of furnishings in each room of a building. Information on the room size and the interior finish material is also recorded. When compared to actual weighing methods this reduces the disruption of normal activities in the homes being surveyed, and requires much less training effort for the survey crews. This also enables a larger number of units to be surveyed with the same resources and eliminates the need for direct weighing of each furnishing object. The disadvantages of an inventory method are the difficulty in describing the expected furnishing items by a limited set of descriptors, and the need to keep the size and number of the forms within manageable limits. An inventory method is of course less precise than actual weighing.

2.2 Survey Tasks

The survey activities were separated into five broad task areas: (1) collection of information on the size, weights, and composition of furnishings; (2) determining a set of descriptors that could be incorporated into a relatively simple mathematical equation or set of equations to give the weight, composition and fire load of each item[3], (3) preparing a set of survey forms which embody the transfer functions in the descriptors; (4) selecting and surveying the target residences; and (5) processing the data.

2.3 Sources for Furnishings Data

The main sources for furnishings data were manufacturers, retailers and data developed at NBS [7,8,9].

[3] Culver [7] called these equations "transfer functions" and we will use the same terminology.

The procedure for selecting the furniture companies from whom data would be requested was to first select several companies on the basis of size or representative features of their product line. Next, a representative selection of furniture, millwork, electronic, piano, plumbing, bedding and other manufacturers was made from the trade association membership lists and other source data. Altogether over 130 manufacturers, publishers, government agencies and trade associations were contacted for information on furnishings.

In his survey Culver [7,11] was concerned with office furnishings. Because these occur in a relatively limited number of office furniture types, sizes and weights, he was able to use a detailed classification of the office furniture components. For residential furnishings there exists a great variety of furniture types, sizes, weights, and materials and such a breakdown would be inefficient. Fortunately, the information that was gathered on residential furnishings from U.S. manufacturers and retailers tended to show that the furnishing type, size, and material would provide enough information to identify the weight of most items adequately for the needs of this survey. Culver's data [7] was used as an additional source of data particularly for metal furnishings. Data from the NBS Center for Fire Research [8,9] and engineering analysis and judgment were also used to complete the basic data. The combustible weight fractions of the fire load were converted to equivalent weights of combustibles having a calorific value of 8000 Btu/lb, i.e. equivalent weight of wood.

2.4 Development of Transfer Functions

A transfer function, as used in this survey, is a mathematical function that relates the descriptors on the survey form to a live load and a fire load. The descriptors may include, but are not limited to, such factors as dimensions, materials, construction, and compaction.[4]

The concept of a transfer function implies that the items being surveyed are in standard sizes, materials, and weights. Though no such industry-wide standards exist, the requirements of the marketplace and the available technology produce furniture types that appear to be consistent in their weight characteristics. This relationship may not hold for the future since the increasing use of foamed plastics will probably lead to lighter weight

[4] Compaction refers to the relative compaction of materials such as books, papers, phonograph records, clothing and so forth. One hundred per cent compaction is the greates density to which a material may normally be compressed in stacking or storing.

furniture, which may have a higher rate of heat contribution and heat content per unit weight than similar conventional furniture [12].

The transfer functions provide for a representative mean of a range of values. For example, the weights of all upholstered chairs of a size group are not the same, but identifying the pertinent weight factors will minimize the range over which weights of a given size vary. Although the surveyors could not open drawers and cabinets[5], in a related Swedish household survey [13] it was noted that in most cases drawers and cabinets were filled tightly, so that if the main class of item in the drawers of a bureau or cabinet can be identified (by query), a reasonable estimate of the weights of the contents may be made.

The fire load data should be used with caution. Though these figures are based on engineering estimates of the combustible load of the various furnishing and interior finish items, they do not indicate rate of combustion. Different materials burn at different rates, and even a particular material will burn at different rates depending on its form. For example a solid block of wood or plastic and the same weight of shredded material will burn at distinctly different rates under the same exposure.

2.5 Selection of Target Residences

The target SFA and SFD residences were identified by a random selection in the Haynes Criss-Cross Directories for Washington, D.C., and the neighboring suburban areas of Maryland and Northern Virginia. A computer program that was developed for another program at NBS was used [14]. This computer program uses a psuedo-random number generator to select a sample of specified size from the directory. The sample is identified by page, column, and line, listed in directory order. After the names and addresses were identified a form letter was sent with a return postcard. The postcard allowed the recipient to indicate whether or not they would allow their home to be surveyed and the most convenient times for this survey. On receipt of the postcard the surveyors then set up appointments by telephone.

The mobile home parks were identified from telephone directories, from commercial mobile home guides, and from contact with local government authorities. With the cooperation of the parks' management, a blanket mailing was made to a number of the larger mobile home parks in the Maryland and Virginia suburban areas (there are no mobile home parks in Washington,

[5] Office of Management and Budget (OMB) Privacy Requirement.

D.C.). The park managers either provided the mailing list, or provided the street names and numbers that applied (most of the larger local parks use regular street addresses), or in one case these letters were distributed to the residents when they paid their monthly rent. The last was as successful in terms of responses as mailing the letters with a return postcard. After trial, it was found that the response rate for mobile homes was improved by mailing the letter without a return postcard, and then phoning the resident to further explain the purpose of the survey and to answer any questions. This procedure had been tried, unsuccessfully, with the survey of single family attached and single family detached residences.

The response from residents for permission to survey their houses was lower than expected. The response from each mailing of solicitations varied from about 3% to 5%. This low response was probably due to a sense of invasion of privacy, a lack of commitment to participate in a project aimed at improving fire standards and the time it took to complete a survey (average time 2 hours). In middle and upper income neighborhoods in conventional housing, the response appeared to be somewhat higher than in lower income neighborhoods. Among families living in mobile homes the response was higher than from families living in conventional housing, the response appeared to be somewhat higher among middle income families than from lower income families.

3. FIELD SURVEY FORMS

3.1 General Concepts

The survey forms are arranged so that the housing unit (SFA, SFD, or MH) is first described, followed by a description of each room and its contents. That is, a complete set of forms for a survey consists of one form that describes the house and the number of occupants, followed by 2 forms that describe each room and up to 10 forms that describe the furnishing items in each room. The survey for a particular room includes only those forms that are necessary to describe the furnishings in that particular room. The field survey forms together with the instructions manual are shown in Appendix B.

The furnishings are grouped into a number of generic classes; such as tables, chairs, case goods, etc. For each generic class of furnishing there is a survey form on which the size, material and other pertinent factors are categorized by a group of descriptions. The location was given by identifying in which of 5 room sectors the item was located. Four sectors were adjacent to the walls and were 2 ft. wide. The fifth sector was the remaining middle

portion of the room. The arrangement of the sectors is shown in figure B-18 in Appendix B. The surveyor entered the appropriate descriptor and the size of the furnishing on the form. These descriptors were then used in transfer functions to determine the live load and fire load. In order to measure the variability between surveyors one residence was surveyed by four teams. This is described in section 7.

3.2 Room Classification

There were 14 types of rooms listed in the survey forms. These included: hallway/foyer, bathroom/powder room, kitchen, dining room, living room, family/recreation, study/office, bedroom, basement, garage, utility, attic, storage, and other (unclassified). The attics and garages frequently could not be surveyed and so the data from these rooms are not included in the report. Thus in this report the contents of 12 of the 14 room types are described. The term "room" in this report means any identifiable enclosed space.

3.3 General Description of Forms

A detailed set of instructions for completing the survey forms together with copies of the forms is given in Appendix B. This section provides a supplemental overview of these forms.

General House Description and Demographic Factors - Form G

This form provides a general description of the house and some demographic factors. The name and address of the resident which appears on this form was not included in the data base since this exclusion was a privacy act requirement. The first 6 blocks on form G were used as a house identification number that appears on all the forms for the particular house.

Rooms -- Form R

Each form starts with a room identifier. The room identifier includes the house, or form number so that if the forms or the punched cards are inadvertantly mixed the data can be identified and put in the correct file. The next questions identify the form, class type, size, material and location in the room, the number of identical items in the same sector and whether or not the object is on the floor. The last question permits calculating the area of the floor that is actually covered with furnishings.

Properly speaking, the weights of the walls and finish should only be included in the structural dead load. On the other hand the surface finish of a room contributes to the overall fire load of the room. For this reason the wall, floor and ceiling finish is included in the fire load but not in the live load for a particular room. The weight conversion data is partly from Culver [7] and partly from published and unpublished data from the NBS Center for Fire Research [8,9]. The room form includes details of the surface finish, and the sizes of doors and windows. The first 11 blocks on the room form are used as an identifier on all the subsequent forms for a particular room.

Walls -- Form W

This form is basically a continuation of the Rooms Form. It identifies such items as number of closets and those fire and live loads that are usually attached to or hang from the walls of the room. The definition of a closet used in the survey generally follows the definition in the proposed revisions to the Life Safety Code that any compartment greater than 24 square feet in area is a room, but a room 24 square feet and less is a closet [16].

Tables -- Form 01

This form lists the major table types found in residences. Though it is difficult to identify all of the table types that are available to the consumer, an attempt was made to group the major types into a list of manageable length.

Case Goods -- Form 02

This form includes all case good items except kitchen cabinets, which are listed in Form 03. Subsequent to the development of this form it was noted that the weights and materials of case goods items that are not specifically identified on this form did correlate satisfactorily with similar items. An example of this is enclosed cocktail tables, which correlate closely with case goods -- "chest/dresser/bureau/desk."

Kitchen Cabinets and Built-ins -- Form 03

This form includes kitchen cabinets which properly speaking might be included under case goods. Since this class is an important one it was decided that it should be listed separately.

Beds -- Form 04

On the survey form the beds are classified by standard sizes. The transfer function for cribs includes the crib, rails, mattress, and bumper pad.

Upholstered Furniture -- Form 05

This form includes all upholstered furniture. During the preparation of this form it was noted that the transfer functions for trundle beds and day beds correlate with medium weight sofas. Wicker sofas are very light and require a separate transfer function.

Chairs -- Form 06

This form includes chairs other than upholstered chairs. It includes padded chairs such as many types of kitchen and dining room chairs, but excludes the completely upholstered chairs which are included in Form 05.

Drawer, Shelf, Cabinet or Closet Contents -- Form 07

This form includes the general classes of room contents other than furnishings such as books, clothing, dishes, etc. The transfer functions were developed by using a combination of engineering analysis, moving companies' data and selected weighing of household items.

Appliances -- Form 08

The wide variety of both large and small domestic appliances make it difficult to design a simple form that would meet all the anticipated load items that might be found in an average residence or mobile home. The form was specialized for large appliances as these are more significant load items than are the small appliances. Small appliances were reported on the "Miscellaneous" form.

Plumbing and Heating -- Form 09

This form identifies the major plumbing and heating items that are found in residences. Most of these items are largely noncombustible. The few exceptions include tubs and shower stalls made of glass reinforced plastic and toilet seat-cover assemblies which are usually made of wood or plastic materials.

Miscellaneous -- Form 10

This form is used to cover all items that do not fit into the other forms. The information was manually processed to provide live and fire load data.

Survey Report -- Form 11

This last report is used as a management tool to determine statistics on the time taken by the survey teams to complete the survey. The data are not included in the data base.

4. CALCULATION OF LIVE AND FIRE LOADS

4.1 Definitions of Live and Fire Loads

The live load is expressed in lbs/sq. ft. of floor area and as defined in this report includes movable furnishings and contents, and semi-permanent furnishings such as kitchen cabinets, room dividers, built-in bookcases and shelving. It does not include the permanent structure, or the surface finish materials attached to walls, ceiling or floors, the weight of people, or the exterior loads due to wind or snow accumulation.

The fire load is defined as the total heat that could potentially be released per square foot of floor area divided by the heat of combustion of wood which is taken to be 8000 Btu/lb. Thus a wooden table in a given room would have the same fire and live loads whereas the fire load for plastic furniture generally would exceed its live load. The room contents movable fire load includes the combustible portion of the room contents and furnishings. For built-in cabinets this includes the shelving, cabinet doors, contents and frame. The room finish fire load includes the surface finish on gypsumboard (usually paper or plastic), wall paper, paint on surfaces, combustible wall panels, wood floor, combustible floor and wall tile, wall to wall rugs and pad, exposed framing, doors and door frames, windows and window frames. Where the floor was covered by a wall to wall rug, only the rug and pad were included. The same rule was used for combustible floor tile. If the rug or combustible tile covered only part of the floor in a room, then both the floor and the rug or tile were included in the fire load.

4.2 Live Load Transfer Functions

The transfer functions which relate the survey descriptors to the total weight and the weight fractions of each material were calculated from the information that was obtained from manufacturers, trade associations, catalogues, and published information within the Center for Fire Research [8,9]. The data for each load class item were summarized in tables, and the data were analyzed to find the most suitable factor or factors that correlated with weight. In most cases it was found that volume correlated with weight, but in some cases other factors were used: these included cubic foot capacity for refrigerator/freezers, screen size for console television sets, and Btu capacity for window air conditioners.

The computational process was done in two steps: the first step was to calculate the live load; the second step was to separate the live load into material types such as wood, paper, plastic, metal, ceramic, etc.

The live load transfer functions were calculated using an available programmable magnetic card desk calculator with an attached line plotter. In all cases a linear regression relationship using the method of least squares was satisfactory over the range of furnishings sizes of interest. For some items the mean and standard deviation were sufficient for the live load transfer functions and in some cases simple engineering analyses were adequate (such as for the weight of wood shelving). The linear regression curves were used to provide a measure of the range of weights and sizes of the load items and the mathematical equation that relates weight to survey descriptors. Examples of these linear regression curves are shown in figures 4-1 through 4-7 inclusive. An example is shown for each form except for the Rooms form, Chairs form, and Drawer, Shelf ... Contents form where the transfer functions were based on engineering analysis or mean values. For some of the furnishings, only the gross shipping weight was directly available--as shown, for example, in figures 4-2, -4, and -7. In these cases, the manufacturers or the retailers were able to provide estimates or exact weights of the packaging for many of the furnishings in the class. Using this data, the transfer function based on shipping weight was adjusted to provide the transfer function for the net weight.

Figure 4-1 shows the transfer functions for Mirrors (Walls form). Most of the transfer functions on this form were derived in part or in whole by engineering analysis and judgment. Figure 4-2 shows the transfer functions for kitchen table (Tables form). Figure 4-3 shows the transfer functions for upright pianos (Case Goods form). Upright and spinet pianos are classed

as "medium" weight on the survey form to distinguish them from grand pianos which are classed as "heavy." Figure 4-4 shows the transfer function for wood kitchen base cabinets (Kitchen Cabinets, etc. form). In the calculations for live and fire loads the counter top material was added to their weight. Figure 4-5 shows the transfer function for box springs (Beds form). For standard beds in this classification the weight of the mattress, box spring, head and foot board, and frame was assumed to give a total weight for the furnishing item. It was also assumed that a standard bed, water and storage bed, was covered by 2 sheets, 2 blankets and 2 or 4 pillows depending on its size. Figure 4-6 shows the transfer functions for a variety of sofas (Upholstered Furniture form). During this analysis, it was noted that trundle and day beds correlated with medium weight sofas. For the items on the Chairs form, mean weights from manufacturers data and Culver's [7] data were used. For the Drawer, Shelf, Cabinet or Closet contents form a variety of methods was used to determine transfer functions for this broad class of load items. For papers and books Culver's data [7] was combined with CFR data [8,9], engineering analysis and actual weighing of several different kinds of papers and books to give reasonable average weights. For textile items, weighing of several classes of textiles and clothes led to the use of an average set of weights, depending on degree of compaction (see table 4-9). Figure 4-7 shows the transfer functions for TV sets (Appliances form).

The transfer functions for live loads are summarized in tables 4-1 to 4-11. In the last column in tables 4-1 to 4-11 entitled "No. of sources (No. in sample)," the first number means the number of pieces of data that were used to provide the information. For example in 3(10), the 3 means that there were three different sources for the data and the "(10)" in the parentheses means that ten different types of furnishings of the generic type were used to develop the particular transfer function. Some items that are listed on the survey forms are not listed on either the load transfer tables or the fire load transfer tables. The reason for this is that the design of the survey forms and the calculation of the transfer functions were dovetailed with the preparation of the computer program for reducing the raw data. These items are therefore to be considered as being "not applicable".

4.3 Fire Load Transfer Functions

The fire load transfer functions, which are summarized in tables 4-12 to 4-22 were derived from the live load transfer functions using available information on the heats of combustion of generic material commonly used for residential furnishings. For combinations of materials where the top legs,

sides etc. are made of different materials, engineering judgments were used inasmuch as furnishings information was frequently too limited to use directly.

4.4 Computation of Equivalent Fire Load

Historically all the available combustible material is included in the fire load, and this practice is continued in this report. It is apparent that some of the combustible material in a room may not be immediately available for contributing to the growth of a fire. Such materials could include door and window frames, drawer contents and the contents of built-in storage. Future analyses of fire growth in rooms should take into account the lesser contribution of certain portions of the fire load.

The basic method for computing the equivalent fire load is as follows: Consider that the load item is composed of n materials and that each material has weight W_i and produces a heat output of Q_i Btu per lb. Then the total load in pounds is

$$W_T = \sum_{1}^{n} W_i$$

and the equivalent fire loading in pounds is given by

$$\frac{\sum_{1}^{n} W_i \, Q_i}{8000}$$

where

8000 = Btu content of 1 lb of combustibles, such as wood [2].

The equivalent fire loading is summed for each load item, in each sector of a room, and summed for the room as a whole to give the total fire loading in each room.

An example of the use of transfer functions to estimate the live and fire loads is given in Appendix C.

5. SINGLE-FAMILY HOUSING

5.1 General Factors

A number of general descriptors of the single-family housing units were recorded during the survey. These included age of the unit, number of years occupied by the residents, number of rooms, garages, attics, and basements.

The age distribution of the surveyed housing is shown in table 5-1. The data indicates that approximately half the houses were less than 20 years old. The number of years occupied by the current resident is shown in table 5-2. The data indicates that about 40% of the residents have occupied their house for less than 5 years and about 60% less than 10 years.

The SFD homes in the survey were found to have a greater number of rooms than the SFA. The data shown in table 5-3 show that 13% of the attached homes have 15 or more rooms, while 35% of the detached homes have 15 or more rooms with a combined total of 30% of all the houses in the survey having at least 15 rooms. The number of homes with garages is shown in table 5-4. Note that for purposes of this survey "room" includes hallways, storage areas, basements, bathrooms, utility rooms, etc.

Originally the fire load for each housing type was listed under three headings: (1) "Room," (2) "Closet," and (3) "Room and Closet." Examination of the data showed only small differences in intensity of movable and total fire load between that for "Room" and that for "Room and Closet." For this reason and to keep the number of tables and figures manageable, the data are reported only for the "Room" summaries unless otherwise noted. The distribution of room areas are shown in tables 5-5 and 5-6 for SFA and SFD, respectively.

In general the rooms in the detached houses tended to be larger than those in attached houses even though the largest rooms in attached housing were comparable in size with the largest rooms in detached housing. The data for attics and garages are incomplete since the surveyors could not get access to most of these rooms and so these data are excluded. There were a total of 23 "other" rooms (6 in SFA, 17 in SFD). These are rooms that had mixed functions or were being renovated or remodeled so that their main function was not apparent.

For exterior finish, only the major (more than 50%) surfacing material was reported. Masonry was the most common exterior finish in single-family

housing. The data in table 5-7 shows that among the surveyed residences, 70% had masonry exterior finish and that wood siding and aluminum siding combined was used in 25% of the surveyed houses. The remaining houses had asphalt or asbestos shingles, stucco and mixed exterior finishes. The high percentage of SFA houses that have masonry exterior may be due to the fact that most of these units are older houses located inside the District of Columbia where masonry exteriors predominate[6].

The two most common roof materials were asphalt shingle and tar and gravel. A few houses, mostly single-family detached, had clay tile or slate roofs. This is not surprising as clay tile or slate is more expensive than other kinds of roofing material that are currently used. The distribution of roofing materials for the houses surveyed is shown in table 5-8.

Because of the importance of room finish on the growth and development of fires--particularly in rooms containing heat sources, such as furnaces, water heaters, and clothes driers--this information is summarized for basements and utility rooms in tables 5-9 and 5-10. The information for utility rooms was not structured to provide the information in the same form as that for the basement. In table 5-10, utility rooms are classed as unfinished if either the walls or ceiling were described as unfinished or having a wood finish. This sorting was made after examining the original survey forms and discussion with the surveyors.

From the data 212 or 81% of the surveyed houses had basements; of this number 109 or 51% were either semi-finished or unfinished. The data also showed that 46% of the observed utility rooms were unfinished (or were reported as having a wood finish). Thus approximately one-half of these potentially high fire risk areas had a room finish that could contribute to the rapid growth and development of a fire.

Of the surveyed residences 59% had unfinished attics, 10% had finished attics and 31% had either inaccessible attics or no attics. The distribution of attic spaces in the houses surveyed is shown in table 5-11.

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[6] In other geographical regions of the country, other exterior finishes may predominate.

5.2 Live and Fire Loads

5.2.1 Room Loads

The room live load is shown in table 5-12, for SFA and in table 5-13, for SFD residences. The statistic (mean + 1.64 SD), where SD = standard deviation, has been included in these tables. A discussion of the use of this statistic for these data is given in Appendix A. The average live load in SFA residences was generally a little higher than in SFD residences, except for the dining room, study, and other rooms. This can be partially explained on the basis that heavier furniture was found in dining rooms, and more books were found in the studies of SFD homes than in SFA. Examination of the data indicates that these differences are not significant. A weighted mean according to area of the live load for the whole house and the range of the average live load for all of the rooms was

House Type	Live Load lbs/sq. ft.	
	Mean	Range
SFA	10.1	1.9 - 37.5
SFD	9.9	2.5 - 32.3

Because of different uses, the room loads tended to fall into two ranges; a high range for kitchens, dining rooms, studies, and storage rooms, and a low range for the remaining rooms. The high range tended to be in excess of 12 lbs/sq. ft., the low range was less than 8 lbs/sq. ft. In kitchens, some or all of the cabinets may be hung from load-bearing partitions. In such cases these loads are not applied to the joists and would not be part of the normal floor load. These live loads were calculated in order to determine the fire loads in the kitchens.

The fire load consists of two parts, one part from the movable contents and the second part from the room finish. The distribution of movable contents fire load, interior finish fire load, total fire load and the ratio of finish fire load to total fire load is shown in tables 5-14 to 5-17 for SFA and in tables 5-18 to 5-21 for SFD.

A weighted mean of the equivalent movable contents fire load and the range of the average values for the whole house were

House Type	Movable Contents Fire Load lbs/sq. ft.	
	Mean	Range
SFA	6.7	1.4 - 16.8
SFD	6.8	1.3 - 17.8

A similar weighted mean and range of total fire load was

House Type	Total Fire Load lbs/sq. ft.	
	Mean	Range
SFA	12.1	6.9 - 25.7
SFD	12.7	6.0 - 24.2

The room finish is of the order of one-half the total fire load.

As shown above the observed mean and range of live load, movable contents fire load and total fire load were similar for SFA and SFD residences.

5.2.2 Composition of Fire Load

The composition of the fire load is an important parameter in evaluating fire risk and for understanding the growth and development of fires in rooms and residences. To meet these needs the fire load is separated into its component materials, i.e. wood, paper, plastic, fabric, and other. Rugs are included with fabric. The average movable fire load, interior finish fire load, and room total fire load is shown in figures 5-22, 23, 24 for SFA and in figures 5-25, 26, 27 for SFD.

The observed range of average weights of the component materials of the movable contents fire load in all the rooms was as follows:

House Type	Movable Fire Load lb/sq. ft. Range of Component Materials				
	Wood	Paper	Plastic	Fabric	Other
SFA	0.4-4.0	0.4-9.0	0.1-4.0	0.06-1.8	0-0.5
SFD	0.4-4.0	0.4-10.0	0.1-0.8	0.04-1.0	0.02-0.5

The classification of "other" material includes paints, cleaners, chemicals, and petroleum products.

5.2.3 Loads Close to Walls

Experimental studies at NBS and elsewhere have shown that in terms of flame height and fire growth, fires that originate close to a wall are generally more serious than those that originate in the middle of a room [17]. To provide information for future fire studies the live load and the fire load within 2 feet of the room wall were identified in this survey. The live load and the fire load located within 2 feet of the wall are shown in tables 5-28 and 5-29 for SFA and in tables 5-30 and 5-31 for SFD. A weighted mean of the percent movable live load within 2 feet of the wall was 71% for both SFA and SFD with a standard deviation of 14% for SFD and 15% for SFA, indicating no significant difference. This is not surprising since heavy furniture pieces and case goods are usually placed against the walls of a room. These data are similar to that from a recent survey of office buildings [11] where it was also found that most of the movable live load was located within 2 feet of the wall.

5.2.4 Percent of Floor Covered

To assist in planning scenarios for fire tests and in developing a model of fire growth and spread, the percentage of the floor area covered by movable fire load was derived from the survey data. This information is shown in table 5-32 for SFA and 5-33 for SFD. A weighted mean value of all room types of the average for each room gave 32% covered for SFA and 30% covered for SFD with a standard deviation of 13% and 11%, respectively.

6: MOBILE HOMES

6.1 General Characteristics of Mobile Homes

In this survey the exteriors of the 98 observed mobile homes[7] were quite uniform: 98 had metal roofs, 96 had metal sides, 2 had masonry sides[8], and 2 units had attached garages (96 units had no garages). Garages, attics, basements and "other" rooms were excluded from the data lists. The first three were eliminated for the obvious reason that they generally do not

[7] Many mobile homes are frequently "mobile" only for the period of time spent in travel from the factory to the park site. The mobile home then usually stays permanently on the mobile home lot.

[8] Non structural shell.

apply to mobile homes, and the fourth was eliminated because no rooms were reported as "other" in this part of the survey. Thus the data for mobile homes are reported under 10 room types.

The room listing for mobile homes includes family rooms, study, utility room and storage room. It is probable that the surveyors selected the room description according to the apparent use of the particular space. In a survey of this kind, the surveyors were required to exercise some judgment in applying descriptors to the observations.

As shown in table 6-2, the mean number of years that each class of housing has been occupied is considerably less for mobile homes (3.5 years) than for the other two classes of single-family homes (10 years).

Though the number of occupants per unit is similar to those for single family residences, because of the smaller area, the occupants of the mobile homes tend to be more crowded than those in single-family homes. This is indicated in table 6-3 which shows that the observed available area per person in mobile homes is about one-half that found in other types of single-family homes.

The number of rooms in the mobile homes surveyed was smaller than the number in SFA and SFD residences. It should also be noted that the mobile home rooms are also generally smaller in area than the rooms in the single-family residences surveyed.

The distribution of the number of rooms is shown in table 6-4 and the area of the rooms is shown in table 6-5.

6.2 Live and Fire Loads

The definition of live and fire loads is the same as that for single-family residences, refer to Section 5.2 above.

The transfer functions for the interior finish fire load in mobile homes are the same as those used for conventional housing.

The room live load is given in table 6-6. A weighted mean and range of the average live load for all the rooms was: mean - 9.6 lbs/sq. ft., range - 5.4 to 22.7 lbs/sq. ft. This mean should be compared to the corresponding weighted mean live load of 10.1 lbs/sq. ft. for SFA and 9.9 lbs/sq. ft. for SFD.

The distribution of percent movable load with 2 feet of wall is shown in table 6-7 and the percent of floor covered by movable live load is shown in table 6-8. The weighted mean of all the rooms for each room class gave a mean value of 78.0% of the movable load within 2 feet of the wall and a standard deviation of 8.3%. Though this is higher than the 71.2% for both SFA and SFD it is not surprising since rooms are smaller in mobile homes than in single-family residences. A similar calculation for percent floor covered gave 32.1% of the floor covered with a standard deviation of 9.7%. This compares with 32.0% for SFA and 30.2% for SFD.

For the rooms in the mobile homes the movable fire load, the interior finish fire load and the total fire load are shown in table 6-9, 6-10 and 6-11. The ratio of finish fire load to total fire load is shown in table 6-12. A weighted mean of the average movable contents equivalent fire load and the range of average values gave the following: mean - 5.6 lbs/sq. ft., range - 1.2 to 20.1 lbs/sq. ft. A similar calculation for total equivalent fire load gave the following: mean - 17.7 lb/sq. ft., range 14.9 to 38.5 lb/sq. ft.

The observed range of average weights of the component materials of the movable contents fire load in the surveyed mobile homes were as follows: wood - 0.3 to 4.6 lbs/sq. ft., paper - 0.1 to 14.4 lbs/sq. ft., plastic - 0.1 to 0.9 lbs/sq. ft., fabric - 0.1 to 0.9 lbs/sq. ft., and "other" - 0 to 0.5 lbs/sq. ft.

Most of the room finish fire load in mobile homes consists of wood and paper with plastic generally third place. It is likely that the finishes that were reported as being plastic consisted of vinyl coated plywood or plasticized finish on plywood.

7. SPECIAL SURVEY

7.1 Error Due to Differences Between Survey Teams

To provide a measure of the differences between survey teams, a single family detached home was surveyed by four survey teams. Originally it was planned to also weigh the contents, but this was not possible because of funding limitations.

This special survey was scheduled at the end of the mobile home survey. The time coincided with the end of the school year when the normal complement of surveyors was no longer available. The four available survey teams

included two experienced teams and two inexperienced teams. A second difficulty, which was discussed only after the event, was that between the second and third survey the owner was redecorating and refinishing his house, so that the furnishings were somewhat different both in quantity and kind, between the first two and last two surveys.

The results of the special survey show that on room areas, shown in table 7-1, there was reasonable agreement except that team 3 reported two family rooms totaling 324 sq. ft. and team 4 missed a storage room and a utility room. The owner of the house indicated that the basement area was divided and finished in a manner that could make it difficult for a surveyor to identify some of the spaces by unique room descriptors.

The results of the live load measurements are shown in table 7-2. The results for teams 1 and 2 are comparable with each other and those for teams 3 and 4 are comparable with each other. Part of the differences may be due to teams 3 and 4 being inexperienced and part may be due to the redecorations and refurnishings that occurred. Taking the special surveys in pairs, i.e. survey 1 with 2, and 3 with 4, the standard error of the mean [15] for two surveys is equal to one-half the range. This comparison is shown in table 7-3 and 7-4. Based on this analysis the error between surveyors is of the order of 15% to 20%.

7.2 Estimate of Error Due to Inventorying

In the absence of actual weighing of house contents, it is not possible to estimate the overall error due to using an inventory procedure. For the special survey, the weighted average (according to area) movable live load for all the rooms was 8.4 lb/sq. ft. with a standard deviation of 7.1 lb/sq. ft. Culver [11] was able to physically weigh the contents of a selected office. He then used this data to estimate errors among surveyors and due to inventorying. Having this data he estimated that the overall error due to "surveyor" error and "measurement" error to be of the order of 10%. It should be noted that office contents and furnishings are far more standardized as to styles, shapes and weights than are household furnishings and so it would be expected that the survey error for the residential survey would be higher than in Culver's office loads survey. This could be confirmed by actual weighing of contents in a future survey of this kind.

8. DISCUSSION OF SURVEY RESULTS

The total live load and the total fire load for rooms and closets for the three types of occupancy are compared in tables 8-1 and 8-2. In addition to the mean load, these tables also list the live loads corresponding to the (mean + 1.64 SD). A discussion of the significance of this statistic is given in Appendix A. The fire load statistics should be applied with care. The reasons for this may be explained by analogy with design for live load effects. When designing for live load effects, the designer includes the effects of dead loads, movable loads, impact loads, periodic loads, and any unusual loads [5,13]. When considering fire loads the corresponding factors that effect the duration and intensity of a fire include among others: the magnitude of the fire load, the physical and chemical composition of the combustibles, the form and the compaction of the combustibles, the rate of heat release and the amount of ventilation.

At this time there is a project at NBS to develop experimental fire exposure curves for residences using average fire loads derived from the data from this survey [4]. A future specification for a design fire load should be based on this and related work.

The breakdown of the fire load by actual observed weights of materials is shown in table 8-3 for room contents, table 8-4 for interior finish, and table 8-5 for room and closet total fire load. Table 8-4, Interior Finish Fire Load, shows that for mobile homes this fire load is higher than for single-family housing. This is due to the extensive use of wood paneling in mobile homes. Carpeting accounts for most of the contribution of the fabric while the source of the paper is mainly the covering of the gypsum wallboard and wallpaper.

On the average, about one third of the floor area is covered with furniture and about three fourths of the fire load is located within 2 feet of the walls (for all three classifications--SFA, SFD and MH). The variation of the fire and live loads among rooms of a given type are best seen by referring to the tables in this report and by noting the standard deviation reported in the tables. Wood was the predominant component of the movable contents. Gypsum board was the most frequent interior wall surface material for SFA and SFD. The exterior surfaces of the SFA and SFD residences were mostly masonry and asphalt shingles accounted for most of the roofing materials. For mobile homes the interior finish was predominantly wood while the exterior finish of the walls and roofs were usually metal.

Just prior to this report being printed the results of a recent Canadian survey of live loads in residences [18] became available. The results of the Canadian survey while different are in general agreement with the live loads reported in this survey. The Canadian survey also used an inventory technique for determining the live loads in residences.

9. ACKNOWLEDGMENTS

The completion of a project of this kind is the result of the cooperation and assistance of many people. William Douglas Walton of the Center for Fire Research wrote the computer program for producing the graphs and tables in this report; Robert M. McCabe and Jack Gorman of the Center for Consumer Product Technology wrote the computer program that converted the survey data into live and fire loads. Ms. Carol Harrison of NBS assisted in the preliminary design of the survey forms. Irving Silver, Peter Davidoff and John Pressley led the George Washington University Residential Survey Team. Charles Culver of the Center for Building Technology shared his experience with a related survey of office buildings. Dan Gross and William J. Parker of the Center for Fire Research thoroughly and patiently reviewed early drafts of this paper and many others who provided assistance and comments during the course of this survey. Bruce Ellingwood of the Center for Building Technology reviewed the final draft and brought to my attention the recent Canadian residential survey by Madsen and Turkstra [18].

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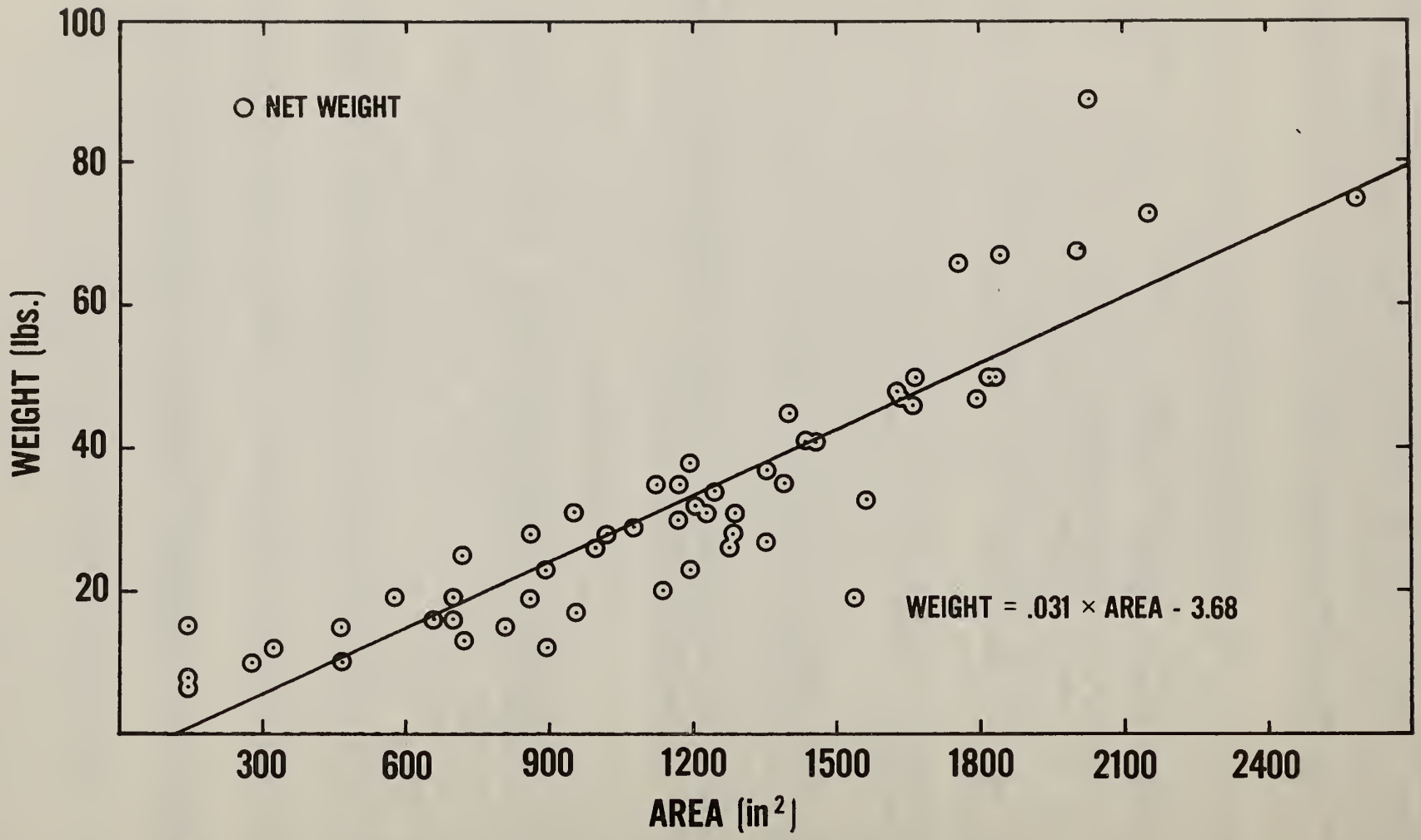

FIGURE 4-1 TRANSFER FUNCTIONS FOR MIRRORS (WALL FORM)

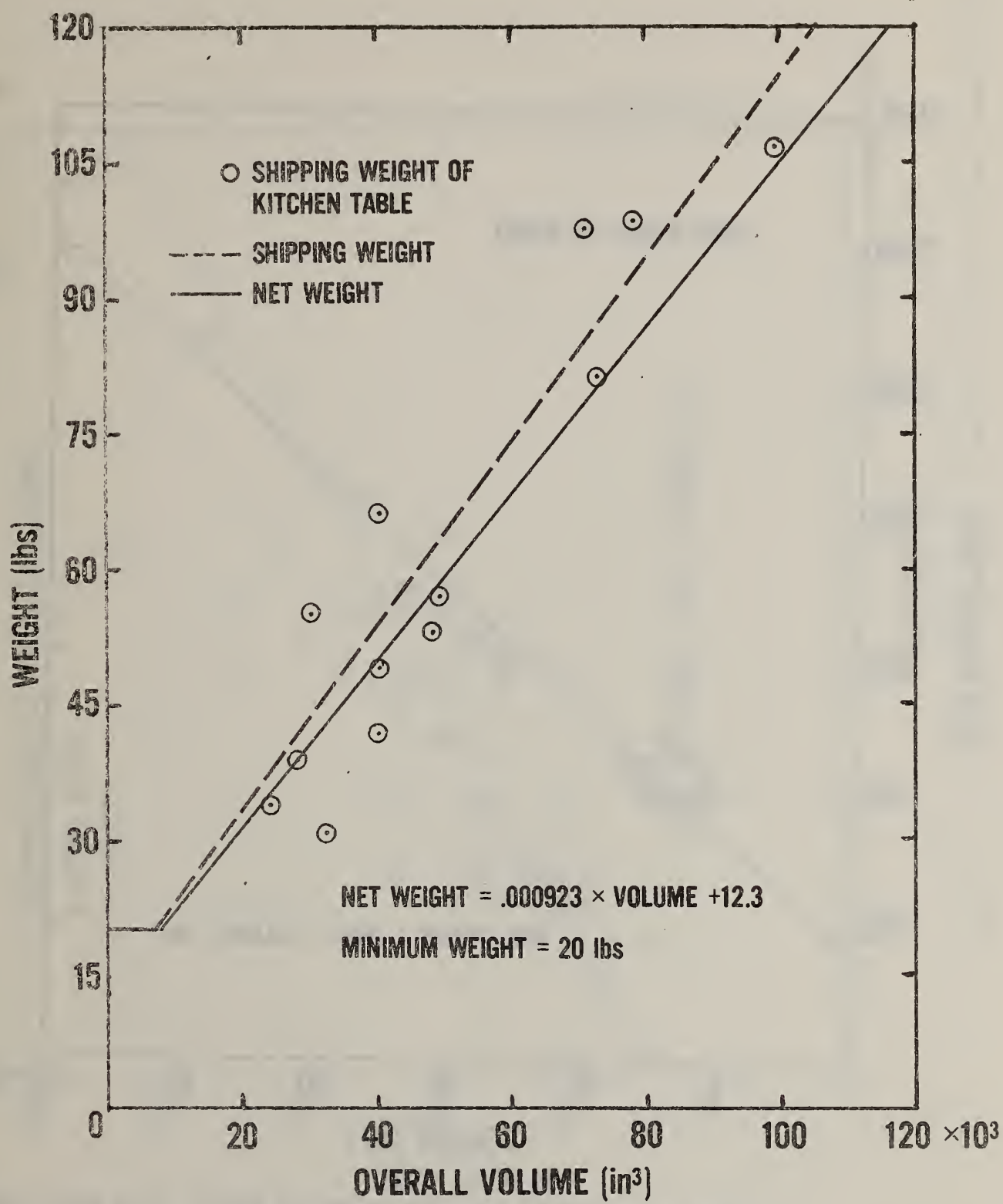

FIGURE 4-2 TRANSFER FUNCTION FOR KITCHEN TABLES (TABLES FORM)

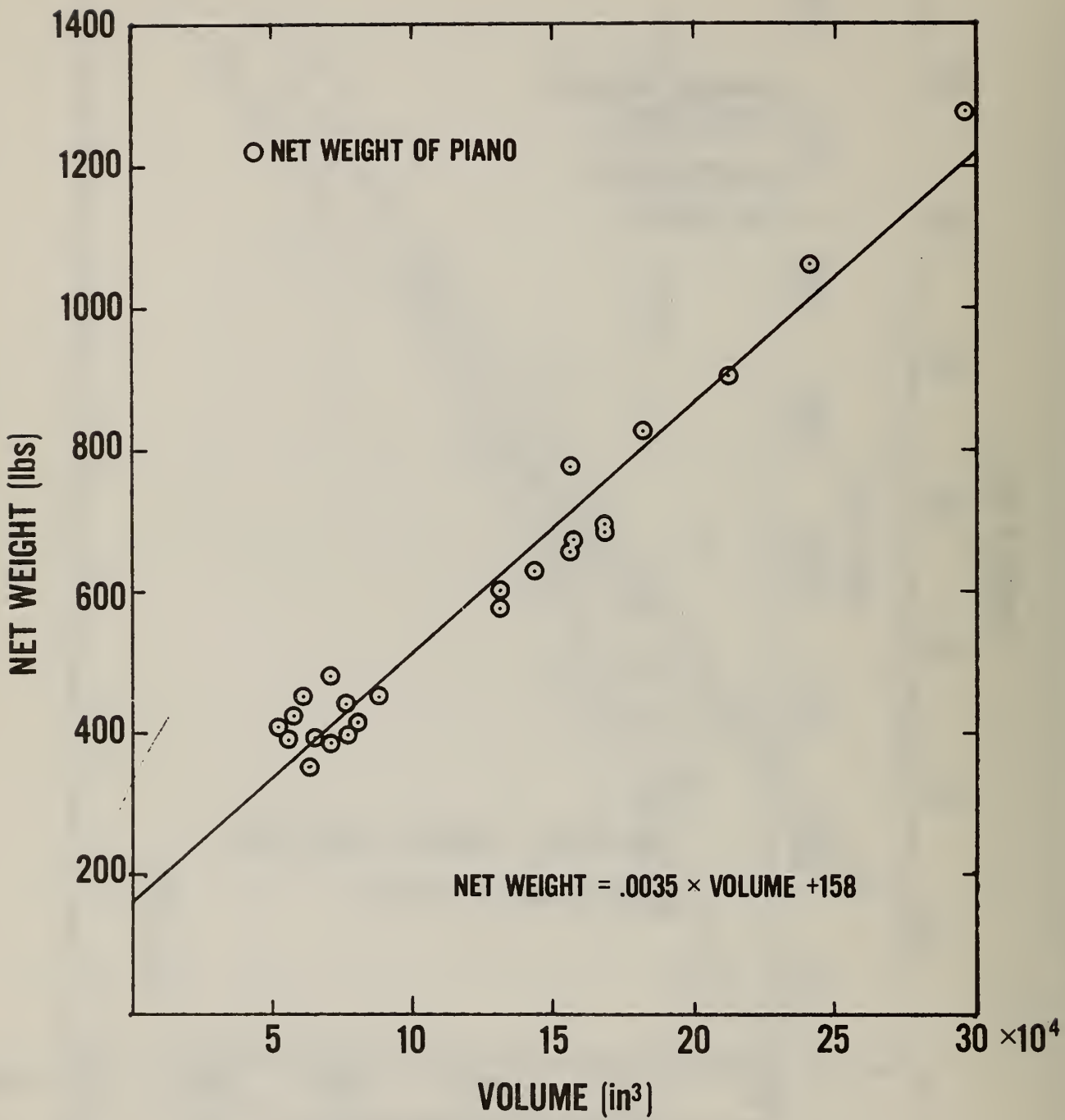

FIGURE 4-3 TRANSFER FUNCTIONS FOR UPRIGHT PIANOS (CASE GOODS FORM)

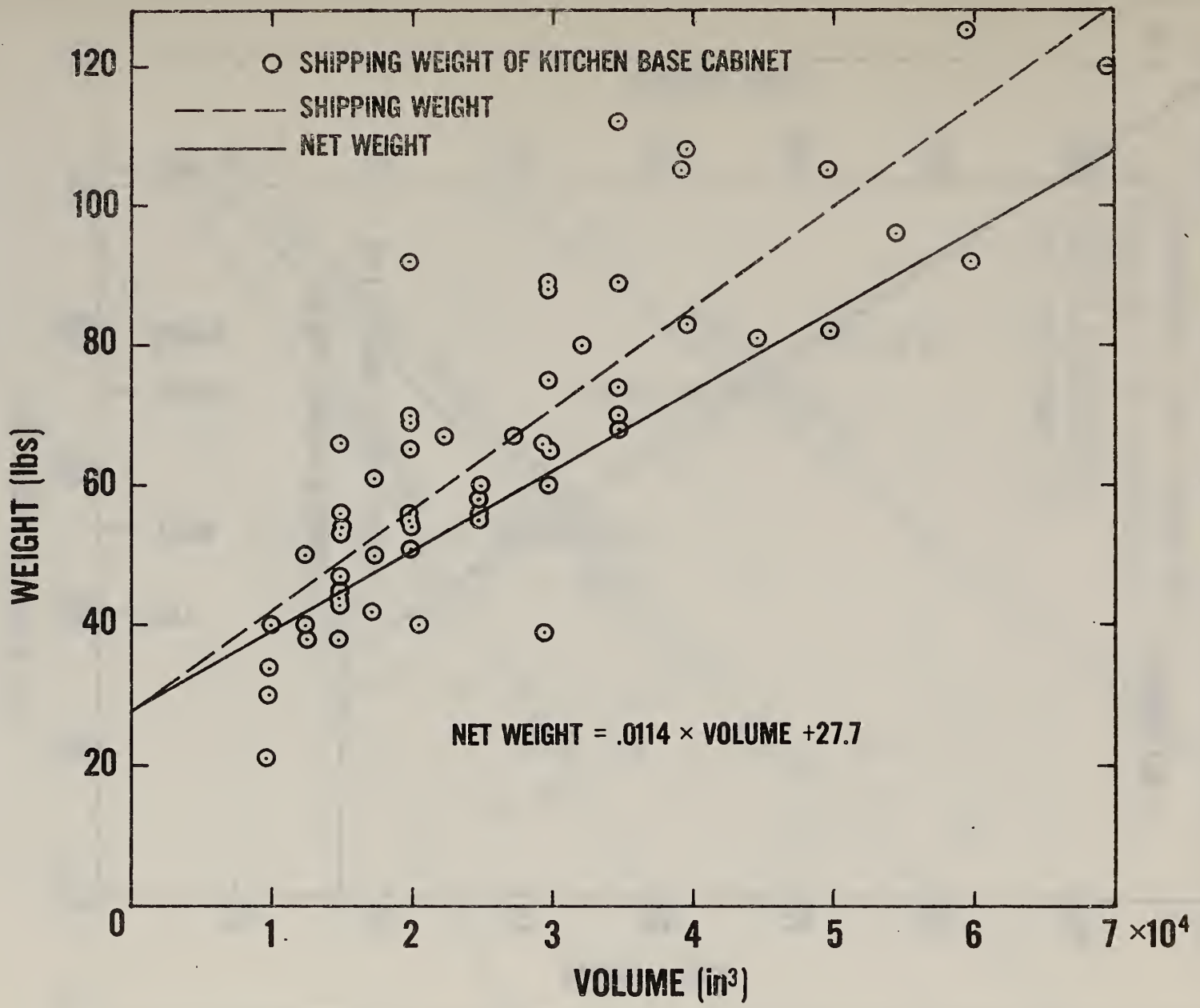

FIGURE 4-4 TRANSFER FUNCTION FOR WOOD KITCHEN BASE CABINETS (KITCHEN CABINETS FORM)

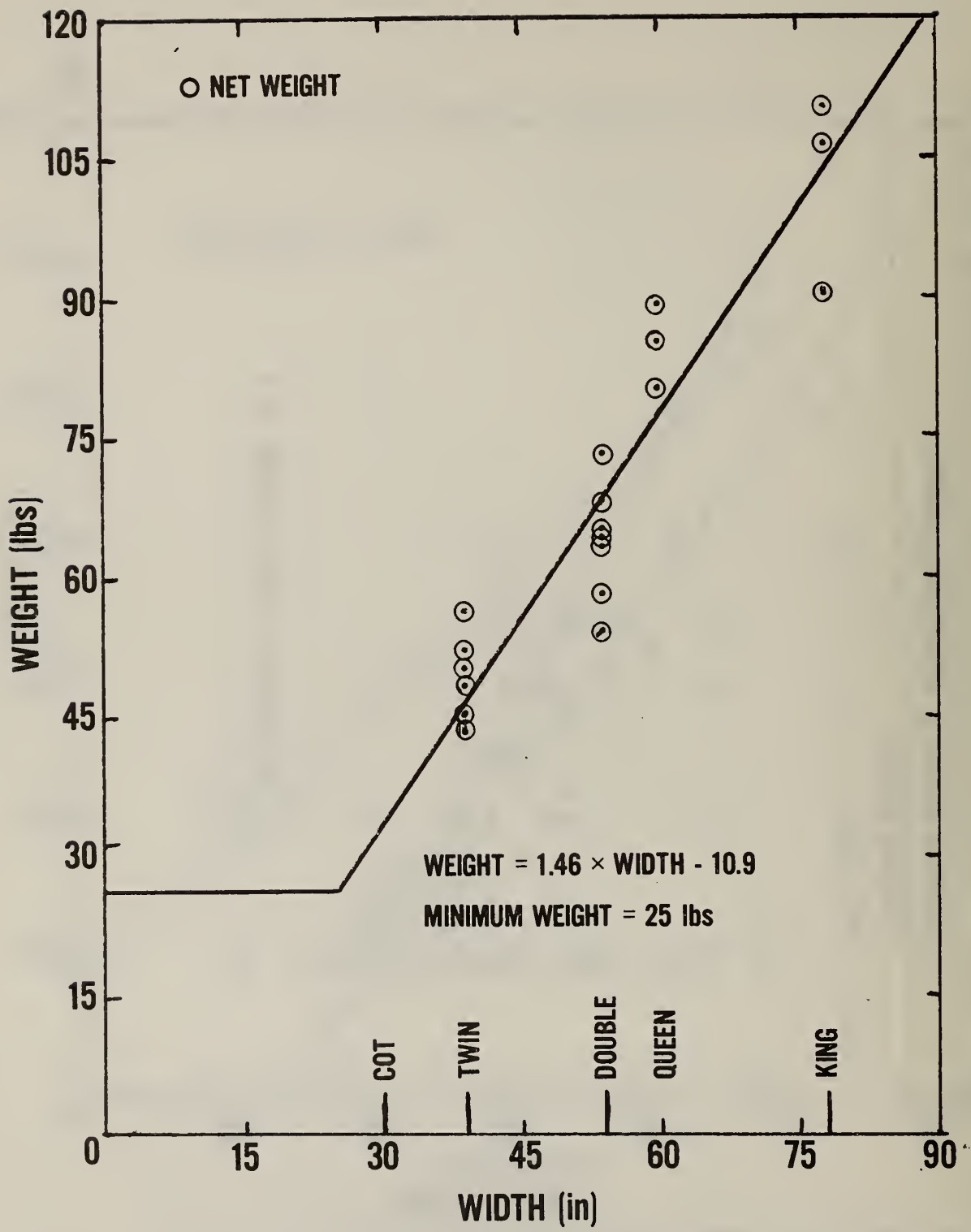

FIGURE 4-5 TRANSFER FUNCTION FOR BOX SPRINGS (BEDS FORM)

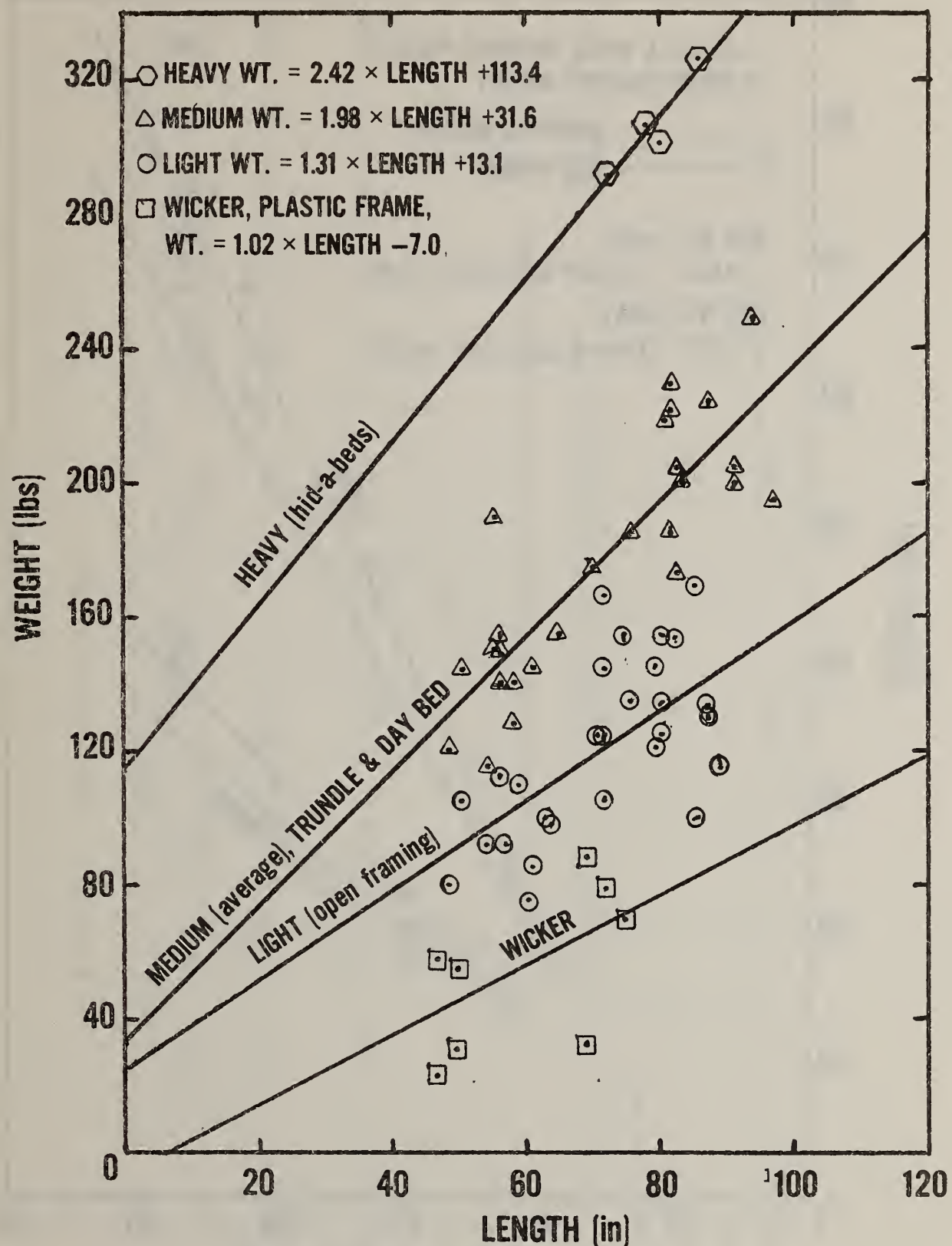

FIGURE 4-6 TRANSFER FUNCTION FOR SOFAS (UPHOLSTERED....FORM)

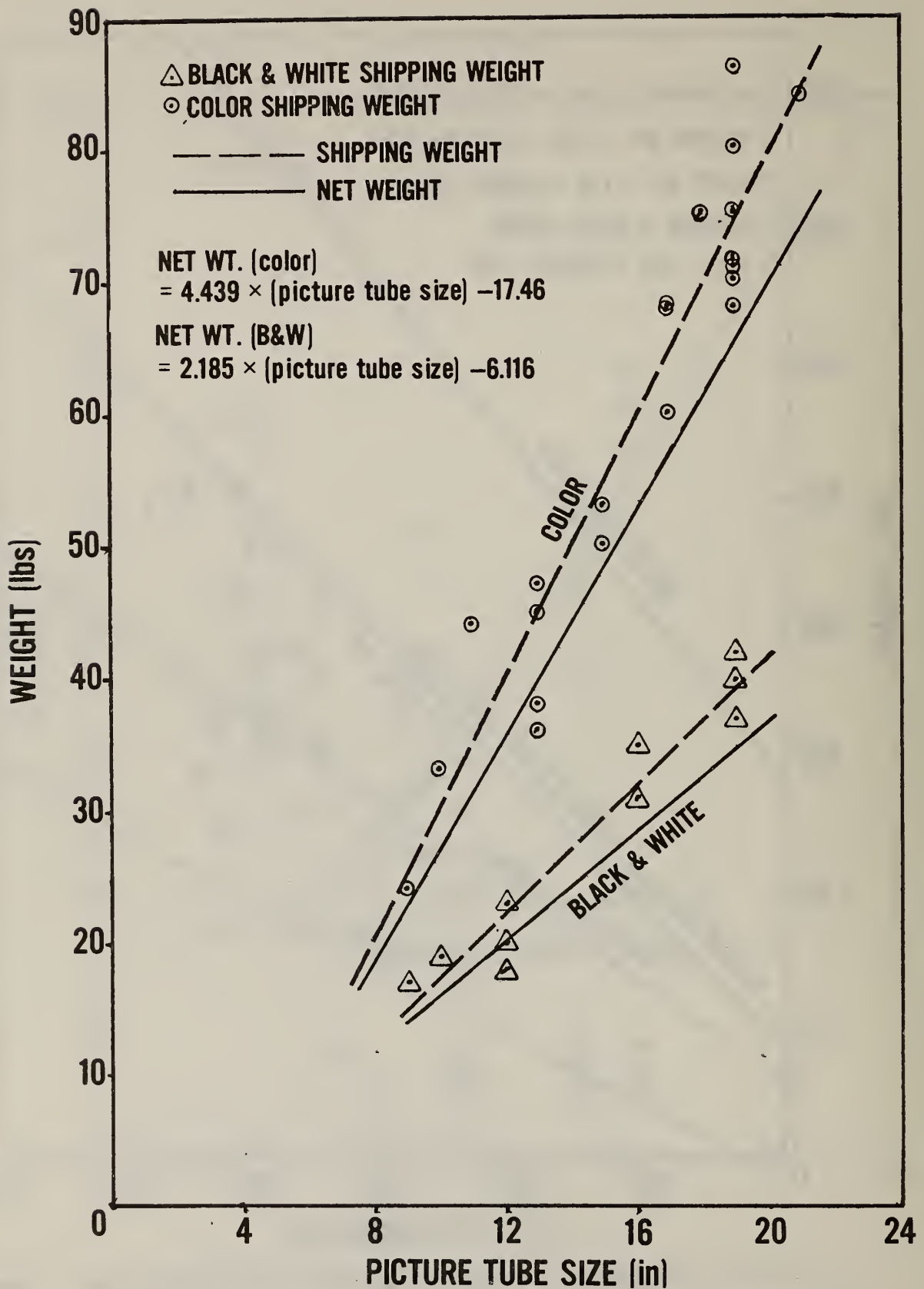

FIGURE 4-7 TRANSFER FUNCTION FOR PORTABLE TELEVISIONS (APPLIANCES FORM)

Table 1-1. Loss comparison for fires in the United States [1]

	Fires		Deaths		Injuries		Dollar Loss	
	Number	Rate	Number	Rate/Million Persons	Number	Rate/ Million	Dollars (million)	Dollar/ Fire
All Fires (1975)	2,600,000	1,200/ 100,000 people	7,500	35.2	106,500	500	4,150	N.A.
Residential Fires (1975)	700,000	9.9/ 1,000 house-holds	5,100	23.9	60,705	285	1,785	2,550
Mobile Home Fires	15,000	3.5/ 1,000 house-holds	439	44.3	825	83	60	4,000

Table 1-2. Geographic distribution of surveyed residences and mobile homes

	Attached	Detached	Mobile Home	Totals
District of Columbia	39	28	---	67
Maryland	6	99	42	147
Virginia	16	73	56	145
Total	61	200	98	359

Table 4-1. Load Transfer Function for Rooms Form R for Calculation of Interior Finish Fire Load Only

Class	Type	Material	Function (weight, lbs)	Coefficient of Correlation	No. of Sources, No. in Sample
Floor Finish		1	2 x Area (ft^2)	n.a.	n.a.
		2	1 x Area (ft^2)		
		4	1 x Area (ft^2)		
			Note: If items 2, 3, 4 less than 100% assume remaining area is type 1 (wood)		
Trim		1	2.5 x (Length(ft) + width(ft))	n.a.	n.a.
		3	1.6 x (Length(ft) + width(ft))		
		4	2.5 x (Length(ft) + width(ft))		
Ceiling Finish		0	4 x Area (ft^2)	n.a.	n.a.
		1	.2 x Area (ft^2)		
		2	.2 x Area (ft^2)		
		3	.1 x Area (ft^2)		
		5	2. x Area (ft^2)		
		6	1. x Area (ft^2)		
Wall Construction		0	4. x Area (ft^2)	n.a.	n.a.
		1	.2 x Area (ft^2)		
		3	2. x Area (ft^2)		
		4	1. x Area (ft^2)		
		5	1. x Area (ft^2)		

Table 4-1 (continued)

Class	Type	Material	Function (weight, lbs)	Coefficient of Correlation	No. of Sources, No. in Sample
Wall Finish		2,3, 4,5 7	.2 x Area (ft^2) included with construction except if this is a minor finish add .2 x Area (ft^2) x -20	n.a.	n.a.
Windows	all		.03 Area (in^2)	n.a.	n.a.
Doors	1	1	.0035 x Area (in^2)	n.a.	n.a.
	2	1	.0015 x Area (in^2)		
	3	1	.0005 x Area (in^2)		
	4	1	.0013 x Area (in^2)		

Table 4-2. Load Transfer Function for Walls Form W for Calculation of Interior Finish Fire Load Only

Class	Material	Function (weight, lbs)	Coefficient of Correlation	Number of Sources (Number in Sample)
Pictures	1	.021 x Area (in^2)	n.a.	n.a.
	2,3	.001 x Area (in^2)		
	4	.05 x Area (in^2)		
	5	.002 x Area (in^2)		
	6	.003 x Area (in^2)		
Mirrors	7	.01 x Area (in^2)	n.a.	8(25)
Mirror Tile		n.a.		
Curtains	4	.001 x Area (in^2)	n.a.	3(20)
Drapes	4	.007 x Area (in^2)	.7	3(37)
Notice Board	2,4,5	.0057 x Area (in^2) - 1.56	n.a.	n.a.
	6	.0086 x Area (in^2) - 1.56	.96	2(10)
Plaques	5	.002 x Area (in^2)	n.a.	n.a.
	6	.003 x Area (in^2)		
Shelves	5,6	.023 x Area (in^2)	n.a.	n.a.
Brackets		n.a.		
Lights/Lamp	5,6	15 lbs	S.D. 4.2	3(135)
Clocks	5,6	.017 x Area (in^2) + .64	.88	1(9)
Rugs	4	.9 x Area (in^2)	n.a.	n.a.
Fireplace		n.a.		

Table 4-3. Load Transfer Function for Tables - Form 01

Class	Weight Class	Material Top	Material Legs	Function (Weight, lbs)	Coeff. of correl.	No. of sources (No. in sample)	Range (lbs)
Dining/Kitchen	all	all	all	If blocks 7 and 8 are: 03,06 or 09 use:			
				.000923 x Vol (in^2)+12.3	.91	3(15)	20-120
				Otherwise use			
				.0013 x Vol (in^3) - 5.6	.74	8(31)	40-300
Serving cart	all	all	all	.0012 x Vol (in^3) + 13.0	.88	4(6)	10-100
Cocktail	all	all	all	.00402 x Vol (in^3) - 24.7	.90	8(32)	15-115
End	all	1,2,3	all	.0039 x Vol (in^3) - 17.1	.81	10(41)	10-75
		4,5	all	.00566 x Vol (in^3) + 0.8	.94	3(6)	10-75
Commode/Night stand	all	all	all	.00512 x Vol (in^3) - 7.0	.81	10(14)	10-100
Pool	1,2	all	all	.00157 x Vol (in^3) + 34.8	.55	2(5)	10-500
	3	all	all	.00445 x Vol (in^3) - 91.4	.91	3(9)	100-900
Folding	all	1	all	.033 x Area (in^2) - 18.85	.96	2(8)	10-100
		2,3, 4,5	all	.022 x Area (in^2) - 18.85	n.a.	n.a.	10-70

Table 4-4. Load Transfer Function for Case Goods Form 02

Class	Weight Class	Material Top	Material Sides and Front	Material Shelves	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)	Range (lbs)
Buffet/etc.	all	all	all	n.a.	.0063 x Vol (in^3) - 53.7	.91	8(23)	25-350
Hutch	all	all	all	n.a.	.00396 x Vol (in^3) - 18.0	.95	10(23)	15-275
Bar	all	all	all	n.a.	.00302 x Vol (in^3) - 9.8	.96	5(14)	15-200
China Cabinets/ etc.	all	all	all	n.a.	.00442 x Vol (in^3) - 54.5	.88	8(23)	50-550
Chest/etc.	all	all	all	n.a.	.0041 x Vol (in^3) - 7.3	.88	11(83)	10-350
Room Divider	all	n.a.	1	n.a.	.394 x Length (in) - 1.4	.84	1(12)	10-100
			2	n.a.	.30 x Length (in)	n.a.	n.a.	10-100
			3,4,5	n.a.	.594 x Length (in) + 1.78	.86	3(14)	10-100
Bookcase	all	all	all	1	.00339 x Vol (in^3) - 1.5	.95	8(37)	10-300
				2	.000466 x Vol (in^3) + 6.1	.95	8(37)	10-100
				3,4,5	.003 x Vol (in^3) - 1.5	n.a.	n.a.	10-300
Piano	1,2	all	all	n.a.	All except grand			
					.0035 x Vol (in^3) + 158	.98	2(26)	200-1400
	3	all	all	n.a.	Grand			
					.00447 x Vol (in^3) - 6.8	.99	1(6)	400-1500

Table 4-4. (continued)

Class	Weight Class	Material Top	Material Sides and Front	Material Shelves	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)	Range (lbs)
Shelving	all	n.a.	n.a.	1	.026 x Vol (in^3)	n.a.	n.a.	0 - 75
				2	.02 x Vol (in^3)	n.a.	n.a.	0 - 75
				3	.0048 x Vol (in^3) + 9.5	.77	3(19)	0 - 75
				4,5	.093 x Vol (in^3)	n.a.	n.a.	0 - 200
Wardrobe	1	all	1	n.a.	.00078 x Vol (in^3) - 4.3	.64	1(3)	10-130
	2,3	all	1	n.a.	.0026 x Vol (in^3) + 74.7	.41	2(6)	90-350
	all	all	2	n.a.	.00052 x Vol (in^3) - 4.3	n.a.	n.a.	10-130
	all	all	3,4,5	n.a.	.0014 x Vol (in^3) + 7.2	.85	2(12)	10-175

Table 4-5. Load Transfer Function for Kitchen Cabinets and Built-Ins Form 03

Class	Weight Class	Material Top	Material Sides and Front	Material Shelves	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)	Range (lbs)
Upper	all	n.a.	1	all	.00345 x Vol (in^3) + 4.0	.92	7(97)	10-250
			2	all	.0023 x Vol (in^3) + 3.0	n.a.	n.a.	10-250
			3	all	.00194 x Vol (in^3) + 17.7	.90	8(23)	10-250
			4,5	all	.0038 x Vol (in^3) + 4.0	n.a.	n.a.	10-250
Lower (excluding tops)	all	n.a.	1	all	.00114 x Vol (in^3) + 27.7	.85	6(66)	10-250
			2	all	.0008 x Vol (in^3) + 27.7	n.a.	n.a.	10-250
			3	all	.00274 x Vol (in^3) - 1.3	.98	3(21)	10-250
			4,5	all	.0013 x Vol (in^3) + 27.7	n.a.	n.a.	10-250
Lower Counter Tops*	all	1	n.a.	n.a.	.040 x Area (in^2)	n.a.	3(9)	0-120
		2	n.a.	n.a.	.027 x Area (in^2)	n.a.	3(22)	0-120
		3,4,5	n.a.	n.a.	.045 x Area (in^2)	n.a.	n.a.	0-120
Floor to ceiling	all	n.a.	1	n.a.	.00084 x Vol (in^3) + 50.6	.85	5(17)	
			2	n.a.	.00056 x Vol (in^3) + 34.0	n.a.	n.a.	
			3	n.a.	.00116 x Vol (in^3) + 20.6	.92	3(23)	
			4,5	n.a.	.001 x Vol (in^3) + 50.6	n.a.	n.a.	

* Counter area is computed from lower cabinet (length x width)

Table 4-6. Load Transfer Function for Beds - Form 04

Class	Size	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)
Standard*	1 King	Mattresses & box spring & frame (a) Inner spring mattress 248.7 (b) Foam mattress 201.2	 .94 .58	 3 (20) 3 (12)
	2 Queen	(a) Inner spring mattress 188.7 (b) Foam mattress 152.9		
	3 Double	(a) Inner spring mattress 164.0 (b) Foam mattress 132.1		
	4 Twin	(a) Inner spring mattress 122.3 (b) Foam mattress 100.2		
	5 Crib	75 (complete)		
Waterbed		Frame / Bed / Total Load Filled	n.a.	
	1	90 / 10 / 1740		
	2	72 / 8 / 1310		
	3	54 / 6 / 1125		
	4	45 / 5 / 870		
Storage*	All	Inner spring 166.3 Foam 139.3	S.D. 20.0	4 (6)
Cot/Rollaway	All	58.4	S.D. 16.6	3 (28)

* Assume in this survey that all beds have a foam mattress.

Table 4-6 (continued)

Item	Bed Size	Bed Class	Headboard Style	Headboard Weight Class	Headboard Material	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources, No. in Sample
Headboard	1	1,2,3	2,4	all	1,4,5	57	n.a.	n.a.
					2,3	38		
			3	all	1	44		
					2,3	29		
					4	25		
					5	22		
	2	1,2,3	2,4	all	1,4,5	47		
					2,3	32		
			3	all	1	33		
					2,3	22		
					4	21		
					5	17		
	3	1,2,3	2,4	all	1,4,5	43		
					2,3	29		
			3	all	1	29		
					2,3	20		
					4	20		
					5	15		
	4	1,2,3	2,4	all	1,4,5	34		
					2,3	23		

Table 4-6 (continued)

Item	Bed Size	Bed Class	Headboard Style	Headboard Weight Class	Headboard Material	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources, No. in Sample
			3	all	1	20		
					2,3	14		
					4	17		
					5	10		
Footboard	all	all	2,3,4	all	all	.5 x headboard	wt n.a.	n.a.
Sheets, Blankets Pillows	1,2	1,2,3				23.7	n.a.	n.a.
	3	1,2,3				15.8		
	4	1,2,3				14.3		
	5	1,2,3				5.0		

Table 4-7. Load Transfer Functions for Upholstered Furniture - Form 05

Class	Weight Class	Material Arms	Material Legs	Material Back	Material Seat	Function (Weight, lbs)	Coeff. of Coerrel.	No. of Sources No. in Sample	Range (lbs)
Chair	1,2	all	all	all	all	.00116 x Vol (in^3) - 4.2	.93	5(16)	15-100
	3	all	all	all	all	.00141 x Vol (in^3) + 10.7	.84	6(36)	20-150
Recliner	all	all	all	all	all	.00170 x Vol (in^3) + 18.2	.70	4(29)	30-150
Rocker/Swivel	all	all	all	all	all	.00153 x Vol (in^3) + 15.9	.73	8(19)	20-150
Sofa	1	all	all	1,2,3 4,5	all	1.31 x Length (in) + 13.1	.63	6(32)	20-150
	2	all	all	1,2,3 4,5	all	1.98 x Length (in) + 31.6	.85	2(26)	30-300
	3	all	all	1,2,3 4,5	all	2.42 x Length (in) + 113.4	.94	1(4)	100-400
	all	all	all	6	all	1.02 x Length (in) - 7.0	.57	2(8)	20-150
Hide-a-bed	all	all	all	all	all	4.35 x Length (in) - 28.6	.90	2(8)	150-600
Day Bed	all	all	all	all	all	1.98 x Length (in) + 31.6	n.a.	n.a.	40-300
Trundle Bed	all	all	all	all	all	1.98 x Length (in) + 31.6	n.a.	n.a.	40-300
Ottoman/etc	all	all	all	all	all	.00179 x Vol (in^3) + 7.6	.50	5(23)	5-60
Bean Bag	all	all	all	all	all	.00152 x Vol (in^3) - 1.8	.90	1(4)	5-40

Table 4-8. Load Transfer Function for Chairs (other than upholstered) - Form 06

Class	Weight Class	Material Seat	Material Legs	Material Back	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)
Kitchen	all	all	all	all	14.3	S.D. 3.4	3(25)
Dining	1,2	all	all	1,2,3, 4,5	17.3	S.D. 4.5	3(27)
	3	all	all	1,2,3, 4,5	25.5	S.D. 5.0	3(11)
	all	all	all	6	20.0	n.a.	n.a.
Office	all	all	1	all	44.0	S.D. 10.9	4(126)
			2	all	25.0	S.D. 9.0	4(87)
			3,4,5, 6	all	16.0	S.D. 4.0	3(75)
Rocker/Swivel	all	all	all	all	35.1	S.D. 23.4	4(15)
Stool	1,2	all	all	all	12.6	S.D. 4.4	2(8)
	3	all	all	all	24.4	S.D. 4.8	2(16)
Folding	all	all	all	all	11.3	S.D. 1.2	3(3)

Table 4-9. Load Transfer Function for Drawer, Shelf, Cabinet or Closet Contents - Form 07

Class	Weight Class	Material	Compaction	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)
Papers/Books	1	all	0,1	.005 x Vol (in^3)	n.a.	n.a.
			2	.010 x Vol (in^3)		
			3	.015 x Vol (in^3)		
			4	.020 x Vol (in^3)		
	2	all	0,1	.005 x Vol (in^3)	n.a.	n.a.
			2	.011 x Vol (in^3)		
			3	.016 x Vol (in^3)		
			4	.022 x Vol (in^3)		
	3	all	0,1	.007 x Vol (in^3)	n.a.	n.a.
			2	.014 x Vol (in^3)		
			3	.022 x Vol (in^3)		
			4	.029 x Vol (in^3)		
Photographs/etc	1,2	all	0,1,2	.008 x Vol (in^3)	n.a.	n.a.
			3,4	.013 x Vol (in^3)		
	3	all	0,1,2	.019 x Vol (in^3)	n.a.	n.a.
			3,4	.029 x Vol (in^3)		
Phonograph records	all	all	0,1,2	.037 x Vol (in^3)	n.a.	n.a.
			3,4	.041 x Vol (in^3)		
Cassette/magn. tapes	all	all	0,1,2	.0010 x Vol (in^3)	n.a.	n.a.
			3,4	.0019 x Vol (in^3)		

Table 4-9. (continued)

Class	Weight Class	Material	Compaction	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)
Dishes/Trays	all	1	0,1,2 3,4	.010 x Vol (in^3) .020 x Vol (in^3)	n.a.	n.a.
		2,3	0,1,2 3,4	.010 x Vol (in^3) .020 x Vol (in^3)	n.a.	n.a.
		4,5	0,1,2 3,4	.028 x Vol (in^3) .057 x Vol (in^3)	n.a.	n.a.
		6	0,1,2 3,4	.05 x Vol (in^3) .10 x Vol (in^3)	n.a.	n.a.
Glassware/ stemware	all	all	0,1,2 3,4	.005 x Vol (in^3) .01 x Vol (in^3)	n.a.	n.a.
Cookware/pots/ pans	all	4,5	0,1,2 3,4	.01 x Vol (in^3) .05 x Vol (in^3)	n.a.	n.a.
		6	0,1,2 3,4	.02 x Vol (in^3) .05 x Vol (in^3)	n.a.	n.a.
Cutlery/etc.	all	1,2,3	0,1,2 3,4	.005 x Vol (in^3) .010 x Vol (in^3)	n.a.	n.a.

Table 4-9. (continued)

Class	Weight Class	Material	Compaction	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)
		4,5	0,1,2 3,4	.014 x Vol (in^3) .028 x Vol (in^3)	n.a.	n.a.
		6	0,1,2 3,4	.025 x Vol (in^3) .050 x Vol (in^3)	n.a.	n.a.
Cans/Jars/Food-stuffs	all	all	0,1,2 3,4	.015 x Vol (in^3) .030 x Vol (in^3)	n.a.	n.a.
Dry Pack. Foods	all	all	0,1,2 3,4	.006 x Vol (in^3) .012 x Vol (in^3)	n.a.	n.a.
Small Appliances	all	all	0,1,2 3,4	.003 x Vol (in^3) .008 x Vol (in^3)	n.a.	n.a.
Cothing, blankets sheets, towels	all	all	0,1,2 3 4	.002 x Vol (in^3) .003 x Vol (in^3) .004 x Vol (in^3)	n.a.	n.a.
Guns/Pistols	1,2	all	0,1,2 3,4	.015 x Vol (in^3) .03 x Vol (in^3)	n.a	n.a.
	3	all	0,1,2 3,4	.015 x Vol (in) .030 x Vol (in^3)		

Table 4-9. (continued)

Class	Weight Class	Material	Compaction	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)
Paints/Paint Removers	all	all	0,1,2 3 4	.010 x Vol (in^3) .020 x Vol (in^3) .041 x Vol (in^3)	n.a.	n.a.
Chemicals/ Petroleum Products	all	all	0, 1, 2 3,4	.010 x Vol (in^3) .041 x Vol (in^3)	n.a.	n.a.
Medicines/ Toiletries	all	all	0,1 2 3 4	.075 x Vol (in^3) .015 x Vol (in^3) .022 x Vol (in^3) .030 x Vol (in^3)	n.a.	n.a.

Table 4-10. Load Transfer Function for Appliances - Form 08

Class	Style	Weight Class	Material Top	Material Sides	Material Front	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)	Range (lbs)
Stoves/Ranges	all	all	all	all	all	.00443 x Vol (in^3)+60.1	.80	5(17)	0-500
Countertop Ranges	all	all	all	n.a.	n.a.	.105 x Area (in^2)-24.4	.82	3(14)	0-500
Ovens/Wallovens	all	all	all	all	all	.209 x Area (in^2)-15.7	.81	4(19)	0-500
Refrigerator/ Freezer	all	all	all	all	all	9.78 x Cap.(cu ft)+72.3	.83	8(75)	0-500
TV - B&W	all	all	all	all	all	Portable 2.43 x Screen (in)-6.8	.97	4(36)	0-100
TV - Color	all	all	all	all	all	Portable 4.93 x Screen (in)-17.5	.95	4(36)	0-200
TV - Console	all	all	all	all	all	Color and B&W .0065 x Vol (in^3)+22.5	.84	3(16)	0-400
Stereo	all	all	all	all	all	.007 x Vol (in^3)	n.a.	n.a.	0-300
Air Conditioner	all	all	all	all	all	8.23 x Cap (KBTU) + 34.6	.97	5(41)	0-300
Dehumidifier/ Humidifier	all	all	all	all	all	55	n.a.	n.a.	n.a.

Table 4-10. (continued)

Class	Style	Weight Class	Material Top	Material Sides	Material Front	Function (Weight, Lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)	Range (lbs)
Sewing Machine	all	all	all	all	all	31	S.D. 6.2	3(12)	n.a.
Washer	all	all	all	all	all	.0068 x Vol (in^3) + 13.2	.93	4(13)	0-300
Dryer	all	all	all	all	all	.0033 x Vol (in^3) + 40.7	.89	5(26)	0-300
Dishwasher	all	all	all	all	all	15.63 x Height (in) -454.6	.98	6(29)	0-300
Compactor	all	all	all	all	all	.0076 x Vol (in^3) + 83.4	.91	5(8)	0-300
Fish Tank*	all	all	all	all	all	.036 x Vol (in^3) + .012 [L(in)xW(in)+2H(in) (L(in) + W(in))]	n.a.	n.a.	0-1000

* Includes the weight of the water.

Table 4-11. Load Transfer Function for Plumbing and Heating - Form 09

Class	Weight Class	Material	Function (Weight, lbs)	Coeff. of Correl.	No. of Sources (No. in Sample)	Range (lbs)
Sinks	all	all	IF Cols 7 & 8 are 03 .019 x Area (in^2) + 5.55	.31	3(14)	0-100
			IF Cols 7 & 8 ≠ 03 .11 x Area (in^2) - 7.8	.91	3(15)	0-100
Bath Tubs	all	1,3	.009 x Vol (in^3) + 18.8	.98	2(10)	100-500
		2,4	.006 x Vol (in^3) + 9.3	n.a.	n.a.	100-500
Toilets	all	1,3	95.0	S.D. 11.8	4(19)	n.a.
		2,4	63.0	n.a.	n.a.	n.a.
Laundry Tubs	all	1,3	.0014 x Vol (in^3) + 6.56	.99	2(4)	20-150
		2,4	.0021 x Vol (in^3) + 9.8	n.a.	n.a.	20-150
Furnace	all	all	250.0	n.a.	n.a.	n.a.
Water Heater*	all	all	250.0	n.a.	n.a.	n.a.
Water Purifier*	all	all	250.0	S.D. 33.2	3(7)	n.a.
Water Pumps			52.9	S.D. 9.9	3(27)	n.a.
Shower Stall	all	1,3	1.5 x Width (in) + 70.0	n.a.	n.a.	50-200
		2,4	1.04 x Width (in) + 46.7	.99	1(4)	50-200

* Includes the weight of the water.

Table 4-12. Fire Load Transfer Function for Rooms - Form R

Class	Material	Fire Load (lbs)				
		Paper	Wood	Fabric	Plastic	Other
Floor Finish	1		wt			
	2				.4 x wt	
	4			wt		
Trim	1		wt			
	3				.4 x wt	
Ceiling Finish	0,2,5		wt			
	1,3	wt				
	6				wt	
Wall Construction	0,3,5		wt			
	1	wt				
	4				wt	
Wall Finish	2,7		wt			
	3	wt				
	4			wt		
	5					wt
Windows	all		wt			
Doors	1		wt			

Table 4-13. Fire Load Transfer Function for Walls - Form W

Class	Material	Fire Load (lbs)				
		Paper	Wood	Fabric	Plastic	Other
Pictures	1,2,3	wt				
	6		wt			
	4			wt		
	5				wt	
Mirrors	7		wt			
Curtains	4			wt		
Drapes	4			wt		
Notice Board	2	wt				
	4			wt		
	5				wt	
	6		wt			
Plaques	5				wt	
	6		wt			
Shelves	5				wt	
	6		wt			
Lights/Lamp	5				.2 x wt	
	6		.2 x wt			
Clocks	5				.2 x wt	
	6		.2 x wt			
Rugs	all			wt		

Table 4-14. Fire Load Transfer Function for Tables - Form 01

Class	Weight Class	Material Top	Material Legs	Fire Load (lbs)		
				Wood	Fabric	Plastic
Dining/kitchen	all	1		.8 x wt		
		2				.8 x wt
			1	.2 x wt		
			2			.2 x wt
Serving Cart	all	1		.8 x wt		
		2				.8 x wt
			1	.2 x wt		
			2			.2 x wt
Cocktail	all	1		.8 x wt		
		2				.8 x wt
			1	.2 x wt		
			2			.2 x wt
End	all	1		.8 x wt		
		2				.8 x wt
			1	.2 x wt		
			2			.2 x wt
Commode/ Night Stand	all	1		.75 x wt		
		2				.75 x wt
			1	.25 x wt		
			2			.25 x wt

Table 4-14. (continued)

Class	Weight Class	Material Top	Material Legs	Fire Load (lbs)		
				Wood	Fabric	Plastic
Pool	1,2	1,4		.8 x wt		
		2				.8 x wt
			1	.2 x wt		
			2			.2 x wt
	3	1,4		.7 x wt		
		2				.7 x wt
			1	.2 x wt		
			2			.2 x wt
Folding	all	1		.8 x wt		
		2				.8 x wt
			1	.2 x wt		
			2			.2 x wt

Table 4-15. Fire Load Transfer Function for Case Goods - Form 02

Class	Weight Class	Material Top	Material Sides and Front	Material Shelves	Fire Load (lbs)		
					Wood	Fabric	Plastic
Buffet/etc	all	1			.1 x wt		
		2					.1 x wt
			1		.75 x wt		
			2				.75 x wt
				1	.15 x wt		
				2			.15 x wt
Hutch	all	1			.1 x wt		
		2					.1 x wt
			1		.75 x wt		
			2				.75 x wt
				1	.15 x wt		
				2			.15 x wt
Bar	all	1			.2 x wt		
		2					.2 x wt
			1		.7 x wt		
			2				.7 x wt
				1	.1 x wt		
				2			.1 x wt
China Cabinet/etc	all	1			.1 x wt		
		2					.1 x wt
			1		.75 x wt		
			2				.75 x wt
				1	.15 x wt		
				2			.15 x wt

Table 4-15. (continued)

Class	Weight Class	Material Top	Material Sides and Front	Material Shelves	Fire Load (lbs) Wood	Fabric	Plastic
Chest/etc.	all	1			.1 x wt		
		2					.1 x wt
			1		.75 x wt		
			2				.75 x wt
				1	.15 x wt		
				2			.15 x wt
Room Divider	all	1			.05 x wt		
		2					.05 x wt
			1		.85 x wt		
			2				.85 x wt
				1	.10 x wt		
				2			.10 x wt
Bookcase	all	1			.1 x wt		
		2					.1 x wt
			1		.5 x wt		
			2				.5 x wt
				1	.4 x wt		
				2			.4 x wt
Piano	all	1			.1 x wt		
		2					.1 x wt
			1		.5 x wt		
			2				.5 x wt

Table 4-15. (continued)

Class	Weight Class	Material Top	Material Sides and Front	Material Shelves	Fire Load (lbs)		
					Wood	Fabric	Plastic
Shelving	all			1	wt		wt
				2			
Wardrobe	all	1			.1 x wt		
		2					.1 x wt
			1		.8 x wt		
			2				.8 x wt
				1	.1 x wt		
				2			.1 x wt

Table 4-16. Fire Load Transfer Function for Kitchen Cabinets and Built-ins -- Form 03

Class	Weight Class	Material Top	Material Sides & Front	Material Shelves	Fire Load (lbs)		
					Wood	Fabric	Plastic
Upper Cabinet	all		1		.6 x wt		
			2				.6 x wt
				1	.4 x wt		
				2			.4 x wt
Lower Cabinet	all		1		.6 x wt		
			2				.6 x wt
				1	.4 x wt		
				2			.4 x wt
Countertop*	all	1			wt		
		2					wt
Floor to Ceiling	all		1		.6 x wt		
			2				.6 x wt
				1	.4 x wt		
				2			.4 x wt

* Use material top from lower cabinet

Table 4-17. Fire Load Transfer Function for Beds - Form 04

Class	Size	Fire Load (lbs)		
		Wood	Fabric	Plastic
Standard*	1,2,3,4 5	.25 x wt	.13 x wt .2 x wt	.17 x wt .8 x wt
Waterbed	1 2 3 4	90 72 54 45		10 8 6 5
Storage Bed*	all	.83 x wt	.06 x wt	.11 x wt
Cot/Rollaway*	all		.09 x wt	.17 x wt

* Assume in this survey that all beds have a foam mattress

Table 4-17 (continued)

Item	Bed Size	Bed Class	Headboard Style	Headboard Weight Class	Headboard Material	Fire Load (lbs)		
						Wood	Fabric	Plastic
Headboard	all	all	2,3,4	all	1,2,5	wt		
					3			wt
Footboard	all	all	2,3,4	all	1,2,5	wt		
					3			wt
Sheet, Blankets, Pillows	1,2	1,2,3					wt	
	3	1,2,3					wt	
	4	1,2,3					wt	
	5	1,2,3					wt	

Table 4-18. Fire Load Transfer Function for Upholstered Furniture - Form 05

Class	Weight Class	Material Arms	Material Legs	Material Back	Material Seat	Fire Loads (lbs)		
						Wood	Fabric	Plastic
Upholstered Chair	all	1,4,5,6				.10 x wt		
		3						.10 x wt
			1,4,5,6			.10 x wt		
			3					.10 x wt
				all	all	.50 x wt	.10 x wt	.20 x wt
Recliner	all	1,4,5,6				.10 x wt		
		3						.10 x wt
			1,4,5,6			.05 x wt		
			3					.05 x wt
				all	all	.45 x wt	.15 x wt	.20 x wt
Rocker/Swivel	all	1,4,5,6				.10 x wt		
		3						.10 x wt
			1,4,5,6			.05 x wt		
			3					.05 x wt
				all	all	.45 x wt	.15 x wt	.20 x wt
Sofa	all	1,4,5,6				.05 x wt		
		3						.05 x wt
			1,4,5,6			.05 x wt		
			3					.05 x wt
				all	all	.50 x wt	.15 x wt	.25 x wt

Table 4-18. (continued)

Class	Weight Class	Material Arms	Material Legs	Material Back	Material Seat	Fire Loads (lbs)		
						Wood	Fabric	Plastic
Hide-a-bed	all	1,4,5,6				.05 x wt		
		3						.05 x wt
			1,4,5,6			.05 x wt		
			3					.05 x wt
				all	all	.40 x wt	.10 x wt	.35 x wt
Day Bed	all		1,4,5,6			.05 x wt		
			3					.05 x wt
				all	all	.40 x wt	.15 x wt	.35 x wt
Trundle Bed	all		1,4,5,6			.05 x wt		
			3					.05 x wt
				all	all	.40 x wt	.15 x wt	.35 x wt
Ottoman/etc	all		1,4,5,6			.05 x wt		
			3					.05 x wt
					all		.15 x wt	.80 x wt
Bean Bag	all				all			wt

Table 4-19. Fire Load Transfer Function for Chairs - Form 06

Class	Weight Class	Material Seat	Material Legs	Material Back	Fire Loads (lbs)		
					Wood	Fabric	Plastic
All	all	1,6			.45 x wt		
		3					.45 x wt
		4,5			.15 x wt	.15 x wt	.15 x wt
			1,3,4				
			5,6		.20 x wt		
			3				.20 x wt
				1,6	.35 x wt		
				3			.35 x wt
				4,5	.10 x wt	.10 x wt	.15 x wt

Table 4-20. Fire Load Transfer Function for Drawer, Shelf, Cabinet or Closet Contents - Form 07

Class	Weight Class	Material	Fire Load (lbs)				
			Paper	Wood	Fabric	Plastic	Other
Paper/Books	all	all	wt				
Photographs/etc.	all	1	wt				
		2				.60 x wt	
Phonograph Records	all	all	.20 x wt			.70 x wt	
Cassettes/etc	all	all				wt	
Dishes/Trays	all	1	wt				
		2				wt	
		3		wt			
Glassware/ stemware	all	1	wt				
		2				wt	
		3		wt			
Cutlery/etc	all	2				wt	
		3		wt			
Dry Packaged Food	all	all		wt			
Small Appliances	all	all				.35 x wt	
Clothing, Blankets, Sheets, Towels	all	all			wt		
Guns/Pistols	all	all		.10 x wt			

Table 4-20. (continued)

Class	Weight Class	Material	Fire Load (lbs)				
			Paper	Wood	Fabric	Plastic	Other
Paints/Paint Remover	all	all					.60 x wt
Chemicals/ Petroleum Products	all	all					1.10 x wt
Toiletries/ Medicines	all	all					.20 x wt

Table 4-21. Fire Load Transfer Function for Appliances - Form 08

Class	Style	Material Class	Material Top	Material Sides	Material Front	Material Back	Fire Load (lbs)		
							Wood	Fabric	Plastic
Refrigerator/ Freezer	all	all	all	all	all	all			.20 x wt
TV - all	all	all	1	all	all	all			.10 x wt
			2	all	all	all			.30 x wt
			3	all	all	all	.20 x wt		.10 x wt
Stereo	all	all	1	all	all	all			.10 x wt
			2	all	all	all			.30 x wt
			3	all	all	all	.20 x wt		.10 x wt

Table 4-22. Fire Load Transfer Function for Plumbing and Heating - Form 09

Class	Weight Class	Material	Fire Load (lbs)		
			Wood	Fabric	Plastic
Sinks	all	2,4			.50 x wt
Bathtubs	all	2,4			.50 x wt
Toilets	all	2,4			.50 x wt
Laundry Tubs	all	2,4			.50 x wt
Shower Stall	all	2,4			.50 x wt

Table 5-1. Age Distribution of Surveyed Houses

Date Built	Age Years	Attached No. Units	Attached %	Detached No. Units	Detached %	Total No. Units	Total %
1970 -	1 - 6	13	21.3	28	14.0	41	15.7
1965 - 69	7 - 11	6	9.8	33	16.5	39	15.0
1960 - 64	12 - 16	1	1.6	26	13.0	27	10.3
1950 - 59	17 - 26	5	8.2	50	25.0	55	21.1
1940 - 49	27 - 36	3	4.9	14	7.0	17	6.5
- 1939	37 or more	29	47.6	44	22.0	73	28.0
Not given		4	6.6	5	2.5	9	3.4
Total		61	100.0	200	100.0	261	100.0

Table 5-2. Number of Years Occupied by Current Resident

Years Occupied	Attached No. Units	Attached %	Detached No. Units	Detached %	Total No. Units	Total %
0 - 4	31	50.8	66	33.0	97	37.2
5 - 9	12	19.7	45	22.5	57	21.8
10 - 19	5	8.2	54	27.0	59	22.6
20 - 29	10	16.4	24	12.0	34	13.0
30 -	3	4.9	11	5.5	14	5.4
Total	61	100.0	200	100.0	261	100.0
Mean	9.2		10.8			
Std. Dev.	11.1		10.0			

Table 5-3. Distribution of Numbers of Rooms

No. of Rooms	Attached No. Units	Attached %	Detached No. Units	Detached %	Total No. Units	Total %
0-4	-	-	-	-	-	-
5-9	22	36.1	18	9.0	40	15.3
10-14	31	50.8	112	56.0	143	54.8
15-19	7	11.5	60	30.0	67	25.7
20-24	1	1.6	9	4.5	10	3.8
25-29	-	-	1	.5	1	.4
30-34	-	-	-	-	-	-
Total	61	100.0	200	100.0	261	100.0
Mean No. Rooms	10.9		13.5			
Std. Dev.	3.4		3.4			

Table 5-4. Distribution of garages

House Type	Single Family Attached		Single Family Detached		Total	
Garage Location	No. Units	%	No. Units	%	No. Units	%
Attached to house	10	16.4	74	37.0	84	32.2
Separated from house	10	16.4	18	9.0	28	10.7
None	41	67.2	108	54.0	149	57.1
Total	61	100.0	200	100.0	261	100.0

SINGLE FAMILY ATTACHED HOMES

AREA (SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASEMENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 49	39	92	8	2	0	1	1	5	0	5	2	2
	31.7%	76.0%	12.7%	3.7%	.0%	2.6%	3.6%	3.2%	.0%	11.6%	18.2%	33.3%
50- 99	53	28	23	14	5	3	11	35	2	11	4	1
	43.1%	23.1%	36.5%	25.9%	8.1%	7.7%	39.3%	22.7%	11.1%	25.6%	36.4%	16.7%
100- 149	22	1	18	23	7	9	12	64	3	12	1	3
	17.9%	.8%	28.6%	42.6%	11.3%	23.1%	42.9%	41.6%	16.7%	27.9%	9.1%	50.0%
150- 199	6	0	8	8	21	8	1	28	1	4	4	0
	4.9%	.0%	12.7%	14.8%	33.9%	20.5%	3.6%	18.2%	5.6%	9.3%	36.4%	.0%
200- 249	1	0	4	3	9	5	1	12	1	6	0	0
	.8%	.0%	6.3%	5.6%	14.5%	12.8%	3.6%	7.8%	5.6%	14.0%	.0%	.0%
250- 299	2	0	0	0	8	7	0	3	0	1	0	0
	1.6%	.0%	.0%	.0%	12.9%	17.9%	.0%	1.9%	.0%	2.3%	.0%	.0%
300- 349	0	0	1	3	7	2	2	5	0	3	0	0
	.0%	.0%	1.6%	5.6%	11.3%	5.1%	7.1%	3.2%	.0%	7.0%	.0%	.0%
350- 399	0	0	0	0	2	1	0	1	3	0	0	0
	.0%	.0%	.0%	.0%	3.2%	2.6%	.0%	.6%	16.7%	.0%	.0%	.0%
400- 449	0	0	1	0	1	2	0	0	0	1	0	0
	.0%	.0%	1.6%	.0%	1.6%	5.1%	.0%	.0%	.0%	2.3%	.0%	.0%
450- 499	0	0	0	0	0	0	0	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
500-	0	0	0	1	2	1	0	1	8	0	0	0
	.0%	.0%	.0%	1.9%	3.2%	2.6%	.0%	.6%	44.4%	.0%	.0%	.0%
MEAN	76.1	41.1	113.6	141.4	216.8	206.6	119.2	137.9	507.4	142.0	100.5	81.8
SD	48.3	18.4	65.0	79.7	94.5	104.1	66.0	76.8	411.3	91.9	51.4	53.6
TOTAL ROOMS	123	121	63	54	62	39	28	154	18	43	11	6

TABLE 5-5 ROOM FREQ. DIST. OF ROOM AREA (SQFT)

SINGLE FAMILY DETACHED HOMES

AREA (SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 49	167	385	2	7	0	3	5	3	4	18	10	2
	42.2%	76.2%	1.0%	3.7%	.0%	1.3%	4.7%	.5%	5.3%	8.3%	22.7%	11.8%
50- 99	153	109	39	32	3	14	24	87	4	55	12	2
	38.6%	21.6%	19.1%	16.8%	1.5%	6.1%	22.4%	13.7%	5.3%	25.2%	27.3%	11.8%
100- 149	47	6	80	77	17	36	52	300	5	50	10	5
	11.9%	1.2%	39.2%	40.3%	8.3%	15.6%	48.6%	47.2%	6.7%	22.9%	22.7%	29.4%
150- 199	18	2	47	44	32	34	17	133	3	23	4	4
	4.5%	.4%	23.0%	23.0%	15.7%	14.7%	15.9%	20.9%	4.0%	10.6%	9.1%	23.5%
200- 249	6	1	15	13	39	31	4	50	3	21	3	2
	1.5%	.2%	7.4%	6.8%	19.1%	13.4%	3.7%	7.9%	4.0%	9.6%	6.8%	11.8%
250- 299	1	0	7	7	31	30	2	23	5	19	0	1
	.3%	.0%	3.4%	3.7%	15.2%	13.0%	1.9%	3.6%	6.7%	8.7%	.0%	5.9%
300- 349	3	0	6	6	37	22	2	15	7	10	1	0
	.8%	.0%	2.9%	3.1%	18.1%	9.5%	1.9%	2.4%	9.3%	4.6%	2.3%	.0%
350- 399	0	0	4	1	17	14	0	14	2	5	0	0
	.0%	.0%	2.0%	.5%	8.3%	6.1%	.0%	2.2%	2.7%	2.3%	.0%	.0%
400- 449	0	0	2	2	11	9	1	3	7	2	2	1
	.0%	.0%	1.0%	1.0%	5.4%	3.9%	.9%	.5%	9.3%	.9%	4.5%	5.9%
450- 499	0	0	2	0	8	9	0	1	3	4	0	0
	.0%	.0%	1.0%	.0%	3.9%	3.9%	.0%	.2%	4.0%	1.8%	.0%	.0%
500-	1	2	0	2	9	29	0	7	32	11	2	0
	.3%	.4%	.0%	1.0%	4.4%	12.6%	.0%	1.1%	42.7%	5.0%	4.5%	.0%
MEAN	71.4	49.7	154.2	152.4	277.3	291.8	128.3	156.7	473.9	183.1	143.1	155.5
SD	53.4	137.5	75.9	90.1	109.9	200.7	57.6	82.0	309.5	167.7	168.0	92.0
TOTAL ROOMS	396	505	204	191	204	231	107	636	75	218	44	17

TABLE 5-6 ROOM FREQ. DIST. OF ROOM AREA (SQFT)

Table 5-7. Exterior finish single family housing

Finish	Attached		Detached		Total	
	No. Units	%	No. Units	%	No. Units	%
Masonry	52	85.2	132	66.0	184	70.5
Wood Siding	7	11.5	32	16.0	39	14.9
Aluminium Siding	0	0	25	12.5	25	9.6
Other	2	3.3	11	5.5	13	5.0
Total	61	100.0	200	100.0	261	100.0

Table 5-8. Roofing materials single family housing

Roofing Material	Attached		Detached		Total	
	No. Units	%	No. Units	%	No. Units	%
Asphalt Shingle	31	50.8	161	80.5	192	73.7
Tile/Slate	2	3.3	20	10.0	22	8.4
Wood Shingle	1	1.6	2	1.0	3	1.1
Tar & Gravel	20	32.8	14	7.0	34	13.0
Other	7	11.5	3	1.5	10	3.8
Total	61	100.0	200	100.0	261	100.0

Table 5-9. Distribution of basements and their finish

	Attached		Detached		Total	
	No. Units	%	No. Units	%	No. Units	%
Finished [1]	24	39.3	79	39.5	103	39.4
Semi-finished [2]	13	21.3	60	30.0	73	28.0
Unfinished	7	11.5	29	14.5	36	13.8
No Basement	17	27.9	32	16.0	49	18.8
Totals	61	100.0	200	100.0	261	100.0

[1] Finished - walls and ceilings covered with panelling, usually gypsumboard or plaster.

[2] Semi-finished - walls or ceilings are unfinished, or at least 1 wall is unfinished.

Table 5-10. Distribution of utility rooms and their finish

	Attached		Detached		Total	
	No. Rooms	%	No. Rooms	%	No. Rooms	%
Finished	30	69.8	112	51.4	142	54.4
Unfinished	13	30.2	106	48.6	119	45.6
Total	43	100.0	218	100.0	261[1]	100.0

[1] It is a coincidence that this number corresponds to the total number of single family residences in this survey.

Table 5-11. Distribution of attic spaces

	Attached		Detached		Total	
	No. Units	%	No. Units	%	No. Units	%
Unfinished	31	50.8	123	61.5	154	59.0
Finished	4	6.6	22	11.0	26	10.0
Inaccessible	6	9.8	21	10.5	27	10.3
None	20	32.8	34	17.0	54	20.7
Totals	61	100.0	200	100.0	261	100.0

SINGLE FAMILY ATTACHED HOMES

L.L. (LB/SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BEDROOM	BASEMENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 4.9	110	13	2	14	26	11	2	63	12	6	4	3
	89.4%	10.7%	3.2%	25.9%	41.9%	28.2%	7.1%	40.9%	66.7%	14.0%	36.4%	50.0%
5.0- 9.9	8	42	4	12	19	14	9	63	1	13	3	0
	6.5%	34.7%	6.3%	22.2%	30.6%	35.9%	32.1%	40.9%	5.6%	30.2%	27.3%	.0%
10.0- 14.9	1	37	4	11	14	3	9	16	1	9	1	1
	.8%	30.6%	6.3%	20.4%	22.6%	7.7%	32.1%	10.4%	5.6%	20.9%	9.1%	16.7%
15.0- 19.9	3	14	7	10	3	4	2	6	2	5	0	0
	2.4%	11.6%	11.1%	18.5%	4.8%	10.3%	7.1%	3.9%	11.1%	11.6%	.0%	.0%
20.0- 24.9	0	8	9	2	0	2	2	0	1	5	1	0
	.0%	6.6%	14.3%	3.7%	.0%	5.1%	7.1%	.0%	5.6%	11.6%	9.1%	.0%
25.0- 29.9	1	1	6	3	0	2	2	2	1	1	0	0
	.8%	.8%	9.5%	5.6%	.0%	5.1%	7.1%	1.3%	5.6%	2.3%	.0%	.0%
30.0- 34.9	0	2	7	0	0	0	0	0	0	1	1	0
	.0%	1.7%	11.1%	.0%	.0%	.0%	.0%	.0%	.0%	2.3%	9.1%	.0%
35.0- 39.9	0	1	3	0	0	0	0	0	0	0	0	1
	.0%	.8%	4.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	16.7%
40.0- 44.9	0	1	4	1	0	1	0	1	0	2	0	0
	.0%	.8%	6.3%	1.9%	.0%	2.6%	.0%	.6%	.0%	4.7%	.0%	.0%
45.0- 49.9	0	1	0	1	0	1	0	2	0	0	0	0
	.0%	.8%	.0%	1.9%	.0%	2.6%	.0%	1.3%	.0%	.0%	.0%	.0%
50.0-	0	1	17	0	0	1	2	1	0	1	1	1
	.0%	.8%	27.0%	.0%	.0%	2.6%	7.1%	.6%	.0%	2.3%	9.1%	16.7%
MEAN	1.9	12.6	37.5	11.7	6.8	11.8	16.4	7.6	7.5	14.8	15.2	31.6
SD	4.3	9.0	28.7	9.5	4.5	13.0	17.8	8.1	8.4	11.5	22.8	53.0
TOTAL ROOMS	123	121	63	54	62	39	28	154	18	43	11	6
MEAN + 1.64SD	9.0	77.4	84.6	27.3	14.2	33.1	45.6	20.9	21.3	33.7	52.6	118.5

TABLE 5-12 ROOM FREQ. DIST. OF LIVE LOAD (LB/SQFT)

SINGLE FAMILY DETACHED HOMES

L.L. (LB/SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 4.9	357	74	6	58	106	108	19	258	33	43	13	11
	90.2%	14.7%	2.9%	30.4%	52.0%	46.8%	17.8%	40.6%	44.0%	19.7%	29.5%	64.7%
5.0- 9.9	18	168	12	37	56	77	23	247	21	79	9	3
	4.5%	33.3%	5.9%	19.4%	27.5%	33.3%	21.5%	38.8%	28.0%	36.2%	20.5%	17.6%
10.0- 14.9	8	123	21	32	28	23	16	84	6	42	8	0
	2.0%	24.4%	10.3%	16.8%	13.7%	10.0%	15.0%	13.2%	8.0%	19.3%	18.2%	.0%
15.0- 19.9	3	76	26	20	8	10	8	28	5	27	3	0
	.8%	15.0%	12.7%	10.5%	3.9%	4.3%	7.5%	4.4%	6.7%	12.4%	6.8%	.0%
20.0- 24.9	4	42	27	11	5	10	10	8	4	9	2	2
	1.0%	8.3%	13.2%	5.8%	2.5%	4.3%	9.3%	1.3%	5.3%	4.1%	4.5%	11.8%
25.0- 29.9	1	8	21	6	1	0	6	8	2	8	3	0
	.3%	1.6%	10.3%	3.1%	.5%	.0%	5.6%	1.3%	2.7%	3.7%	6.8%	.0%
30.0- 34.9	0	5	19	9	0	0	5	2	2	2	1	1
	.0%	1.0%	9.3%	4.7%	.0%	.0%	4.7%	.3%	2.7%	.9%	2.3%	5.9%
35.0- 39.9	0	3	21	4	0	2	9	0	1	1	0	0
	.0%	.6%	10.3%	2.1%	.0%	.9%	8.4%	.0%	1.3%	.5%	.0%	.0%
40.0- 44.9	1	1	8	2	0	0	4	0	0	1	1	0
	.3%	.2%	3.9%	1.0%	.0%	.0%	3.7%	.0%	.0%	.5%	2.3%	.0%
45.0- 49.9	0	3	11	3	0	0	2	0	0	0	0	0
	.0%	.6%	5.4%	1.6%	.0%	.0%	1.9%	.0%	.0%	.0%	.0%	.0%
50.0-	0	2	32	9	0	1	5	1	1	6	4	0
	.0%	.4%	15.7%	4.7%	.0%	.4%	4.7%	.2%	1.3%	2.8%	9.1%	.0%
MEAN	2.5	11.9	32.3	15.4	6.5	7.9	18.8	7.2	14.9	13.0	18.9	7.1
SD	10.6	8.3	23.7	19.5	5.0	16.3	15.5	5.4	56.4	20.8	30.9	9.0
TOTAL ROOMS	396	505	204	191	204	231	107	636	75	218	44	17
MEAN + 1.64SD	10.0	25.5	71.2	47.4	14.7	34.6	44.2	16.1	107.4	47.1	69.6	21.9

TABLE 5-13 ROOM FREQ. DIST. OF LIVE LOAD (LB/SQFT)

SINGLE FAMILY ATTACHED HOMES

E.F.L. (LB/SQFT)	ROOM TYPE	HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 4.9		114	98	25	36	27	14	2	71	12	27	6	3
		92.7%	81.0%	39.7%	66.7%	43.5%	35.9%	7.1%	46.1%	66.7%	62.8%	54.5%	50.0%
5.0- 9.9		6	16	25	14	22	12	11	57	3	4	1	1
		4.9%	13.2%	39.7%	25.9%	35.5%	30.8%	39.3%	37.0%	16.7%	9.3%	9.1%	16.7%
10.0- 14.9		0	4	8	3	11	5	5	15	0	4	2	0
		.0%	3.3%	12.7%	5.6%	17.7%	12.8%	17.9%	9.7%	.0%	9.3%	18.2%	.0%
15.0- 19.9		2	1	3	1	2	3	4	4	2	3	0	0
		1.6%	.8%	4.8%	1.9%	3.2%	7.7%	14.3%	2.6%	11.1%	7.0%	.0%	.0%
20.0- 24.9		0	0	1	0	0	2	3	1	1	1	0	0
		.0%	.0%	1.6%	.0%	.0%	5.1%	10.7%	.6%	5.6%	2.3%	.0%	.0%
25.0- 29.9		1	1	0	0	0	1	1	2	0	1	0	0
		.8%	.8%	.0%	.0%	.0%	2.6%	3.6%	1.3%	.0%	2.3%	.0%	.0%
30.0- 34.9		0	0	1	0	0	0	0	0	0	0	0	0
		.0%	.0%	1.6%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
35.0- 39.9		0	0	0	0	0	0	0	0	0	1	1	1
		.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	2.3%	9.1%	16.7%
40.0- 44.9		0	0	0	0	0	1	0	0	0	1	0	1
		.0%	.0%	.0%	.0%	.0%	2.6%	.0%	.0%	.0%	2.3%	.0%	16.7%
45.0- 49.9		0	1	0	0	0	1	0	3	0	1	0	0
		.0%	.8%	.0%	.0%	.0%	2.6%	.0%	1.9%	.0%	2.3%	.0%	.0%
50.0-		0	0	0	0	0	0	2	1	0	0	1	0
		.0%	.0%	.0%	.0%	.0%	.0%	7.1%	.6%	.0%	.0%	9.1%	.0%
MEAN		1.4	3.0	7.0	4.9	6.3	10.2	15.3	7.3	5.1	8.0	16.8	15.6
SD		3.5	5.6	5.4	3.4	4.1	11.0	14.9	8.2	7.2	11.4	30.3	19.7
TOTAL RCCMS		123	121	63	54	62	39	28	154	18	43	11	6

TABLE 5-14 RCCM FREQ. DIST. OF MOVABLE CONTENTS EQUIVALENT FIRE LOAD (LB/SQFT)

SINGLE FAMILY ATTACHED HOMES

E.F.L. (LB/SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASEMENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
	95	80	49	39	46	18	16	110	12	32	7	1
0- 4.9	77.2%	66.1%	77.8%	72.2%	74.2%	46.2%	57.1%	71.4%	66.7%	74.4%	63.6%	16.7%
	18	20	10	9	14	17	10	34	5	9	1	2
5.0- 9.9	14.6%	16.5%	15.9%	16.7%	22.6%	43.6%	35.7%	22.1%	27.8%	20.9%	9.1%	33.3%
	5	12	3	4	1	3	1	4	1	1	2	2
10.0- 14.9	4.1%	9.9%	4.8%	7.4%	1.6%	7.7%	3.6%	2.6%	5.6%	2.3%	18.2%	33.3%
	0	5	1	1	1	1	1	2	0	1	1	0
15.0- 19.9	.0%	4.1%	.0%	1.9%	1.6%	2.6%	3.6%	1.3%	.0%	2.3%	9.1%	.0%
	1	2	1	1	0	0	0	2	0	0	0	1
20.0- 24.9	.8%	1.7%	1.6%	1.9%	.0%	.0%	.0%	1.3%	.0%	.0%	.0%	16.7%
	1	1	0	0	0	0	0	0	0	0	0	0
25.0- 29.9	.8%	.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
	2	0	0	0	0	0	0	1	0	0	0	0
30.0- 34.9	1.6%	.0%	.0%	.0%	.0%	.0%	.0%	.6%	.0%	.0%	.0%	.0%
	0	0	0	0	0	0	0	0	0	0	0	0
35.0- 39.9	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
	0	0	0	0	0	0	0	1	0	0	0	0
40.0- 44.9	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.6%	.0%	.0%	.0%	.0%
	0	0	0	0	0	0	0	0	0	0	0	0
45.0- 49.9	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
	1	1	0	0	0	0	0	0	0	0	0	0
50.0-	.8%	.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
MEAN	5.5	5.9	4.3	5.2	4.5	6.3	5.9	5.4	4.7	4.0	6.5	10.1
SD	7.0	6.9	3.2	3.7	2.5	3.3	3.5	4.8	2.2	3.0	5.7	6.7
TOTAL ROOMS	123	121	63	54	62	39	28	154	18	43	11	6

TABLE 5-15 ROOM FREQ. DIST. OF INTERIOR FINISH EQUIVALENT FIRE LOAD (LB/SQFT)

SINGLE FAMILY ATTACHED HOMES

E.F.L. (LB/SQFT)		ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BEDROOM	BASEMENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
		73	48	11	4	4	2	0	5	7	12	2	0
0-	4.9	59.3%	39.7%	17.5%	7.4%	6.5%	5.1%	.0%	3.2%	38.9%	27.9%	18.2%	.0%
		32	39	21	28	29	13	1	70	4	17	3	0
5.0-	9.9	26.0%	32.2%	33.3%	51.9%	46.8%	33.3%	3.6%	45.5%	22.2%	39.5%	27.3%	.0%
		9	12	13	13	18	7	12	50	4	2	1	2
10.0-	14.9	7.3%	9.9%	20.6%	24.1%	29.0%	17.9%	42.9%	32.5%	22.2%	4.7%	9.1%	33.3%
		1	13	12	7	6	5	5	14	0	4	2	0
15.0-	19.9	.8%	10.7%	19.0%	13.0%	9.7%	12.8%	17.9%	9.1%	.0%	9.3%	18.2%	.0%
		3	5	4	2	4	4	3	4	2	4	0	2
20.0-	24.9	2.4%	4.1%	6.3%	3.7%	6.5%	10.3%	10.7%	2.6%	11.1%	9.3%	.0%	33.3%
		1	1	1	0	0	4	3	2	1	0	0	0
25.0-	29.9	.8%	.8%	1.6%	.0%	.0%	10.3%	10.7%	1.3%	5.6%	.0%	.0%	.0%
		3	1	0	0	1	1	2	2	0	1	1	0
30.0-	34.9	2.4%	.8%	.0%	.0%	1.6%	2.6%	7.1%	1.3%	.0%	2.3%	9.1%	.0%
		0	0	1	0	0	1	0	1	0	0	0	1
35.0-	39.9	.0%	.0%	1.6%	.0%	.0%	2.6%	.0%	.6%	.0%	.0%	.0%	16.7%
		0	0	0	0	0	0	0	0	0	1	1	0
40.0-	44.9	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	2.3%	9.1%	.0%
		0	0	0	0	0	0	0	1	0	1	0	0
45.0-	49.9	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.6%	.0%	2.3%	.0%	.0%
		1	2	0	0	0	2	2	5	0	1	1	1
50.0-		.8%	1.7%	.0%	.0%	.0%	5.1%	7.1%	3.2%	.0%	2.3%	9.1%	16.7%
MEAN		6.9	9.0	11.3	10.1	10.8	16.5	21.2	12.8	9.8	12.0	23.3	25.7
SD		7.7	8.8	6.4	4.8	5.2	11.7	15.5	10.3	7.4	12.1	30.3	15.5
TOTAL ROOMS		123	121	63	54	62	39	28	154	18	43	11	6

TABLE 5-16 ROOM FREQ. DIST. OF ROOM TOTAL EQUIVALENT FIRE LOAD (LB/SQFT)

SINGLE FAMILY ATTACHED HOMES

RATIO	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- .099	0	1	0	1	0	1	1	2	0	4	1	1
	.0%	.8%	.0%	1.9%	.0%	2.6%	3.6%	1.3%	.0%	9.3%	9.1%	16.7%
.100- .199	2	2	9	2	2	3	4	5	2	6	2	1
	1.6%	1.7%	14.3%	3.7%	3.2%	7.7%	14.3%	3.2%	11.1%	14.0%	18.2%	16.7%
.200- .299	3	5	14	3	10	5	9	18	1	4	1	0
	2.4%	4.1%	22.2%	5.6%	16.1%	12.8%	32.1%	11.7%	5.6%	9.3%	9.1%	.0%
.300- .399	3	4	15	9	15	7	7	21	0	5	0	0
	2.4%	3.3%	23.8%	16.7%	24.2%	17.9%	25.0%	13.6%	.0%	11.6%	.0%	.0%
.400- .499	4	6	3	10	9	5	2	37	2	2	1	0
	3.3%	5.0%	4.8%	18.5%	14.5%	12.8%	7.1%	24.0%	11.1%	4.7%	9.1%	.0%
.500- .599	10	12	12	13	12	5	2	33	0	4	1	0
	8.1%	9.9%	19.0%	24.1%	19.4%	12.8%	7.1%	21.4%	.0%	9.3%	9.1%	.0%
.600- .699	6	12	4	6	4	5	2	15	3	2	1	1
	4.9%	9.9%	6.3%	11.1%	6.5%	12.8%	7.1%	9.7%	16.7%	4.7%	9.1%	16.7%
.700- .799	7	16	2	4	7	4	1	13	5	7	1	1
	5.7%	13.2%	3.2%	7.4%	11.3%	10.3%	3.6%	8.4%	27.8%	16.3%	9.1%	16.7%
.800- .899	10	14	1	5	0	4	0	6	1	3	1	0
	8.1%	11.6%	1.6%	9.3%	.0%	10.3%	.0%	3.9%	5.6%	7.0%	9.1%	.0%
.900- 1.00	78	49	3	1	3	0	0	4	4	6	2	2
	63.4%	40.5%	4.8%	1.9%	4.8%	.0%	.0%	2.6%	22.2%	14.0%	18.2%	33.3%
MEAN	.9	.8	.4	.5	.5	.5	.3	.5	.7	.5	.5	.6
SD	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.4	.4
TOTAL ROOMS	123	121	63	54	62	39	28	154	18	43	11	6

TABLE 5-17 ROOM FREQ. DIST. OF INTERIOR FINISH FIRE LOAD/TOTAL FIRE LOAD

SINGLE FAMILY DETACHED HOMES

E.F.L. (LB/SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 4.9	363	417	71	128	115	120	14	264	47	139	20	13
	91.7%	82.6%	34.8%	67.0%	56.4%	51.9%	13.1%	41.5%	62.7%	63.8%	45.5%	76.5%
5.0- 9.9	22	67	92	49	59	71	31	231	12	51	9	3
	5.6%	13.3%	45.1%	25.7%	28.9%	30.7%	29.0%	36.3%	16.0%	23.4%	20.5%	17.6%
10.0- 14.9	4	13	33	8	13	20	15	90	5	11	5	0
	1.0%	2.6%	16.2%	4.2%	6.4%	8.7%	14.0%	14.2%	6.7%	5.0%	11.4%	.0%
15.0- 19.9	3	3	6	4	12	13	9	29	8	9	3	1
	.8%	.6%	2.9%	2.1%	5.9%	5.6%	8.4%	4.6%	10.7%	4.1%	6.8%	5.9%
20.0- 24.9	2	3	0	0	2	5	10	10	0	1	1	0
	.5%	.6%	.0%	.0%	1.0%	2.2%	9.3%	1.6%	.0%	.5%	2.3%	.0%
25.0- 29.9	1	0	1	1	1	0	6	7	1	1	1	0
	.3%	.0%	.5%	.5%	.5%	.0%	5.6%	1.1%	1.3%	.5%	2.3%	.0%
30.0- 34.9	0	0	0	0	2	1	5	4	1	2	1	0
	.0%	.0%	.0%	.0%	1.0%	.4%	4.7%	.6%	1.3%	.9%	2.3%	.0%
35.0- 39.9	0	0	0	1	0	1	9	0	0	0	1	0
	.0%	.0%	.0%	.5%	.0%	.4%	8.4%	.0%	.0%	.0%	2.3%	.0%
40.0- 44.9	1	1	0	0	0	0	2	0	0	1	0	0
	.3%	.2%	.0%	.0%	.0%	.0%	1.9%	.0%	.0%	.5%	.0%	.0%
45.0- 49.9	0	0	1	0	0	0	1	0	0	1	0	0
	.0%	.0%	.5%	.0%	.0%	.0%	.9%	.0%	.0%	.5%	.0%	.0%
50.0-	0	1	0	0	0	0	5	1	1	2	3	0
	.0%	.2%	.0%	.0%	.0%	.0%	4.7%	.2%	1.3%	.9%	6.8%	.0%
MEAN	1.3	2.5	6.9	4.9	6.1	6.3	17.8	7.2	12.5	5.9	15.6	3.6
SD	3.7	4.3	4.7	4.3	5.2	5.4	14.7	5.5	59.4	10.1	31.6	4.5
TOTAL ROOMS	396	505	204	191	204	231	107	636	75	218	44	17

TABLE 5-18 ROOM FREQ. DIST. OF MOVABLE CONTENTS EQUIVALENT FIRE LOAD (LB/SQFT)

SINGLE FAMILY DETACHED HOMES

E.F.L. (LB/SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 4.9	288	304	163	126	150	99	59	461	57	137	15	8
	72.7%	60.2%	79.9%	66.0%	73.5%	42.9%	55.1%	72.5%	76.0%	62.8%	34.1%	47.1%
5.0- 9.9	74	106	37	54	42	97	28	141	10	60	20	6
	18.7%	21.0%	18.1%	28.3%	20.6%	42.0%	26.2%	22.2%	13.3%	27.5%	45.5%	35.3%
10.0- 14.9	26	66	3	8	7	26	17	24	7	16	6	2
	6.6%	13.1%	1.5%	4.2%	3.4%	11.3%	15.9%	3.8%	9.3%	7.3%	13.6%	11.8%
15.0- 19.9	5	21	1	2	1	3	1	4	1	4	2	1
	1.3%	4.2%	.5%	1.0%	.5%	1.3%	.9%	.6%	1.3%	1.8%	4.5%	5.9%
20.0- 24.9	1	5	0	0	3	1	2	2	0	1	1	0
	.3%	1.0%	.0%	.0%	1.5%	.4%	1.9%	.3%	.0%	.5%	2.3%	.0%
25.0- 29.9	2	1	0	0	0	2	0	2	0	0	0	0
	.5%	.2%	.0%	.0%	.0%	.9%	.0%	.3%	.0%	.0%	.0%	.0%
30.0- 34.9	0	0	0	0	1	1	0	1	0	0	0	0
	.0%	.0%	.0%	.0%	.5%	.4%	.0%	.2%	.0%	.0%	.0%	.0%
35.0- 39.9	0	1	0	1	0	0	0	1	0	0	0	0
	.0%	.2%	.0%	.5%	.0%	.0%	.0%	.2%	.0%	.0%	.0%	.0%
40.0- 44.9	0	0	0	0	0	1	0	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%	.4%	.0%	.0%	.0%	.0%	.0%	.0%
45.0- 49.9	0	0	0	0	0	1	0	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%	.4%	.0%	.0%	.0%	.0%	.0%	.0%
50.0-	0	1	0	0	0	0	0	0	0	0	0	0
	.0%	.2%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
MEAN	4.7	6.0	3.6	5.0	4.9	6.9	6.4	5.0	4.5	5.2	7.0	7.1
SD	3.5	5.4	2.2	3.5	3.6	5.5	4.1	3.3	3.5	3.4	4.6	4.0
TOTAL ROOMS	396	505	204	191	204	231	107	636	75	218	44	17

TABLE 5-19 ROOM FREQ. DIST. OF INTERIOR FINISH EQUIVALENT FIRE LOAD (LB/SQFT)

SINGLE FAMILY DETACHED HOMES

E.F.L. (LB/SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 4.9	237	184	18	6	14	6	1	25	21	36	7	2
	59.8%	36.4%	8.8%	3.1%	6.9%	2.6%	.9%	3.9%	28.0%	16.5%	15.9%	11.8%
5.0- 9.9	105	181	87	120	108	82	18	260	27	93	12	6
	26.5%	31.9%	42.6%	62.8%	52.9%	35.5%	16.8%	40.9%	36.0%	42.7%	27.3%	35.3%
10.0- 14.9	33	86	70	45	38	80	20	194	8	49	5	4
	8.3%	17.0%	34.3%	23.6%	18.6%	34.6%	18.7%	30.5%	10.7%	22.5%	11.4%	23.5%
15.0- 19.9	11	50	22	9	23	32	14	96	11	19	5	4
	2.8%	9.9%	10.8%	4.7%	11.3%	13.9%	13.1%	15.1%	14.7%	8.7%	11.4%	23.5%
20.0- 24.9	4	11	5	6	11	15	13	32	4	9	4	1
	1.0%	2.2%	2.5%	3.1%	5.4%	6.5%	12.1%	5.0%	5.3%	4.1%	9.1%	5.9%
25.0- 29.9	4	6	0	2	6	4	9	14	0	5	5	0
	1.0%	1.2%	.0%	1.0%	2.9%	1.7%	8.4%	2.2%	.0%	2.3%	11.4%	.0%
30.0- 34.9	1	3	1	1	2	6	6	8	3	1	1	0
	.3%	.6%	.5%	.5%	1.0%	2.6%	5.6%	1.3%	4.0%	.5%	2.3%	.0%
35.0- 39.9	0	1	0	0	1	3	6	3	0	1	1	0
	.0%	.2%	.0%	.0%	.5%	1.3%	5.6%	.5%	.0%	.5%	2.3%	.0%
40.0- 44.9	0	1	0	2	1	1	9	1	0	1	0	0
	.0%	.2%	.0%	1.0%	.5%	.4%	8.4%	.2%	.0%	.5%	.0%	.0%
45.0- 49.9	0	0	0	0	0	1	4	1	0	1	1	0
	.0%	.0%	.0%	.0%	.0%	.4%	3.7%	.2%	.0%	.5%	2.3%	.0%
50.0-	1	2	1	0	0	1	7	2	1	3	3	0
	.3%	.4%	.5%	.0%	.0%	.4%	6.5%	.3%	1.3%	1.4%	6.8%	.0%
MEAN	6.0	8.6	10.5	9.9	11.0	13.2	24.2	12.2	17.0	11.1	22.6	10.7
SD	5.6	7.0	5.2	5.5	6.4	7.8	15.7	6.7	60.3	11.4	33.0	6.0
TOTAL ROOMS	396	505	204	191	204	231	107	636	75	218	44	17

TABLE 5-20 ROOM FREQ. DIST. OF ROOM TOTAL EQUIVALENT FIRE LOAD (LB/SQFT)

SINGLE FAMILY DETACHED HOMES

RATIO	ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- .099	3 .8%	2 .4%	1 .5%	1 .5%	0 .0%	1 .4%	11 10.3%	2 .3%	2 2.7%	3 1.4%	2 4.5%	0 .0%
.100- .199	5 1.3%	3 .6%	28 13.7%	1 .5%	9 4.4%	11 4.8%	20 18.7%	41 6.4%	7 9.3%	14 6.4%	7 15.9%	0 .0%
.200- .299	5 1.3%	11 2.2%	49 24.0%	12 6.3%	24 11.8%	24 10.4%	29 27.1%	91 14.3%	8 10.7%	11 5.0%	2 4.5%	0 .0%
.300- .399	8 2.0%	29 5.7%	51 25.0%	32 16.8%	32 15.7%	26 11.3%	11 10.3%	110 17.3%	13 17.3%	23 10.6%	4 9.1%	1 5.9%
.400- .499	12 3.0%	25 5.0%	25 12.3%	39 20.4%	43 21.1%	33 14.3%	12 11.2%	143 22.5%	10 13.3%	22 10.1%	8 18.2%	1 5.9%
.500- .599	21 5.3%	49 9.7%	25 12.3%	48 25.1%	37 18.1%	32 13.9%	10 9.3%	125 19.7%	3 4.0%	29 13.3%	4 9.1%	7 41.2%
.600- .699	20 5.1%	34 6.7%	8 3.9%	26 13.6%	29 14.2%	38 16.5%	9 8.4%	61 9.6%	5 6.7%	26 11.9%	2 4.5%	0 .0%
.700- .799	20 5.1%	49 9.7%	8 3.9%	15 7.9%	16 7.8%	37 16.0%	2 1.9%	37 5.8%	13 17.3%	27 12.4%	3 6.8%	2 11.8%
.800- .899	27 6.8%	64 12.7%	4 2.0%	13 6.8%	10 4.9%	20 8.7%	2 1.9%	17 2.7%	6 8.0%	28 12.8%	3 6.8%	3 17.6%
.900- 1.00	275 69.4%	239 47.3%	5 2.5%	4 2.1%	4 2.0%	9 3.9%	1 .9%	9 1.4%	8 10.7%	35 16.1%	9 20.5%	3 17.6%
MEAN	.9	.8	.4	.5	.5	.6	.3	.5	.5	.6	.5	.7
SD	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.2
TOTAL ROOMS	396	505	204	191	204	231	107	636	75	218	44	17

TABLE 5-21 ROOM FREQ. DIST. OF INTERIOR FINISH FIRE LOAD/TOTAL FIRE LOAD

SINGLE FAMILY ATTACHED HOMES

ROOM TYPE	F.L. (LB/SQFT) WOOD	PAPER	PLASTIC	FABRIC	OTHER	TOTAL
HALLWAY	.44	.74	.07	.08	.01	1.34
BATHROOM	.78	.36	.20	.11	.51	1.95
KITCHEN	3.80	.46	.90	.06	.14	5.36
DINING ROOM	2.75	.92	.45	.16	.06	4.33
LIVING ROOM	2.31	1.20	.83	.40	.00	4.75
FAMILY ROOM	2.15	4.45	1.22	.31	.04	8.17
STUDY	2.85	9.16	.49	.41	.01	12.93
BEDROOM	2.47	1.36	.35	1.06	.02	5.26
BASEMENT	.58	1.48	.22	.09	.20	2.57
UTILITY ROOM	1.36	3.31	.32	1.87	.31	7.18
STORAGE ROOM	2.07	3.50	3.91	.37	.05	9.90
OTHER ROOMS	6.92	2.30	2.75	1.52	.11	13.60

TABLE 5-22 AVERAGE MOVABLE CONTENTS FIRE LOAD (LB/SQFT)

SINGLE FAMILY ATTACHED HOMES

ROOM TYPE	F.L. (LB/SQFT) WOOD	PAPER	PLASTIC	FABRIC	OTHER	TOTAL
HALLWAY	2.83	.23	.10	1.43	.00	4.58
BATHROOM	3.53	.54	.21	.86	.00	5.14
KITCHEN	2.68	.23	.38	.08	.00	3.36
DINING ROOM	2.93	.18	.03	1.25	.00	4.40
LIVING ROOM	2.53	.18	.01	.98	.00	3.69
FAMILY ROOM	3.98	.12	.28	.80	.01	5.20
STUDY	3.71	.22	.11	.98	.00	5.01
BEDROOM	3.39	.20	.03	.85	.00	4.47
BASEMENT	3.52	.05	.15	.18	.00	3.89
UTILITY ROOM	2.65	.09	.30	.06	.00	3.10
STORAGE ROOM	4.05	.21	.07	1.22	.00	5.55
OTHER ROOMS	7.96	.17	.18	.57	.00	8.88

TABLE 5-23 AVERAGE INTERIOR FINISH FIRE LOAD (LB/SQFT)

SINGLE FAMILY ATTACHED HOMES

ROOM TYPE	F.L. (LB/SQFT) WOOD	PAPER	PLASTIC	FABRIC	OTHER	TOTAL
HALLWAY	3.27	.97	.17	1.51	.01	5.92
BATHROOM	4.31	.90	.41	.97	.51	7.09
KITCHEN	6.48	.69	1.28	.14	.14	8.72
DINING ROOM	5.68	1.10	.48	1.41	.06	8.73
LIVING ROOM	4.84	1.39	.83	1.38	.00	8.44
FAMILY ROOM	6.12	4.57	1.50	1.12	.05	13.36
STUDY	6.55	9.38	.60	1.39	.01	17.94
BEDROOM	5.86	1.56	.39	1.90	.02	9.73
BASEMENT	4.09	1.53	.37	.27	.20	6.46
UTILITY ROOM	4.01	3.41	.62	1.93	.31	10.27
STORAGE ROOM	6.12	3.71	3.97	1.59	.05	15.45
OTHER ROOMS	14.88	2.47	2.93	2.09	.11	22.48

TABLE 5-24 AVERAGE ROOM TOTAL FIRE LOAD (LB/SQFT)

SINGLE FAMILY DETACHED HOMES

	F.L. (LB/SQFT)					
ROOM TYPE	WOOD	PAPER	PLASTIC	FABRIC	OTHER	TOTAL
HALLWAY	.43	.46	.06	.07	.02	1.03
BATHROOM	.68	.17	.14	.11	.34	1.43
KITCHEN	3.74	.51	.74	.04	.21	5.24
DINING ROOM	2.87	.43	.32	.29	.01	3.92
LIVING ROOM	2.12	1.55	.81	.33	.01	4.81
FAMILY ROOM	1.80	2.15	.52	.27	.03	4.78
STUDY	3.56	10.41	.80	.40	.03	15.20
BEDROOM	2.68	1.43	.33	1.09	.03	5.57
BASEMENT	1.15	2.71	.40	.31	.18	4.75
UTILITY ROOM	1.38	1.62	.57	.33	.46	4.37
STORAGE ROOM	1.39	6.76	.41	.65	.12	9.33
OTHER ROOMS	1.69	.87	.33	.28	.03	3.19

TABLE 5-25 AVERAGE MOVABLE CONTENTS FIRE LOAD (LB/SQFT)

SINGLE FAMILY DETACHED HOMES

ROOM TYPE	F.L. (LB/SQFT) WOOD	PAPER	PLAS-TIC	FABRIC	OTHER	TOTAL
HALLWAY	2.90	.31	.09	.66	.00	3.97
BATHROOM	3.17	.53	.18	.48	.00	4.36
KITCHEN	2.23	.31	.30	.25	.00	3.09
DINING ROOM	2.91	.29	.05	1.03	.00	4.27
LIVING ROOM	2.57	.23	.01	1.23	.00	4.05
FAMILY ROOM	3.75	.16	.34	.90	.00	5.15
STUDY	4.55	.24	.13	.79	.00	5.70
BEDROOM	2.96	.27	.03	.89	.00	4.15
BASEMENT	2.84	.05	.18	.14	.00	3.21
UTILITY ROOM	3.71	.11	.24	.11	.08	4.25
STORAGE ROOM	5.03	.10	.33	.10	.00	5.56
OTHER ROOMS	4.66	.20	.22	.47	.00	5.54

TABLE 5-26 AVERAGE INTERIOR FINISH FIRE LOAD (LB/SQFT)

SINGLE FAMILY DETACHED HOMES

ROOM TYPE	F.L. (LB/SQFT) WOOD	PAPER	PLASTIC	FABRIC	OTHER	TOTAL
HALLWAY	3.33	.78	.14	.73	.02	5.00
BATHROOM	3.85	.70	.32	.59	.34	5.80
KITCHEN	5.97	.82	1.04	.29	.21	8.33
DINING ROOM	5.77	.72	.37	1.31	.01	8.19
LIVING ROOM	4.69	1.78	.82	1.56	.01	8.86
FAMILY ROOM	5.55	2.31	.86	1.17	.03	9.94
STUDY	8.11	10.65	.93	1.19	.03	20.91
BEDROOM	5.64	1.70	.36	1.98	.03	9.72
BASEMENT	3.99	2.76	.58	.45	.18	7.96
UTILITY ROOM	5.08	1.74	.81	.45	.54	8.62
STORAGE ROOM	6.41	6.87	.75	.75	.12	14.89
OTHER ROOMS	6.35	1.07	.55	.74	.03	8.73

TABLE 5-27 AVERAGE ROOM TOTAL FIRE LOAD (LB/SQFT)

SINGLE FAMILY ATTACHED HOMES

PERCENT	ROOM TYPE HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 9.9	66 53.7%	0 .0%	0 .0%	3 5.6%	1 1.6%	0 .0%	0 .0%	1 .6%	0 .0%	0 .0%	3 27.3%	1 16.7%
10.0- 19.9	1 .8%	0 .0%	1 1.6%	0 .0%	3 4.8%	0 .0%	1 3.6%	0 .0%	1 5.6%	0 .0%	0 .0%	0 .0%
20.0- 29.9	0 .0%	0 .0%	1 1.6%	0 .0%	0 .0%	0 .0%	0 .0%	3 1.9%	1 5.6%	2 4.7%	2 18.2%	0 .0%
30.0- 39.9	1 .8%	1 .8%	0 .0%	2 3.7%	1 1.6%	1 2.6%	0 .0%	2 1.3%	0 .0%	2 4.7%	0 .0%	2 33.3%
40.0- 49.9	3 2.4%	2 1.7%	2 3.2%	3 5.6%	4 6.5%	1 2.6%	1 3.6%	8 5.2%	1 5.6%	2 4.7%	0 .0%	0 .0%
50.0- 59.9	3 2.4%	3 2.5%	2 3.2%	3 5.6%	5 8.1%	5 12.8%	1 3.6%	16 10.4%	1 5.6%	6 14.0%	0 .0%	0 .0%
60.0- 69.9	3 2.4%	8 6.6%	2 3.2%	5 9.3%	6 9.7%	4 10.3%	3 10.7%	23 14.9%	3 16.7%	7 16.3%	0 .0%	1 16.7%
70.0- 79.9	3 2.4%	15 12.4%	7 11.1%	9 16.7%	15 24.2%	11 28.2%	4 14.3%	43 27.9%	5 27.8%	8 18.6%	1 9.1%	0 .0%
80.0- 89.9	0 .0%	27 22.3%	14 22.2%	14 25.9%	15 24.2%	5 12.8%	9 32.1%	26 16.9%	2 11.1%	6 14.0%	1 9.1%	0 .0%
90.0- 100.0	43 35.0%	65 53.7%	34 54.0%	15 27.8%	12 19.4%	12 30.8%	9 32.1%	32 20.8%	4 22.2%	10 23.3%	4 36.4%	2 33.3%
MEAN	41.2	87.8	85.0	73.6	72.4	76.2	80.6	74.0	70.4	71.6	54.5	56.5
SD	46.7	14.5	18.2	24.6	22.1	17.1	18.9	17.8	22.5	21.9	43.4	39.8
TOTAL ROOMS	123	121	63	54	62	39	28	154	18	43	11	6

TABLE 5-28 ROOM FREQ. DIST. OF PERCENT LIVE LOAD WITHIN TWO FEET OF WALL

SINGLE FAMILY ATTACHED HOMES

PERCENT	ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASEMENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 9.9	73	34	0	3	1	1	0	3	2	2	3	1
	59.3%	28.1%	.0%	5.6%	1.6%	2.6%	.0%	1.9%	11.1%	4.7%	27.3%	16.7%
10.0- 19.9	0	0	0	1	2	0	0	0	0	1	1	0
	.0%	.0%	.0%	1.9%	3.2%	.0%	.0%	.0%	.0%	2.3%	9.1%	.0%
20.0- 29.9	0	0	0	3	4	0	1	3	0	2	1	1
	.0%	.0%	.0%	5.6%	6.5%	.0%	3.6%	1.9%	.0%	4.7%	9.1%	16.7%
30.0- 39.9	3	0	3	5	3	2	0	1	1	5	0	1
	2.4%	.0%	4.8%	9.3%	4.8%	5.1%	.0%	.6%	5.6%	11.6%	.0%	16.7%
40.0- 49.9	2	2	0	5	0	3	1	7	2	1	0	0
	1.6%	1.7%	.0%	9.3%	.0%	7.7%	3.6%	4.5%	11.1%	2.3%	.0%	.0%
50.0- 59.9	2	1	1	8	6	5	1	13	1	4	0	1
	1.6%	.8%	1.6%	14.8%	9.7%	12.8%	3.6%	8.4%	5.6%	9.3%	.0%	16.7%
60.0- 69.9	0	0	5	8	7	3	4	21	2	4	0	0
	.0%	.0%	7.9%	14.8%	11.3%	7.7%	14.3%	13.6%	11.1%	9.3%	.0%	.0%
70.0- 79.9	3	3	11	9	15	10	3	39	3	1	1	0
	2.4%	2.5%	17.5%	16.7%	24.2%	25.6%	10.7%	25.3%	16.7%	2.3%	9.1%	.0%
80.0- 89.9	2	3	15	8	12	3	5	35	4	4	1	0
	1.6%	2.5%	23.8%	14.8%	19.4%	7.7%	17.9%	22.7%	22.2%	9.3%	9.1%	.0%
90.0- 100.0	38	78	28	4	12	12	13	32	3	19	4	2
	30.9%	64.5%	44.4%	7.4%	19.4%	30.8%	46.4%	20.8%	16.7%	44.2%	36.4%	33.3%
MEAN	36.5	69.3	84.6	58.5	69.6	73.2	81.1	75.1	64.5	71.1	53.7	53.2
SD	46.1	44.5	15.5	24.2	23.7	21.8	19.0	19.4	29.8	30.8	44.8	39.8
TOTAL ROOMS	123	121	63	54	62	39	28	154	18	43	11	6

TABLE 5-29 ROOM FREQ. DIST. OF PERCENT MOVABLE F.L. WITHIN TWO FEET OF WALL

SINGLE FAMILY DETACHED HOMES

PERCENT	ROOM TYPE: WALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 9.9	236	8	1	8	3	2	1	7	3	2	6	3
	59.6%	1.6%	.5%	4.2%	1.5%	.9%	.9%	1.1%	4.0%	.9%	13.6%	17.6%
10.0- 19.9	0	2	1	5	0	2	0	1	3	2	0	1
	.0%	.4%	.5%	2.6%	.0%	.9%	.0%	.2%	4.0%	.9%	.0%	5.9%
20.0- 29.9	0	10	0	6	4	3	3	6	3	2	0	1
	.0%	2.0%	.0%	3.1%	2.0%	1.3%	2.8%	.9%	4.0%	.9%	.0%	5.9%
30.0- 39.9	0	3	2	7	8	6	2	13	4	7	1	0
	.0%	.6%	1.0%	3.7%	3.9%	2.6%	1.9%	2.0%	5.3%	3.2%	2.3%	.0%
40.0- 49.9	1	8	2	6	16	18	2	33	7	15	0	0
	.3%	1.6%	1.0%	3.1%	7.8%	7.8%	1.9%	5.2%	9.3%	6.9%	.0%	.0%
50.0- 59.9	2	24	5	9	27	22	4	49	6	19	5	2
	.5%	4.8%	2.5%	4.7%	13.2%	9.5%	3.7%	7.7%	8.0%	8.7%	11.4%	11.8%
60.0- 69.9	6	32	9	15	37	30	10	92	12	30	1	4
	1.5%	6.3%	4.4%	7.9%	18.1%	13.0%	9.3%	14.5%	16.0%	13.8%	2.3%	23.5%
70.0- 79.9	5	72	13	31	38	43	19	143	14	45	7	1
	1.3%	14.3%	6.4%	16.2%	18.6%	18.6%	17.8%	22.5%	18.7%	20.6%	15.9%	5.9%
80.0- 89.9	13	118	57	48	41	58	25	168	14	50	8	1
	3.3%	23.4%	27.9%	25.1%	20.1%	25.1%	23.4%	26.4%	18.7%	22.9%	18.2%	5.9%
90.0- 100.0	133	228	114	56	30	47	41	124	9	46	16	4
	33.6%	45.1%	55.9%	29.3%	14.7%	20.3%	38.3%	19.5%	12.0%	21.1%	36.4%	23.5%
MEAN	38.6	83.1	87.1	72.9	69.3	73.4	81.1	75.0	63.5	73.5	70.6	56.9
SD	47.4	20.1	14.5	25.8	19.2	19.8	19.3	18.0	24.9	19.6	32.0	36.3
TOTAL ROOMS	396	505	204	191	204	231	107	636	75	218	44	17

TABLE 5-30 ROOM FREQ. DIST. OF PERCENT LIVE LOAD WITHIN TWO FEET OF WALL

SINGLE FAMILY DETACHED HOMES

PERCENT	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 9.9	246	137	2	10	3	2	1	7	4	18	7	5
	62.1%	27.1%	1.0%	5.2%	1.5%	.9%	.9%	1.1%	5.3%	8.3%	15.9%	29.4%
10.0- 19.9	0	2	2	7	1	1	1	1	3	2	1	0
	.0%	.4%	1.0%	3.7%	.5%	.4%	.9%	.2%	4.0%	.9%	2.3%	.0%
20.0- 29.9	0	3	0	10	5	9	3	7	3	3	0	1
	.0%	.6%	.0%	5.2%	2.5%	3.9%	2.8%	1.1%	4.0%	1.4%	.0%	5.9%
30.0- 39.9	1	5	5	12	5	5	1	7	5	3	0	0
	.3%	1.0%	2.5%	6.3%	2.5%	2.2%	.9%	1.1%	6.7%	1.4%	.0%	.0%
40.0- 49.9	0	1	5	16	22	14	4	33	6	9	1	1
	.0%	.2%	2.5%	8.4%	10.8%	6.1%	3.7%	5.2%	8.0%	4.1%	2.3%	5.9%
50.0- 59.9	2	6	10	31	34	24	4	31	1	19	1	2
	.5%	1.2%	4.9%	16.2%	16.7%	10.4%	3.7%	4.9%	1.3%	8.7%	2.3%	11.8%
60.0- 69.9	6	6	17	35	36	31	11	72	13	13	2	1
	1.5%	1.2%	8.3%	18.3%	17.6%	13.4%	10.3%	11.3%	17.3%	6.0%	4.5%	5.9%
70.0- 79.9	5	25	34	37	36	38	13	131	14	29	11	2
	1.3%	5.0%	16.7%	19.4%	17.6%	16.5%	12.1%	20.6%	18.7%	13.3%	25.0%	11.8%
80.0- 89.9	8	13	55	25	40	55	28	189	9	35	6	0
	2.0%	2.6%	27.0%	13.1%	19.6%	23.8%	26.2%	29.7%	12.0%	16.1%	13.6%	.0%
90.0- 100.0	128	307	74	8	22	52	41	158	17	87	15	5
	32.3%	60.8%	36.3%	4.2%	10.8%	22.5%	38.3%	24.8%	22.7%	39.9%	34.1%	29.4%
MEAN	36.2	68.7	80.6	58.1	67.0	72.9	80.7	77.5	66.1	74.2	69.6	51.7
SD	46.9	43.8	18.5	23.7	19.5	20.6	20.4	18.0	28.4	29.3	34.2	39.5
TOTAL ROOMS	396	505	204	191	204	231	107	636	75	218	44	17

TABLE 5-31 ROOM FREQ. DIST. OF PERCENT MOVABLE F.L. WITHIN TWO FEET OF WALL

SINGLE FAMILY ATTACHED HOMES

PERCENT	ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASEMENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 9.9	104	9	0	1	2	1	1	5	5	0	3	2
	84.6%	7.4%	.0%	1.9%	3.2%	2.6%	3.6%	3.2%	27.8%	.0%	27.3%	33.3%
10.0- 19.9	10	13	7	10	13	9	4	12	3	8	1	0
	8.1%	10.7%	11.1%	18.5%	21.0%	23.1%	14.3%	7.8%	16.7%	18.6%	9.1%	.0%
20.0- 29.9	4	23	8	14	15	10	9	28	4	15	2	0
	3.3%	19.0%	12.7%	25.9%	24.2%	25.6%	32.1%	18.2%	22.2%	34.9%	18.2%	.0%
30.0- 39.9	4	26	15	16	17	6	4	37	4	9	1	1
	3.3%	21.5%	23.8%	29.6%	27.4%	15.4%	14.3%	24.0%	22.2%	20.9%	9.1%	16.7%
40.0- 49.9	0	14	12	6	8	9	5	26	2	3	1	0
	.0%	11.6%	19.0%	11.1%	12.9%	23.1%	17.9%	16.9%	11.1%	7.0%	9.1%	.0%
50.0- 59.9	0	10	8	4	3	3	3	22	0	2	0	1
	.0%	8.3%	12.7%	7.4%	4.8%	7.7%	10.7%	14.3%	.0%	4.7%	.0%	16.7%
60.0- 69.9	1	12	6	1	1	1	1	6	0	3	2	0
	.8%	9.9%	9.5%	1.9%	1.6%	2.6%	3.6%	3.9%	.0%	7.0%	18.2%	.0%
70.0- 79.9	0	4	2	2	3	0	0	6	0	0	0	0
	.0%	3.3%	3.2%	3.7%	4.8%	.0%	.0%	3.9%	.0%	.0%	.0%	.0%
80.0- 89.9	0	2	3	0	0	0	0	6	0	2	0	0
	.0%	1.7%	4.8%	.0%	.0%	.0%	.0%	3.9%	.0%	4.7%	.0%	.0%
90.0- 100.0	0	8	2	0	0	0	1	6	0	1	1	2
	.0%	6.6%	3.2%	.0%	.0%	.0%	3.6%	3.9%	.0%	2.3%	9.1%	33.3%
MEAN	5.0	39.7	43.5	32.1	31.7	31.1	35.2	42.0	22.5	35.8	33.9	48.5
SD	9.5	24.2	20.3	15.4	15.8	14.3	19.6	21.5	14.3	20.0	32.0	45.2
TOTAL ROOMS	123	121	63	54	62	39	28	154	18	43	11	6
MEAN + 1.64SD	9.0	27.4	84.6	27.3	14.2	33.1	45.6	20.9	21.3	33.7	52.6	118.5

TABLE 5-32 ROOM FREQ. DIST. OF PERCENT FLOOR AREA COVERED

SINGLE FAMILY DETACHED HOMES

PERCENT	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	BASE-MENT	UTIL. ROOM	STORE ROOM	OTHER ROOMS
0- 9.9	339	42	2	6	8	19	2	13	15	8	12	4
	85.6%	8.3%	1.0%	3.1%	3.9%	8.2%	1.9%	2.0%	20.0%	3.7%	27.3%	23.5%
10.0- 19.9	30	67	22	24	55	53	15	50	22	48	4	5
	7.6%	13.3%	10.8%	12.6%	27.0%	22.9%	14.0%	7.9%	29.3%	22.0%	9.1%	29.4%
20.0- 29.9	15	84	35	67	65	84	30	144	13	55	10	3
	3.8%	16.6%	17.2%	35.1%	31.9%	36.4%	28.0%	22.6%	17.3%	25.2%	22.7%	17.6%
30.0- 39.9	1	88	61	53	50	40	27	180	9	48	2	1
	.3%	17.4%	29.9%	27.7%	24.5%	17.3%	25.2%	28.3%	12.0%	22.0%	4.5%	5.9%
40.0- 49.9	5	81	42	25	16	18	17	127	4	20	5	1
	1.3%	16.0%	20.6%	13.1%	7.8%	7.8%	15.9%	20.0%	5.3%	9.2%	11.4%	5.9%
50.0- 59.9	1	61	24	10	6	10	10	73	4	12	5	1
	.3%	12.1%	11.8%	5.2%	2.9%	4.3%	9.3%	11.5%	5.3%	5.5%	11.4%	5.9%
60.0- 69.9	2	34	6	3	4	2	3	28	5	10	1	0
	.5%	6.7%	2.9%	1.6%	2.0%	.9%	2.8%	4.4%	6.7%	4.6%	2.3%	.0%
70.0- 79.9	0	17	5	0	0	3	0	12	1	6	3	0
	.0%	3.4%	2.5%	.0%	.0%	1.3%	.0%	1.9%	1.3%	2.8%	6.8%	.0%
80.0- 89.9	0	12	5	0	0	0	0	3	0	2	0	0
	.0%	2.4%	2.5%	.0%	.0%	.0%	.0%	.5%	.0%	.9%	.0%	.0%
90.0- 100.0	3	19	2	3	0	2	3	6	2	9	2	2
	.8%	3.8%	1.0%	1.6%	.0%	.9%	2.8%	.9%	2.7%	4.1%	4.5%	11.8%
MEAN	4.9	38.4	38.6	31.7	26.8	27.1	34.6	37.4	26.6	34.5	31.2	27.8
SD	12.0	22.7	16.6	14.4	11.6	15.0	17.3	15.5	21.9	21.2	26.6	30.6
TOTAL ROOMS	396	505	204	191	204	231	107	636	75	218	44	17

TABLE 5-33 ROOM FREQ. DIST. OF PERCENT FLOOR AREA COVERED

Table 6-1. Age distribution of mobile homes

Year Built	Age Year	No. of Units	% of Total
1970	up to 6	76	77.5
1965 - 69	7 - 11	21	21.5
1960 - 64	12 - 16	1	1.0
Total		98	100.0

Table 6-2. Comparison of number of years occupied by current resident for three types of housing

Years Occupied	Number of Units		
	MH	SFA	SFD
0 - 1	18 18.4%	7 11.5%	21 10.5%
2 - 4	56 57.1%	24 39.3%	45 22.5%
5 - 9	21 21.9%	12 19.7%	45 22.5%
10 - 19	2 2.0%	5 8.2%	54 27.0%
20 - 29	1 1.0%	10 16.4%	24 12.0%
30 -	0	3 4.9%	11 5.5%
Mean	3.5	9.2	10.8
SD	3.3	11.1	10.0

Table 6-3. Comparison of occupant density in surveyed housing

	SFA	SFD	MH
Total floor area	sq.ft.	sq.ft.	sq.ft.
Mean	1,600	2,300	800
Range	600-4000 [1/]	800->5000	200-2000 [2/]
No. of occupants			
Mean	2.4	3.4	2.4
Range	1-5	1-7	1-4
Average area per occupants	sq.ft./ occupant 670	sq.ft./ occupant 680	sq.ft./ occupant 330

1/ 6 units in size range 400-799 sq. ft., lower limit taken at middle of range.

2/ 2 units in size range 0-399 sq. ft., lower limit taken at middle of range.

MOBILE HOMES

NO. OF ROOMS	NO. OF UNITS
	1
0-4	1.0%
	74
5-9	75.5%
	22
10-14	22.4%
	0
15-19	.0%
	0
20-24	.0%
	0
25-29	.0%
	1
30-34	1.0%
MEAN	8.5
SD	6.5
TOTAL UNITS	98

TABLE 6-4 NUMBER OF ROOMS BY NUMBER OF DWELLING UNITS

AREA (SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	UTIL. ROOM	STORE ROOM
0- 49	38	70	1	2	0	1	2	2	14	2
	35.2%	49.6%	1.0%	4.7%	.0%	5.6%	8.3%	1.0%	70.0%	40.0%
50- 99	67	71	34	29	1	4	13	69	6	1
	62.0%	50.4%	34.7%	67.4%	1.1%	22.2%	54.2%	34.8%	30.0%	20.0%
100- 149	3	0	53	10	9	10	9	103	0	1
	2.8%	.0%	54.1%	23.3%	9.5%	55.6%	37.5%	52.0%	.0%	20.0%
150- 199	0	0	10	2	42	2	0	19	0	1
	.0%	.0%	10.2%	4.7%	44.2%	11.1%	.0%	9.6%	.0%	20.0%
200- 249	0	0	0	0	18	0	0	3	0	0
	.0%	.0%	.0%	.0%	18.9%	.0%	.0%	1.5%	.0%	.0%
250- 299	0	0	0	0	15	1	0	1	0	0
	.0%	.0%	.0%	.0%	15.8%	5.6%	.0%	.5%	.0%	.0%
300- 349	0	0	0	0	6	0	0	0	0	0
	.0%	.0%	.0%	.0%	6.3%	.0%	.0%	.0%	.0%	.0%
350- 399	0	0	0	0	2	0	0	0	0	0
	.0%	.0%	.0%	.0%	2.1%	.0%	.0%	.0%	.0%	.0%
400- 449	0	0	0	0	0	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
450- 499	0	0	0	0	0	0	0	1	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.5%	.0%	.0%
500-	0	0	0	0	2	0	0	0	0	0
	.0%	.0%	.0%	.0%	2.1%	.0%	.0%	.0%	.0%	.0%
MEAN	55.1	49.8	114.9	95.6	217.7	119.3	86.5	115.6	41.6	85.8
SD	21.3	18.9	30.2	27.1	84.4	54.3	28.6	46.1	14.4	48.1
TOTAL ROOMS	108	141	98	43	95	18	24	198	20	5

TABLE 6-5 ROOM FREQ. DIST. OF ROOM AREA (SQFT)

MOBILE HOMES

L.L. (LB/SQFT)	RCOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	UTIL. ROOM	STORE ROOM
0- 4.9	68	10	0	12	55	7	7	92	1	1
	63.0%	7.1%	.0%	27.9%	57.9%	38.9%	29.2%	46.5%	5.0%	20.0%
5.0- 9.9	20	39	4	14	32	7	5	93	8	1
	18.5%	27.7%	4.1%	32.6%	33.7%	38.9%	20.8%	47.0%	40.0%	20.0%
10.0- 14.9	15	44	23	5	7	3	8	10	7	0
	13.9%	31.2%	23.5%	11.6%	7.4%	16.7%	33.3%	5.1%	35.0%	.0%
15.0- 19.9	4	31	30	6	1	0	2	2	2	0
	3.7%	22.0%	30.6%	14.0%	1.1%	.0%	8.3%	1.0%	10.0%	.0%
20.0- 24.9	0	11	14	2	0	0	2	1	0	2
	.0%	7.8%	14.3%	4.7%	.0%	.0%	8.3%	.5%	.0%	40.0%
25.0- 29.9	0	4	6	1	0	0	0	0	0	0
	.0%	2.8%	6.1%	2.3%	.0%	.0%	.0%	.0%	.0%	.0%
30.0- 34.9	0	0	5	1	0	0	0	0	1	0
	.0%	.0%	5.1%	2.3%	.0%	.0%	.0%	.0%	5.0%	.0%
35.0- 39.9	0	0	5	1	0	1	0	0	0	0
	.0%	.0%	5.1%	2.3%	.0%	5.6%	.0%	.0%	.0%	.0%
40.0- 44.9	0	1	4	0	0	0	0	0	0	0
	.0%	.7%	4.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
45.0- 49.9	1	1	3	1	0	0	0	0	1	1
	.9%	.7%	3.1%	2.3%	.0%	.0%	.0%	.0%	5.0%	20.0%
50.0-	0	0	4	0	0	0	0	0	0	0
	.0%	.0%	4.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
MEAN	5.4	12.9	22.7	11.5	5.3	7.7	9.8	5.7	14.0	20.8
SD	6.2	6.7	12.0	9.9	3.1	8.1	6.3	2.9	10.4	18.4
TOTAL RCOMS	108	141	98	43	95	18	24	198	20	5
MEAN + 1.64SD	15.6	23.9	42.4	27.7	10.4	21.0	20.1	10.5	31.1	51.0

TABLE 6-6 RCOM FREQ. DIST. OF LIVE LOAD (LB/SQFT)

MOBILE HOMES

PERCENT	ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	UTIL. ROOM	STORE ROOM
	82	11	0	4	0	0	0	0	3	1
0- 9.9	75.9%	7.8%	.0%	9.3%	.0%	.0%	.0%	.0%	15.0%	20.0%
	0	0	0	0	1	0	0	1	0	0
10.0- 19.9	.0%	.0%	.0%	.0%	1.1%	.0%	.0%	.5%	.0%	.0%
	1	0	0	5	1	1	0	2	0	0
20.0- 29.9	.9%	.0%	.0%	11.6%	1.1%	5.6%	.0%	1.0%	.0%	.0%
	0	1	0	2	5	0	0	1	0	0
30.0- 39.9	.0%	.7%	.0%	4.7%	5.3%	.0%	.0%	.5%	.0%	.0%
	1	0	1	2	6	2	1	3	0	0
40.0- 49.9	.9%	.0%	1.0%	4.7%	6.3%	11.1%	4.2%	1.5%	.0%	.0%
	0	1	3	4	10	0	0	9	0	0
50.0- 59.9	.0%	.7%	3.1%	9.3%	10.5%	.0%	.0%	4.5%	.0%	.0%
	0	2	5	11	17	0	0	23	0	0
60.0- 69.9	.0%	1.4%	5.1%	25.6%	17.9%	.0%	.0%	11.6%	.0%	.0%
	0	14	15	8	29	3	2	48	1	0
70.0- 79.9	.0%	9.9%	15.3%	18.6%	30.5%	16.7%	8.3%	24.2%	5.0%	.0%
	1	5	29	6	16	2	7	74	0	1
80.0- 89.9	.9%	3.5%	29.6%	14.0%	16.8%	11.1%	29.2%	37.4%	.0%	20.0%
	23	107	45	1	10	10	14	37	16	3
90.0- 100.0	21.3%	75.9%	45.9%	2.3%	10.5%	55.6%	58.3%	18.7%	80.0%	60.0%
MEAN	22.6	87.3	86.7	56.2	70.3	81.7	89.2	78.7	83.7	74.7
SD	41.3	27.7	12.3	25.6	16.8	22.3	12.2	14.0	36.4	41.5
TOTAL ROOMS	108	141	98	43	95	18	24	198	20	5

TABLE 6-7 ROOM FREQ. DIST. OF PERCENT MOVABLE F.L. WITHIN TWO FEET OF WALL

MOBILE HOMES

PERCENT	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	UTIL. ROOM	STORE ROOM
0- 9.9	68	4	0	0	0	0	2	2	0	1
	63.0%	2.8%	.0%	.0%	.0%	.0%	8.3%	1.0%	.0%	20.0%
10.0- 19.9	14	9	5	3	16	7	6	4	4	1
	13.0%	6.4%	5.1%	7.0%	16.8%	38.9%	25.0%	2.0%	20.0%	20.0%
20.0- 29.9	15	26	19	13	45	5	9	43	6	1
	13.9%	18.4%	19.4%	30.2%	47.4%	27.8%	37.5%	21.7%	30.0%	20.0%
30.0- 39.9	7	32	44	15	30	5	3	74	6	0
	6.5%	22.7%	44.9%	34.9%	31.6%	27.8%	12.5%	37.4%	30.0%	.0%
40.0- 49.9	2	36	21	6	2	1	2	51	2	1
	1.9%	25.5%	21.4%	14.0%	2.1%	5.6%	8.3%	25.8%	10.0%	20.0%
50.0- 59.9	0	18	7	3	2	0	0	12	0	0
	.0%	12.8%	7.1%	7.0%	2.1%	.0%	.0%	6.1%	.0%	.0%
60.0- 69.9	0	8	0	1	0	0	2	6	1	0
	.0%	5.7%	.0%	2.3%	.0%	.0%	8.3%	3.0%	5.0%	.0%
70.0- 79.9	1	4	0	0	0	0	0	3	0	1
	.9%	2.8%	.0%	.0%	.0%	.0%	.0%	1.5%	.0%	20.0%
80.0- 89.9	0	2	0	1	0	0	0	1	0	0
	.0%	1.4%	.0%	2.3%	.0%	.0%	.0%	.5%	.0%	.0%
90.0- 100.0	1	2	2	1	0	0	0	2	1	0
	.9%	1.4%	2.0%	2.3%	.0%	.0%	.0%	1.0%	5.0%	.0%
MEAN	11.1	40.1	36.4	35.7	27.5	25.7	26.3	38.3	34.0	32.6
SD	15.3	17.5	12.7	16.4	7.8	9.5	14.8	12.8	19.3	27.0
TOTAL ROOMS	108	141	98	43	95	18	24	198	20	5

TABLE 6-8 ROOM FREQ. DIST. OF PERCENT FLOOR AREA COVERED

E.F.L. (LB/SQFT)	ROOM TYPE HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	UTIL. ROOM	STORE ROOM
0- 4.9	105 97.2%	90 83.8%	15 15.3%	24 55.8%	58 61.1%	10 55.6%	7 29.2%	90 45.5%	14 70.0%	2 40.0%
5.0- 9.9	0 .0%	41 29.1%	66 67.3%	12 27.9%	32 33.7%	6 33.3%	6 25.0%	96 48.5%	4 20.0%	0 .0%
10.0- 14.9	2 1.9%	6 4.3%	12 12.2%	6 14.0%	4 4.2%	1 5.6%	7 29.2%	9 4.5%	1 5.0%	0 .0%
15.0- 19.9	0 .0%	4 2.8%	4 4.1%	0 .0%	0 .0%	1 5.6%	2 8.3%	1 .5%	0 .0%	1 20.0%
20.0- 24.9	0 .0%	0 .0%	1 1.0%	0 .0%	1 1.1%	0 .0%	2 8.3%	2 1.0%	1 5.0%	1 20.0%
25.0- 29.9	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
30.0- 34.9	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
35.0- 39.9	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
40.0- 44.9	0 .0%	0 .0%	0 .0%	1 2.3%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
45.0- 49.9	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	1 20.0%
50.0-	1 .9%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
MEAN	1.2	4.5	7.8	6.0	5.1	5.9	9.5	5.7	4.3	20.1
SD	5.8	3.5	3.3	6.7	2.8	4.6	6.2	3.1	5.2	18.1
TOTAL ROOMS	108	141	98	43	95	18	24	198	20	5

TABLE 6-9 ROOM FREQ. DIST. OF MOVABLE CONTENTS EQUIVALENT FIRE LOAD (LB/SQFT)

MOBILE HOMES

E.F.L. (LB/SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCHEN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BEDROOM	UTIL. ROOM	STORE ROOM
0- 4.9	2	2	2	1	2	0	0	3	2	0
	1.9%	1.4%	2.0%	2.3%	2.1%	.0%	.0%	1.5%	10.0%	.0%
5.0- 9.9	16	23	45	11	49	9	3	38	1	1
	14.8%	16.3%	45.9%	25.6%	51.6%	50.0%	12.5%	19.2%	5.0%	20.0%
10.0- 14.9	59	35	43	23	40	6	14	112	4	2
	54.6%	24.8%	43.9%	53.5%	42.1%	33.3%	58.3%	56.6%	20.0%	40.0%
15.0- 19.9	27	48	8	7	1	3	6	40	9	1
	25.0%	34.0%	8.2%	16.3%	1.1%	16.7%	25.0%	20.2%	45.0%	20.0%
20.0- 24.9	3	19	0	1	1	0	1	3	3	0
	2.8%	13.5%	.0%	2.3%	1.1%	.0%	4.2%	1.5%	15.0%	.0%
25.0- 29.9	0	13	0	0	0	0	0	1	1	0
	.0%	9.2%	.0%	.0%	.0%	.0%	.0%	.5%	5.0%	.0%
30.0- 34.9	0	0	0	0	0	0	0	1	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.5%	.0%	.0%
35.0- 39.9	0	0	0	0	1	0	0	0	0	1
	.0%	.0%	.0%	.0%	1.1%	.0%	.0%	.0%	.0%	20.0%
40.0- 44.9	0	0	0	0	0	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
45.0- 49.9	0	0	0	0	1	0	0	0	0	0
	.0%	.0%	.0%	.0%	1.1%	.0%	.0%	.0%	.0%	.0%
50.0-	1	1	0	0	0	0	0	0	0	0
	.9%	.7%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
MEAN	13.7	16.1	10.3	12.1	10.5	10.7	13.9	12.6	15.7	18.4
SD	7.0	6.5	3.1	3.6	5.7	3.1	3.0	3.7	6.5	12.4
TOTAL ROOMS	108	141	98	43	95	18	24	198	20	5

TABLE 6-10 ROOM FREQ. DIST. OF INTERIOR FINISH EQUIVALENT FIRE LOAD (LB/SQFT)

MOBILE HOMES

E.F.L. (LB/SQFT)	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	UTIL. ROOM	STORE ROOM
0- 4.9	1	1	1	1	0	0	0	0	C	0
	.9%	.7%	1.0%	2.3%	.0%	.0%	.0%	.0%	.0%	.0%
5.0- 9.9	15	4	3	1	8	2	0	4	1	0
	13.9%	2.8%	3.1%	2.3%	8.4%	11.1%	.0%	2.0%	5.0%	.0%
10.0- 14.9	53	22	22	12	48	5	1	37	3	1
	49.1%	15.6%	22.4%	27.9%	50.5%	27.8%	4.2%	18.7%	15.0%	20.0%
15.0- 19.9	31	44	42	20	26	6	6	104	5	1
	28.7%	31.2%	42.9%	46.5%	27.4%	33.3%	25.0%	52.5%	25.0%	20.0%
20.0- 24.9	4	36	23	4	9	4	8	38	7	0
	3.7%	25.5%	23.5%	9.3%	9.5%	22.2%	33.3%	19.2%	35.0%	.0%
25.0- 29.9	2	20	3	4	2	1	6	8	3	0
	1.9%	14.2%	3.1%	9.3%	2.1%	5.6%	25.0%	4.0%	15.0%	.0%
30.0- 34.9	0	9	3	0	0	0	1	4	1	0
	.0%	6.4%	3.1%	.0%	.0%	.0%	4.2%	2.0%	5.0%	.0%
35.0- 39.9	0	3	1	0	0	0	2	2	0	1
	.0%	2.1%	1.0%	.0%	.0%	.0%	8.3%	1.0%	.0%	20.0%
40.0- 44.9	0	1	0	0	1	0	0	1	0	0
	.0%	.7%	.0%	.0%	1.1%	.0%	.0%	.5%	.0%	.0%
45.0- 49.9	0	0	0	0	0	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
50.0-	2	1	0	1	1	0	0	0	0	2
	1.9%	.7%	.0%	2.3%	1.1%	.0%	.0%	.0%	.0%	40.0%
MEAN	14.9	20.6	18.1	18.1	15.6	16.6	23.4	18.3	20.1	38.5
SD	9.1	7.3	5.3	8.2	6.6	5.0	5.8	5.1	6.0	24.6
TOTAL ROOMS	108	141	98	43	95	18	24	198	20	5

TABLE 6-11 ROOM FREQ. DIST. OF ROOM TOTAL EQUIVALENT FIRE LOAD (LB/SQFT)

RATIO	ROOM TYPE: HALL	BATH-ROOM	KITCH-EN	DINING ROOM	LIVING ROOM	FAMILY ROOM	STUDY	BED-ROOM	UTIL. ROOM	STORE ROOM
0- .099	0	0	0	0	0	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
.100- .199	0	0	0	0	0	0	0	0	1	0
	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	5.0%	.0%
.200- .299	1	0	1	1	0	0	2	1	1	1
	.9%	.0%	1.0%	2.3%	.0%	.0%	8.3%	.5%	5.0%	20.0%
.300- .399	0	1	7	1	3	3	2	3	0	0
	.0%	.7%	7.1%	2.3%	3.2%	16.7%	8.3%	1.5%	.0%	.0%
.400- .499	1	3	9	1	4	0	2	5	0	1
	.9%	2.1%	9.2%	2.3%	4.2%	.0%	8.3%	2.5%	.0%	20.0%
.500- .599	1	10	32	6	10	2	5	16	0	1
	.9%	7.1%	32.7%	14.0%	10.5%	11.1%	20.8%	8.1%	.0%	20.0%
.600- .699	1	17	36	9	27	2	3	62	3	1
	.9%	12.1%	36.7%	20.9%	28.4%	11.1%	12.5%	31.3%	15.0%	20.0%
.700- .799	3	21	13	17	42	7	7	72	4	1
	2.8%	14.9%	13.3%	39.5%	44.2%	38.9%	29.2%	36.4%	20.0%	20.0%
.800- .899	7	53	0	5	9	3	3	35	2	0
	6.5%	37.6%	.0%	11.6%	9.5%	16.7%	12.5%	17.7%	10.0%	.0%
.900- 1.00	94	36	0	3	0	1	0	4	9	0
	87.0%	25.5%	.0%	7.0%	.0%	5.6%	.0%	2.0%	45.0%	.0%
MEAN	1.0	.8	.6	.7	.7	.7	.6	.7	.8	.5
SD	.1	.1	.1	.1	.1	.2	.2	.1	.2	.2
TOTAL ROOMS	108	141	98	43	95	18	24	198	20	5

TABLE 6-12 ROOM FREQ. DIST. OF INTERIOR FINISH FIRE LOAD/TOTAL FIRE LOAD

Table 7-1. Comparison of mean room area (sq. ft.)

Room Type	Special Survey Number 1	2	3	4	Mean	Std Dev	% of mean
Hallway	66.	58.	51.	50.	56.	7.4	13.
Bathroom	31.	28.	32.	30.	30.	1.7	6.
Kitchen	120.	120.	117.	96.	113.	11.6	10.
Dining Room	108.	140.	117.	120.	121.	13.5	11.
Living Room	216.	252.	216.	204.	222.	20.8	9.
Family Room	216.	216.	162. 1/	168.	190.	29.5	16.
Study	168.	99.	180.	144.	148.	35.8	24.
Bedroom	128.	145.	124.	112.	127.	13.6	11.
Utility Room	144.	144.	130.	2/	139.	8.1	6.
Storage Room	184.	144.	144.	2/	157.	23.1	15.
Column Mean	138	135	127	116	130	16.6	13

1/ Mean of 2 family room areas
2/ Not surveyed

Table 7-2. Comparison of live load (lb/sq ft)

Room Type	Special Survey Number 1	2	3	4	Mean	Std Dev	% of mean
Hallway	1.	.4	10.	.7	3.0	4.7	157.
Bathroom	9.	12.	12.	21.	13.5	5.2	38.
Kitchen	22.[1/]	16.[1/]	40.	43.	30.2	13.3	44.
Dining Room	4.	2.[2/]	10.	7.	5.8	3.5	60.
Living Room	4.	2.	4.	4.	3.5	1.0	29.
Family Room	7.	6.	12.	12.	9.2	3.2	35.
Study	6.	5.	7.	8.	6.5	1.3	20.
Bedroom	3.	5.	5.	6.	4.8	1.3	27.
Utility Room	4.	9.	11.	[3/]	8.0	3.6	45.
Storage Room	5.	6.	10.	[3/]	7.0	2.6	37.
Column Mean	6.	6.	12.	13.	9.45	3.97	43.

1/ Low estimate of cabinet size
2/ Buffet not in survey
3/ Not surveyed

Table 7-3. Estimate of Surveyors Error
Teams 1 and 2

Room Type	Special Survey Number 1	2	Mean	Std Error of Mean
Hallway	1.	.4	.7	.3
Bathroom	9.	12.	10.5	1.5
Kitchen	22.	16.	19.	3.
Dining Room	4.	2.	3.	1.
Living Room	4.	2.	3.	1.
Family Room	7.	6.	6.5	.5
Study	6.	5.	5.5	1.
Bedroom	3.	5.	4.	1.
Utility Room	4.	9.	6.5	2.5
Storage Room	5.	6.	5.5	.5
		Average	6.4	1.2
		Average % error		19%

Table 7-4. Estimate of Surveyors Error
Teams 3 and 4

Room Type	Special Survey Number 3	4	Mean	Std Error of Mean
Hallway	10.	.7	5.4	4.7
Bathroom	12.	21.	16.5	4.5
Kitchen	40.	43.	41.5	1.5
Dining Room	10.	7.	8.5	1.5
Living Room	4.	4.	4.	0
Family Room	12.	12.	12.	0
Study	7.	8.	7.5	.5
Bedroom	5.	6.	5.5	.5
		Average	12.6	1.7
		Average % error		14%

Table 8-1. Room and closet total live load (lb/sq. ft.)

Room Type	Mean	SD	Mean + 1.64 SD
Hallway			
SFA	3.1	4.4	10.3
SFD	4.7	14.2	28.0
MH	5.7	6.0	15.5
Bathroom			
SFA	12.7	8.9	27.3
SFD	12.0	8.2	25.4
MH	12.9	6.7	23.9
Kitchen			
SFA	37.7	29.0	85.3
SFD	33.0	23.8	72.0
MH	23.4	12.6	44.1
Dining Room			
SFA	11.6	9.5	27.2
SFD	15.9	19.3	31.2
MH	11.5	9.8	27.6
Living Room			
SFA	6.6	4.4	13.8
SFD	6.6	5.0	14.8
MH	5.4	3.1	10.5
Family Room			
SFA	11.8	12.8	32.8
SFD	8.2	16.2	34.8
MH	8.4	8.2	21.8
Study			
SFA	15.0	11.5	33.9
SFD	18.8	14.9	43.2
MH	10.0	6.2	20.2
Bedroom			
SFA	8.3	9.1	23.2
SFD	8.1	5.6	17.3
MH	6.5	3.0	11.4
Basement			
SFA	7.4	8.4	21.2
SFD	14.9	56.4[1/]	107.4[1/]
MH	-	-	-
Utility Room			
SFA	15.4	14.0	38.4
SFD	13.4	20.7	47.3
MH	13.9	10.4	31.0
Storage Room			
SFA	14.8	20.9	49.1
SFD	20.1	32.1	72.7
MH	19.4	16.6	46.6
Other Rooms			
SFA	32.9	52.2	118.5
SFD	8.5	8.9	23.1
MH	-	-	-

[1/] There was a single, very highly loaded basement in this survey that produced this high SD. If this outlier is neglected, the statistics would be approximately mean 10.7, SD 10.6, (mean + 1.64 SD) 28.1.

Table 8-2. Room and closet total fire load (lb/sq ft)

Room Type	Mean	SD	Mean + 1.64 SD
Hallway			
SFA	6.9	7.7	19.5
SFD	6.0	5.6	15.2
MH	14.9	9.1	29.9
Bathroom			
SFA	9.0	8.8	23.4
SFD	8.6	7.0	20.1
MH	20.6	7.3	32.6
Kitchen			
SFA	11.3	6.4	21.8
SFD	10.5	5.2	19.0
MH	18.1	5.3	26.8
Dining Room			
SFA	10.1	4.8	18.0
SFD	9.9	5.5	18.9
MH	18.1	8.2	31.5
Living Room			
SFA	10.8	5.2	19.3
SFD	11.0	6.4	21.5
MH	15.6	6.6	26.4
Family Room			
SFA	16.5	11.7	35.7
SFD	13.2	7.8	26.0
MH	16.6	5.0	24.8
Study			
SFA	21.2	15.5	46.6
SFD	24.2	15.7	49.9
MH	23.4	5.8	32.9
Bedroom			
SFA	12.8	10.3	29.7
SFD	12.2	6.7	23.2
MH	18.3	5.1	26.7
Basement			
SFA	9.8	7.4	21.9
SFD	17.0	60.3	115.9
MH	-	-	-
Utility Room			
SFA	12.0	12.1	31.8
SFD	11.1	11.4	29.8
MH	20.1	6.0	29.9
Storeroom			
SFA	23.3	30.3	73.0
SFD	22.6	33.0	76.7
MH	38.5	24.6	78.8
Other			
SFA	25.7	15.5	51.1
SFD	10.7	6.0	20.5
MH	-	-	-

Table 8-3. Average fire load of contents and its distribution with respect to materials (lb/sq ft) 1/

Room Type	Wood	Paper	Plastic	Fabric	Other	Total
Hallway						
SFA	0.44	0.74	0.07	0.08	0.01	1.34
SFD	0.43	0.46	0.06	0.07	0.02	1.04
MH	0.28	0.19	0.20	0.06	0.05	.68
Earthroom						
SFA	0.78	0.36	0.20	0.11	0.51	1.96
SFD	0.68	0.17	0.14	0.11	0.34	1.44
MH	1.90	0.13	0.50	0.22	0.51	3.26
Kitchen						
SFA	3.80	0.46	0.90	0.06	0.14	5.36
SFD	3.74	0.51	0.74	0.04	0.21	5.24
MH	4.63	0.43	0.93	0.04	0.20	6.03
Dining Room						
SFA	2.75	0.92	0.45	0.16	0.06	4.34
SFD	2.87	0.43	0.32	0.29	0.01	3.92
MH	3.43	0.93	0.52	0.19	0.00	5.07
Living Room						
SFA	2.31	1.20	0.83	0.40	0.00	4.74
SFD	2.12	1.55	0.81	0.33	0.01	4.82
MH	1.95	0.75	0.83	0.36	0.00	3.89
Family Room						
SFA	2.15	4.45	1.22	0.31	0.04	8.17
SFD	1.80	2.15	0.52	0.27	0.03	4.77
MH	1.89	1.45	0.85	0.43	0.03	4.65
Study						
SFA	2.85	9.16	0.49	0.41	0.01	12.92
SFD	3.56	10.41	0.80	0.40	0.03	15.20
MH	3.09	5.63	0.28	0.43	0.03	9.43
Bedroom						
SFA	2.47	1.36	0.35	1.06	0.02	4.26
SFD	2.68	1.43	0.33	1.09	0.03	5.56
MH	2.50	0.74	0.40	0.94	0.02	4.60
Basement						
SFA	0.58	1.48	0.22	0.09	0.20	2.57
SFD	1.15	2.71	0.40	0.31	0.18	4.75
MH	-	-	-	-	-	-
Utility Room						
SFA	1.36	3.31	0.32	1.87	0.31	7.17
SFD	1.38	1.62	0.57	0.33	0.46	4.36
MH	2.41	0.11	0.18	0.50	0.38	3.58
Storage Room						
SFA	2.07	3.50	3.91	0.37	0.05	9.90
SFD	1.39	6.76	0.41	0.65	0.12	9.33
MH	1.36	14.41	0.13	0.10	0.00	16.00
Other Rooms						
SFA	6.92	2.30	2.75	1.52	0.11	13.60
SFD	1.69	0.87	0.33	0.28	0.03	3.20
MH	-	-	-	-	-	-

1/ Actual estimated weights of each material.

Table 8-4. Average fire load of interior finish and its distribution with respect to materials (lb/sq ft) [1]

Room Type	Wood	Paper	Plastic	Fabric	Other	Total
Hallway						
SFA	2.83	0.23	0.10	1.43	0.00	4.59
SFD	2.90	0.53	0.79	1.52	0.00	4.08
MH	9.83	0.10	0.79	1.52	0.00	12.24
Bathroom						
SFA	3.53	0.54	0.21	0.86	0.00	5.14
SFD	3.17	0.53	0.18	0.48	0.00	4.36
MH	11.21	0.23	1.34	0.44	0.00	13.22
Kitchen						
SFA	2.68	0.23	0.38	0.08	0.00	3.37
SFD	2.23	0.31	0.30	0.25	0.00	3.09
MH	7.44	0.10	1.05	0.20	0.00	8.79
Dining Room						
SFA	2.93	0.18	0.03	1.25	0.00	4.39
SFD	2.91	0.29	0.05	1.03	0.00	4.28
MH	8.36	0.13	0.72	1.11	0.00	10.32
Living Room						
SFA	2.53	0.18	0.01	0.98	0.00	3.70
SFD	2.57	0.23	0.01	1.23	0.00	4.04
MH	6.04	0.12	0.62	1.99	0.00	8.77
Family Room						
SFA	3.98	0.12	0.28	0.80	0.01	5.19
SFD	3.75	0.16	0.34	0.90	0.00	5.15
MH	6.76	0.09	0.75	1.04	0.00	8.64
Study						
SFA	3.71	0.22	0.11	0.98	0.00	5.02
SFD	4.55	0.24	0.13	0.79	0.00	5.71
MH	10.32	0.11	0.85	0.95	0.00	12.23
Bedroom						
SFA	3.39	0.20	0.03	0.85	0.00	4.47
SFD	2.96	0.27	0.03	0.89	0.00	4.15
MH	8.51	0.10	0.72	1.23	0.00	10.56
Basement						
SFA	3.52	0.05	0.15	0.18	0.00	3.90
SFD	2.84	0.05	0.18	0.14	0.00	3.21
MH	-	-	-	-	-	-
Utility Room						
SFA	2.65	0.09	0.30	0.06	0.00	3.10
SFD	3.71	0.11	0.24	0.11	0.08	4.25
MH	13.16	0.13	0.73	0.22	0.00	14.24
Storage Room						
SFA	4.05	0.21	0.07	1.22	0.00	5.55
SFD	5.03	0.10	0.33	0.10	0.00	5.56
MH	9.71	0.07	0.80	2.09	0.00	12.67
Other Rooms						
SFA	7.96	0.17	0.18	0.57	0.00	8.88
SFD	4.66	0.20	0.22	0.47	0.00	5.55
MH	-	-	-	-	-	-

[1]/Actual estimated weights of each material.

Table 8.5. Average room and closet total fire load and distribution with respect to materials (lbs/sq ft) 1/

Room Type	Wood	Paper	Plastic	Fabric	Other
Hallway					
SFA	2.73	0.94	0.15	2.24	0.10
SFD	2.87	0.71	0.36	1.94	0.03
MH	9.11	0.40	0.95	1.77	0.05
Bathroom					
SFA	4.20	0.88	0.40	1.22	0.51
SFD	3.79	0.69	0.31	0.77	0.35
MH	12.62	0.35	1.77	1.07	0.51
Kitchen					
SFA	6.07	0.65	1.19	0.13	0.13
SFD	5.81	0.87	1.01	0.29	0.23
MH	11.64	0.54	1.92	0.31	0.19
Dining Room					
SFA	5.52	1.07	0.46	1.42	0.06
SFD	5.71	0.74	0.37	1.34	0.01
MH	11.67	1.05	1.24	1.39	0.02
Living Room					
SFA	4.61	1.33	0.79	1.48	0.00
SFD	4.63	1.77	0.81	1.63	0.01
MH	7.90	0.89	1.45	2.39	0.00
Family Room					
SFA	5.99	4.48	1.48	1.19	0.06
SFD	5.40	2.37	0.87	1.29	0.05
MH	8.13	1.45	1.56	2.16	0.03
Study					
SFA	5.74	8.63	0.52	2.25	0.01
SFD	7.27	9.97	0.90	1.82	0.03
MH	11.50	5.27	0.99	2.32	0.05
Bedroom					
SFA	5.16	1.48	0.35	2.90	0.02
SFD	5.07	1.67	0.33	3.09	0.03
MH	9.89	0.82	1.02	3.12	0.02
Basement					
SFA	4.04	1.52	0.36	0.27	0.19
SFD	3.95	2.79	0.57	0.46	0.19
MH	-	-	-	-	-
Utility Room					
SFA	3.85	3.55	0.62	1.97	0.42
SFD	4.94	1.74	0.84	0.59	0.56
MH	14.91	0.23	0.91	0.85	0.36
Storage Room					
SFA	5.98	3.63	3.88	1.90	0.05
SFD	6.24	6.68	0.73	0.99	0.12
MH	9.84	12.87	0.82	3.08	0.00
Other Rooms					
SFA	13.86	2.30	2.73	2.26	0.10
SFD	6.14	1.03	0.56	1.18	0.09
MH	-	-	-	-	-

1/Actual estimated weights of each material.

APPENDIX A

A useful statistic is the load that includes 0.95 or some other fractile level of the loads that may be expected if every house were surveyed. The usual procedure would be to fit a probability distribution function to the data and determine from the corresponding cumulative distribution function the 0.95 fractile loads. If the data were distributed according to the normal probability distribution the 0.95 fractile floor load would be given by (mean + 1.64 SD).

The current recommendation of the International Council for Building Research (CIB) and others [19,20] is to use the statistic (mean + 1.64 SD) as an approximation to the 0.95 fractile load. This approximation is strictly correct only for a normal distribution. Sentler's [5,13] residential load survey data on live loads were better approximated by a log normal distribution than by a normal distribution. A check was made to find the corresponding fractile points for a presumed log normal distribution for a range of average loads of from 5 to 20 lbs/sq. ft. and a range of coefficients of variations ranging from 0.5 to 2.0. For these data the fractile points in the log normal distribution were calculated for the load values corresponding to (mean + 1.64 SD). For the (mean + 1.64 SD) the corresponding fractile points, assuming a log normal distribution, ranged from 93.3% to 96.3%. Thus there is reasonable confidence for this engineering approximation to the .95 fractile load.

APPENDIX B -- INSTRUCTIONS AND SURVEY FORMS

INSTRUCTIONS TO SURVEYORS FOR FILLING OUT THE RESIDENTIAL LOADS SURVEY FORM

The form is based on the following sequence:

Initially list the house type and address of the occupant on the first page (G-1).
Questions 1 through 16 on the "HOUSE" form (G-2,3) list some characteristics of the house or mobile home.
On the "ROOM" form (R-1,2,3,4) questions 1 through 14 list specific room characteristics.
The balance of the forms list specific classes and items of loading that may be found in a particular room, together with descriptors that will enable the room loads to be estimated. These forms include tables, case goods, kitchen cabinets, beds, upholstered furniture, chairs, contents, appliances, plumbing and heating, miscellaneous and survey report.

On the first page of the survey form (G-1), the first 6 squares identify the house. This I.D. is repeated on the "HOUSE" form (G-2) and is called "HOUSE I.D.". The same 6 blocks plus blocks 7, 8, 9 and 10 from the "ROOM" form are repeated at the top of each load item form in a particular room.

The survey for a house will include response to questions 1 through 16. Note that a house is described as A - attached (town houses), D - detached/semi-detached, M - mobile home. "A - Attached" means all row or town houses including the end unit of a row house. "D - Detached" means all detached and semi-detached houses. Semi-detached are two houses that share a common party wall. "M - Mobile" means any mobile home. Question 16 will be filled in from county records after the house is surveyed.

In questions 1 and 2, blocks 7, 8, 9 and 10, 11, 12 respectively: the length of the house is the dimension from front to back of the house, the width of the house is the dimension parallel to the front of the house. For mobile homes the main entrance is on the front wall of the house. Note, by this definition the house may be wider than it is long.

Under question 3 "exterior finish" there are 2 blocks for the reply. If there is only one major exterior finish, put the appropriate number in block 13 and leave block 14 blank. If there are two exterior finishes match the more extensive in block 13 and the less extensive one in block 14.

On each floor of the house make a rough sketch to approximate scale showing the relationship of the rooms to each other. This sketch should not be a finished drawing as it will only be used to identify the house layout.

The method of numbering floors is to call the lowest accessible level of the house Floor 1 and to number the floors sequentially upwards. This method is also used for split level houses. The details are shown on the attached sketch.[1]

Each room of the house will have one "ROOM" form, one or more sets of the "WALLS" form, and as many of the subsequent load item forms that are necessary to list the items in a particular room. For example, the survey report for a room that doesn't contain any beds should not include the form for beds (form 04). Use as many forms as necessary to report all the loads of a particular class in each room. All numbers should be right-justified in the blocks and leading zeros filled in; for example, the number 2 is entered as 0 2 or 0 0 0 2.

Room Items

NOTE: The occupant may not want particular rooms surveyed. In this case, include the "ROOM" form but put "999" for the response to question 1 (columns 7, 8, 9) and leave the rest of the form blank.

Method of numbering rooms - The "Room Number" is tied in to "Room Type." For example, the first "Hallway" surveyed should be numbered "1," the second should be numbered "2," etc. Similarly for bedrooms, the first bedroom will be bedroom number 1, the second will be bedroom number 2, etc. It doesn't matter which room of a type is called room 1 or room 2, etc., but don't give two rooms the same number, or one room two numbers.

In question 2 "Room Size:" the room length, blocks 12 and 13, the length of the room is the dimension parallel to the length of the house; the room width, blocks 14 and 15, is the dimension parallel to the width of the house. Note, by this definition the width of a room may be greater than its length.

Question 7 numbering walls. When numbering a room, the wall parallel to and closest to the front of the house is numbered 1. The remaining walls are numbered clockwise 2, 3, 4. Maintain this sequence of numbering the walls for each room. Show these numbers on the room sketch.

[1] All sketches are at the back of this instruction sheet.

On question 10 a wall may be described as full, partial or open. A full wall is one that extends from floor to ceiling and may have doors and windows in it. A partial wall is an archway or a wall that extends only part way along the side of the room, other kinds of partial walls are called room dividers. An open wall means no wall, this condition exists in some room arrangements where the dining room and living room are adjoining or an L-shaped arrangement of adjoining rooms which generally will be classified as two rooms. In the case of an L-shaped room in which the "L" is an alcove use your judgment; either class it as two rooms, or include the material in the main portion of the room, or report the room dimension as slightly larger than actual so as to include the area of the "L" or alcove.

Question 12 "Wall Finish." Note that there are 2 squares for the response. If there is only one wall finish, or if the second wall finish is less than about 10% of the wall area, fill in the first block called "Major" and leave the second called "minor" blank. If there is more than one finish on the wall, indicate the more extensive one in the first block and the next one in the second block. Note that wall finish is the surface treatment. Do not confuse this with construction which is described in question 11.

Question 13 "Number of windows." If adjacent windows of the same size share a frame, they are to be shown as one window. If they are separated by at least 12 inches of wall, they are to be shown as two or more windows. The height of the window is the bottom to top dimension, the width is the horizontal dimension of the window, the height above the floor is the distance from the floor to the bottom of the window. These measurements are to be made inside the frame.

Individual windows in a wall should be listed beginning with window No. 1 and continuing to window No. 3 as necessary. If two or more windows in the wall are similar the description should be listed under window No. 1 only. The number of similar windows that have been described under window No. 1 is placed in block 31. Note that block 31 is used only if window No. 1 describes several similar windows. Block 31 is <u>not</u> the total number of windows unless all windows are similar and described under window No. 1.

In the case where there are more than three different window sizes in one wall, group the windows that are closest in size under window No. 1 using average dimensions. Note that the space for window No. 1 may describe one or more windows but the spaces for windows No. 2 and No. 3 may only describe one window each. In no case should more than one form be used per room.

Question 14 "Doors." List as a door any door opening whether or not there is a door in the space provided for it in the wall. Indicate whether the door is hollow, solid or panelled. A hollow door will sound hollow when it is rapped lightly with your knuckles. See attached sketch showing door types. A sliding glass door is considered a "solid" type with material of "glass." Similar doors should be handled in the same manner as similar windows with block 56 used only if more than one similar door is described under door No. 1.

Form W1 Walls

This form is a continuation of the "Room" form. It is divided into two parts, A and B. Part A deals with the closet size and locations. Part B deals with the wall ornamentation such as mirrors, pictures, paintings, drapes, etc. Unlike the room form where the order of the walls is fixed on the form, any of the four columns on the form may refer to the same wall.

On some wall forms blocks 12 and 13 may be blank. If this is the case place a "W" in block 12 and "1" in block 13.

Load Items

A live load item is any object that is not part of the permanent structure. For each load item in a particular room the first group of questions that precede "item identifier" are the same on each form and must correspond to the first 10 blocks on the "Rooms" form for that particular room. This identifies the room and house where the item is located.

Item I.D., blocks 11 and 12, will be printed on the form. Each load item form has three columns for listing up to three distinct load items of the same type in the same room. At the end of the form is a question "Number of identical units this sector." If there is only one item in a particular sector put a "1" in this block, if there are more than one identical items in a particular sector, put the number of such items in the block.

There is one set of questions for each load item classification. The first question is class type. If the class type does not exactly describe the item, either indicate the closest class type or indicate "other" and write in your descriptor.

Weight Class: Use your judgment to determine if the furniture is light, medium, or heavy. Expensive furniture is usually heavier than lower priced

furniture. Though this requires a subjective opinion, some trials have shown that most people can estimate this fairly closely with some practice. Attached are photo copies of some furniture items in each weight class.

The subsequent entries describe the size, material and location of the item. On forms for tables, case goods, kitchen cabinets and built-ins, upholstered furniture, chairs and appliances there appears a "Material List." The numbers in this "Material List" apply to the next questions about materials that are on different parts of the load item. Please note that for "other" materials, write in the descriptor in the indicated places.

Proximity to wall. For the purposes of the survey the room is divided into 5 sectors. The first 4 sectors are the areas that include the wall and 24 inches in front of the wall; the 5th sector is the middle of the room, that is, everything more than 24 inches from the walls. For materials that extend into corners, include this with the wall. Each wall sector is separated into two parts: 0-6, "and 7" to 24. This is to locate those items that are actually against the wall. The proximity to the wall is the distance from the wall to the closest side or edge of the load item. See attached sketch.

Percent within 24 inches of wall. Large pieces of furniture such as beds, sofas, tables, etc. may be partly in the wall sector and partly in the middle sector of a room. The question will allow the loads to be separated by sector.

For beds the following table of percentages within 24 inches of the wall may be used where one or top sides are directly against a wall. For beds that are not within a few inches of the wall the percentage should be calculated for the particular configuration.

	Head Board Only Against the Wall	Side of Bed Only Against the Wall	Head Board and Side Against the Wall (Bed in a corner)
Twin 39" x 75"	25%	50%	75%
Full 54" x 75"	25%	50%	50%
Queen 60" x 80"	25%	25%	50%
King 78" x 80"	25%	25%	50%

Furniture Location. This identifies the part of the room the item is located. If any part of an item is within 24 inches of a wall, indicate the wall number. If an item is completely within the middle sector, indicate "5."

Number of identical units within this sector. Appears at the end of each group of questions that describe a load item. Its purpose is to reduce the amount of work to fill out the form. To use this simply put in the number of identical units that are in the same room sector. For example, if there are 2 identical tables against the same wall, mark 2 in this space; if only 1, mark 1.

Form 01 Tables

In question 1. Class Type "Pool." There are 2 types of pool tables, calibrated and regular. Calibrated pool tables have a slate top under the felt. Calibrated pool tables are to be marked "heavy"; regular pool tables are to be marked "medium." If you see a pool table, either ask the occupant if it is calibrated or knock on the surface.

Enclosed cocktail tables should be listed on form 02 "case goods" as chests and desks.

Form 02 Case Goods

Case goods is a general trade term to describe any piece of furniture that resembles a case or box. This includes buffets, cabinets, pianos, bureaus, dressers, bars, wardrobes, etc. Trunks and boxes should be listed on form 10 "miscellaneous." In question 1, Class Type, a "room divider" may be a fixed or movable item. This may also be partial wall that extends from the floor upwards for a height of only a few feet and may be topped by a wood, plastic, or screen. If the room divider serves the function of wall, mark it as a wall in question 19 through 33. If it has shelving for books, papers, bric-a-brac, etc., mark it as case goods.

Under questions 2, 3, and 4, the dimensions of the case good item include the overall size of the storage part, and should not include the space occupied by the legs or mirror. The remaining questions are similar to those on the previous form. Shelving comes in two main styles. The first is essentially a piece of case goods without a front. The second is a set of individual shelves that are hung from poles, a wall, or from a room divider. In the first case give the overall dimensions. In the second case give the dimensions of one shelf and mark the number of shelves in question 12 "number of identical units this sector."

Under question 5-weight class grand pianos are "heavy"; all other pianos are "medium." Organs and electric pianos should be placed on Form-10 "Miscellaneous."

Form 03 Kitchen Cabinets and Built-ins

This item includes all beds except daybeds, hide-a-beds and trundle beds which are included with upholstered furniture. Occasionally you may come across an old fashioned trundle bed which is a slightly elevated double or single bed which also had a trundle bed of almost the same size; in this case report this as two beds but only report one headboard and footboard. If there is no headboard skip the questions on weight class and material of the headboard and footboard.

Form 05 Upholstered Furniture

This classification includes most living room type furniture and benches. Individual chairs that are lightly cushioned or padded, such as most dining room chairs, should be listed with "Load item 06 Chairs." If they are heavily cushioned or padded on form 05. In each case the length is the

outside length of the chair, the width is the outside distance front to back and the height is the distance of the top of the back of the chair above the floor. Hide-a-beds and recliners are classed as heavy, wicker and light metal frames are classed as light, all other upholstered furniture are classed as medium.

Form 06 Chairs

This category includes plain and padded chairs but excludes upholstered chairs, footstools, ottomans, and bean bag chairs which are included in "Form 05 Upholstered Furniture."

Form 07 Contents of Drawer, Shelf, Cabinet or Closet

This form is designed to list a wide variety of drawer, cabinet, shelf, and closet contents and miscellaneous clutter. For reporting the miscellaneous clutter may be grouped into several piles: one pile for each material in each of the room sectors. Use as many of these forms as are necessary to list the contents. For closed drawers, cabinets, and closets ask the resident what the contents are, and indicate on the form whether or not you have actually been able to examine the contents or have taken the data from the resident. Under question 6-Weight class loose papers are "light," paperback books and board papers are "medium" and hardback books are "heavy." Also under question 6-Weight Class pistols are "light" and rifles and shotguns are "medium." For other types of guns give the estimated weight in "remarks." Under question 7-Height the actual height of the pile should be used and not the size of the container.

For degree of compaction, 100% indicates filled or pressed tight, while 25% indicates a loose, or scattered pile.

Form 08 Appliances

For countertop ranges; the class type is "1 - stoves and ranges," the style is "2 - built-in," the length and width will be the countertop dimensions and the height will be between 3 and 10 inches. Under questions 3 "Built-in but also free standing" this refers to appliances such as cabinets, ranges that may be built-in or free standing. Fish tanks are included with this form.

Under question 1 "class type" for televisions use the following numbers

05 - black and white (portable)
25 - color (portable)
35 - console TV (all)

Under questions 3 and 4 give length and width of all appliances. Under question 5 "height" give height in inches for all appliances except those listed below. For the following appliances give the capacity as indicated instead of height. Note that height should be given for console TV's and screen size for portable TV's.

Refrigerator/Freezer - capacity in cu. ft.
Portable TV - screen size (diagonal measure) in.
Air conditioner - rating (Btu)
Dehumidifiers/Humidifiers - capacity in pints

Form 09 Plumbing, Heating and Related Items

This form includes sinks, bathroom fittings, furnaces, water heaters and purifiers, water pumps, etc. The form does not distinguish directly between gas, oil or coal furnaces, but note under "materials" gas furnaces will generally be made of sheet metal while other furnaces may be made of either steel or cast iron. In remarks, for items identifiers 5 through 8 (furnaces to water pumps) give the brand name, model and rating or capacity of the item.

Form 10 Miscellaneous

This form is for anything that cannot be included under any of the other load specifications. For this survey indicate the name, type, size, material, etc. of the item. Be clear and brief. Your answers will be used to redesign this load form. For a group of similar items, such as toys, give the total weight.

Under question 2 "material" construct a block and number it 58. Put a "1" in block 58 if the object is resting on the floor or a "2" if the object is resting on top of another object which is being listed separately. Blocks 45 to 57 should be left blank.

Survey Report

After the survey is finished, fill out the Survey Report. The question "Would the resident allow one more survey team to visit their house," should only be asked after the survey has been completed.

Things to Watch Out for in Filling Out the Forms

1. Number outside walls on all floor plans.
2. Number rooms on floor plan corresponding to the room numbers on the forms.
3. Check that there is a set of forms for each room.
4. Check for partial wall correlation between adjacent rooms.
5. Check for door correlation between adjacent rooms.
6. Check wall numbering and the instructions for reporting doors and windows.
7. Check for closet doors.
8. Check for the existence of a contents form for each closet, desk, dresser, shelf, etc.
9. Check all dimensions for obvious errors.
10. Check that the item is specified when the category "other" is used.
11. Check that all necessary blocks are completed.
12. For shelves, drapes or other items on the walls form that are greater than 99 inches in length divide the length of the item in half (or as many pieces as necessary) and show two (or more) identical units.
13. Sliding glass doors are solid doors made of glass.

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Figure B-1 SURVEY FORM SINGLE FAMILY HOUSING

House Type_____ 1

A - Attached (townhouse)
D - Detached (semi-detached)
M - Mobile

State_____ 2

Form Number_____ 4 6

Address_____ Street Number 7 12

13 Street Name 34

35 City 50

State 51 Zip Code 53 57

HOUSE

House I.D. 1 6

1 Overall Length of House (feet)_____ 7 9

2 Overall Width of House (feet)_____ 10 12

3 Exterior Finish_____ 13
1 - Brick/Block/Stone
2 - Wood Siding
3 - Aluminum Siding
4 - Glass Block
5 - Vinyl Siding
6 - Other_____

4 Roof Style_____ 15
1 - Flat
2 - Pitched

5 Roof Material_____ 16
1 - Asphalt Shingles
2 - Tile or Slate Shingles
3 - Wood Shingles
4 - Other

6 House Shape_____ 17
1 - Rectangular
2 - Square
3 - L-Shape
4 - T-Shape
5 - H-Shape
6 - U-Shape
7 - Encloaed Court
8 - Round or Polygon
9 - Other_____

7 Structure Originally Built_____ 18
1 - 1970 to 1975 (leave blank if resident does not know)
2 - 1965 to 1969
3 - 1960 to 1964
4 - 1950 to 1959
5 - 1940 to 1949
6 - 1939 or earlier

Figure B-1 (cont)

8 Number of Years Occupied by Present Family _____ [ ][ ] 19

9 Number of Occupants _____ [ ][ ] 21
(Include Children & Infants)

10 Number of stories (floors) _____ [ ][ ] 23

11 Number of rooms _____ [ ][ ] 25

12 Number of Bathrooms/Powder Rooms _____ [ ] 27

13 Garage _____ [ ] 28
1 - Attached/built-in
2 - Detached
3 - None

14 Basement _____ [ ] 29
1 - Finished
2 - Semi-finished
3 - Unfinished
4 - None

15 Attic _____ [ ] 30
1 - Accessible unfinished
2 - Accessible finished/semi-finished
3 - Not Accessible
4 - None

FOR OFFICE USE ONLY

16 What is present assessed house value? _____ [ ][ ][ ][ ][ ][ ] 31 36

Figure B-2 ROOMS

House I.D. _____ (1–6)

1 Room Type _____ (7)

01 - Hallway/Foyer
02 - Bathroom/Powder
03 - Kitchen
04 - Dining
05 - Living
06 - Family/Recreation
07 - Study or Office
08 - Bedroom
09 - Basement
10 - Garage
11 - Utility/Laundry/Workshop
12 - Attic
13 - Storage
14 - Other_____

Room Number _____ (9)

Room Floor Number _____ (10)

2 Room Size - Length (feet) _____ (12)

Width (feet) _____ (14)

Height (feet) _____ (16)

Sketch of Room

3 Floor Finish _____ (18)
1 - Wood
2 - Asphalt/rubber/vinyl tile
3 - Ceramic tile/slate/stone/concrete/brick
4 - Carpet/rugs
5 - Other_____

4 Percent of floor covered by finish _____ (19)
1 - 25%
2 - 50%
3 - 75%
4 - 100%

5 Trim _____ (20)
1 - Wood
2 - Metal
3 - Plastic/Rubber
4 - Other_____

6 Ceiling Finish _____ (21)
1 - Gypsum board
2 - Paint
3 - Paper/cloth
4 - Plaster/concrete
5 - Wood
6 - Plastic/acoustic tile
7 - Other_____

*Keypunch, see note at bottom of page

7 Wall Number _____ (22, 22, 22, 22)

8 Wall Length (feet) _____ (23, 23, 23, 23)

9 Wall Height (feet) _____ (25, 25, 25, 25)

10 Wall Type _____ (27, 27, 27, 27)
1 - Full
2 - Partial
3 - Open

11 Wall Construction _____ (28, 28, 28, 28)
1 - Gypsumboard
2 - Plaster
3 - Wood/plywood/hardboard
4 - Plastic
5 - Fiberboard/paperboard
6 - Masonry/brick/block
7 - Metal
8 - Other_____

12 Wall finish
1 - None
2 - Paint
3 - Paper
4 - Cloth
5 - Plastic
6 - Metal
7 - Other_____

Major (29, 29, 29, 29)

Minor (30, 30, 30, 30)

*Keypunch note: Put cols 1 through 21 on each wall card; make 1 card for each wall.

Figure B-2 (cont)

Number of Windows 31 31 31 31

Window No. 1

Height (in.) 32 34 32 34 32 34 32 34

Width (in.) 35 37 35 37 35 37 35 37

Height Above Floor (in.) 38 38 38 38

Window No. 2

Height (in.) 40 42 40 42 40 42 40 42

Width (in.) 43 45 43 45 43 46 43 45

Height Above Floor (in.) 46 46 46 46

Window No. 3

Height (in.) 48 50 48 50 48 50 48 50

Width (in.) 51 53 51 53 51 53 51 53

Height Above Floor (in.) 54 54 54 54

Number of Doors 56 56 56 56

Door No. 1

Width (in.) 57 57 57 57

Height (in.) 59 61 59 61 59 61 59 61

Door Type 62 62 62 62
1 - Solid
2 - Paneled
3 - Hollow
4 - Louvered
5 - Other_____

Door Material 63 63 63 63
1 - Wood
2 - Metal
3 - Glass
4 - Other_____

Door No. 2

Width (in.) 64 64 64 64

Height (in.) 66 68 66 68 66 68 66 68

Door Type 69 69 69 69
1 - Solid
2 - Paneled
3 - Hollow
4 - Louvered
5 - Other_____

Door Material 70 70 70 70
1 - Wood
2 - Metal
3 - Glass
4 - Other_____

Door No. 3

Width (in.) 71 71 71 71

Height (in.) 73 75 73 75 73 75 73 75

Door Type 76 76 76 76
1 - Solid
2 - Paneled
3 - Hollow
4 - Louvered
5 - Other_____

Door Material 77 77 77 77
1 - Wood
2 - Metal
3 - Glass
4 - Other_____

REMARKS_____

_____

Figure B-3 WALLS

Room Identifier_____ 1 6 7 13

Part A - Closets (built-in)

Wall No._____ 14 15 16 17

Closet

Length (ft.)_____ 18 20 22 24

Width (ft.)_____ 26 28 30 32

Height (ft.)_____ 34 35 36 37

Part B - Wall Hangings

Wall No._____ 38 39 40 41

1 Claas Type_____ 42 43 44 45
- 1 - Pictures
- 2 - Mirrors
- 3 - Mirror tiles
- 4 - Curtains
- 5 - Drapes
- 6 - Notice board
- 7 - Plaques
- 8 - Shelves
- 9 - Brackets (for plants)
- A - Lights/lamp
- B - Clocks
- C - Rugs (decorative)
- D - Fireplace
- E - Other_____

2 Material_____ 46 47 48 49
- 1 - Oil painted canvas
- 2 - Paper
- 3 - Photographic paper
- 4 - Fabric
- 5 - Plastic
- 6 - Glass/wood/ceramic
- 7 - Other_____

3 Size

Length (in.)_____ 50 52 54 56

Height (in.)_____ 58 60 62 64

Height above floor (in.)_____ 66 68 70 72

4 No. of identical items thia wall_____ 74 75 76 77

REMARKS_____

USCOMM-NBS-DC

Figure B-4 TABLES

Room Identifier ☐☐☐☐☐☐ ☐☐☐☐☐☐☐ (1 … 6, 7 … 13; 0 1)

1 Class Type ____ (14, 16, 18)
1 - Plain/Dining/Kitchen
2 - Serving Cart
3 - Cocktail
4 - End
5 - Commode/Night Stand
6 - Pool (calibrated)
7 - Other_____

2 Length or Diameter (in.) ____ (20, 22, 23, 25, 26, 28)

3 Width (in.) ____ (29, 31, 33)
(Leave Blank if Round)

4 Height (in.) ____ (35, 37, 39)

5 Weight Class ____ (41, 42, 43)
1 - Light
2 - Medium
3 - Heavy

Material List
1 - Wood/Plywood/Particle Board
2 - Plastic
3 - Metal
4 - Glass/Ceramic
5 - Stone
6 - Other_____

6 Material Top ____ (44, 45, 46)
Other_____

7 Material Legs ____ (47, 48, 49)
Other_____

8 Proximity to Wall ____ (50, 51, 52)
1 - 0 to 6"
2 - 7 to 24"
3 - More than 24"

9 Percent Within 24" of Wall ____ (53, 54, 55)
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

10 Furniture Location ____ (56, 57, 58)
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

11 Number of Identical in this Sector ____ (59, 60, 61)

12 Is this item on the floor? ____ (62, 63, 64)
1 - Yes
2 - No

REMARKS_____

Figure B-5 CASE GOODS

Room Identifier (1–6, 7–13; 0 2)

1 Class Type (14, 16, 18)
- 1 - Buffet/Counter/Dry Sink
- 2 - Hutch
- 3 - Bar
- 4 - China Cabinet/Novelty Cabinet
- 5 - Chest/Dresser/Bureau/Desk
- 6 - Room Divider
- 7 - Bookcase
- 8 - Piano
- 9 - Shelving
- 10 - Wardrobe
- 11 - Other_____

2 Length or Diameter (in.) (20, 22, 23, 25, 26, 28)

3 Width (in.) (31, 33)
Leave Blank if Round

4 Height (in.) (35, 37, 39)

5 Weight Class (41, 42, 43)
- 1 - Light
- 2 - Medium
- 3 - Heavy

Material List
- 1 - Wood/Plywood/Particle Board
- 2 - Plastic
- 3 - Metal
- 4 - Glass/ceramic
- 5 - Stone
- 6 - Other_____

6 Material Top (44, 45, 46)
Other_____

7 Material Sides and Front (47, 48, 49)
Other_____

8 Material Shelves (50, 51, 52)
Other_____

9 Proximity to Wall (53, 54, 55)
- 1 - 0 to 6"
- 2 - 7 to 24"
- 3 - More than 24"

10 Percent within 24" of wall (56, 57, 58)
- 0 - 0%
- 1 - 25%
- 2 - 50%
- 3 - 75%
- 4 - 100%

11 Furniture Location (59, 60, 61)
- 1 - Wall 1
- 2 - Wall 2
- 3 - Wall 3
- 4 - Wall 4
- 5 - Middle Sector

12 Number of Identical Units in this Sector (62, 63, 64)

13 Is this item on the floor (65, 66, 67)
- 1 - Yes
- 2 - No

REMARKS_____

Figure B-6 BEDS

Room Identifier [1 2 3 4 5 6] [7 8 9 10 11 0 4] (1–6, 7–13)

1 Class Type [14 16 18]
1 - Standard
2 - Waterbed
3 - Storage Bed
4 - Cot/Rollaway
5 - Other_____

2 Bed Size [20 21 22]
1 - King
2 - Queen
3 - Double
4 - Twin/Single/Bunk
5 - Crib
6 - Other_____

3 Headboard [23 24 25]
1 - None
2 - Solid Construction
3 - Open Construction
4 - Bookcase
5 - Other_____

4 Material in Headboard [26 27 28]
1 - Wood/Plywood/Particle Board
2 - Plasticized Wood
3 - Plastic
4 - Metal
5 - Rattan/Bamboo
6 - Other_____

5 Weight Class of Headboard [29 30 31]
1 - Light
2 - Medium
3 - Heavy

6 Footboard [32 33 34]
1 - No
2 - Yes

7 Proximity to Wall [35 36 37]
1 - 0 to 6"
2 - 7 to 24"
3 - More than 24"

8 Percent within 24" of Wall [38 39 40]
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

9 Furniture Location [41 42 43]
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

10 Number of Identical Units in this Sector [44 45 46]

11 Is this item on the floor? [47 48 49]
1 - Yes
2 - No

REMARKS_____

Figure B-7 UPHOLSTERED FURNITURE

Room Identifier [1 2 3 4 5 6] [7 8 9 10 11 12 13] = 0 5

1 Class Type [14 15] [16 17] [18 19]
- 1 - Upholstered Chair
- 2 - Recliner
- 3 - Rocker/Swivel/Platform
- 4 - Sofa
- 5 - Hide-a-bed
- 6 - Day Bed
- 7 - Trundle Bed
- 8 - Ottoman/Footstool
- 9 - Bean Bag
- 10 - Other

2 Length or Diameter (in.) [20 21] [22] [23 24] [25] [26 27] [28]

3 Width (in.) [29 30] [31 32] [33]
(Leave Blank if Round)

4 Height (in.) [35 36] [37 38] [39]

5 Weight Class [41] [42] [43]
- 1 - Light
- 2 - Medium
- 3 - Heavy

Material List
- 0 - None
- 1 - Wood
- 2 - Metal
- 3 - Plastic
- 4 - Fabric
- 5 - Leather/Synthetic leather
- 6 - Wicker/Bamboo
- 7 - Other

6 Material Arms [44] [45] [46]
Other

7 Material Legs [47] [48] [49]
Other

8 Material Back [50] [51] [52]
Other

9 Material Seat or Cushions [53] [54] [55]
Other

10 Proximity to Wall [56] [57] [58]
- 1 - 0 to 6"
- 2 - 7 to 24"
- 3 - More than 24"

11 Percent Within 24" of Wall [59] [60] [61]
- 0 - 0%
- 1 - 25%
- 2 - 50%
- 3 - 75%
- 4 - 100%

12 Furniture Location [62] [63] [64]
- 1 - Wall 1
- 2 - Wall 2
- 3 - Wall 3
- 4 - Wall 4
- 5 - Middle Sector

13 Number of Identical Units in this Sector [65] [66] [67]

14 Is this item on the floor? [68] [69] [70]
- 1 - Yes
- 2 - No

REMARKS

Figure B-8 CHAIRS (PLAIN)

Room Identifier 1 6 7 13 — 0 6

1 Class Type 14 16 18
- 1 - Kitchen
- 2 - Dining Room
- 3 - Office Chair
- 4 - Rocker/Swivel
- 5 - Stool
- 6 - Folding
- 7 - Other

2 Weight Class 20 21 22
- 1 - Light
- 2 - Medium
- 3 - Heavy

Material List
1 - Wood
2 - Metal
3 - Plastic
4 - Fabric
5 - Leather/Synthetic Leather
6 - Wicker/Bamboo
7 - Other

3 Material Seat 23 24 25
Other

4 Material Legs 26 27 28
Other

5 Material Back 29 30 31
Other

6 Proximity to Wall 32 33 34
- 1 - 0 to 6"
- 2 - 7 to 24"
- 3 - More than 24"

7 Percent within 24" of wall 35 36 37
- 0 - 0%
- 1 - 25%
- 2 - 50%
- 3 - 75%
- 4 - 100%

8 Furniture Location 38 39 40
- 1 - Wall 1
- 2 - Wall 2
- 3 - Wall 3
- 4 - Wall 4
- 5 - Middle Sector

9 Number of Identical Units in this Sector 41 42 43

10 Is this item on the floor? 44 45 46
- 1 - Yes
- 2 - No

REMARKS

Figure B-9 KITCHEN CABINETS AND BUILT-INS

Room Identifier [1–6] [7–13] 0 3

1 Class Type [14] [16] [18]
1 - Upper Cabinet
2 - Lower Cabinet
3 - Floor to Ceiling Unit

2 Length or Diameter (in.) [20 22] [23 25] [26 28]

3 Depth (in.) [29] [31] [33]
(Leave Blank if Round)

4 Height (in.) [35] [37] [39]

5 Weight Class [41] [42] [43]
1 - Light
2 - Medium
3 - Heavy

Material List
1 - Wood/Plywood/Particle Board
2 - Plastic
3 - Metal
4 - Glass/ceramic
5 - Stone
6 - Other_____

6 Material Top [44] [45] [46]
Other_____

7 Material Sides and Front [47] [48] [49]
Other_____

8 Material Shelves [50] [51] [52]
Other_____

9 Proximity to Wall [53] [54] [55]
1 - 0 to 6"
2 - 7 to 24"
3 - More than 24"

10 Percent within 24" of Wall [56] [57] [58]
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

11 Furniture Location [59] [60] [61]
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

12 Number of Identical Units in this Sector [62] [63] [64]

13 Is this item on the floor? [65] [66] [67]
1 - Yes
2 - No

REMARKS_____

Figure B-10 DRAWER, SHELF, CABINET OR CLOSET CONTENTS

Room Identifier [1–6] [7–13: 0 7]

1 Have Contents been examined [14–16]
Y - Yes
N - No

2 Type of Storage [17–19]
1 - Drawer
2 - Shelf
3 - Cabinet
4 - Closet
5 - Boxes/crates
6 - Other_____

3 Class Type [20–24]

1 - Papers/Books
2 - Photographs/Film/Slides
3 - Phonograph Records
4 - Cassette/Magnetic Tapes
5 - Dishes/Trays
6 - Glassware/Stemware
7 - Cookingware/pots/pans
8 - Cutlery/Flatware/Silverware
9 - Cans/Jars/Foodstuffs
10 - Dry Packaged Foods
11 - Small Appliances
12 - Clothing
13 - Blankets
14 - Sheets/Linens
15 - Towels
16 - Guns/Pistols Etc.
17 - Paints/Paint Removers
18 - Chemicals/Petroleum Products
19 - Other_____

If the Contents are Clothing Answer this Question, Otherwise Go to 5

4 Sub Class for Clothing Only [26–30]
1 - Coats/Outerwear
2 - Suits/Jackets
3 - Dresses
4 - Lingerie/Underwear/Nightwear/Stockings/Socks
5 - Shirts/Blouses
6 - Sweaters
7 - Other_____

5 Material [32–36]

1 - Paper
2 - Plastic
3 - Wood
4 - China
5 - Glass
6 - Metal
7 - Foodstuffs
8 - Fur
9 - Textiles
10 - Other_____

6 Weight Class [38–40]
1 - Light
2 - Medium
3 - Heavy

7 Size of Drawer, Shelf, or Storage

Length (in.) [41–45]

Width (in.) [47–51]

Height (in.) [53–57]

8 Degree of Compaction [59–61]
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

9 Proximity to Wall [62–64]
1 - 0 to 6"
2 - 7 to 24"
3 - More than 24"

10 Percent Within 24" of Wall [65–67]
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

11 Wall Location [68–70]
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

12 Number of Identical Units In this Sector [71–73]

13 Is this item on the floor? [74–76]
1 - Yes
2 - No

REMARKS_____

Figure B-11

APPLIANCES

Room Identifier [1–6] [7–13] 0 8

1 Claas Type [14] [16] [18]

01 - Stoves/Ranges
02 - Countertop ranges
03 - Ovens/Wall Oven
04 - Refrigerator
05 - TV
06 - Stereo
07 - Air Conditioner
08 - Dehumidifier/Humidifiera
09 - Sewing Machines
10 - Waaher
11 - Dryer
12 - Dishwasher
13 - Compactor
14 - Fish tank
15 - Other_____

2 Style [20] [21] [22]
1 - Free Standing
2 - Built-in
3 - Built-in but also free standing
4 - Other_____

3 Length (in.) [23] [25] [27]

4 Width (in.) [29] [31] [33]

5 Height (in.) [35] [37] [39]

6 Weight Clasa [41] [42] [43]
1 - Light
2 - Medium
3 - Heavy

Materials List
1 - Metal/Enamel
2 - Plastic
3 - Wood
4 - Water
5 - Other

7 Material Top [44] [45] [46]
Other_____

8 Material Sides [47] [48] [49]
Other_____

9 Material Front [50] [51] [52]
Other_____

10 Material Back [53] [54] [55]
Other_____

11 Proximity to Wall [56] [57] [58]
1 - 0 to 6"
2 - 7 to 24"
3 - More than 24"

12 Percent Within 24" of Wall [59] [60] [61]
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

13 Furniture Location [62] [63] [64]
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

14 Number of Identical Units in this Sector [65] [66] [67]

15 Ia this item on the floor? [68] [69] [70]
1 - Yea
2 - No

REMARKS_____

Figure B-12 PLUMBING & HEATING

Room Identifier ☐☐☐☐☐☐ ☐☐☐☐☐0 9 (1–6, 7–13)

1 Class Type ☐☐ (16–18)
1 - Sinks (with or without disposal)
2 - Bath tubs
3 - Toilets
4 - Laundry tubs
5 - Furnace
6 - Water Heater
7 - Water Purifier
8 - Water Pump
9 - Other

2 Length (in.) ☐☐ (20–24)

3 Width (in.) ☐☐ (26–30)

4 Height (in.) ☐☐ (32–36)

5 Weight Class ☐ (38–40)
1 - Light
2 - Medium
3 - Heavy

6 Material ☐ (42–43)
1 - Porcelain/stainless/sheet metal
2 - Fiberglass
3 - Steel-Iron
4 - Plastic
5 - Other_____

7 Proximity to Wall ☐ (44–46)
1 - 0 to 6"
2 - 7 to 24"
3 - More than 24"

8 Percent Within 24" of Wall ☐ (47–49)
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

9 Wall Location ☐ (50–52)
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

10 Number of Identical Units in this Sector ☐ (53–55)

11 Is this item on the floor? ☐ (56–58)
1 - Yes
2 - No

REMARKS_____

Figure B-13 MISCELLANEOUS

1 Room Identifier [1 6] [7 13] 1 0

2 Description: Name [14 28]

Use [29 43]

Material [44 58]

3 Size

Length (in.) [59]

Width (in.) [61]

Height (in.) [63]

4 Estimated Weight (lbs.) [65 68]

5 Proximity to wall [69]
1 - 0 to 6"
2 - 7 to 24"
3 - More than 24"

6 Percent within 24" of wall [70]
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

7 Location [71]
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

REMARKS

Figure B-14 SURVEY REPORT

1 House I.D. _____ [ ][ ][ ][ ][ ][ ] (1–6)

2 Date (Month, Day, Year) _____ [ ][ ] [ ][ ] [ ][ ] (7–9–11)

3 Starting Time Hour _____ [ ][ ] (13)

Minute _____ [ ][ ] (15)

A-AM
P-PM _____ [ ] (17)

5 Number of Rooms _____ [ ][ ] (18)

6 Average Time Per Room (minutes) _____ [ ][ ] (20)

7 Would the Resident Allow One More Survey Team to Visit Their House for a Similar Survey? _____ [ ] (22)

Y - Yes
N - No

8 Survey Team (Print) Last Name, First Initial, Middle Initial

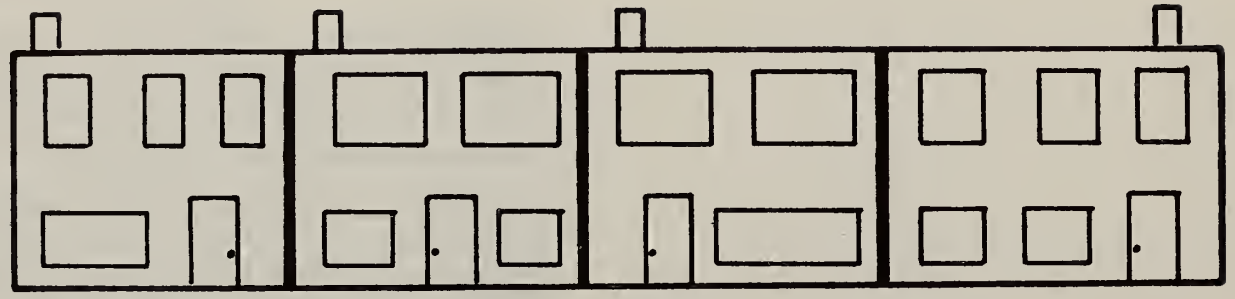
First Name _____ [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] (24–41)

Second Name _____ [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] (42–59)

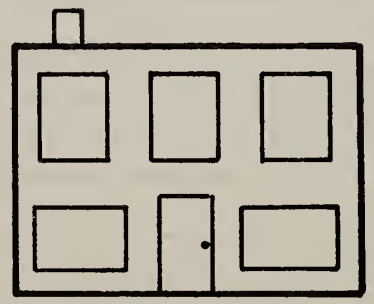
REMARKS _____

_____

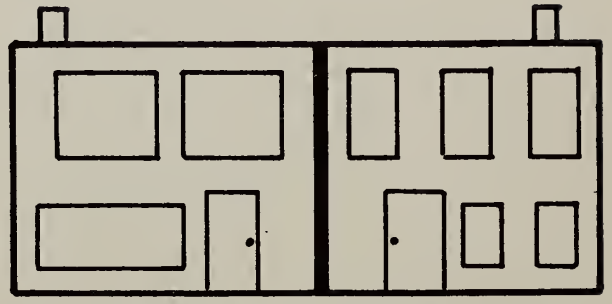
_____



ROW HOUSES



DETACHED HOUSE



SEMI-DETACHED HOUSE

Figure B-15 HOUSE TYPES

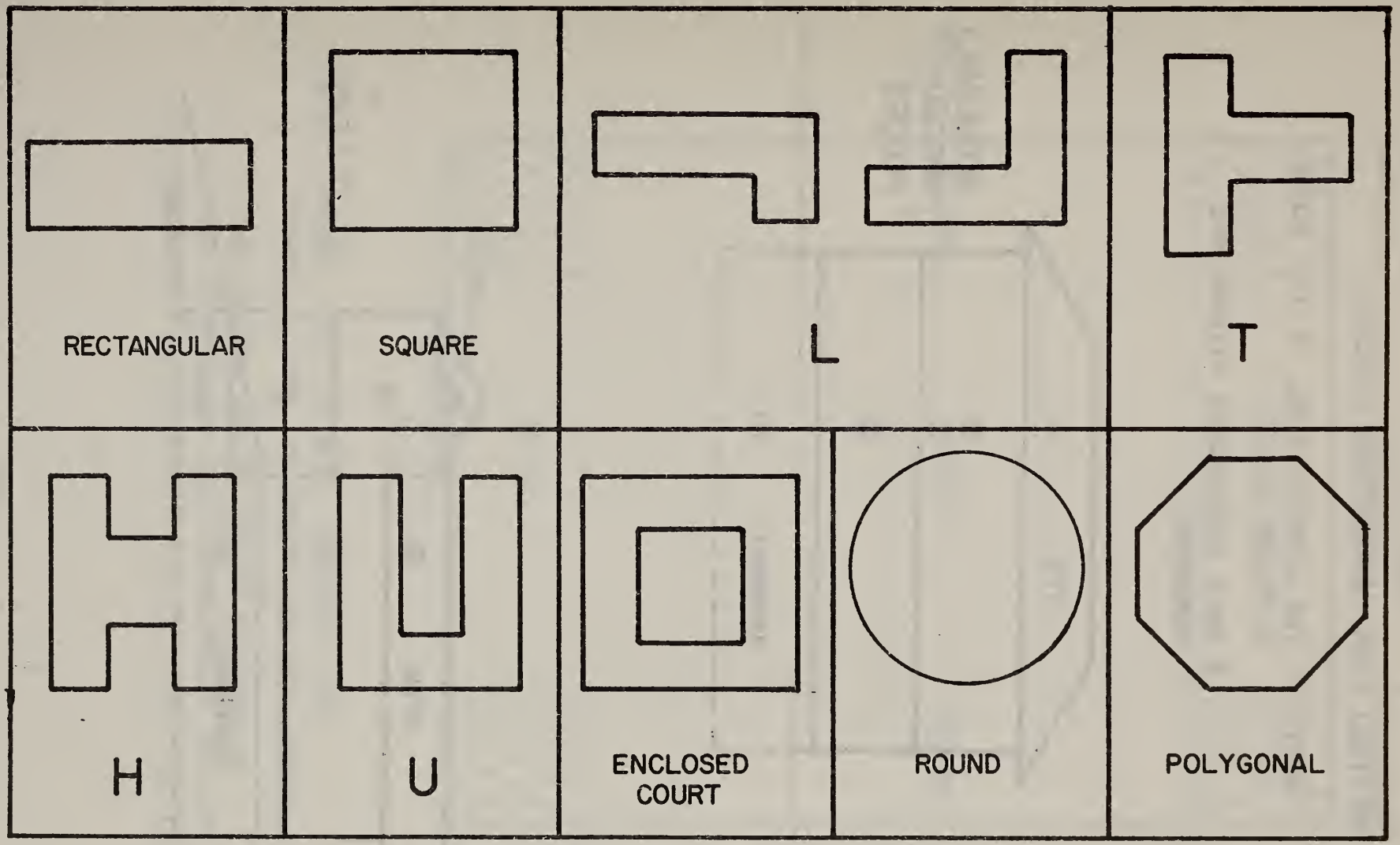


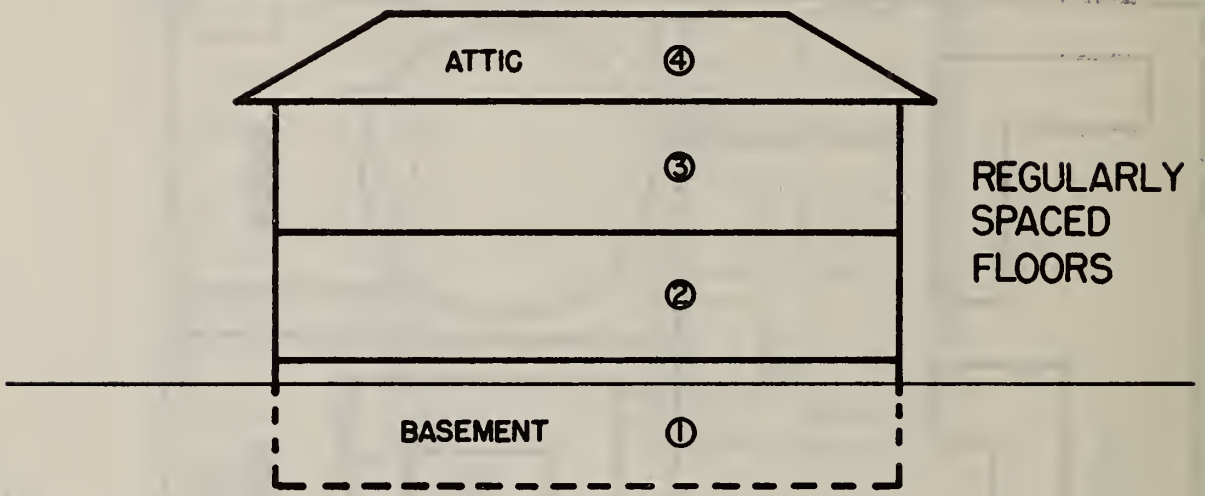
Figure B-16 HOUSE SHAPES

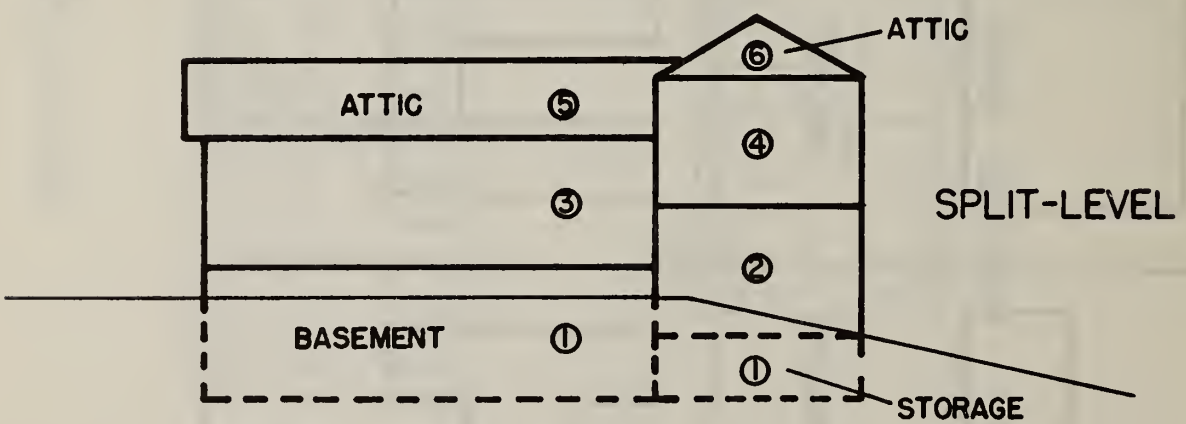
Figure B-17

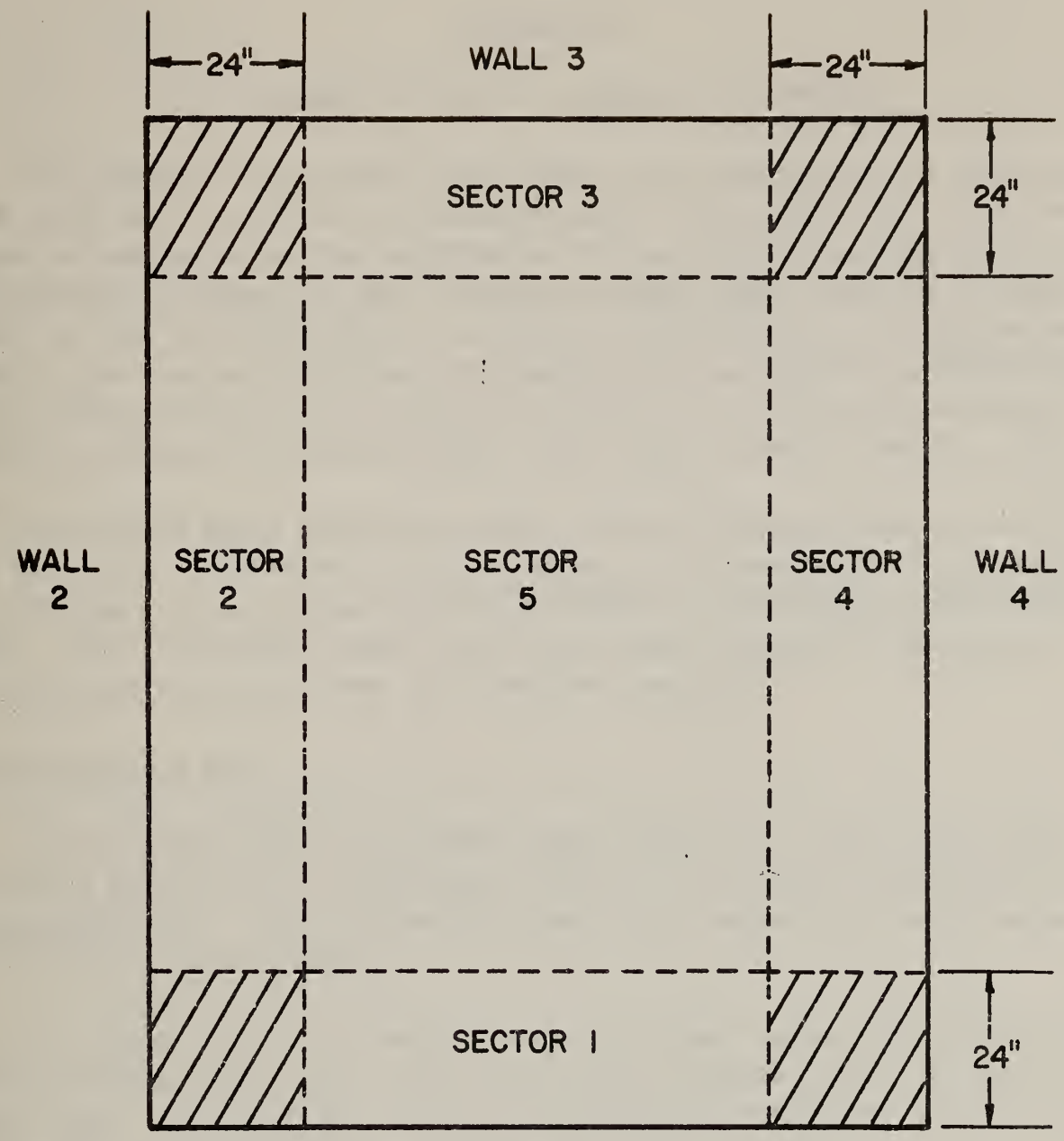
METHOD FOR NUMBERING FLOORS

NOTES: 1. THE LOWEST LEVEL OF THE HOUSE IS FLOOR 1.

2. ONLY ACCESSABLE FLOORS ARE NUMBERED.







WALL 1 IS THE WALL CLOSEST AND PARALLEL TO THE FRONT OF THE HOUSE.

THE SHADED AREAS CAN BE INCLUDED IN ANY CONVENIENT AND APPROPRIATE SECTOR

METHOD OF NUMBERING WALLS AND SECTORS

Figure B-18

APPENDIX C

Example of Use of Transfer Functions

The procedure for reducing the survey form descriptions to equivalent live loads and fire loads is straightforward. The partial live and fire loads corresponding to the descriptions for each finishing item are first calculated and summed for the individual items. Next, the live and fire loads for the individual items are applied to the appropriate room sector. Lastly, the live and fire loads for each sector and room are summed to give total sector and room live load and fire load. The fire load is divided into five material classifications: wood, paper, plastic, fabric, and other.

An example for a single room from a survey is given below to illustrate the procedure. The survey forms are shown on figures C-1 to C-7. The room is a dining room in a single-family residence in the Washington metropolitan area. The calculations shown below are a simplification of the actual calculations which were made by a computer program.

Room Finish and Trim

On the first page of the Rooms form, figure C-1, item 3, the floor finish is material "4", carpet/rugs, and the item 4 entry indicates it covers the entire floor. Item 5 shows the room trim is wood, and item 6 shows that the ceiling finish is paint.

The first step is to convert the room finish, carpet and trim materials into equivalent live loads. The second step converts these into equivalent fire loads. Note that the finish and trim are included with the fire load, but are not included with the live load.

Floor finish

From table 4-1, material 4 weighs 1 lb per sq. ft. Table 4-12 indicates that all of this load is fire load and is classed as fabric. The fire load must now be distributed among the sectors.

	Dimension ft		Area sq ft		Transfer Function		Weight lbs		Fire Load Transfer Function		Fire Load lbs
Sectors 1 & 3	11 x 2 x 2	=	44	x	1	=	44	x	1.00	=	44
Sectors 2 & 4	(14-4) x 2 x 2	=	40	x	1	=	40	x	1.00	=	40
Total wall sectors							84				84
Middle, Sector 5	(11-4) x (14-4)	=	70	x	1	=	70	x	1.00	=	70

All this weight of carpet is classed as fabric.

Trim

Item 5 on the Rooms form figure 4-8 "trim" is material 1 (wood) from table 4-1, the load function for "trim, material 1" gives the load in lbs per linear ft and from table 4-12 "trim, material 1" the equivalent fire load per lineal foot is the same as the load per lineal foot. In the calculation below, note that wall 1 is "open", i.e. there is no wall on that side of the room.

	Length X Transfer Function ft		Load lbs		Fire Load Transfer Function		Fire Load lbs
Wall Sector 2	9 x 2.5	=	22.5	x	1	=	22.5
3	14 x 2.5	=	35.0	x	1	=	35.0
4	11 x 2.5	=	27.5	x	1	=	27.5
					Total	=	85.0

Ceiling Finish

From table 4-1, "ceiling finish 2 - paint" has a fire load of 0.2 lbs per sq. ft. and table 4-12 classes this as wood/paper. This fire load must be distributed among the sectors.

	Dimension ft		Area sq ft		Load Transfer Function		Wt lbs		Fire Load Transfer Function		Load lbs
Sectors 1 & 3	11 x 2 x 2	=	40	x	.2	=	8.8	x	1	=	8.8
Sectors 2 & 4	(14-4) x 2 x 2	=	40	x	.2	=	8.0	x	1	=	8.0
Total wall sectors			84				16.8				16.8
Middle Sector 5	(11-4) x (14-4)	=	70	x	.2		14.0	x	1	=	14.0

Walls Figures

The fire loads are obtained by first considering the wall materials and then considering the windows, doors and wall hangings. First the fire load from the wall materials listed in figures C-2 and C-3 is calculated.

Wall 1 is classed as "open" and so has no fire load.

Wall 2, 3 and 4 are full walls and are paint on gypsum board. Wall 3 has a large wood frame window, and so the area of the window is first subtracted from the area of the wall and the weight of the wood framing is added as fire load.

	Dimension ft		Area sq ft		Load Transfer Function		Fire Load Transfer Function		Fire Load lbs
Sector 1									
Wall 1					None				
Sector 2									
Wall 2	9 x 10	=	90	x	.2	=	18 x 1	=	18.0
Sector 3									
Wall 3	(14x10)-(8x10)	=	70	x	.2	=	14 x 1	=	14.0
Sector 4									
Wall 4	11 x 10	=	110	x	.2	=	22 x 1	=	22.0

Windows

The window on Wall 3 (Sector 3) is included in Sector 3, see figure 4-9. From tables 4-1 and 4-12, the applicable fire load is:

Dimension in		Area sq in	Load Transfer Function	Load lbs		Fire Load Transfer Function	Load lbs
96 x 120	=	11520	.03	345.6	x	1.0	345.6

Doors

The doorway in Wall 2 contains no door, therefore no fire load for this item.

Part B - Wall Hangings

The survey form indicates that there are wall hangings on walls 2, 3, and 4 that are to be included in the fire load for the room. Wall hangings are included with the appropriate wall sector loads.

Wall 2 has two pictures, Wall 3 has drapes and Wall 4 has one picture. From tables 2 and 13 the fire loads for these items are as follows:

Wall 2[9]

Dimensions in	Area sq in	Load Transfer Function	Load lbs	Fire Load Transfer Function	Fire Load lbs
30 x 40	1200	.021	25.2	1.0	25.2
18 x 14	252	.001	.252	1.0	.252
				Total	25.5 lbs

Wall 3

Note that there are 2 drapes marked on the form.

Dimensions in	Area sq in		Load Transfer Function		Load lbs		Fire Load Transfer Function	Fire Load lbs
60 x 96 x 12	11520	x	.007	=	80.64	x	1.	80.6

Wall 4

Dimensions in		Area sq in		Load Transfer Function		Load lbs		Fire Load Transfer Function		Fire Load lbs
16 x 28	=	448	x	.021	=	9.41	x	1	=	9.4

[9] In figure 4-10 the larger picture is described as "oil painted canvas" and the smaller picture is described as "photograph". These two pictures have different load factors.

Tables

From tables 4-3 and 4-14, the weight and fire load of the dining room table listed in figure C-4 having wood top and legs is given by[10]:

Dimensions in		Volume cu. in	Transfer Function		Load lbs
84 x 46 x 33	=	127512	(127512 x .0013) - 5.6	=	160.2

	Load		Fire Load Transfer Function		Fire Load
Top	160.2	x	.8	=	128.1
Legs	160.2	x	.2	=	32.0

This load is applied to Sector 5 (middle sector).

Case Goods

The Case Goods form, figure C-5 indicates that there is a buffet in Sector 4. From tables 4-4 and 4-15 we have the following[11]:

Dimensions in		Volume cu. in	Transfer Function		Load lbs
48 x 24 x 28	=	32256	(32256 x .0063) - 53.7	=	149.5

The equivalent fire load for the top, sides[11], and shelves is distributed as follows:

[10] The fire load for the top and sides is separated as they may be made of different materials.

[11] Sides includes the vertical surfaces and bottom of the buffet. See also footnote 10.

	Load lbs		Fire Load Transfer Function		Fire Load lbs
Top	149.5	x	.1	=	15.0
Sides		x	.75	=	112.1
Shelves		x	.15	=	22.4
					149.5

This load and fire load are added to that in Sector 4.

Chairs

The chairs form shown in figure C-6 indicates that there are 6 chairs in the dining room. From table 4-8 we have the following:

For the five dining room chairs with wooden legs and back the weight is given by:

17.3 lbs x 5 = 86.5 lbs

From table 4-19 the fire load for the different parts of the chair are:

Seat[12]

Wood/paper	.15 x 86.5 =	13.0 lbs
Fabric	.15 x 86.5 =	13.0 lbs
Plastic	.15 x 86.5 =	13.0 lbs
		39.0 lbs

[12]This represents an estimation of the average range of materials to be found.

Legs

Wood/paper	.20 x 86.5 =	17.3 lbs

Back

Wood/paper	.35 x 86.5 =	30.2 lbs
Total		86.5 lbs[13]

Drawer, Shelf, Cabinet, or Closet Contents

The last items are the contents of the buffet, which are listed in figure C-7. These are glassware/stemware, class type 6, material 5, compaction 2 (50%).

From table 4-9 the live load for this is:

Dimensions in		Volume cu in	Transfer Function		Weight lbs
48 x 29 x 29	=	38976	(38976 x .005)	=	194.8

Since this is noncombustible, there will be no fire load from this item. This weight will be applied to the live load in Sector 4.

The live loads and fire loads are next summed for each sector and for the whole room.

[13]The fire load may be different than the live load of a furnishing.

Summary Live Loads (lbs)

Sector	1	2	3	4	5	Totals
Item						
Wall hangings		25.5	80.6	9.4		115.5
Table					160.2	160.2
Case Goods				149.5		149.5
Chairs					86.5	86.5
Buffet Contents				194.8		194.8
Totals		25.5	80.6	353.7	246.7	706.5

unit live load = 8.4 lbs/sq. ft.

Summary Fire Loads

Sector	1	2	3	4	5	Totals
Item						
Floor finish	22.0	20.0	22.0	20.0	70.0	154.0
Trim		22.5	35.0	27.5		85.0
Ceiling finish	4.4	4.0	4.4	4.0	14.0	30.8
Wall finish		18.0	14.0	22.0		54.0
Windows			345.6			345.6
Wall Hangings		25.5	80.6	9.4		115.5
Table					160.1	160.1
Case Goods				149.5		149.5
Chairs					86.5	86.5
Sub Totals lbs.	26.4	90.0	501.6	232.4	330.6	1181.0

unit fire load = 14.1 lbs/sq. ft.

That the room finish materials were slightly more than one-half the total fire load is not unusual. This is in agreement with Ingberg's survey 2 and the overall results of this survey which are discussed in Section 8. These unit live and fire loads would be part of the data used to compute mean and standard deviation of the live and fire loads (e.g. tables 5-13 and 5-18).

Figure C-1 Rooms form example

ROOMS

House I.D. _____ D M D 2 1 6 (1–6)

1 Room Type _____ 0 4 (7)

01 - Hallway/Foyer
02 - Bathroom/Powder
03 - Kitchen
04 - Dining
05 - Living
06 - Family/Recreation
07 - Study or Office
08 - Bedroom
09 - Basement
10 - Garage
11 - Utility/Laundry/Workshop
12 - Attic
13 - Storage
14 - Other_____

Room Number _____ 1 (9)

Room Floor Number _____ 0 2 (10)

2 Room Size - Length (feet) _____ 1 1 (12)

Width (feet) _____ 1 4 (14)

Height (feet) _____ 1 0 (16)

Sketch of Room

3 Floor Finish _____ 4 (18)
1 - Wood
2 - Asphalt/rubber/vinyl tile
3 - Ceramic tile/slate/stone/concrete/brick
4 - Carpet/rugs
5 - Other_____

4 Percent of floor covered by finish _____ 4 (19)
1 - 25%
2 - 50%
3 - 75%
4 - 100%

5 Trim _____ 1 (20)
0 - None
1 - Wood
2 - Metal
3 - Plastic/Rubber
4 - Ceramic
5 - Other

6 Ceiling Finish _____ 2 (21)
0 - Unfinished
1 - Gypsum board
2 - Paint
3 - Paper/cloth
4 - Plaster/concrete
5 - Wood
6 - Plastic/acoustic tile
7 - Other

*Keypunch, see note at bottom of page

7 Wall Number	1 (22)	2 (22)	3 (22)	4 (22)
8 Wall Length (feet)	10 (23)	08 (23)	14 (23)	11 (23)
9 Wall Height (feet)	10 (25)	10 (25)	10 (25)	10 (25)
10 Wall Type (1 - Full, 2 - Partial, 3 - Open)	3 (27)	1 (27)	1 (27)	1 (27)
11 Wall Construction (0 - Unfinished, 1 - Gypsumboard, 2 - Plaster, 3 - Wood/plywood/hardboard, 4 - Plastic, 5 - Fiberboard/paperboard, 6 - Masonry/brick/block, 7 - Metal, 8 - Other_____)	1 (28)	1 (28)	1 (28)	1 (28)
12 Wall finish (1 - None; Major: 2 - Paint, 3 - Paper, 4 - Cloth; Minor: 5 - Plastic, 6 - Metal, 7 - Wood, 8 - Ceramic Tile, 9 - Other_____)	Major 7 (29)	7 (29)	2 (29)	2 (29)
	Minor ☐ (30)	☐ (30)	☐ (30)	☐ (30)

*Keypunch note: Put cols 1 through 21 on each wall card; make 1 card for each wall.

R7/76

Figure C-2 Rooms form continuation example

R-3

13 Number of Windows 1 (31) | (31) | 1 (31) | (31)

Window No. 1

Height (in.) (32 34) | (32 34) | 9 6 (32 34) | (32 34)

Width (in.) (35 37) | (35 37) | 1 2 0 (35 37) | (35 37)

Height Above Floor (in.) (38) | (38) | 0 (38) | (38)

Window No. 2

Height (in.) (40 42) | (40 42) | (40 42) | (40 42)

Width (in.) (43 46) | (43 46) | (43 48) | (43 46)

Height Above Floor (in.) (46) | (46) | (46) | (46)

Window No. 3

Height (in.) (48 50) | (48 50) | (48 50) | (48 50)

Width (in.) (51 53) | (51 53) | (51 53) | (51 53)

Height Above Floor (in.) (54) | (54) | (54) | (54)

14 Number of Doors (56) | (56) | (56) | (56)

Door No. 1

Width (in.) (57) | (57) | (57) | (57)

Height (in.) (59 61) | (59 61) | (59 61) | (59 61)

Door Type (62) | (62) | (62) | (62)
1 - Solid
2 - Paneled
3 - Hollow
4 - Louvered
5 - Other_____

R-4

Door Material (63) | (63) | (63) | (63)
1 - Wood
2 - Metal
3 - Glass
4 - Other_____

Door No. 2

Width (in.) (64) | (64) | (64) | (64)

Height (in.) (66 68) | (66 68) | (66 68) | (66 68)

Door Type (69) | (69) | (69) | (69)
1 - Solid
2 - Paneled
3 - Hollow
4 - Louvered
5 - Other_____

Door Material (70) | (70) | (70) | (70)
1 - Wood
2 - Metal
3 - Glass
4 - Other_____

Door No. 3

Width (in.) (71) | (71) | (71) | (71)

Height (in.) (73 75) | (73 75) | (73 75) | (73 75)

Door Type (76) | (76) | (76) | (76)
1 - Solid
2 - Paneled
3 - Hollow
4 - Louvered
5 - Other_____

Door Material (77) | (77) | (77) | (77)
1 - Wood
2 - Metal
3 - Glass
4 - Other_____

REMARKS_____

_____

Figure C-3 Walls form example

WALLS

Room Identifier: D M D 2 1 6 (1–6) | 0 4 1 0 2 W 1 (7–13)

Part A - Closets (built-in)

Wall No. (14–17):

Closet

Length (ft.) (18–24):

Width (ft.) (26–32):

Height (ft.) (34–37):

Part B - Wall Hangings

Wall No.: 2 (38) | 2 (39) | 3 (40) | 4 (41)

1 Class Type (42–45): 1 | 1 | 5 | 1

1 - Pictures
2 - Mirrors
3 - Mirror tiles
4 - Curtains
5 - Drapes
6 - Notice board
7 - Plaques
8 - Shelves
9 - Brackets (for plants)
A - Lights/lamp
B - Clocks
C - Rugs (decorative)
D - Fireplace
E - Other_____

2 Material (46–49): 1 | 3 | 4 | 1

1 - Oil painted canvas
2 - Paper
3 - Photographic paper
4 - Fabric
5 - Plastic
6 - Wood
7 - Glass/ceramic/brick
8 - Metal
9 - Other

3 Size

Length (in.) (50–56): 3 0 | 1 8 | 6 0 | 1 6

Height (in.) (58–64): 4 0 | 1 4 | 4 6 | 2 8

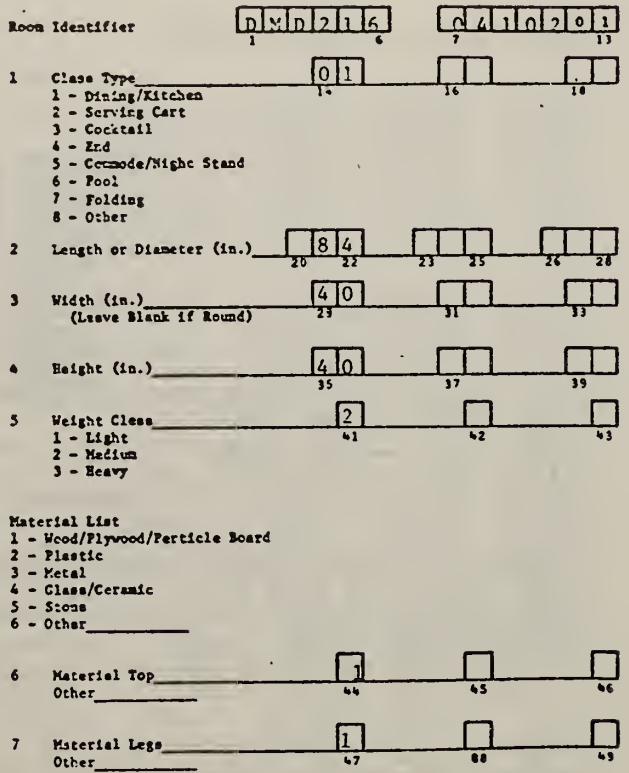
Height above floor (in.) (66–72): 4 8 | 7 2 | 0 | 6 0

4 No. of identical items this wall (74–77): 1 | 1 | 2 | 1

REMARKS_____

Figure C-4 Tables form example

TABLES



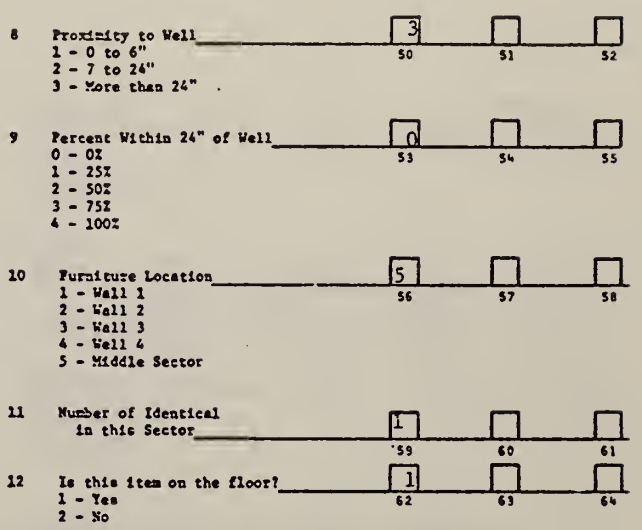


Figure C-5 Case goods form example

02-1

CASE GOODS

Room Identifier: D M D 2 1 6 (1–6) | 0 4 1 0 2 0 2 (7–13)

1 Class Type: 0 2 (14–15)
1 - Buffet/Counter/Dry Sink
2 - Hutch
3 - Bar
4 - China Cabinet/Novelty Cabinet
5 - Chest/Dresser/Bureau/Desk
6 - Room Divider
7 - Bookcase
8 - Piano
9 - Shelving
10 - Wardrobe
11 - Other_____

2 Length or Diameter (in.): 4 8 (20–22)

3 Width (in.): 2 4 (23–24)
Leave Blank if Round

4 Height (in.): 2 8 (35–36)

5 Weight Class: 2 (41)
1 - Light
2 - Medium
3 - Heavy

Material List
1 - Wood/Plywood/Particle Board
2 - Plastic
3 - Metal
4 - Glass/ceramic
5 - Stone
6 - Other_____

6 Material Top: 1 (44)
Other_____

02-2

7 Material Sides and Front: 1 (47)
Other_____

8 Material Shelves: 1 (50)
Other_____

9 Proximity to Wall: 1 (53)
1 - 0 to 6"
2 - 7 to 24"
3 - More than 24"

10 Percent within 24" of wall: 4 (56)
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

11 Furniture Location: 4 (59)
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

12 Number of Identical Units in this Sector: 1 (62)

13 Is this item on the floor: 1 (65)
1 - Yes
2 - No

REMARKS_____

Figure C-6 Chairs form example

CHAIRS
(OTHER THAN UPHOLSTERED)

Room Identifier: D M D 2 1 6 (1–6) | 0 4 1 0 7 0 6 (7–33)

1 Class Type: 0 2 (14–15) _____ (16–18)
1 - Kitchen
2 - Dining Room
3 - Office Chair
4 - Rocker/Swivel
5 - Stool
6 - Folding
7 - Other

2 Weight Class: 2 (20) _____ (21) _____ (22)
1 - Light
2 - Medium
3 - Heavy

Material List
1 - Wood
2 - Metal
3 - Plastic
4 - Fabric
5 - Leather/Synthetic Leather
6 - Wicker/Bamboo
7 - Other

3 Material Seat: 4 (23) _____ (24) _____ (25)
Other_____

4 Material Legs: 1 (26) _____ (27) _____ (28)
Other_____

5 Material Back: 1 (29) _____ (30) _____ (31)
Other_____

6 Proximity to Wall: 3 (32) _____ (33) _____ (34)
1 - 0 to 6"
2 - 7 to 24"
3 - More than 24"

7 Percent within 24" of wall: 0 (35) _____ (36) _____ (37)
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

8 Furniture Location: 5 (38) _____ (39) _____ (40)
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

9 Number of Identical Units in this Sector: 6 (41) _____ (42) _____ (43)

10 Is this item on the floor: 1 (44) _____ (45) _____ (46)
1 - Yes
2 - No

REMARKS_____

Figure C-7 Drawer, shelf, cabinet or closet contents example

DRAWER, SHELF, CABINET OR CLOSET CONTENTS

Room Identifier D M D 2 1 6 | 0 4 1 0 6 0 7 (1–6, 7–13)

1 Have Contents been examined [4] (14)
Y - Yes
N - No

2 Type of Storege [2] (17)
1 - Drawer
2 - Shelf
3 - Cabinet
4 - Closet
5 - Boxes/crates
6 - Other_____

3 Class Type [0 6] (20–22)

1 - Papers/Books
2 - Photographs/Film/Slides
3 - Phonograph Records
4 - Cassette/Magnetic Tapes
5 - Dishes/Trays
6 - Glassware/Stemware
7 - Cookingware/pots/pans
8 - Cutlery/Fletware/Silverware
9 - Cans/Jars/Foodstuffs
10 - Dry Packaged Foods
11 - Small Appliances
12 - Clothing
13 - Blankets
14 - Sheets/Linens
15 - Towels
16 - Guns/Pistols Etc.
17 - Paints/Paint Removers
18 - Chemicals/Petroleum Products
19 - Toiletries, Medicines etc
20 - Other _____

If the Contents are Clothing Answer this Question, Otherwise Go to 5

4 Sub Class for Clothing Only [0 5] (26–28)
1 - Coats/Outerwear
2 - Suits/Jackets
3 - Dresses
4 - Lingerie/Underwear/Nightwear/Stockings/Socks
5 - Shirts/Blouses
6 - Sweaters
7 - Other_____

5 Material_____ (32–36)
1 - Paper
2 - Plastic
3 - Wood
4 - China
5 - Glass
6 - Metal
7 - Foodstuffs
8 - Fur
9 - Textiles
10 - Other_____

6 Weight Class [2] (38–40)
1 - Light
2 - Medium
3 - Heavy

7 Size of Drawer, Height of Shelf or Storege Pile
Length (in.) [4 8] (41–43–45)
Width (in.) [2 4] (47–49–51)
Height (in.) [2 8] (53–55–57)

8 Degree of Compaction [2] (59–60–61)
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

9 Proximity to Wall [1] (62–63–64)
1 - 0 to 6"
2 - 7 to 24"
3 - More then 24"

10 Percent Within 24" of Wall [4] (65–66–67)
0 - 0%
1 - 25%
2 - 50%
3 - 75%
4 - 100%

11 Wall Location [4] (68–69–70)
1 - Wall 1
2 - Wall 2
3 - Wall 3
4 - Wall 4
5 - Middle Sector

12 Number of Identical Units In this Sector [1] (71–72–73)

13 Is this item on the floor? [1] (74–75–76)
1 - Yes
2 - No

REMARKS _____

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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.)*

A fire and live load survey of 359 residences, consisting of 61 single family attached (SFA), 200 single family detached (SFD), and 98 mobile homes (MH), was made in the metropolitan Washington, DC area using an inventory technique rather than actual weighing of the room contents. The survey was performed to gain information on live and fire loads which would be used to develop a realistic fire test exposure curve for single family homes (SFA, SFD, and MH), and to gain experience in household surveys that would be useful in a similar nationwide survey. The fire load is reported in terms of composition and of an equivalent 8000 Btu/lb fuel. The live loads and movable contents fire loads were similar for the three occupancies, but the room finish fire load was higher in mobile homes due to the more extensive use of plywood in the interior wall finish. The weighted mean (according to floor area) of the live load observed in the survey for each of the three classes of housing was approximately 10 lb/sq. ft. The corresponding weighted mean movable contents fire loads were approximately: SFA, 7 lb/sq. ft.; SFD, 7 lb/sq. ft.; MH, 6 lb/sq. ft. The total weighted mean fire loads (contents and finish) were approximately: SFA, 13 lb/sq. ft.; SFD, 13 lb/sq. ft.; MH, 18 lb/sq. ft. The nominal 0.95 fractile live and fire loads were also calculated.

17. KEY WORDS *(six to twelve entries; alphabetical order; capitalize only the first letter of the first key word unless a proper name; separated by semicolons)*

Field surveys; fire; fire loads; furnishings; household surveys; live loads; mobile homes; residential surveys; transfer functions.

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