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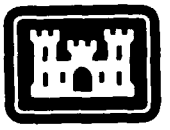

US Army Corps of Engineers

Cold Regions Research & Engineering Laboratory

Statistical analysis of building wall materials distribution in four northeastern cities

Carolyn J. Merry and Perry J. LaPotin

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The overall purpose of this research was to develop a data base of building material types sensitive to acid deposition. The objective of this study was to address several statistical questions about the data base of sampled building materials for four cities, which included New Haven, Connecticut; Portland, Maine; Pittsburgh, Pennsylvania; and Cincinnati, Ohio. The four cities were mapped into sampling frames, which divided the city into similar areas. Use of the sampling frames assumed that the location, form and function of buildings, and the amount and kind of building materials, are related to the land use. Information on building materials for about 70 buildings per sampling frame were inventoried for each city. The statistical analyses of the data base for each city included comparing building sizes with the size of the sampling footprint, determining the distribution of buildings per footprint for each sampling frame, and examining the distribution of material types as a function of building size and building type for each sampling frame.

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PREFACE

This report was prepared by Carolyn J. Merry, Research Physical Scientist, Geological Sciences Branch, Research Division, U.S. Army Cold Regions Research and Engineering Laboratory, and Perry J. LaPotin, Senior Programmer, Department of Physics and Astronomy, Dartmouth College, Hanover, New Hampshire.

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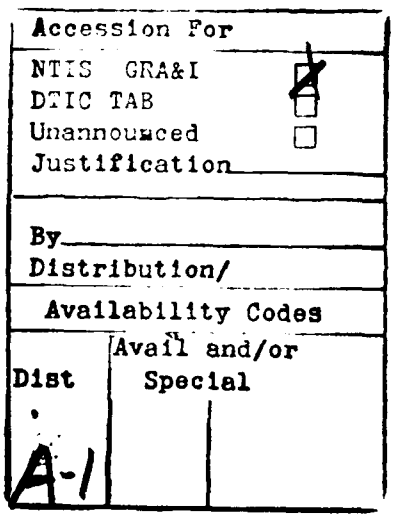


CONTENTS

ILLUSTRATIONS

Figure

Figure Page

TABLES

Table

Statistical Analysis of Building Wall Materials Distribution of Four Northeastern Cities

CAROLYN J. MERRY AND PERRY J. LAPOTIN

INTRODUCTION

Background

The Interagency Task Force on Acid Precipitation manages the National Acid Precipitation Assessment Program (NAPAP). There are ten Task Groups in the task force, one for each of the nine research areas in the national program and one for international activities (Table 1). The goal of NAPAP is to develop and improve a data base that will help researchers understand the causes and effects of acid deposition and how it can be effectively managed. Our work on the acid rain program has been with the Environmental Protection Agency in support of Task Group VII, which examines the Effects on Building Materials and Cultural Resources, as part of the ongoing effort to define the type and magnitude of building materials exposed to acid deposition in the northeastern United States.

The purpose of our research is to develop a data base of specific building material types that are sensitive to acid deposition. Our data bases were to draw upon the experience of prior data base collection projects (St. Louis, Missouri; Baltimore, Maryland; Boston, Massachusetts) performed in support of the EPA Acid Rain Research Program (McFadden and Koontz 1980, TRC Environmental Consultants, Inc. 1983).

New Haven, Connecticut, and Portland, Maine, were selected as the first New England sites to be sources of ground truth data on building surface materials (Fig. 1) (Merry and LaPotin 1985b, 1986b). These two cities are similar in land area and population.* Our sample design could be tested by predicting building materials distribution in an unknown city (Portland) using data from a known city (New Haven).

In Task Subgroup VII's 13 July 1985 meeting, the subgroup recommended collecting data on building materials sensitive to acid rain deposition for two additional cities: Pittsburgh, Pennsylvania, and Cincinnati, Ohio (Fig. 1). Both cities were close to Corps of Engineers Division and District offices, so the field personnel were familiar with the city, allowing the field program to run smoothly. Pittsburgh and Cincinnati are outside of the New England region in low-pH (high-average-acidity) areas, as shown in Figure 2; both fall within the 4.2 pH isoline. Also, these

Table 1. The ten task groups within the National Acid Precipitation Assessment Program. (After Interagency Task Force on Acid Precipitation 1986.)

	Task Group	*Coordinating Agency*
I	Natural sources	NOAA
II	Man-made sources	DOE
III	Atmospheric processes	NOAA
IV	Deposition monitoring	DOI
V	Aquatic effects	EPA
VI	Terrestrial effects	USDA
VII	Effects on materials and cultural resources	DOI
VIII	Control technologies	EPA
IX	Assessments	EPA
X	International activities	DOS

NOAA (National Oceanic and Atmospheric Administration)
DOE (Department of Energy)
DOI (Department of Interior)
EPA (Environmental Protection Agency)
USDA (United States Department of Agriculture)
DOS (Department of State)

*Personal communication with James Wray and George Rosenfield, U.S.Geological Survey, 1985.

Figure 1. Locations of the four surveyed cities.

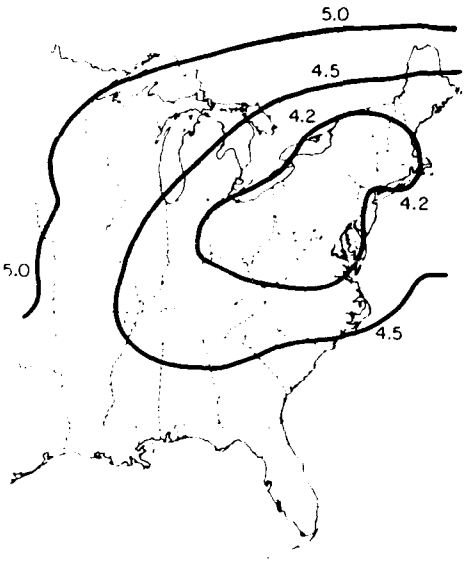


Figure 2. Weighted annual pH for precipitation in the northeastern United States. (After Barrie and Brodin 1982).

two cities are located in the Ohio River Valley, where there is significant acid deposition from large utilities emitting sulfates (LaPotin 1984). Finally, these two cities are located near the western edge of the region. Comparison with the eastern cities would give some idea of the variability of materials over the region.

The Corps of Engineers conducted a field sampling program for inventorying building materials during 1984 and early 1985. Data were collected from March through April 1984 in New Haven, from July through August 1984 in Portland, from December 1984 through February 1985 in Pittsburgh, and from January through February 1985 in Cincinnati. The field inventory program and the data for each of the cities are described in more detail in a series of data reports (Merry and LaPotin 1985b, 1986a, 1986b, 1986c). The basic observational unit for the data base was an individual building. However, the random sampling process specified by Task Group VII consisted of selecting a series of geographic coordinates in urban areas. The Corps had the assignment of finding the building nearest to these point coordinates, within a fixed radius known as the "footprint," and recording the data.

Each of the four cities was subdivided into sampling frames. The sampling frames for each city were developed by the U.S. Geological Survey (USGS) using multivariate clustering techniques on census variables and USGS digital land cover data (Rosenfield 1984, Wray 1984). The sampling frames were used to subdivide and organize the city into similar areas. The sampling frame approach assumed that the presence (location), form and function of buildings—and the amount and kind of materials of which buildings are constructed—are related to how the land is used (Wray 1984).

Three census variables were used: population, number of dwelling units, and number of single-unit structures. The three land use variables were: the area of residential land with buildings, the area of nonresidential land with buildings, and the area of open land. These variables were used in the clustering program to separate a city into a maximum of six sampling frames (depending on the number of clusters generated by the multivariate analysis). These sampling frames consisted of a number of census tracts that had some commonality on the basis of population density, number of single-unit dwellings and land use (Rosenfield 1984). The sampling frames defined for each city included the UCBD (Urban Central Business District), ULIC (Urban Livelihood Industrial Commercial), UMFR (Urban Multi-Family Residential), USFR (Urban Single-Family Residential), NSUB (Nonurban Surburbanizing) and NRUR (Nonurban Rural).

Once the sampling frames were established, we surveyed about 70 buildings per sampling frame. This number had been previously calculated from the Corps Revere, Massachusetts, data set based on expected values from the multinomial distribution (Merry and LaPotin 1985a). This was obtained by multiplying the minimum sample size determined from the cum-

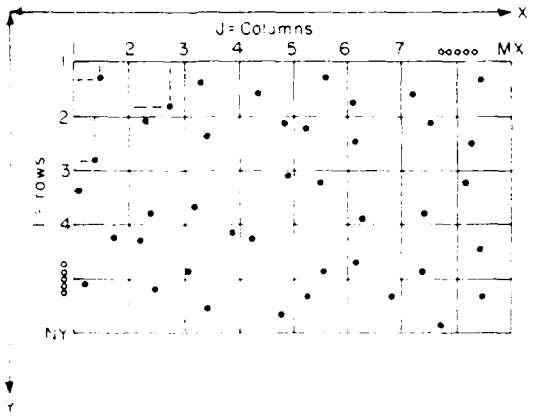


Figure 3. Schematic of stratified, systematic, unaligned random sampling scheme. (After Rosenfield 1984).

ulative multinomial distribution (30) by the design effect (2.34) (Rosenfield 1984). To compensate for the probability of missing a structure within a placed footprint, we increased the number of sample points by 50% to generate 107 sampling points per sampling frame.

The USGS generated the sample points for three of the cities using a stratified, systematic, unaligned random sampling procedure (Fig. 3) (Rosenfield 1984, Merry and LaPotin 1985b). The sample points for New Haven were generated by CRREL using the same procedure. In Portland, Pittsburgh and Cincinnati the USGS masked out the water areas so that sample points would not be located in these areas. This minimized the number of empty footprints. We were supplied a list of sample points from the USGS with Universal Transverse Mercator (UTM) coordinates. These points were plotted on USGS topographic maps at a scale of 1:24,000.

The generation of sample points is based upon a commonly used technique for spatial sampling (Cochran 1977). Each sampling point corresponded to a "footprint," or a given spatial area on the ground that was surveyed in the field. We wanted the footprint to be large enough to contain a building but small enough so the field sampling program would be manageable.

The sizes of the footprints were calculated using a computer program that required information on building density. This minimized the probability of oversampling in the urban sampling frames and undersampling in the rural frames. The building density was calculated using census data from the UCBD (Merry and LaPotin 1985b). The building densities in New Haven were determined from aerial photography for selected areas of the city. The proportionality constant (dwelling units vs land area) used to scale the footprints for each sampling frame was constrained by two factors: the number of sample points per sampling frame was limited to 107, and the sum of the 107 footprint areas could not exceed 30% of the area of the UCBD sampling frame. The proportionality coefficient was applied to all the sampling frames for a given city to determine the final footprint sizes. This technique is commonly used in dimensional analysis and is referred to as Buckingham Pi. The building density did vary by sampling frame for each of the four cities.

The worksheet for recording data on each building that was used in the field was developed by a joint committee composed of representatives from CRREL, the EPA's Environmental Sciences Research Laboratory at Research Triangle Park, and the U.S. Bureau of Standards (Merry 1986). The worksheet form was designed to provide information on the characteristics of the surrounding terrain in terms of census tract, land use type and sampling frame; the dimensions and type of building; the lot size; the materials distribution percentages in the foundation, first story and all higher stories; and the surface area and material types for the roof, roof-mounted apparatus (vents, flues, stacks, skylights and flashing), chimneys, rain gutters, downspouts and fences. In addition, photographs were taken of each building for future reference, in case it was decided to add more data items to the data base.

Objective

The objective of this report is to address a number of statistical questions raised concerning the data base from the four surveyed cities. The questions developed as a outgrowth of a Peer Review and Workshop meeting held in Bethesda, Maryland, on 23 and 24 January 1985. The questions to be addressed in this report include:

- How do the building sizes (i. e. the actual building footprint) compare with the foot print sizes?
- What is the distribution of buildings (the number of buildings) per footprint for each sampling frame for each city?
- What is the distribution of building type for each sampling frame for each city?
- What is the distribution of the 21 materials by sampling frame for each city?

- How closely did the theoretical model for material proportion by sample frame (the multinomial model) fit the observed materials mix for each city? In addition, what level of association exists between the sampling frame and the material type by city?
- How well did the tolerance levels of the collected survey data from each city compare with the a priori theoretical tolerance level of 20% (at the specified 90% confidence level)?
- What are the predominant materials, as a function of building size, for residential structures in the four cities?

RESULTS

Building footprint vs sampling footprint

The size of the sampling area around each sampling point (the footprint) was calculated for each sampling frame. Figure 4 shows the ratio of the observed average building footprint to the sampling footprint size for each city by sampling frame. A value of 1.0 indicates that the observed average building equals the size of the sampling footprint. Only in the New Haven ULIC did the average building footprint exceed the calculated size. The general pattern indicates that the footprint size was adequate for each city. Also, the footprint size was large in contrast to the small buildings within the NSUB sampling frame. Appendix A includes the Analysis of Variance (ANOVA) tables used to construct Figure 4. The standard deviations show that significant variability occurred for the ratio between observed and actual values within the ULIC in New Haven and Cincinnati.

Buildings per footprint by sampling frame

The size of the sampling footprint affects the number of buildings that are surveyed by the field teams. Ideally there should be only one building in each footprint. In New Haven and Portland a worksheet was completed for each building in the footprint. A composite worksheet was then developed for the footprint, with the materials mix weighted by the dimensions of the buildings contained only within the footprint. For Pittsburgh and Cincinnati more buildings were within the footprints. Therefore, we sampled the centermost building and any additional buildings so that at least 10% of the footprint area was sampled. The building worksheet coded into the computer was randomly selected, and the number of buildings within the footprint was recorded.

In general, the probability of observing more than one structure per footprint is a function of the building density values used to construct the footprint size vs the actual building density observed in the sampled cities. The most readily

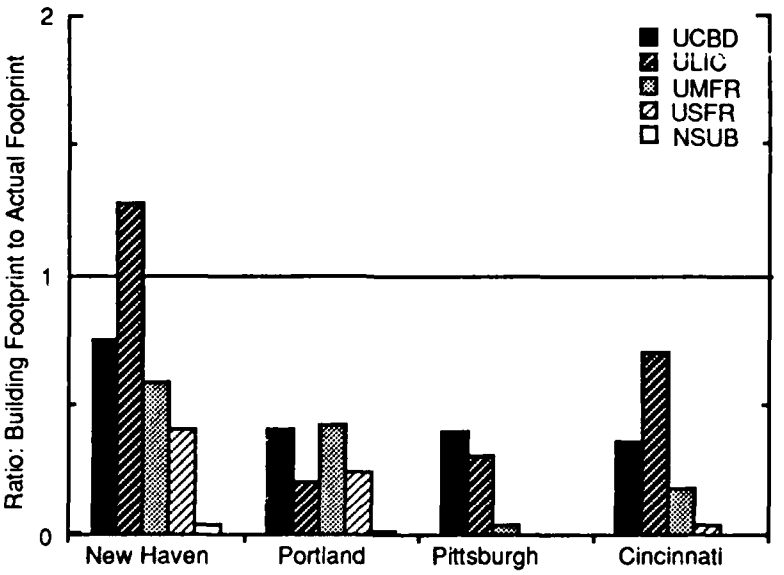


Figure 4. Ratio between the average building footprint and the sampling footprint for each sampling frame in the four cities.

Table 2. Number of footprints with and without structures within each sampling frame for the four cities.

Sampling Frame	*With structures* Number	Percentage	*Empty* Number	Percentage	*Total number*
		New Haven, Connecticut			
UCBD	90	84	17	16	107
ULIC	53	45	65	55	118
UMFR	66	59	45	41	111
USFR	35	31	78	69	113
NSUB	41	32	86	68	127
NRUR	0	0	0	0	0
Total	285		291		576
		Portland, Maine			
UCBD	42	50	42	50	84
ULIC	59	72	23	28	82
UMFR	44	56	34	44	78
USFR	36	49	38	51	74
NSUB	24	34	46	66	70
NRUR	15	21	58	79	73
TOTAL	220		241		461
		Pittsburgh, Pennsylvania			
UCBD	60	73	22	27	82
ULIC	85	89	14	14	99
UMFR	82	78	23	22	105
USFR	90	88	12	12	102
NSUB	0	0	0	0	(74)
NRUR	0	0	0	0	(79)
TOTAL	317		71		388
		Cincinnati, Ohio			
UCBD	72	73	27	27	99
ULIC	48	52	45	48	93
UMFR	47	48	51	52	98
USFR	69	71	28	29	97
NSUB	0	0	0	0	(92)
NRUR	0	0	0	0	(100)
TOTAL	236		151		387

available information that we had on building density was from the U.S. Bureau of Census. In Portland, Pittsburgh and Cincinnati the number of dwelling units per land area (in a sampling frame) was used as a density value; in New Haven the building density value was calculated from photographs. The number of dwelling structures is not truly a building density value, as it is more a measure of population density, not building density.

Figure 5 shows the average number of buildings per footprint by sampling frame for each city. Table 2 shows the number of footprints with and without structures for each sampling frame for each city. Appendix B shows the ANOVA runs used to produce Figure 5. The R^2 values indicate that a small percent of the variance in the number of buildings per footprint is explained simply by the sampling frame classification.

In New Haven and Portland, the smallest in total land area of the four cities, the number of buildings per footprint averaged close to one, with relatively small standard deviations. The largest mean and standard deviation of the two

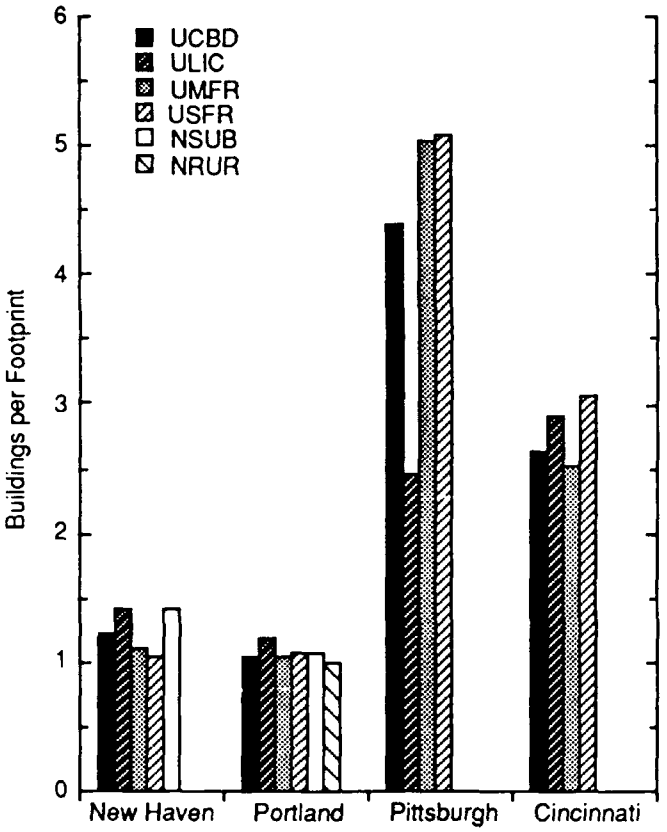


Figure 5. Number of buildings per footprint for each sampling frame for the four cities.

cities occurred for the New Haven ULIC (1.42 ± 0.95).

The number of buildings per footprint and the variance in the estimate increased for the Pittsburgh survey. The largest number of buildings per footprint occurred in the UMFR and the USFR, with averages of 5.03 and 5.08, respectively.

In Cincinnati an average of two to three buildings were found per footprint, ranging from 2.52 buildings in the UMFR to 3.07 buildings in the USFR. The number of buildings for the NSUB and NRUR sampling frames are not shown in Pittsburgh and Cincinnati, because buildings were not sampled in these two sampling frames.

In summary, the number of buildings per footprint varied considerably for Pittsburgh and Cincinnati. Approximately one building per footprint was found for the smaller cities of New Haven and Portland.

Building type by sampling frame

In an early version of the building worksheet used in New Haven and Portland, there were 19 building types (Table 3). These were later collapsed into 16 building types. The building data fell principally into two categories: residential housing (i.e. the one-unit structures) and commercial structures (office, industrial and other commercial buildings).

Appendix C shows the contingency tables for building type by sampling frame for each of the four cities. Figure 6 shows the residential and commercial building types for each sampling frame by city. Most commercial structures are located in the UCBD and the ULIC. The definition of the sampling frames used here proved to be an excellent discriminant function for the degree of commercialization, since these sampling frames were based on land use and population density.* With the exception of the USFR in Portland, the

*This does not come as a surprise because the degree of commercialization was the basis for the original classification developed by Wray (1984). The sampling frame categories were ranked from 1, corresponding to the UCBD, to 5, the USFR; these categories represent a measure of the population density.

Table 3. Building type categories used in the four cities.

New Haven & Portland	*Cincinnati & Pittsburgh*
1 unit detached	1 unit
1 unit attached	
2 units	2 units
3–4 units	3–4 units
5–9 units	5–9 units
10–19 units	10–19 units
20–49 units	20–49 units
>50 units	>50 units
Nonhousekeeping (i.e., hotels, motels, dormitories, fraternity and sorority houses, nurses homes and similar facilities)	
Office building	Office
Other commercial	Commercial
Industrial	Industrial
Hospital or institutional	Health
Religious	Religious
Educational	Educational
Other nonresidential	
Farm (nonresidential)	Farm
Other	Other
Cannot identify	Cannot identify

number of commercial buildings declines as one moves from the center of the city outward to the more rural areas.

In New Haven 80% of the 10- to 19-unit structures, 100% of the office buildings, 71% of the other commercial buildings and 75% of the hospital or institutional buildings are in the UCBD (Table 4). Also, 67% of the residential buildings with 50 or more units and 75% of the nonhousekeeping structures are in the ULIC. The UMFR includes 67% of the two-unit structures, 100% of the three- and four-unit structures, and 75% of the other nonresidential structures. About 75% of the observed structures in the USFR are single-unit houses. The NSUB contains the highest frequency of single-unit residential buildings; no residential buildings were inventoried in the UCBD.

In Portland 100% of the 20- to 49-unit housing and 62% of the office buildings are in the UCBD (Table 5). All of the nonhousekeeping structures are in the ULIC. Almost 78% of the 2-unit structures and 62% of the hospital or institutional buildings are in the UMFR. The USFR has the largest frequency of single-unit structures, with 34% of the total one-unit housing. In addition, the Portland ULIC, UMFR and NSUB contain approximately the same number of residential buildings.

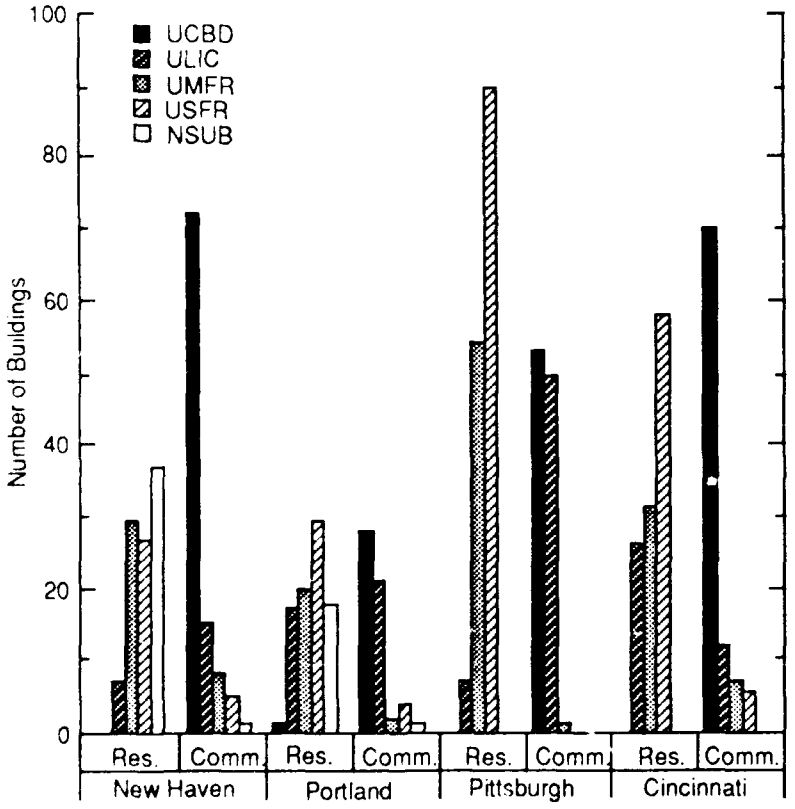


Figure 6. Number of residential and commercial buildings by sampling frame for the four cities.

Table 4. Distribution of building types by sampling frame for New Haven.

	Distribution in each sampling frame (%)				
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*	*NSUB*
1 unit	0	7.0	29.0	27.0	37.0
2 units	0	22.2	66.7	11.1	0
3–4 units	0	0	100.0	0	0
5–9 units	14.3	35.7	28.6	21.4	0
10–19 units	80.0	20.0	0	0	0
>50 units	0	66.7	33.3	0	0
Nonhousekeeping	25.0	75.0	0	0	0
Office	100.0	0	0	0	0
Commercial	71.0	14.5	10.1	4.3	0
Industrial	0	55.6	11.1	22.2	11.1
Health	75.0	0	25.0	0	0
Religious	16.7	25.0	50.0	0	8.3
Educational	13.3	73.3	6.7	0	6.7
Other	0	0	75.0	0	25.0

Table 5. Distribution of building types by sampling frame for Portland.

	Distribution in each sampling frame (%)				
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*	*NSUB*
1 unit	1.2	45.0	73.5	34.1	46.2
2 units	0	22.2	77.8	0	0
3–4 units	16.7	58.3	25.0	0	0
5–9 units	37.5	37.5	12.5	12.5	0
10–19 units	0	33.3	33.3	0	33.3
20–49 units	100.0	0	0	0	0
Nonhousekeeping	0	100.0	0	0	0
Office	61.5	30.8	0	7.7	0
Commercial	46.2	41.0	5.1	7.7	0
Industrial	50.0	25.0	0	0	25.0
Health	25.0	12.5	62.5	0	0
Educational	20.0	20.0	20.0	40.0	0
Other	100.0	0	0	0	0

In Pittsburgh a majority of the office buildings are in the UCBD (Table 6). All educational and health buildings, 85% of the industrial buildings, and 80% of the religious buildings are in the ULIC. All of the 20- to 49-unit housing and 86% of the 2-unit and 10- to 19-unit housing are in the UMFR. One-unit housing accounts for all the buildings in the USFR and 66% of the buildings in the UMFR.

In Cincinnati over 76% of the commercial buildings are in the UCBD (Table 7); these buildings account for 97% of the structures within the UCBD. All of the office, industrial and health buildings are in the ULIC. All 20- to 49-unit structures are in the UMFR. Over half of the one-unit residential structures are in the ULIC, 67% in the UMFR and 83% in the USFR. Two thirds of the religious buildings are in the USFR, with the remainder in the UCBD.

Building materials distribution by sampling frame

Figure 7 shows the 21 predominant materials (Table 8) by sampling frame for the four cities.

Table 6. Distribution of building types by sampling frame for Pittsburgh.

	Distribution in each sampling frame (%)			
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*
1 unit	0	4.6	35.8	59.6
2 units	0	14.3	85.7	0
3–4 units	25.0	25.0	50.0	0
5–9 units	0	50.0	50.0	0
10–19 units	14.3	0	85.7	0
20–49 units	0	0	100.0	0
Office	95.2	4.8	0	0
Commercial	47.6	50.8	1.6	0
Industrial	15.0	85.0	0	0
Health	0	100.0	0	0
Religious	20.0	80.0	0	0
Educational	0	100.0	0	0
Other	33.3	66.7	0	0

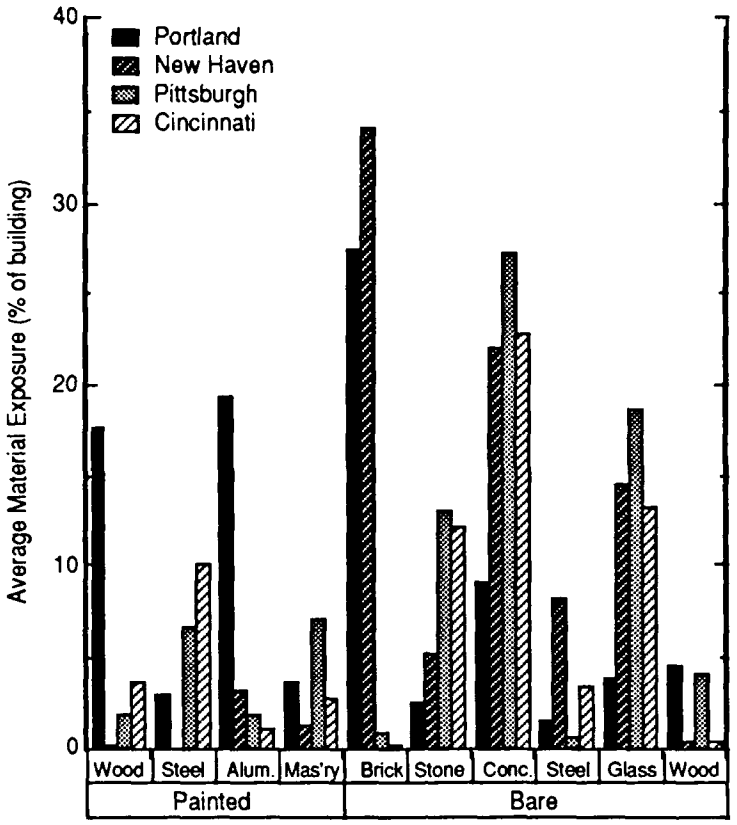
Table 7. Distribution of building types by sampling frame for Cincinnati.

	Distribution in each sampling frame (%)			
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*
1 unit	0	22.6	27.0	50.4
2 units	0	50.0	25.0	25.0
3–4 units	0	40.0	40.0	20.0
5–9 units	0	50.0	50.0	0
10–19 units	0	33.3	0	66.7
20–49 units	0	0	100.0	0
Office	0	100.0	0	0
Commercial	76.1	9.8	7.6	6.5
Industrial	0	100.0	0	0
Health	0	100.0	0	0
Religious	33.3	0	0	66.7
Educational	16.7	50.0	33.3	0

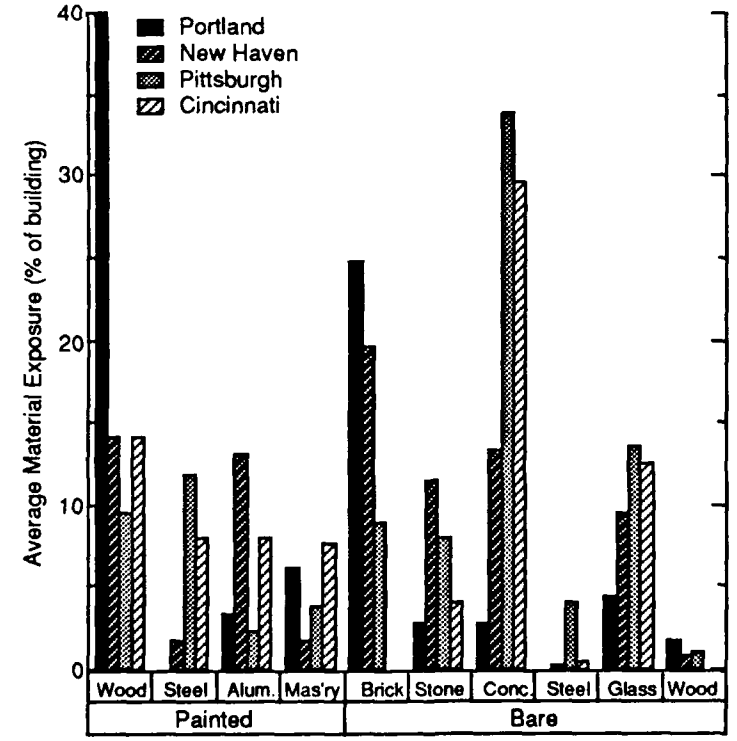
The average material exposure is shown as a percentage of the building. For example, a building with 10,000 sq ft of exposed surface area that contains 2,500 sq ft of painted wood would have 25% exposure of painted wood. The values displayed in Figure 7 represent the material exposures averaged across a sampling frame. On the average, painted wood materials predominate in the USFR and NSUB in New Haven and all frames, except the UCBD, in Portland. In the UCBD, New Haven buildings are composed primarily of bare brick and concrete, whereas Portland structures are principally painted wood, painted aluminum and bare brick. Pittsburgh and Cincinnati UCBD structures are composed primarily of glass and bare concrete. Appendix D contains the analysis of variance tables used to prepare the charts in Figure 7.

In New Haven, bare brick accounts for an average of 34% of the material exposure was in the UCBD, and approximately 20% in the ULIC and UMFR (Table 9). Bare concrete averages 22% of the exposure in the UCBD and 13% in the ULIC. Painted wood exposure averages 61% of the building in the USFR, 49% in NSUB and 33% in the UMFR.

In Portland the painted wood exposure is significant across all sampling frames (Table 10).

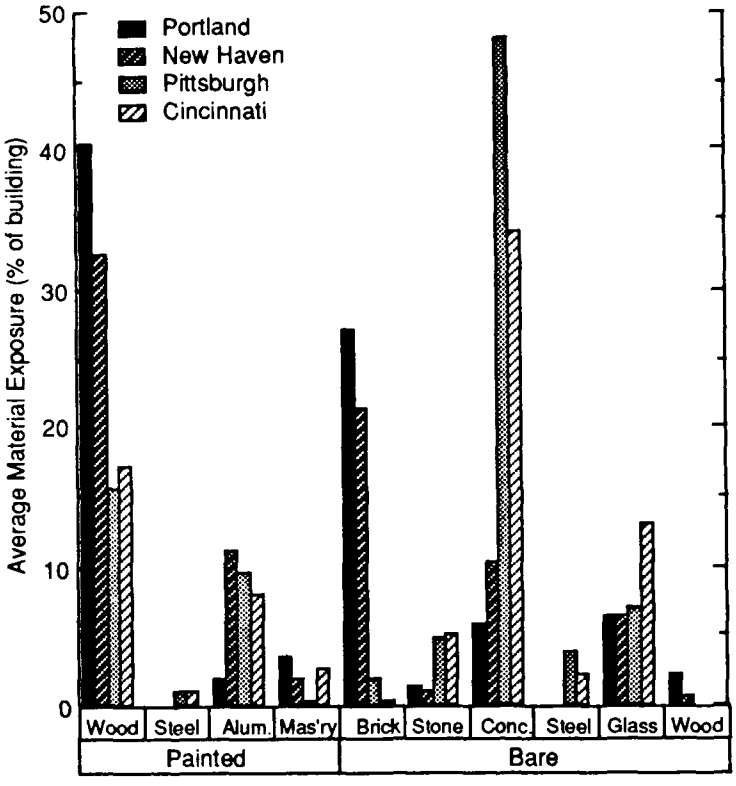


a. UCBD.

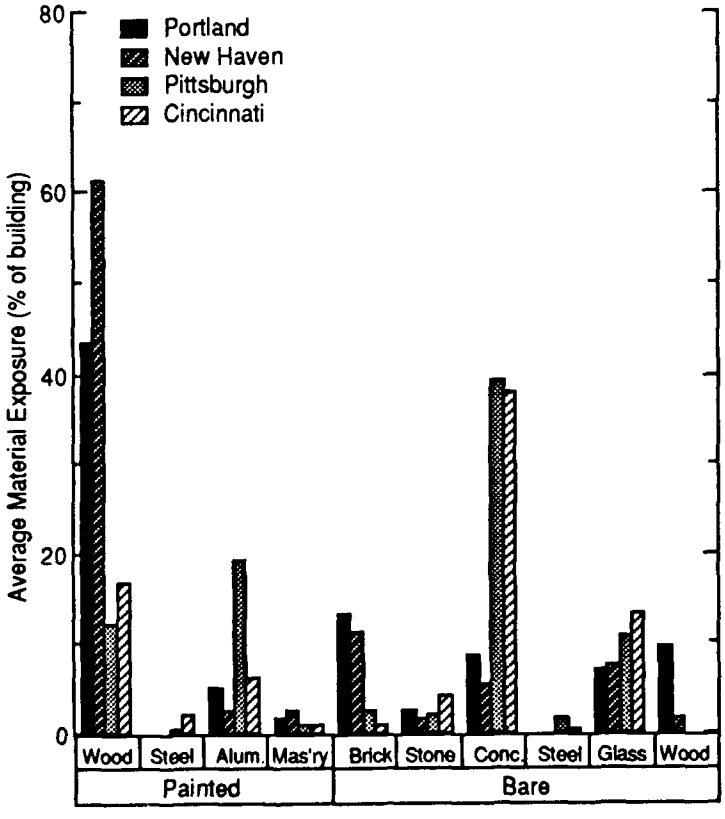


b. ULIC.

Figure 7. Average material exposure by sampling frame for the four cities.

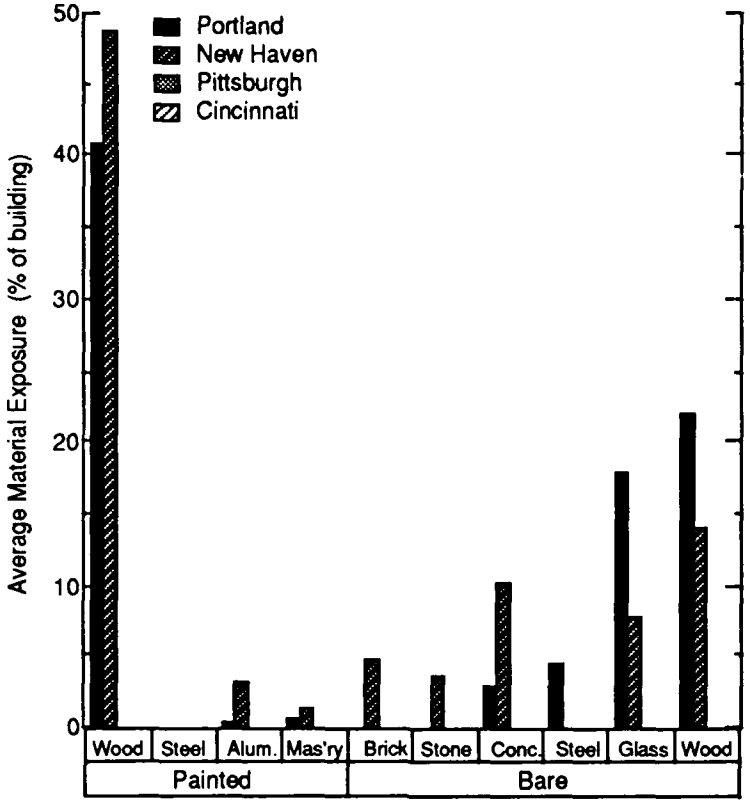


c. UMFR.

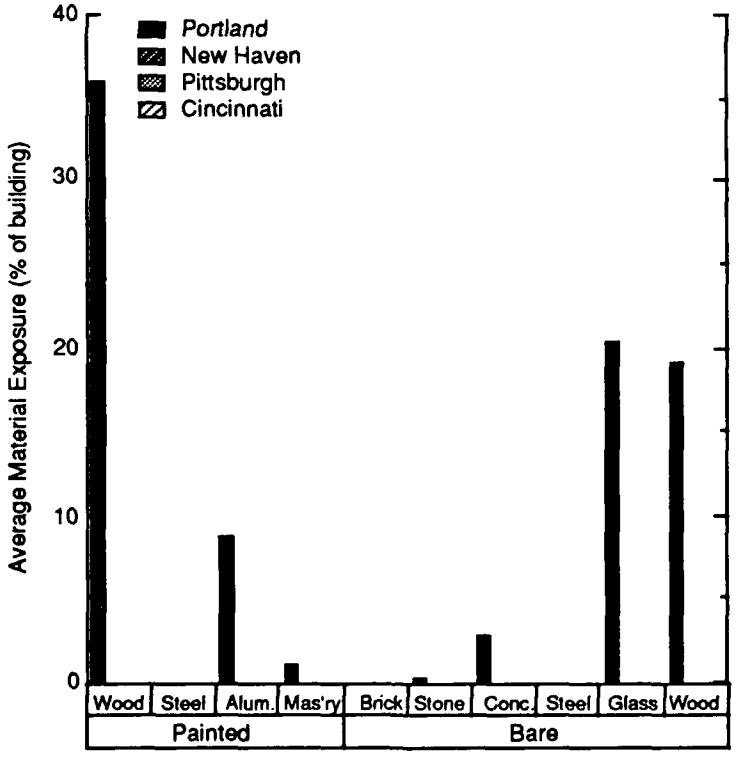


d. USFR.

Figure 7 (cont'd).



e. NSUB.



f. NRUR.

Figure 7 (cont'd). Average material exposure by sampling frame for the four cities.

Table 8. The 21 material types.

Painted materials:

Painted wood (excluding stained)
Painted steel
Painted aluminum
Painted masonry
Painted concrete
Painted stucco
Painted other material
Painted other material (cannot identify)

Bare materials:

Bare brick
Bare block
Bare fieldstone
Bare galvanized steel
Bare marble
Bare limestone
Bare granite
Bare wood (including stained)
Bare concrete
Bare glass
Bare vinyl
Bare other material
Bare other material (cannot identify)

Painted wood ranges from 18% of the exposure in the UCBD to 43% in the USFR. Bare brick exposure is significant across each of the urban sampling frames, with 27% in the UCBD and UMFR, 25% in the ULIC and 13% in the USFR. Bare wood exposure averages 22% in the NSUB and 19% in the NRUR. Glass averaged 18% in the NSUB, 20% in the NRUR and less than 7% in each of the remaining sampling frames. Painted aluminum averages about 4% exposure per building, except in the UCBD, where it averages 19%.

In Pittsburgh the bare concrete exposure is highly significant across all sampling frames (Table 11); the exposure averages 27% in the UCBD, 34% in the ULIC, 48% in the UMFR and 39% in the USFR. Marble exposure in the ULIC and USFR sampling frames is 9%. Painted steel averages 12% exposure in the ULIC; painted aluminum averages 19% in the USFR. Painted wood exposure averages 9% in the UMFR, 15% in the UMFR, 12% in the USFR and 2% in the UCBD.

In Cincinnati the painted wood exposure is insignificant in the UCBD but averages 14% in the ULIC and 17% in the USFR and UMFR

Table 9. Distribution of building types by sampling frame for New Haven.

	Distribution in each sampling frame (%)				
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*	*NSUB*
Painted wood	0.2	14.0	32.6	60.9	48.7
Painted steel	0.1	1.9	0	0	0
Painted aluminum	3.2	13.0	11.1	2.6	3.1
Painted masonry	1.4	1.7	1.8	2.6	1.3
Painted concrete	3.4	7.1	3.4	2.8	2.2
Painted stucco	5.4	0.5	4.9	2.3	0
Painted other	0	0.2	3.8	0.3	0
Bare brick	34.1	19.7	21.2	11.3	4.9
Bare block	0.2	0.2	0.1	0.6	0
Bare fieldstone	5.3	11.4	0.9	1.0	3.4
Bare galvanized steel	8.3	0.3	0	0	0
Bare marble	3.0	1.4	0	0	0
Bare limestone	0	3.3	0	0	0
Bare granite	1.0	4.9	0.1	0	0.2
Bare wood	0.5	0.8	0.7	1.3	14.1
Bare concrete	22.0	13.3	10.3	5.5	10.2
Bare glass	14.5	9.4	6.4	7.7	7.6
Bare vinyl	0	1.1	0	0	0
Bare other	0.1	3.4	1.8	0	1.5

Table 10. Distribution of building types by sampling frame for Portland.

	Distribution in each sampling frame (%)					
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*	*NSUB*	*NRUR*
Painted wood	17.6	40.0	40.6	43.2	40.7	35.8
Painted steel	2.9	0	0	0	0	0
Painted aluminum	19.3	3.4	2.0	4.9	0.3	8.6
Painted masonry	3.8	6.2	3.4	1.5	0.6	0.9
Painted concrete	2.6	9.2	0.2	2.8	3.7	4.6
Painted stucco	0	0	0	0	0	0
Painted other	0.1	0	7.1	0	4.1	1.5
Painted other (cannot ID)	0.2	1.7	0	0	0	0
Bare brick	27.4	24.6	27.2	13.4	0	0
Bare block	0	0.2	2.5	1.3	3.6	0.2
Bare fieldstone	2.6	2.7	1.3	2.6	0	0.3
Bare galvanized steel	1.6	0	0	0	4.5	0
Bare marble	0	0	0	0	0	0
Bare limestone	0	0	0	0	0	0
Bare granite	2.6	1.7	0	0	0	0
Bare wood	4.5	1.8	2.2	9.7	22.0	19.0
Bare concrete	9.1	2.9	5.8	8.7	2.8	2.8
Bare glass	3.9	4.4	6.4	7.2	17.7	20.3
Bare vinyl	0	0	0	0	0	0
Bare other	4.3	2.0	0	2.1	0	5.8

Table 11. Distribution of building types by sampling frame for Pittsburgh.

	Distribution in each sampling frame (%)			
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*
Painted wood	1.9	9.4	15.5	12.0
Painted steel	6.6	11.6	0.8	0.4
Painted aluminum	1.9	2.3	9.4	19.4
Painted masonry	7.0	3.8	0.4	0.8
Painted concrete	1.0	0	0.2	0
Painted stucco	1.0	0.9	0.4	0.1
Painted other	0.2	1.3	0.2	0.4
Bare brick	0.9	0.9	2.0	2.7
Bare block	4.4	0.6	0	0
Bare fieldstone	13.0	7.9	4.7	2.1
Bare galvanized steel	0.7	3.9	3.9	1.4
Bare marble	0.4	9.1	6.4	9.1
Bare limestone	2.9	1.1	2.6	1.2
Bare granite	0.8	0	0	0
Bare wood	4.1	1.1	0	0
Bare concrete	27.2	33.8	48.1	39.2
Bare glass	18.7	13.4	7.0	10.5
Bare vinyl	0	0	1.4	1.4
Bare other	5.4	1.0	0	0

Table 12. Distribution of building types by sampling frame for Cincinnati.

	Distribution in each sampling frame			
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*
Painted wood	3.6	14.1	17.0	16.7
Painted steel	10.1	7.8	1.0	2.0
Painted aluminum	1.1	7.9	7.9	6.0
Painted masonry	2.7	7.6	2.7	1.1
Painted concrete	8.4	3.6	3.0	4.2
Painted stucco	0	0	0.8	4.7
Painted other	7.5	6.5	6.5	2.2
Painted other (cannot ID)	0.5	0	0	0
Bare brick	0.3	0	0.3	1.2
Bare block	0.5	0	0.2	0.8
Bare fieldstone	12.2	4.1	5.1	3.9
Bare galvanized steel	3.5	0.4	2.3	0.3
Bare marble	4.7	2.2	2.9	1.5
Bare limestone	0.1	0	0.4	0
Bare granite	0.3	0	0	0
Bare wood	0.4	0	0	0
Bare concrete	22.7	29.5	34.2	37.6
Bare glass	13.3	12.5	12.9	13.0
Bare vinyl	0	0.2	0	1.0
Bare other	4.1	0.3	2.1	0.4

(Table 12). Painted steel averages 10% exposure per building in the UCBD and 8% in the ULIC. Painted aluminum averages 8% exposure in the ULIC and UMFR, and 6% in the USFR. Bare concrete exposure is highly significant across all sampling frames, similar to Pittsburgh. The exposure averages 23% in the UCBD, 30% in the ULIC, 34% in the UMFR and 38% in the USFR.

In summary, the predominant materials, as a percentage of the exposed building area, are painted wood, bare concrete and glass. Depending on the city, building materials such as bare brick, bare wood, painted steel and painted aluminum were significant for specific types of structures. The remaining materials were exposed, on the average, at marginal levels.

The multinomial model

The multinomial distribution is a simple extension of the more popular binomial distribution, extended to more than two outcomes (Mood et al. 1974). In the sampling design of Rosenfield (1983), the distribution is a building composed of materials (multinomial). We are examining the fit of the theoretical model to that of the actual observed frequency of materials by sampling frame, with the modeled unit being the observed building. Each outcome j of the multinomial (i.e. each event that occurs with some probability P_j) is the sighting of a material type (i.e. a material of the jth type, say M_j, that is observed with an area greater than zero, such that $A_j > 0$).

Expected vs observed material frequency. The multinomial model for n repeated trials, over $k+1$ possible (and distinct) outcomes (i.e. a sample of n buildings) is

$$f x1,\ldots xk^{(x1,\ldots xk)} = \frac{n! \prod_{j=1}^{k+1} P_j^{X_j}}{\prod X_j!} \qquad (1)$$

where $\sum X_j = n (j = 1,\ldots k+1)$

$\prod$ = product over $j = 1,\ldots k+1$

P_j = probability of outcome j (i.e. the probability of sighting material type j in some building)

X_j = number of times outcome j has occurred in n trials (i.e. buildings)

$f(x1,..xk)^{(x1,..xk)}$ = discrete probability density function, often written as $P(X_1 = x_1, x_2 = x_2, \ldots\ldots, x_{k+1} = x_{k+1})$.

The probability outcomes, the distribution of P_j, may be classified according to the occurrence of an outcome j in one variate, and another outcome i in a second variate.

The two variables considered in this study are a material sighting of type j and a sample frame of class i. The problem is then modeled using a two-way contingency analysis whose probability density function (single observation) case is

$$f(x_{11}, x_{12} \ldots . x_{sk}) = \Pi P_{ij}^{X} \qquad (2)$$

where $i = 1,...s$
$j = 1,...k$
$X_{ij} = 0$ or 1 only
$\Sigma X_{ij} = 1$

and whose likelihood function for a sample of size n is

$$L = \Pi_i \Pi_j \Pi_{ij}^{n_{ij}} \qquad (3)$$

(The function L attains its maximum in the sample space when $P_{ij} = n_{ij} / n$). Hence, the maximum likelihood estimator of the probability of sighting a material of type j in sampling frame i for a sample of size n is

$$P'_{ij} = n_{ij}/n \qquad (4)$$

and the expected frequency is

$$N'_{ij} = n_{ij} P'_{ij} . \qquad (5)$$

Combining eq 2-5, we derive the chi-square statistic for the two-way contingency table:

$$\chi_{2k} = \frac{\Sigma_i \Sigma_j \left(N_{ij} - n_i P'_{ij}\right)^2}{n_i P'_{ij}} \qquad (6)$$

for $i = 1$ or 2 random variables and $j = 1,...k+1$ where χ_{2k} is a limiting chi-square ordinate with $2k$ degrees of freedom, and N_{ij} is the actual observed frequency of material type j in sampling frame i.

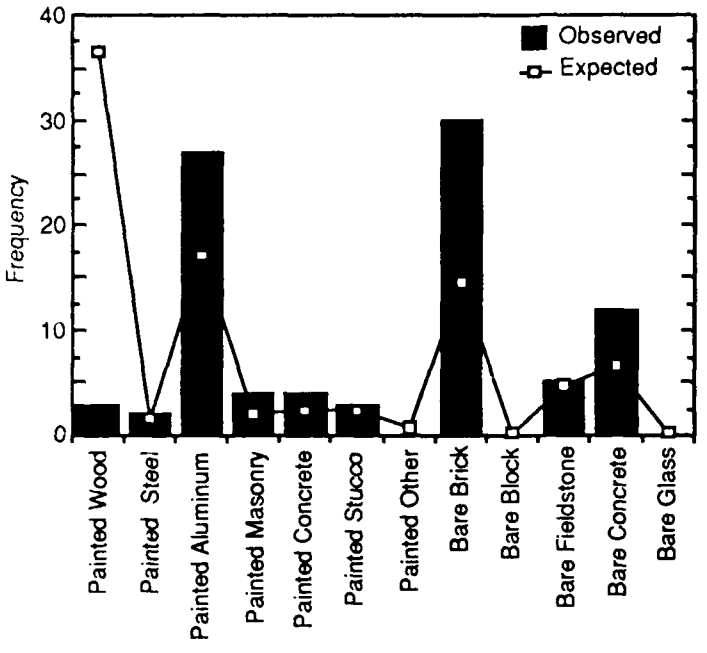
In practice the chi-square ordinate may be used to test for statistical independence of the two variates. The chi-square tests and the two-way contigency tables are provided in Appendix E.

Figures 8–12 show the expected values (strictly from the multinomial distribution) vs the actual values (the observed frequency) for the predominant material types. For each plot the expected values are calculated from eq 5, and the observed values are categorical cross-tabulations of the material sightings by sampling frame. Both the expected and observed frequencies appear in the contingency tables in Appendix E.

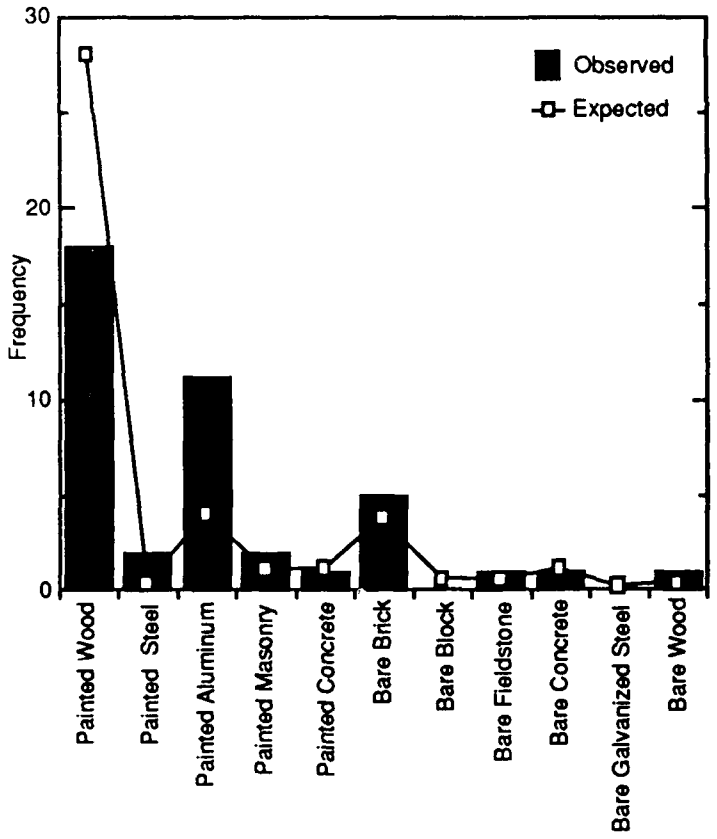
Figure 8 shows the observed vs the expected frequencies for the UCBD sampling frame. In the four surveyed cities, painted wood in the UCBD was observed far below expected levels. For the New Haven UCBD, painted aluminum, bare brick and bare concrete exposure exceeded expectations (by 58% for painted aluminum, 107% for bare brick and 82% for bare concrete). In the Portland UCBD the observed painted aluminum exposure exceeded the expected value by 168%. Bare brick and bare concrete were close to the expected values. In Pittsburgh and Cincinnati the major deviation from the expected exposure is for painted steel; the observed values exceeded the expected frequency by 118% in Pittsburgh and 108% in Cincinnati.

Figure 9 shows the actual vs expected frequencies for the ULIC sampling frame for all the cities. Overall the observed values modeled the expected values for the UCBD. The best fit was for the two largest cities—Pittsburgh and Cincinnati. In the New Haven and Pittsburgh ULIC the expected painted wood exposure exceeded the observed by 35% and 18%, respectively. In Portland and Cincinnati the observed was greater than the expected. The observed frequency of painted aluminum in the ULIC exceeded the multinomial values by 30% in New Haven and 38% in Portland. In Pittsburgh and Cincinnati the observed values were very close to the expected values. There was no bare brick observed in the ULIC for Pittsburgh and Cincinnati. In New Haven and Portland the observed values were less than the expected values.

Summaries of the multinomial fit for the UMFR are shown in Figure 10. The observed painted wood exposure exceeded the multinomial estimates by 28% in New Haven, 17% in the Portland, 31% in Pittsburgh and 21% in Cincinnati. The observed value for bare brick was close to the expected value for Portland but less than the expected value for New Haven. Bare brick was not observed in Pittsburgh and Cincinnati. Painted steel exposure was underestimated in the multinomial for both Pittsburgh and Cincinnati by 275% and 168%, respectively. Painted steel was not observed in New Haven and Portland.

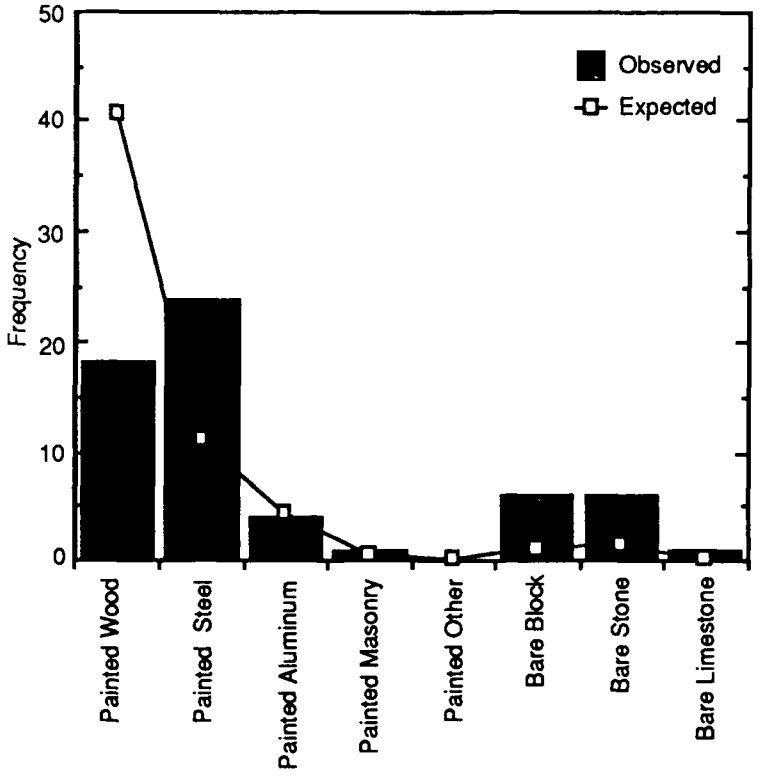


a. New Haven.

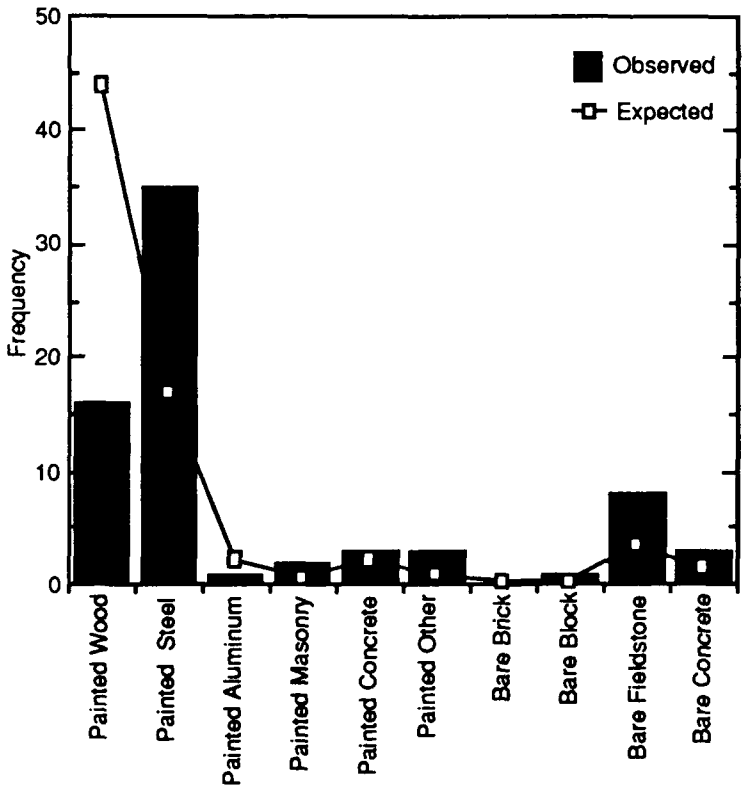


b. Portland.

Figure 8. Observed frequency of building material sightings vs the expected frequency of material sightings (using the multinomial statistic) for the UCBD sampling frame.

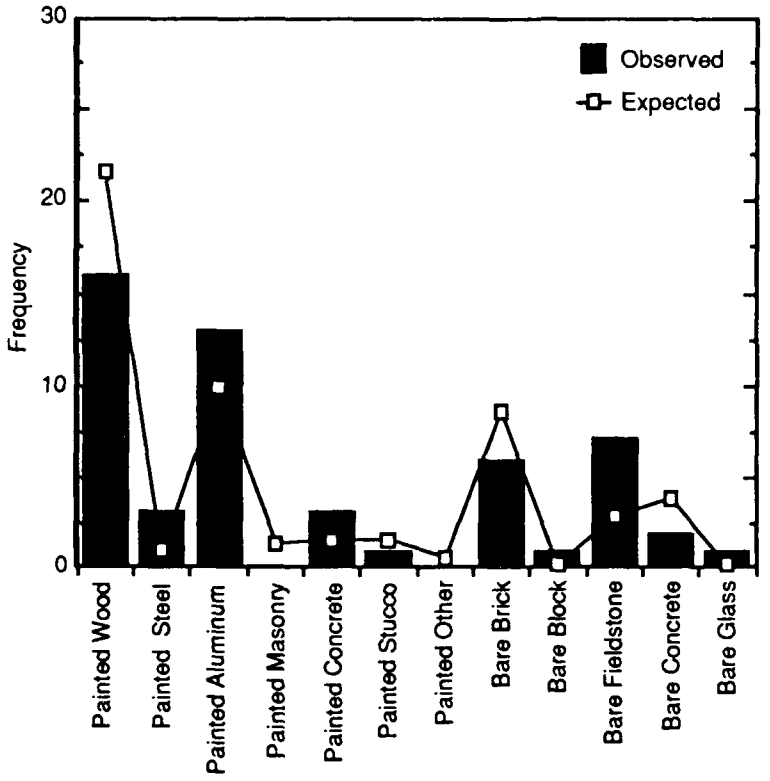


c. Pittsburgh.

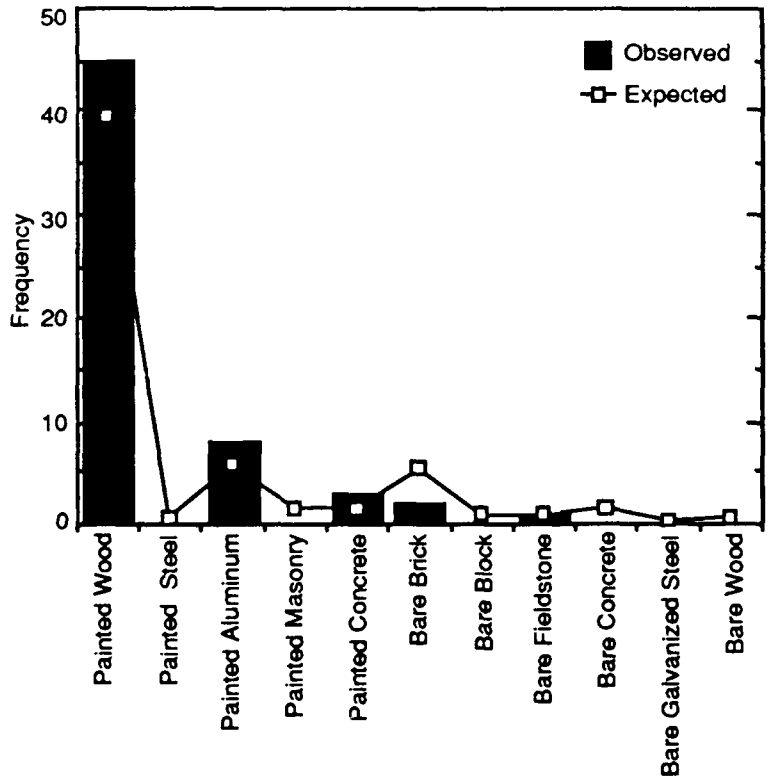


d. Cincinnati.

Figure 8 (cont'd). Observed frequency of building material sightings vs the expected frequency of material sightings (using the multinomial statistic) for the UCBD sampling frame.

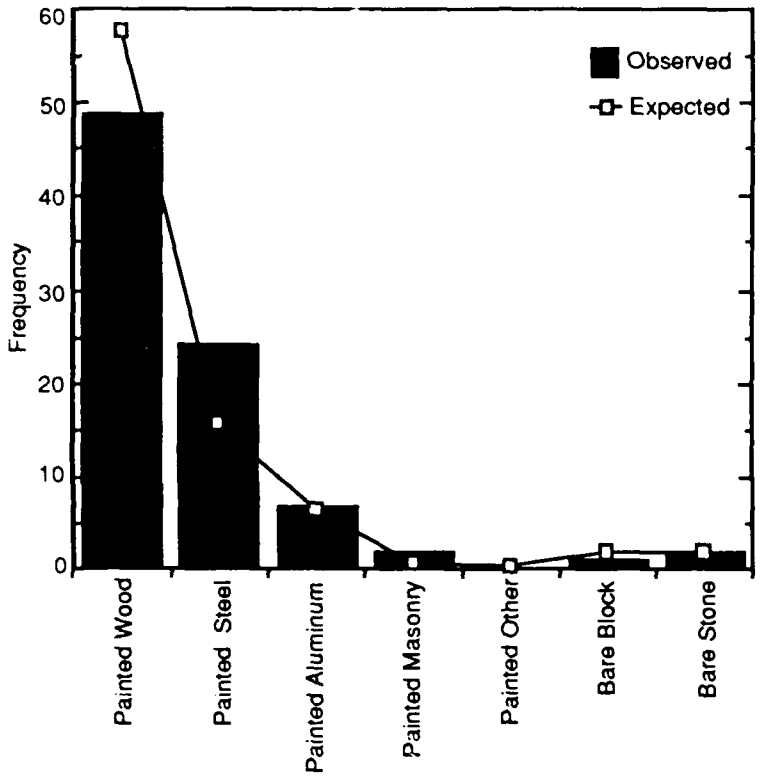


a. New Haven.

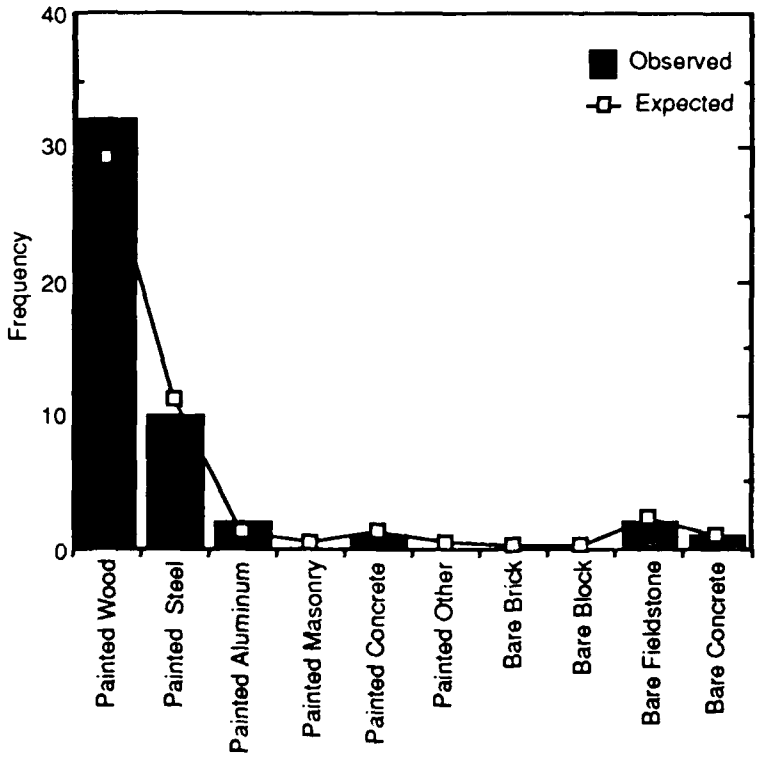


b. Portland.

Figure 9. Observed frequency of building material sightings vs the expected frequency of material sightings (using the multinomial statistic) for the ULIC sampling frame.

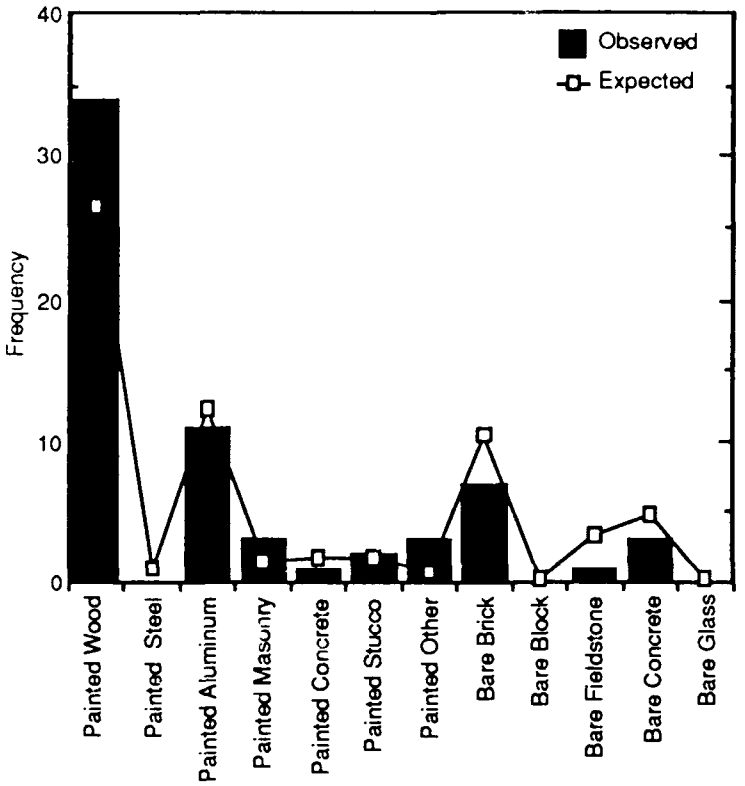


c. Pittsburgh.

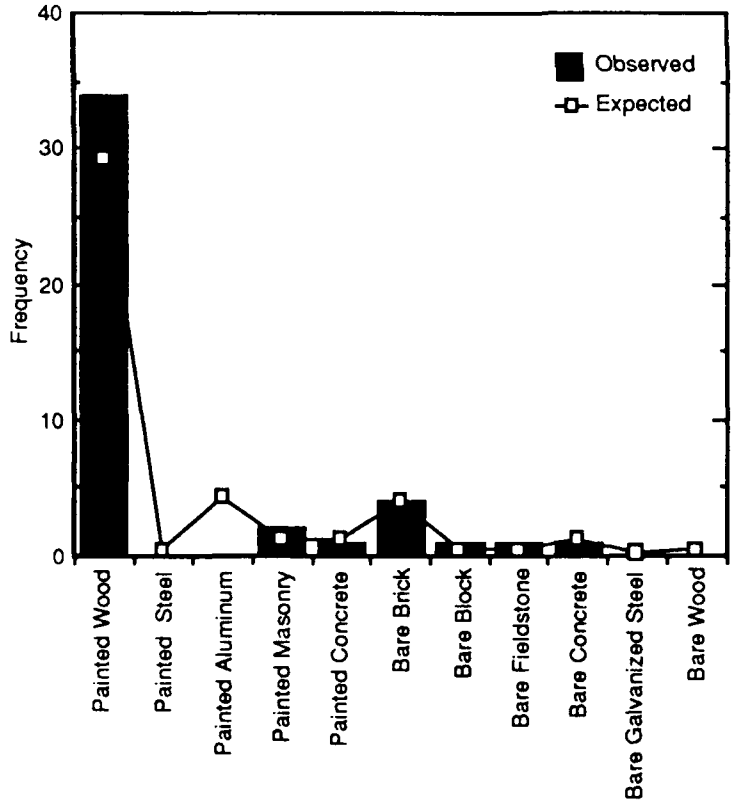


d. Cincinnati.

Figure 9 (cont'd). Observed frequency of building material sightings vs the expected frequency of material sightings (using the multinomial statistic) for the ULIC sampling frame.

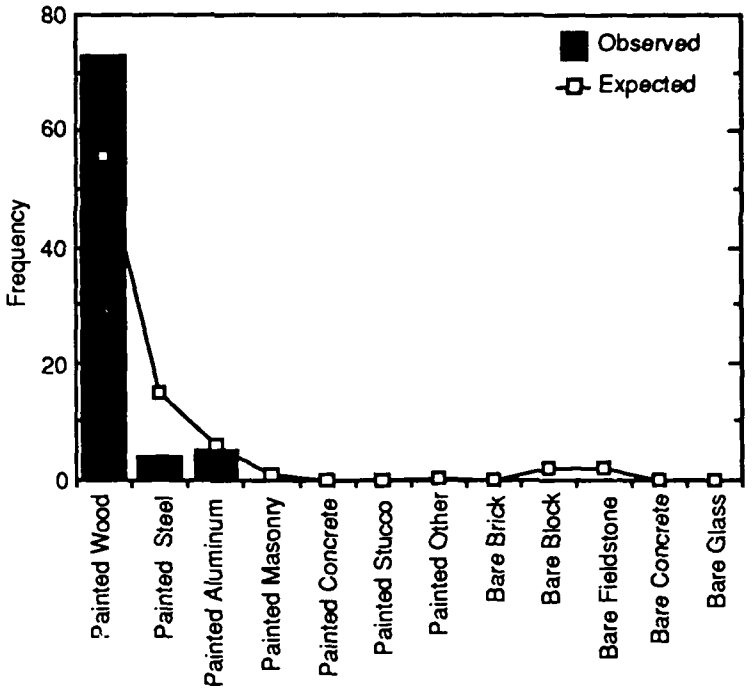


a. New Haven.

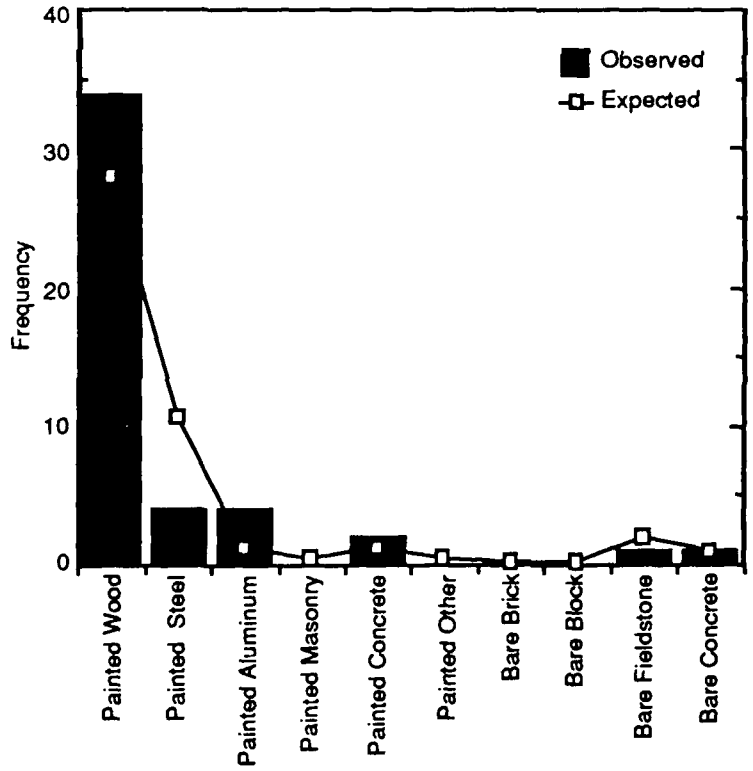


b. Portland.

Figure 10. Observed frequency of building material sightings vs the expected frequency of material sightings (using the multinomial statistic) for the UMFR sampling frame.



c. Pittsburgh.



d. Cincinnati.

Figure 10 (cont'd). Observed frequency of building material sightings vs the expected frequency of material sightings (using the multinomial statistic) for the UMFR sampling frame.

In the USFR (Fig. 11) the painted wood values exceeded the expected values in New Haven, Pittsburgh and Cincinnati. In Portland the estimated frequency agreed with the observed frequency to within 0.4% (24.1 expected vs 24 observed). In New Haven the bare brick exposure was below multinomial expectations. However, the observed bare brick value exceeded the multinomial expectation in Portland but was only at marginal levels in the other two cities. Painted aluminum was below expected levels in New Haven and Portland, above the expected value in Pittsburgh, and not observed in Cincinnati.

The field inventory data for New Haven and Portland included buildings within the NSUB sampling frame, which is the most rural sampling frame classification (Fig. 12). In New Haven the painted wood exposure exceeded the multinomial estimate by 98% (33 vs 16.7). The painted wood estimate and the observed frequency coincide in the Portland NSUB. In both cities the expected values of painted aluminum and bare brick exceeded the observed values.

Level of association between sampling frame and material type. The chi-square tests and related contingency statistics for the cross tabulation of material type by sampling frame are provided in Appendix E. The significance level in the chi-square test may be interpreted as the probability of getting a chi-square ordinate of the value observed (or one greater) given the null hypothesis (i.e. that statistical independence is true). Thus, small probabilities suggest a small likelihood of independence, and larger probabilities (0.10 and above) imply a strong potential for statistical association. This statistic is used to determine whether or not there is a systematic relationship between two variables (the test of statistical independence).

For each city the significance of the chi-square ordinate is consistently less than or equal to 0.0001, indicating that the sampling frame and the sighting of the material type (whether it is observed or not observed) are statistically non-independent. The term "statistical non-independence" is used to describe one conclusion from the chi-square test. By definition, the chi-square statistic does not test for statistical dependence, only lack of independence.

The degree of "dependency" varies by location and sampling frame. This variance by sample frame has suggested that simply selecting buildings from address lists of relevant building types may be more efficient.*

In New Haven, the uncertainty coefficient† suggests that knowledge of the sampling frame leads to a 21.4% increase in knowledge of a particular material sighting (in that sampling frame). The knowledge increase is only 12.7% in Portland, 12.1% in Pittsburgh and 16.2% in Cincinnati.

The linear association between sampling frame and material sighting varies by location and sampling frame with the degree of "dependency." In New Haven the Pearson's R is -0.42, indicating that material frequencies decline from upper left of the contingency table to the lower right of the table (i.e. from more-populated sampling frames and painted materials to less-populated sampling frames and bare materials). In Portland the Pearson's R drops to 0.1, suggesting marginal linear association between sampling frame and material frequency. For Pittsburgh and Cincinnati the Pearson's R values are -0.36 and –0.34, respectively.

The degree of linear association for New Haven, Pittsburgh and Cincinnati appear to be similar. In addition the cities show similar patterns of material sighting (similar correlation magnitude and slope).

Each city showed strong evidence of statistical "non-independence" between sample frame category and material type. Other chi-square tests might include grouping materials into composite categories, in the same way that the original five material composites were grouped (Merry and LaPotin 1985b). The grouped materials would eliminate a number of the "empty" cells in the contingency tables and thereby project a more accurate chi-square test for independence.

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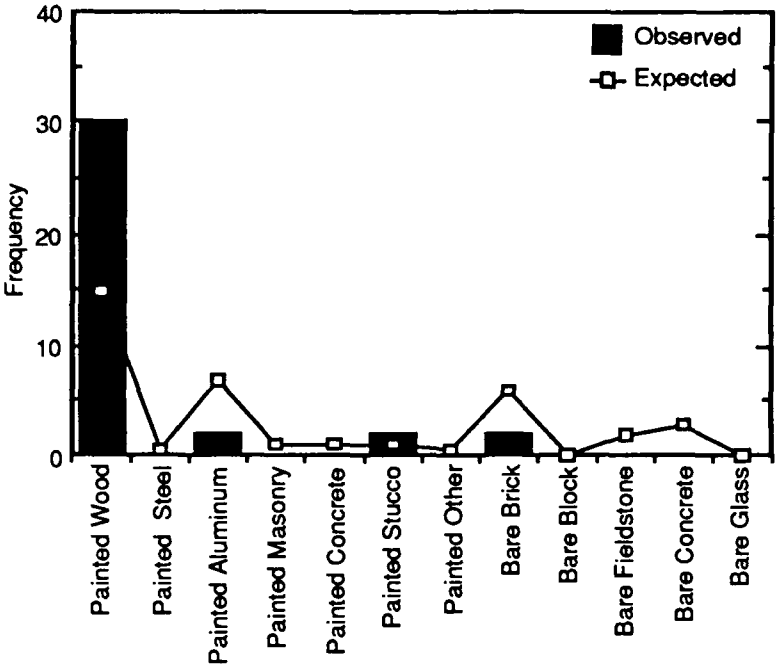
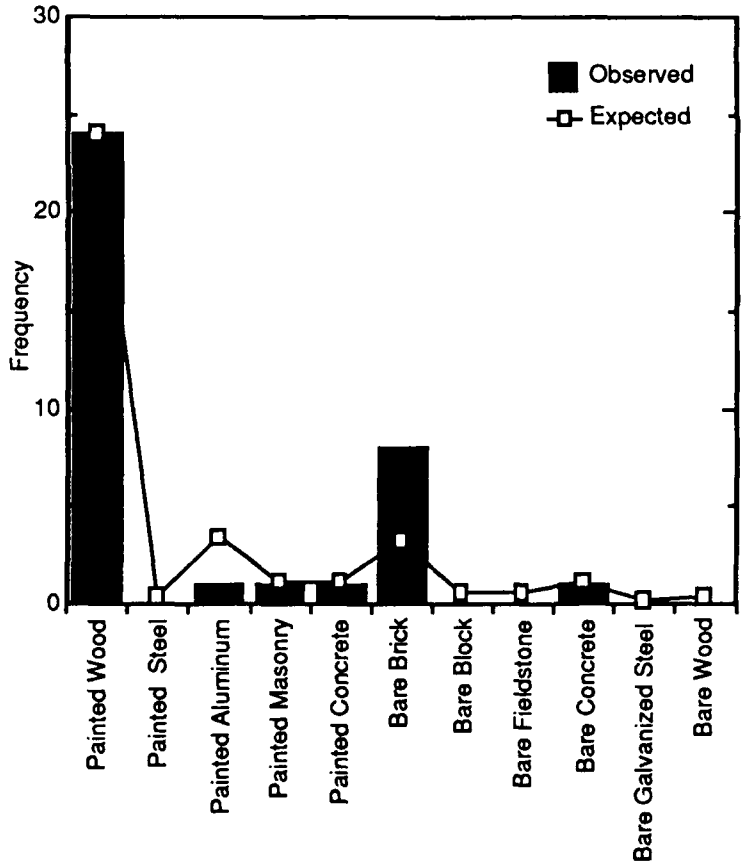
*Personal communication with R. Livingston, 1986.

†The uncertainty coefficient is a measure of uncertainty reduction in the dependent variable as a result of knowledge about the behavior of the independent variable. "The maximum value for the uncertainty coefficient is 1.0, which denotes the complete elimination of uncertainty. As with the lambda, this is achieved only when each category of the independent variable is associated with a single category on the dependent variable. When no improvement occurs, the uncertainty coefficient takes on the value of zero" (Nie et al. 1975, pp. 226–227).

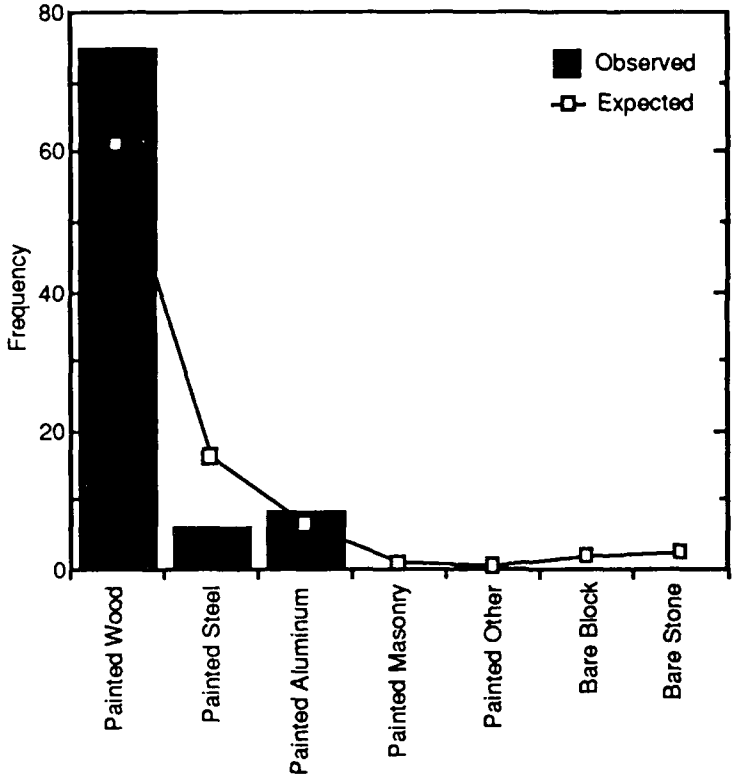


a. New Haven.

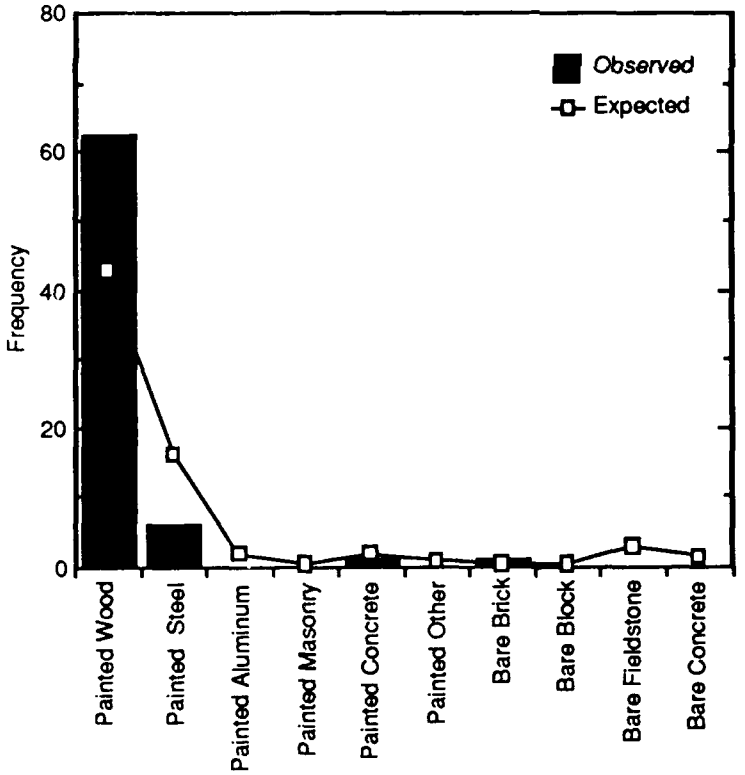


b. Portland.

Figure 11. Observed frequency of building material sightings vs the expected frequency of material sightings (using the multinomial statistic) for the USFR sampling frame.

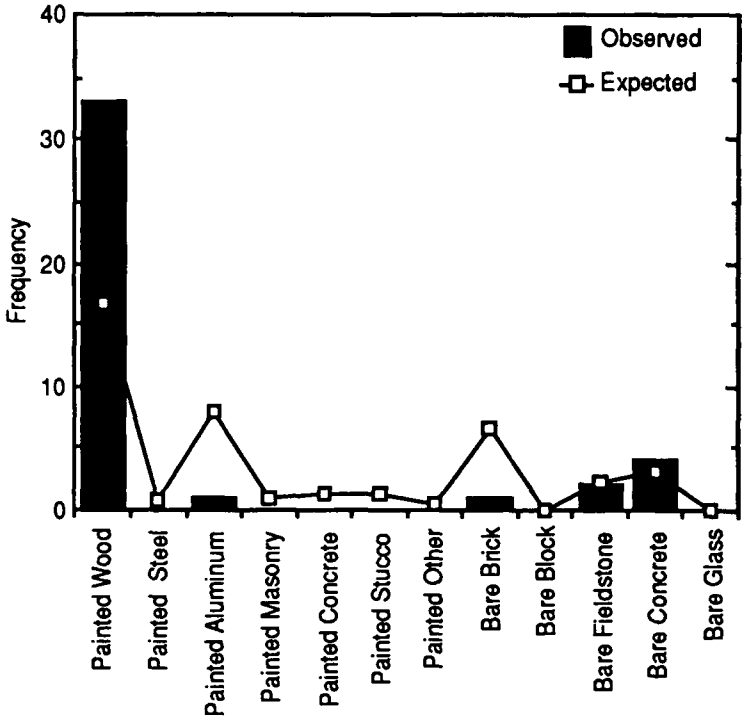


c. Pittsburgh.

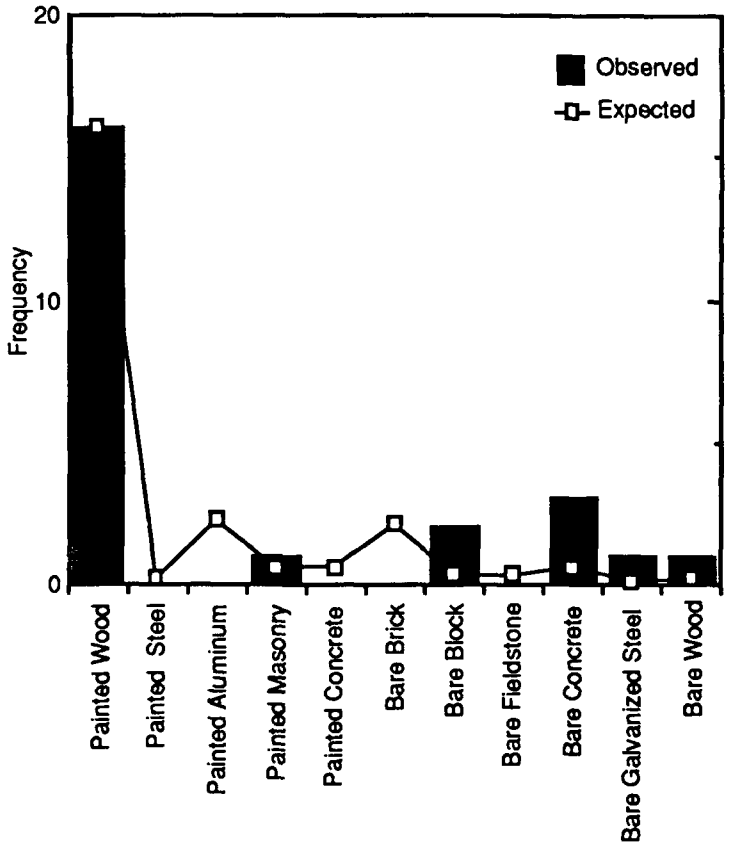


d. Cincinnati.

Figure 11 (cont'd).



a. New Haven.



b. Portland.

Figure 12. Observed frequency of building material sightings vs the expected frequency of material sightings (using the multinomial statistic) for the NSUB sampling frame.

Tolerance levels

The purpose of this section is to examine the a priori sampling tolerance error of 20%, at the 90% confidence level, to determine if these criteria were met by the survey (i.e. how accurately were material proportions and footprint sizes estimated prior to the actual survey). In the initial sample design the number of samples per sampling frame was determined by the Tortora (1978) relationship:

$$n = \frac{\chi^2_{(1,1-\alpha/k)}\, p_j (1 - p_j)}{\delta_j^2}. \qquad (7)$$

There were four constraints. First, the proportion for material type j, the variable p_j, was set to the most conservative value (i.e. $p_j = 0.50$). This value is most conservative since the sample size is a function of the product of p_j and $(1 - p_j)$, and is therefore symmetric about the value of $p_j = 0.50$. Second, the significance level for the test, the variable a, was set to 0.10 (i.e. a 10% test). Third, it was assumed that there were five wall materials (i.e. $k = 5$), and last, but most important, a 20% tolerance ($\delta = 0.20$) value was used. The tolerance represents the sampling error between the observed proportion of a given wall material and its true proportion from the population of buildings.

These values, however, were modified prior to the initial New Haven survey to include 21 wall material categories, not the original five. In addition, the average proportions for each of the 21 material types varied from the theoretical maximum of 0.50. Each footprint placed within a sampling frame did not always contain a structure.

In Figure 13 the tolerance values for each of the four cities are plotted by material type and sampling frame. The tolerance values were calculated from Tortora's equation, rewritten in terms of δ:

$$\delta_{js} = \sqrt{\frac{\chi^2_{(1,1-\alpha/k)} p_{js}(1-p_{js})}{n_s}}. \qquad (8)$$

Each p_{js} represents the average proportional exposure of the material type j ($j = 1$ to 21) by sample frame s (where s=1 for UCBD, 2 for ULIC, 3 for UMFR, 4 for USFR, 5 for NSUB and 6 for NRUR). The value n_s is the number of structures observed within the sampling frame s. The values of α and k are constant at 0.10 and 21, respectively.

These plots show that the sampling tolerance of 20% was met for all materials and sampling frames, except for the following cases: painted wood in the USFR and NSUB of New Haven; painted wood in the UMFR, USFR and NSUB of Portland; painted aluminum in the Portland NRUR; bare brick in the Portland UCBD; bare glass in the Portland NSUB and NRUR; bare wood in the Portland NSUB and NRUR; and bare concrete in the Cincinnati UMFR. These material type and sampling frame combinations exceeded the 20% tolerance level in the sample because the average proportion of exposure for those material types p_{js} were closer to the 50% exposure than anticipated, or the number of buildings observed in the sample frame was significantly below the expected frequency of one building per footprint, or both. This is evident by examining eq 8; the value of δ_{js} increases as p_{js} approaches 0.5. Conversely, increasing values of n_s decrease the values of δ_{js}.

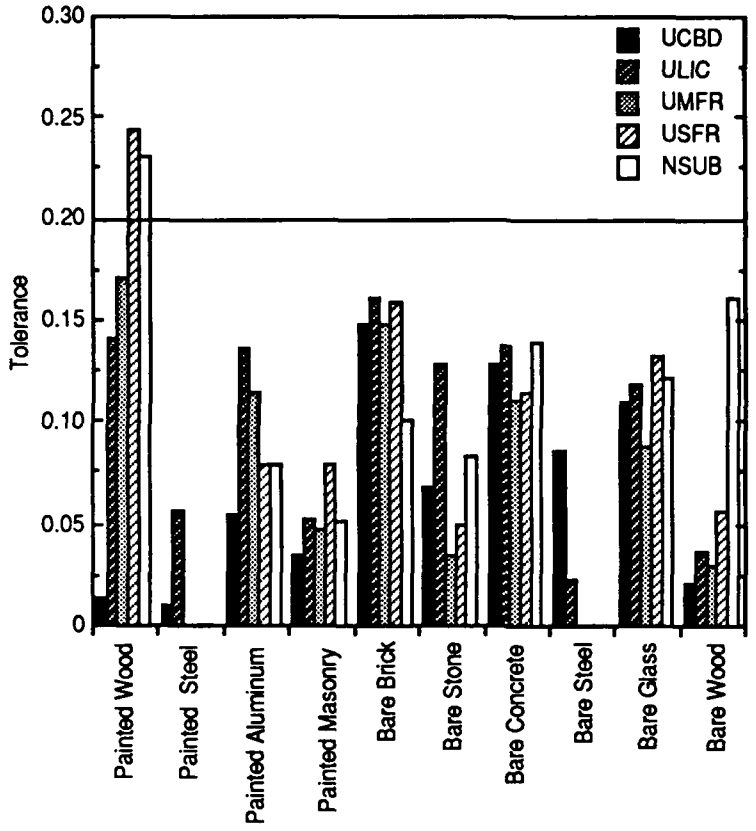
To measure which factor had the predominant effect on the tolerance, the following statistic was constructed:

$$\frac{\left|(p_j - p_{j\,max})/p_{j\,max}\right|}{n_{empty}/n_{total}}. \qquad (9)$$

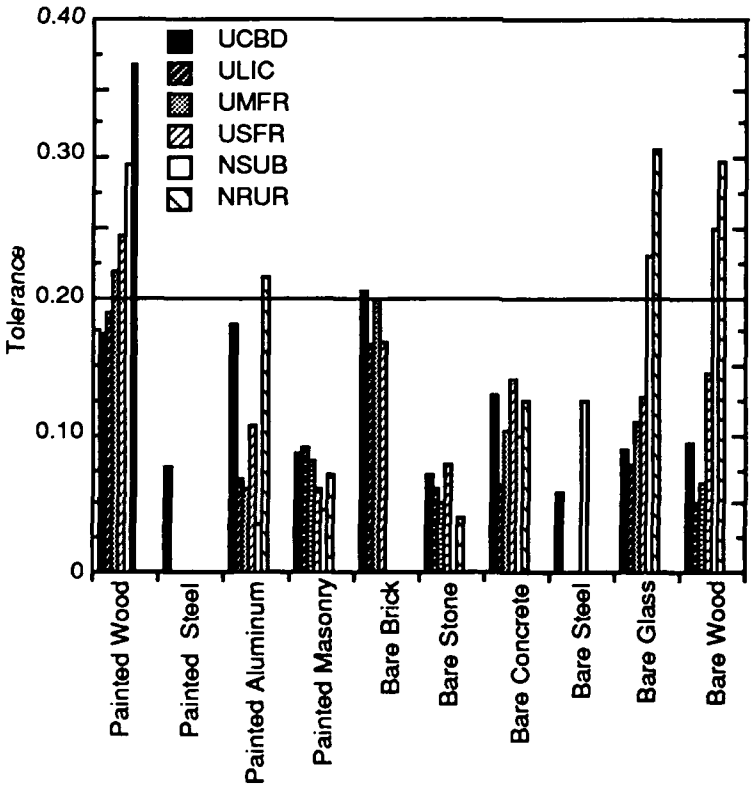
This statistic measures the deviation of the observed proportion p_j from the maximum proportion effect on the sample size (i.e. $p_{j\,max} = 0.50$) relative to this maximum in the numerator, and it measures the ratio of empties to the total number of footprints in the denominator. The values for this statistic appear in Table 13 with the numerator and denominator values shown separately.

This table suggests that painted aluminum exceeded the 20% tolerance value due primarily because of the number of empties observed in the NRUR (80%). The converse appears for painted wood in the NSUB of New Haven, where the proportion deviated from the maximum by only 2%. The other cases appear to be caused by the combined effects of the two factors, each contributing significantly to the tolerance value.

In general the tolerance value of 20% was observed throughout the sample. The Pittsburgh sample had all materials within the 20% level. Of the 12 cases where the tolerance value was exceeded, 9 were in the Portland sample. The Cincinnati survey exceeded the 20% level in only one

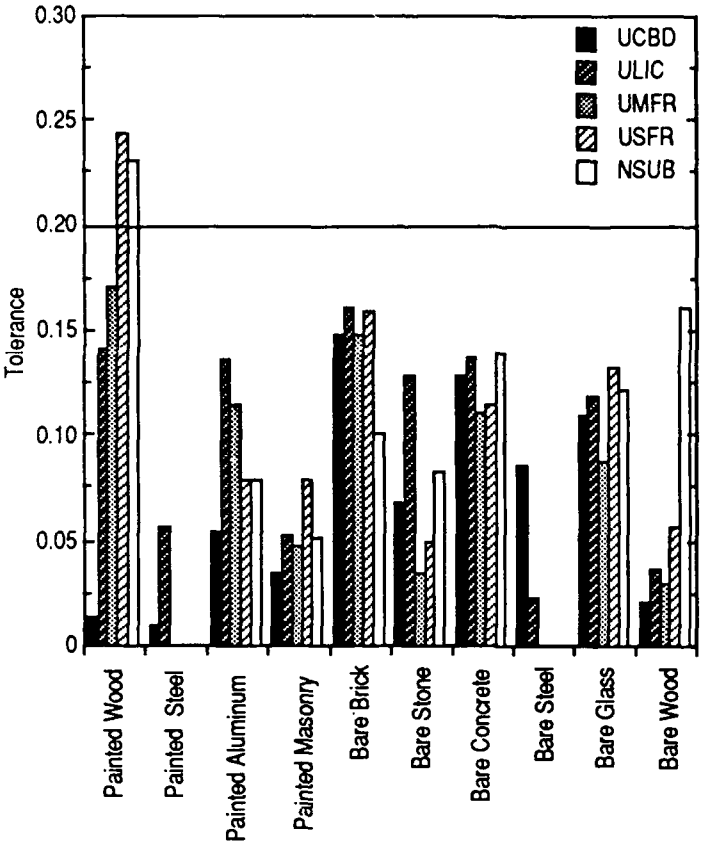


a. New Haven

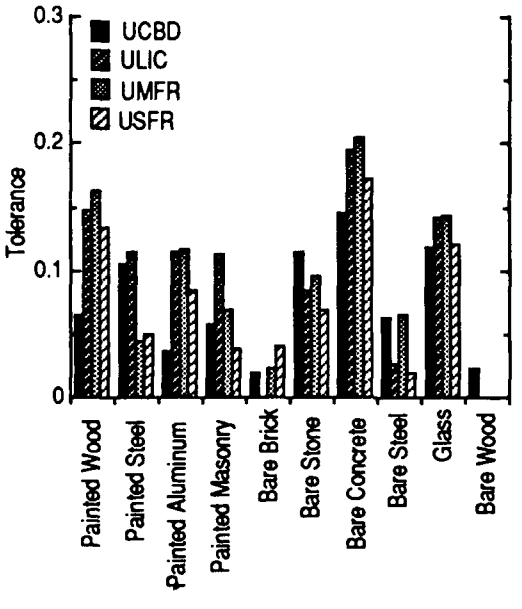


b. Portland.

Figure 13. Tolerance values for the 21 material types by sampling frame.



c. Pittsburgh.



d. Cincinnati.

Figure 13 (cont'd).

Table 13. Percent deviation of the proportion from 0.50 (maximum) to the percentage of empty footprints observed within each sample frame for the four cities.

	New Haven	*Portland*	*Pittsburgh*	*Cincinnati*
Painted Wood				
UMFR		18/44		
USFR	22/69	14/51		
NSUB	2/68	18/66		
Painted Aluminum				
NRUR		82/80		
Bare Brick				
UCBD		46/50		
Glass				
NSUB		65/66		
NRUR		56/80		
Bare Wood				
NSUB		60/66		
NRUR		62/80		
Bare Concrete				
UMFR				32/52

category. Of the 21 material types sampled in the 19 sampling frames (5 in New Haven, 6 in Portland, 4 in Pittsburgh and 4 in Cincinnati), only 12 of the material classes exceeded the 20% tolerance. This means that 97% of the sample was within the a priori 20% tolerance level.*

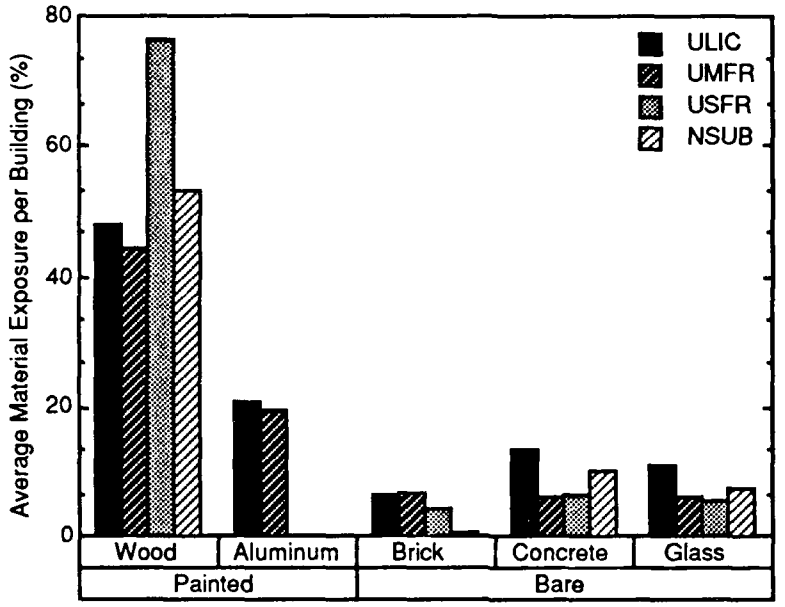
Predominant materials for residential structures

The distribution of materials in residential buildings may be examined by classifying the material exposure by the building type (e.g. single-unit) for each sampling frame for each of the four cities. Appendix F shows the cross-tabulations of material exposure for residential buildings. Bar charts of these cross-tabulations are provided in Figure 14 as a percentage of the overall building exposure.

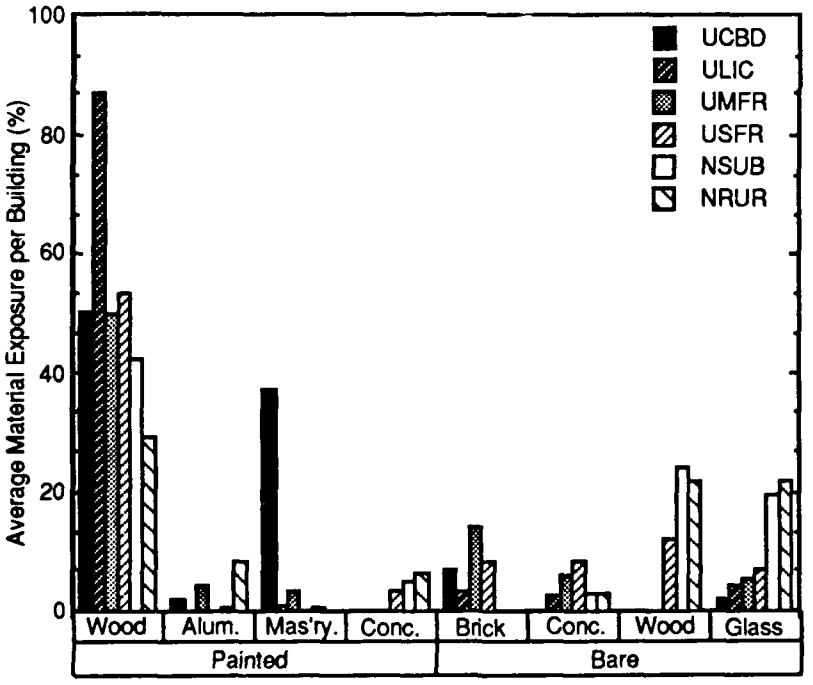
Patterns of residential exposure vary by city. New Haven and Portland show large average exposures of painted wood, whereas bare concrete predominates in Pittsburgh (Tables 14–17). New Haven and Portland residential structures have approximately 7% and 10%, respectively, of glass exposure. Glass exposure represents, on average, 6–10% of the total material exposure by sampling frame in Pittsburgh and 14% in Cincinnati.

The predominant materials in New Haven residential buildings, as a percentage of the overall material exposure, are painted wood, painted aluminum, bare brick, bare concrete and bare glass. In Portland the building materials are principally painted wood and painted masonry in the UCBD. Painted and bare wood and glass predominate in the nonurban sampling frames. In Pittsburgh, painted wood, painted aluminum and bare concrete predominate. In Cincinnati, painted wood, painted aluminum and bare concrete and glass are the major materials.

*Calculated using 19 sampling frames x 21 material types = 399; 1 - (12/399) = 0.97, or 97%.

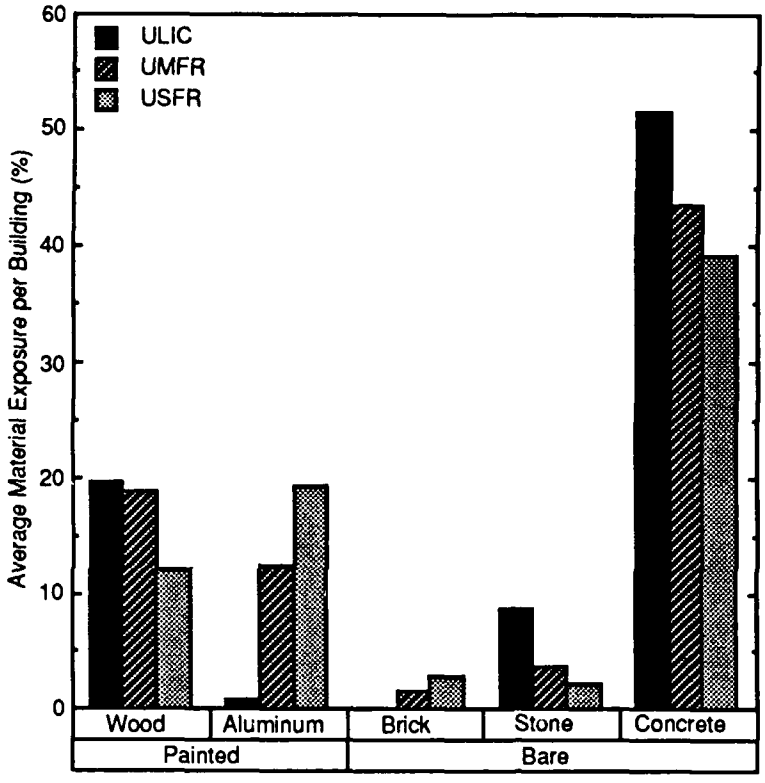


a. New Haven.

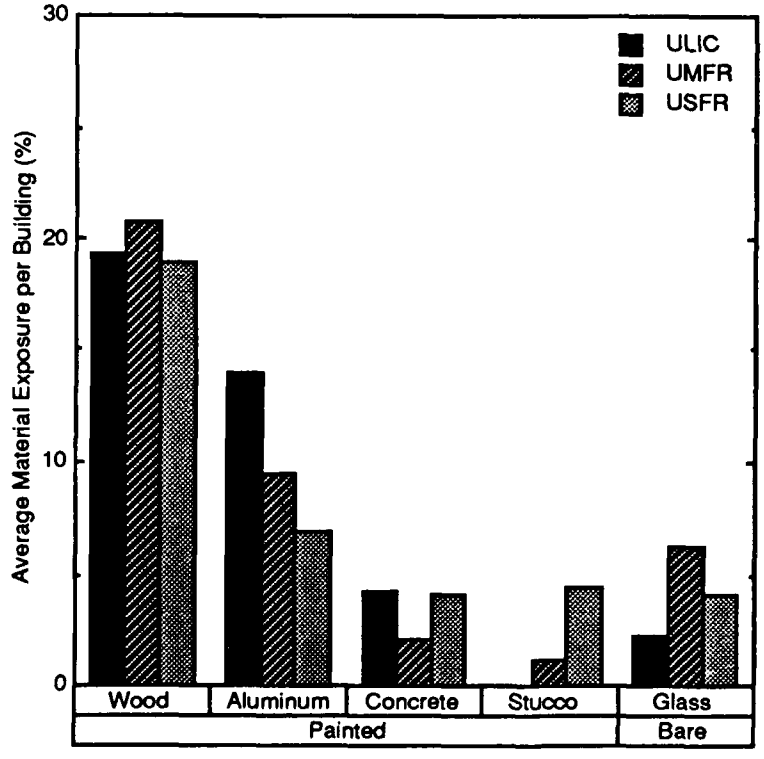


b. Portland.

Figure 14. Average building material exposure as percentage of the building for the residential structures by sampling frame.



c. Pittsburgh.



d. Cincinnati.

Figure 14 (cont'd). Average building material exposure as percentage of the building for the residential structures by sampling frame.

Table 14. Distribution of material types by sampling frame for residential buildings in New Haven.

	Distribution in each sampling frame (%)				
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*	*NSUB*
Painted wood	0	48.1	44.2	76.3	53.4
Painted steel	0	0	0	0	0
Painted aluminum	0	20.5	19.7	0	0
Painted masonry	0	0	3.2	0.1	1.4
Painted concrete	0	0	0	3.4	2.2
Painted stucco	0	0	5.3	0.8	0
Painted other	0	0	8.0	0.4	0
Bare brick	0	6.5	6.9	4.3	0.9
Bare block	0	0.3	0	0	0
Bare fieldstone	0	0	0	1.3	3.7
Bare galvanized steel	0	0	0	0	0
Bare marble	0	0	0	0	0
Bare limestone	0	0	0	0	0
Bare granite	0	0	0	0	0.2
Bare wood	0	0	0.4	0	15.6
Bare concrete	0	13.5	5.9	6.3	10.2
Bare glass	0	11.1	6.1	5.8	7.5
Bare vinyl	0	0	0	0	0.
Bare other	0	0	0.2	0	1.7
Bare other (cannot ID)	0	0	0.1	0	0

Table 15. Distribution of material types by sampling frame for residential buildings inPortland.

	Distribution in each sampling frame (%)					
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*	*NSUB*	*NRUR*
Painted wood	50.4	86.7	50.1	53.6	42.4	29.3
Painted steel	0	0	0	0	0	0
Painted aluminum	1.9	0	4.4	0	0.4	8.4
Painted masonry	37.3	1.1	3.2	0.1	0.4	0
Painted concrete	0	0	0	3.5	5.0	6.3
Painted stucco	0	0	0	0	0	0
Painted other	0	0	11.9	0	5.5	2.0
Bare brick	6.7	3.4	13.9	8.3	0	0
Bare block	0	0.5	0.6	1.2	0	0
Bare fieldstone	1.9	0.8	2.3	2.0	0	0
Bare galvanized steel	0	0	0	0.1	0	0
Bare marble	0	0	0	0	0	0
Bare limestone	0	0	0	0	0	0
Bare granite	1.9	0	0	0	0	0
Bare wood	0	0	0.2	12.1	24.4	21.6
Bare concrete	0	2.3	5.8	8.1	2.7	2.8
Bare glass	1.9	4.4	5.4	6.6	19.2	21.7
Bare vinyl	0	0	0	0	0	0
Bare other	0	0	0	2.6	0	7.9

Table 16. Distribution of material types by sampling frame for residential buildings in Pittsburgh.

	Distribution in each sampling frame (%)			
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*
Painted wood	0	19.6	18.7	12.0
Painted steel	0	0	0.1	0.4
Painted aluminum	0	0.8	12.3	19.4
Painted masonry	0	0	0.1	0.8
Painted concrete	0	0	0.1	0
Painted stucco	0	0	0.5	0.1
Painted other	0	0	0.2	0.4
Bare brick	0	0	1.5	2.7
Bare block	0	0	0	0.
Bare fieldstone	0	8.6	3.7	2.1
Bare galvanized steel	0	8.4	3.6	1.4
Bare marble	0	3.1	7.8	9.1
Bare limestone	0	9.8	4.0	1.2
Bare granite	0	0	0	0
Bare wood	0	0	0	0
Bare concrete	0	51.7	43.6	39.2
Bare glass	0	6.2	5.6	10.5
Bare vinyl	0	0	1.9	1.4
Bare other	0	0	0	0

Table 17. Distribution of material types by sampling frame for residential buildings in Cincinnati.

	Distribution in each sampling frame (%)			
Building type	*UCBD*	*ULIC*	*UMFR*	*USFR*
Painted wood	0	19.4	20.7	19.0
Painted steel	0	0.1	0.8	0.2
Painted aluminum	0	14.0	9.5	6.9
Painted masonry	0	7.7	0.8	0
Painted concrete	0	4.3	2.2	4.2
Painted stucco	0	0	1.3	4.5
Painted other	0	8.8	4.5	0.4
Bare brick	0	0	0	1.3
Bare block	0	0	0	0.1
Bare fieldstone	0	2.3	6.3	4.2
Bare galvanized steel	0	0.3	3.2	0.3
Bare marble	0	1.0	0.3	1.8
Bare limestone	0	0	0.6	0
Bare granite	0	0	0	0
Bare wood	0	0	0	0
Bare concrete	0	25.0	35.5	39.0
Bare glass	0	14.6	14.1	13.6
Bare vinyl	0	0.4	0	0.4
Bare other	0	0.5	0.3	0.4
Bare other (cannot ID)	0	0	0	0.1

CONCLUSIONS

An analysis of average footprint size indicated that the techniques used to estimate the footprints were adequate for each city. The footprint size was large compared to the buildings in the most rural tract (NSUB). However, large variations in building size within the ULIC sampling frame for New Haven and Cincinnati were difficult to handle using the sampling frame footprint approach.

The average number of buildings per footprint varied considerably for Pittsburgh and Cincinnati (the standard deviations were larger than in New Haven and Portland). Close to one building per footprint was found in the smaller cities of New Haven and Portland. In general the larger cities showed greater diversity of building density by sampling frame.

Building type varied considerably between cities and sampling frames. Most commercial structures were located in the UCBD and the ULIC. The data showed that these sampling frames were an excellent variable for predicting the degree of commercialization (i.e. the sampling frame is based on building and population density). With the exception of the USFR in Portland, the number of commercial buildings declined with sampling frame from UCBD to NRUR in each city.

The predominant material exposures, measured as a percentage of the exposed building area, were painted wood and bare concrete. Depending on the city, additional materials such as bare brick, bare wood, painted steel and painted aluminum were observed at significant levels. On the average the remaining materials were not observed very often.

A fit of the expected frequency of exposure for the 21 material types by sampling frame for the multinomial model revealed a similar degree of linear association for New Haven, Pittsburgh and Cincinnati. The degree of "dependency" varied by location and sampling frame. Variations in the uncertainty reduction ranged from 21.4% in New Haven to 12.1% in Pittsburgh. In New Haven, Pittsburgh and Cincinnati, the Pearson's R value from the contingency table suggested a decline in frequency as sampling frames became more rural (i.e. from UCBD to NSUB) and as materials classifications moved from painted to bare material types. Portland did not follow the pattern of declining frequency by sampling frame and material type.

In general the tolerance value of 20% or less was observed throughout the four cities. The Pittsburgh sample had all materials within the 20% level. For the 12 cases where the tolerance value was exceeded, 9 were in the Portland sample. The Cincinnati survey exceeded the 20% level only in the bare concrete category in the UMFR. In summary, 97% of the four-city sample was within the a priori 20% tolerance level.

The predominant residential materials, as a percentage of overall material exposure, were painted wood and painted aluminum in New Haven. In Portland the major materials were painted wood and painted masonry. In Pittsburgh the major material types were painted wood, painted aluminum and bare concrete. In Cincinnati the major materials were painted wood and painted aluminum.

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APPENDIX A: ANOVA TABLES FOR THE RATIO OF BUILDING FOOTPRINT TO SAMPLING FOOTPRINT BY SAMPLING FRAME FOR THE FOUR CITIES.

NEW HAVEN

CRITERION VARIABLE RBFOOT RATIO BUILD FOOT TO ACTUAL FOOT
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	67.5350	.7504	.9617	82.3151	90
2	ULIC	68.2518	1.2878	2.1636	243.4121	53
3	UMFR	38.2488	.5884	1.2962	107.5296	65
4	USFR	14.8887	.4136	.6611	15.2955	36
5	NSUB	1.3681	.0334	.0444	.0790	41
WITHIN GROUPS TOTAL		190.2924	.6677	1.2658	448.6312	285

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	40.2238	4	10.0559	6.2761	.0001
LINEARITY	20.9353	1	20.9353	13.0661	.0004
DEV FROM LINEARITY	19.2885	3	6.4295	4.0128	.0081
	R =-0.2069		R SQUARED = .0428		
WITHIN GROUPS	448.6312	280	1.6023		
	ETA = .2868		ETA SQUARED = .0823		

* *

PORTLAND

CRITERION VARIABLE RBFOOT RATIO BUILD FOOT TO ACTUAL FOOT
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	16.8651	.4016	.1855	1.4112	42
2	ULIC	12.3544	.2094	.1547	1.3874	59
3	UMFR	18.2852	.4156	.2685	3.0989	44
4	USFR	8.7050	.2418	.2654	2.4660	36
5	NSUB	.3073	.0128	.0164	.0062	24
WITHIN GROUPS TOTAL		56.5170	.2757	.2046	8.3698	205

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	3.4855	4	.8714	20.8220	.0000
LINEARITY	1.2286	1	1.2286	29.3586	.0000
DEV FROM LINEARITY	2.2569	3	.7523	17.9764	.0000
	R =-0.3219		R SQUARED = .1036		
WITHIN GROUPS	8.3698	200	.0418		
	ETA = .5422		ETA SQUARED = .2940		

* *

PITTSBURGH

CRITERION VARIABLE RBFOOT RATIO: BUILD FOOT TO ACTUAL FOOT
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	23.9219	.3987	.8490	42.5224	60
2	ULIC	25.9859	.3057	.6306	33.4068	85
3	UMFR	3.2679	.0399	.0844	.5765	82
4	USFR	.3244	.0036	.0012	.0001	90
WITHIN GROUPS TOTAL		53.5000	.1688	.4944	76.5057	317

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG
BETWEEN GROUPS	8.5841	3	2.8614	11.7064	.0000
LINEARITY	7.8398	1	7.8398	32.0742	.0000
DEV FROM LINEARITY	.7443	2	.3722	1.5225	.2198
	R =-0.3035	R SQUARED =	.0921		
WITHIN GROUPS	76.5057	313	.2444		
	ETA = .3176	ETA SQUARED =	.1009		

* *

CINCINNATI

CRITERION VARIABLE RBFOOT RATIO: BUILD FOOT TO ACTUAL FOOT
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	26.1395	.3630	.4981	17.6121	72
2	ULIC	33.5946	.6999	2.7021	343.1734	48
3	UMFR	8.4773	.1843	.5782	15.0434	46
4	USFR	2.9897	.0427	.1241	1.0619	70
WITHIN GROUPS TOTAL		71.2011	.3017	1.2746	376.8909	236

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	13.2110	3	4.4037	2.7107	.0458
LINEARITY	6.1909	1	6.1909	3.8109	.0521
DEV. FROM LINEARITY	7.0201	2	3.5101	2.1607	.1176
	R =-0.1260	R SQUARED =	.0159		
WITHIN GROUPS	376.8909	232	1.6245		
	ETA = .1840	ETA SQUARED =	.0339		

* *

APPENDIX B: ANOVA TABLES FOR THE NUMBER OF BUILDINGS PER SAMPLING FRAME FOR THE FOUR CITIES.

NEW HAVEN

DESCRIPTION OF SUBPOPULATIONS

CRITERION VARIABLE NBUILD
BROKEN DOWN BY SFRAME SAMPLING FRAME

VARIABLE	VALUE	LABEL	MEAN	STD DEV	CASES
FOR ENTIRE POPULATION			1.2386	.5807	285
SFRAME	1	UCBD	1.2444	.4322	90
SFRAME	2	ULIC	1.4151	.9494	53
SFRAME	3	UMFR	1.0923	.2917	65
SFRAME	4	USFR	1.0278	.1667	36
SFRAME	5	NSUB	1.4146	.7062	41

TOTAL CASES = 285

CRITERION VARIABLE NBUILD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	112.0000	1.2444	.4322	16.6222	90
2	ULIC	75.0000	1.4151	.9494	46.8679	53
3	UMFR	71.0000	1.0923	.2917	5.4462	65
4	USFR	37.0000	1.0278	.1667	.9722	36
5	NSUB	58.0000	1.4146	.7062	19.9512	41
WITHIN GROUPS TOTAL		353.0000	1.2386	.5665	89.8597	285

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	5.9157	4	1.4789	4.6083	.0013
LINEARITY	.0224	1	.0224	.0698	.7919
DEV. FROM LINEARITY	5.8933	3	1.9644	6.1211	.0005
	R =-0.0153	R SQUARED =	.0002		
WITHIN GROUPS	89.8597	280	.3209		
	ETA = .2485	ETA SQUARED =	.0618		

* *

PORTLAND

DESCRIPTION OF SUBPOPULATIONS

CRITERION VARIABLE NBUILD
BROKEN DOWN BY SFRAME SAMPLING FRAME

VARIABLE	VALUE	LABEL	MEAN	STD DEV	CASES
FOR ENTIRE POPULATION			1.0955	.3240	220
SFRAME	1	UCBD	1.0476	.3086	42
SFRAME	2	ULIC	1.2034	.4060	59
SFRAME	3	UMFR	1.0455	.2107	44
SFRAME	4	USFR	1.0833	.2803	36
SFRAME	5	NSUB	1.0833	.4082	24
SFRAME	6	NRUR	1.0000	.0000	15

TOTAL CASES = 220

CRITERION VARIABLE NBUILD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	44.0000	1.0476	.3086	3.9048	42
2	ULIC	71.0000	1.2034	.4060	9.5593	59
3	UMFR	46.0000	1.0455	.2107	1.9091	44
4	USFR	39.0000	1.0833	.2803	2.7500	36
5	NSUB	26.0000	1.0833	.4082	3.8333	24
6	NRUR	15.0000	1.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		241.0000	1.0955	.3203	21.9565	220

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	1.0389	5	.2078	2.0252	.0763
LINEARITY	.1191	1	.1191	1.1609	.2825
DEV. FROM LINEARITY	.9198	4	.2300	2.2413	.0657
	R =-0.0720	R SQUARED =	.0052		
WITHIN GROUPS	21.9565	214	.1026		
	ETA = .2126	ETA SQUARED =	.0452		

* *

PITTSBURGH

DESCRIPTION OF SUBPOPULATIONS

CRITERION VARIABLE NBUILD NUM ADDITIONAL BUILD IN FOOT
BROKEN DOWN BY SFRAME SAMPLING FRAME

VARIABLE	VALUE	LABEL	MEAN	STD DEV	CASES
FOR ENTIRE POPULATION			4.2334	2.9094	317
SFRAME	1	UCBD	4.4000	3.3859	60
SFRAME	2	ULIC	2.4353	2.0438	85
SFRAME	3	UMFR	5.0366	2.3171	82
SFRAME	4	USFR	5.0889	3.0304	90

TOTAL CASES = 317

CRITERION VARIABLE NBUILD NUM ADDITIONAL BUILD IN FOOT
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	264.0000	4.4000	3.3859	676.4000	60
2	ULIC	207.0000	2.4353	2.0438	350.8941	85
3	UMFR	413.0000	5.0366	2.3171	434.8902	82
4	USFR	458.0000	5.0889	3.0304	817.2889	90
WITHIN GROUPS TOTAL		1342.0000	4.2334	2.6986	2279.4733	317

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	395.2523	3	131.7508	18.0910	.0000
LINEARITY	117.9678	1	117.9678	16.1984	.0001
DEV FROM LINEARITY	277.2845	2	138.6423	19.0373	.0000
	R = .2100		R SQUARED = .0441		
WITHIN GROUPS	2279.4733	313	7.2827		
	ETA = .3844		ETA SQUARED = .1478		

* *

CINCINNATI

DESCRIPTION OF SUBPOPULATIONS

CRITERION VARIABLE NBUILD NUM ADDITIONAL BUILD IN FOOT
BROKEN DOWN BY SFRAME SAMPLING FRAME

VARIABLE	VALUE	LABEL	MEAN	STD DEV	CASES
FOR ENTIRE POPULATION			2.7966	1.5605	236
SFRAME	1	UCBD	2.6389	1.8862	72
SFRAME	2	ULIC	2.8958	1.3875	48
SFRAME	3	UMFR	2.5217	1.2778	46
SFRAME	4	USFR	3.0714	1.4479	70

TOTAL CASES = 236

CRITERION VARIABLE NBUILD NUM ADDITIONAL BUILD IN FOOT
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	190.0000	2.6389	1.8862	252.6111	72
2	ULIC	139.0000	2.8958	1.3875	90.4792	48
3	UMFR	116.0000	2.5217	1.2778	73.4783	46
4	USFR	215.0000	3.0714	1.4479	144.6429	70
WITHIN GROUPS TOTAL		660.0000	2.7966	1.5553	561.2114	236

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	11.0259	3	3.6753	1.5193	.2102
LINEARITY	4.0324	1	4.0324	1.6669	.1980
DEV. FROM LINEARITY	6.9935	2	3.4968	1.4455	.2377
	R = .0839	R SQUARED = .0070			
WITHIN GROUPS	561.2114	232	2.4190		
	ETA = .1388	ETA SQUARED = .0193			

* *

APPENDIX C: CONTINGENCY TABLES FOR BUILDING TYPE BY SAMPLING FRAME FOR THE FOUR CITIES.

In the upper left corner of each table is the legend for the values contained within each cell of the table.

NEW HAVEN

CROSSTABULATION OF TYPE STRUCTURE TYPE-USACE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UCBD 1	ULIC 2	UMFR 3	USFR 4	NSUB 5	ROW TOTAL
1 UNIT DETACHED	1	0	7	29	27	37	100
	EXP VAL	31.9	17.6	22.9	12.9	14.7	35.8%
	ROW PCT	0%	7.0%	29.0%	27.0%	37.0%	
	COL PCT	0%	14.3%	45.3%	75.0%	90.2%	
	TOT PCT	0%	2.5%	10.4%	9.7%	13.3%	
	RESIDUAL	-31.9	-10.6	6.1	14.1	22.3	
	STU RES	-5.6	-2.5	1.3	3.9	5.8	
	ADJ RES	-8.5	-3.5	1.8	5.2	7.9	
2 UNITS	3	0	2	6	1	0	9
	EXP VAL	2.9	1.6	2.1	1.2	1.3	3.2%
	ROW PCT	0%	22.2%	66.7%	11.1%	.0%	
	COL PCT	0%	4.1%	9.4%	2.8%	0%	
	TOT PCT	0%	7%	2.2%	4%	0%	
	RESIDUAL	-2.9	4	3.9	-0.2	-1.3	
	STU RES	-1.7	3	2.7	-0.1	-1.2	
	ADJ RES	-2.1	4	3.2	-0.2	-1.3	
3 TO 4 UNITS	4	0	0	4	0	0	4
	EXP VAL	1.3	7	9	5	6	1.4%
	ROW PCT	0%	0%	100.0%	0%	0%	
	COL PCT	0%	0%	6.3%	.0%	0%	
	TOT PCT	0%	0%	1.4%	0%	0%	
	RESIDUAL	-1.3	-0.7	3.1	-0.5	-0.6	
	STU RES	-1.1	-0.8	3.2	-0.7	-0.8	
	ADJ RES	-1.4	-0.9	3.7	-0.8	-0.8	
5 TO 9 UNITS	5	2	5	4	3	0	14
	EXP VAL	4.5	2.5	3.2	1.8	2.1	5.0%
	ROW PCT	14.3%	35.7%	28.6%	21.4%	0%	
	COL PCT	2.2%	10.2%	6.3%	8.3%	0%	
	TOT PCT	7%	1.8%	1.4%	1.1%	0%	
	RESIDUAL	-2.5	2.5	.8	1.2	-2.1	
	STU RES	-1.2	1.6	.4	.9	-1.4	
	ADJ RES	-1.5	1.8	.5	1.0	-1.6	
(CONTINUED)	COLUMN TOTAL	89	49	64	36	41	279
		31.9%	17.6%	22.9%	12.9%	14.7%	100.0%

CROSSTABULATION OF TYPE STRUCTURE TYPE-USAGE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UCBD 1	ULIC 2	UMFR 3	USFR 4	NSUB 5	ROW TOTAL
6	COUNT	4	1	0	0	0	5
10 TO 19 UNITS	EXP VAL	1.6	9	1.1	6	7	1.8%
	ROW PCT	80.0%	20.0%	0%	0%	0%	
	COL PCT	4.5%	2.0%	0%	0%	0%	
	TOT PCT	1.4%	.4%	0%	0%	0%	
	RESIDUAL	2.4	1	-1.1	-0.6	-0.7	
	STD RES	1.9	.1	-1.1	-0.8	-0.9	
	ADJ RES	2.3	.1	-1.2	-0.9	-0.9	
8	COUNT	0	2	1	0	0	3
50 OR MORE UNITS	EXP VAL	1.0	.5	.7	.4	.4	1.1%
	ROW PCT	0%	66.7%	33.3%	0%	0%	
	COL PCT	0%	4.1%	1.6%	0%	0%	
	TOT PCT	0%	.7%	.4%	0%	0%	
	RESIDUAL	-1.0	1.5	.3	-0.4	-0.4	
	STD RES	-1.0	2.0	.4	-0.6	-0.7	
	ADJ RES	-1.2	2.2	.4	-0.7	-0.7	
9	COUNT	1	3	0	0	0	4
NONHOUSEKEEPING	EXP VAL	1.3	.7	.9	.5	.6	1.4%
	ROW PCT	25.0%	75.0%	0%	0%	0%	
	COL PCT	1.1%	6.1%	0%	0%	0%	
	TOT PCT	.4%	1.1%	0%	0%	0%	
	RESIDUAL	-0.3	2.3	-0.9	-0.5	-0.6	
	STD RES	-0.2	2.7	-1.0	-0.7	-0.8	
	ADJ RES	-0.3	3.0	-1.1	-0.8	-0.8	
10	COUNT	23	0	0	0	0	23
OFFICE BUILDING	EXP VAL	7.3	4.0	5.3	3.0	3.4	8.2%
	ROW PCT	100.0%	0%	0%	0%	0%	
	COL PCT	25.8%	0%	0%	0%	0%	
	TOT PCT	8.2%	0%	0%	0%	0%	
	RESIDUAL	15.7	-4.0	-5.3	-3.0	-3.4	
	STD RES	5.8	-2.0	-2.3	-1.7	-1.8	
	ADJ RES	7.3	-2.3	-2.7	-1.9	-2.1	
COLUMN TOTAL		89	49	64	36	41	279
		31.9%	17.6%	22.9%	12.9%	14.7%	100.0%

(CONTINUED)

CROSSTABULATION OF TYPE STRUCTURE TYPE-USACE BY SFRAME SAMPLING FRAME

TYPE	SFRAME					
	UCSD	ULIC	UMFR	USFR	NSUB	ROW TOTAL
	1	2	3	4	5	
11	49	10	7	3	0	69
OTHER COMMERCIAL	22.0	12.1	15.8	8.9	10.1	24.7%
	71.0%	14.5%	10.1%	4.3%	.0%	
	55.1%	20.4%	10.9%	8.3%	.0%	
	17.6%	3.6%	2.5%	1.1%	.0%	
	27.0	-2.1	-8.8	-5.9	-10.1	
	5.8	-0.6	-2.2	-2.0	-3.2	
	8.0	-0.8	-2.9	-2.4	-4.0	
12	0	5	1	2	1	9
INDUSTRIAL	2.9	1.6	2.1	1.2	1.3	3.2%
	0%	55.6%	11.1%	22.2%	11.1%	
	0%	10.2%	1.6%	5.6%	2.4%	
	0%	1.8%	.4%	.7%	.4%	
	-2.9	3.4	-1.1	.8	-0.3	
	-1.7	2.7	-0.7	.8	-0.3	
	-2.1	3.0	-0.9	.8	-0.3	
13	6	0	2	0	0	8
HOSP OR INST	2.6	1.4	1.8	1.0	1.2	2.9%
	75.0%	0%	25.0%	0%	0%	
	6.7%	0%	3.1%	0%	0%	
	2.2%	0%	.7%	0%	0%	
	3.4	-1.4	.2	-1.0	-1.2	
	2.2	-1.2	.1	-1.0	-1.1	
	2.7	-1.3	.1	-1.1	-1.2	
14	2	3	6	0	1	12
RELIGIOUS	3.8	2.1	2.8	1.5	1.8	4.3%
	16.7%	25.0%	50.0%	0%	8.3%	
	2.2%	6.1%	9.4%	0%	2.4%	
	.7%	1.1%	2.2%	0%	.4%	
	-1.8	.9	3.2	-1.5	-0.8	
	-0.9	.6	2.0	-1.2	-0.6	
	-1.2	.7	2.3	-1.4	-0.6	
COLUMN TOTAL	89	49	64	36	41	279
	31.9%	17.6%	22.9%	12.9%	14.7%	100.0%

(CONTINUED)

CROSSTABULATION OF

TYPE STRUCTURE TYPE-USACE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	USBD (1)	ULIC (2)	UMFR (3)	USFR (4)	NSUB (5)	ROW TOTAL
EDUCATIONAL	COUNT	2	11	1	0	1	15
	EXP VAL	4.8	2.6	3.4	1.9	2.2	5.4%
	ROW PCT	13.3%	73.3%	6.7%	.0%	6.7%	
	COL PCT	2.2%	22.4%	1.6%	.0%	2.4%	
	TOT PCT	.7%	3.9%	.4%	.0%	.4%	
	RESIDUAL	-2.8	8.4	-2.4	-1.9	-1.2	
	STD RES	-1.3	5.2	-1.3	-1.4	-0.8	
	ADJ RES	-1.6	5.8	-1.5	-1.5	-0.9	
OTHER NONRESIDEN	COUNT	0	0	3	0	1	4
	EXP VAL	1.3	.7	.9	.5	.6	1.4%
	ROW PCT	.0%	.0%	75.0%	.0%	25.0%	
	COL PCT	.0%	.0%	4.7%	.0%	2.4%	
	TOT PCT	.0%	.0%	1.1%	.0%	.4%	
	RESIDUAL	-1.3	-0.7	2.1	-0.5	.4	
	STD RES	-1.1	-0.8	2.2	-0.7	.5	
	ADJ RES	-1.4	-0.9	2.5	-0.8	.6	
COLUMN TOTAL		89 31.9%	49 17.6%	64 22.9%	36 12.9%	41 14.7%	279 100.0%

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F. < 5
311.52479	52	0.0000	0.387	58 OF 70 (82.9%)

STATISTIC	SYMMETRIC	WITH TYPE DEPENDENT	WITH SFRAME DEPENDENT
LAMBDA	0.34688	0.29609	0.39474
UNCERTAINTY COEFFICIENT	0.34003	0.30286	0.38760
SOMERS' D	-0.46038	-0.46508	-0.45579
ETA		0.64669	0.79614

STATISTIC	VALUE	SIGNIFICANCE
CRAMER'S V	0.52834	
CONTINGENCY COEFFICIENT	0.72632	
KENDALL'S TAU B	-0.46041	0.0000
KENDALL'S TAU C	-0.45143	0.0000
PEARSON'S R	-0.63251	0.0000
GAMMA	-0.55382	

NUMBER OF MISSING OBSERVATIONS = 6

PORTLAND

CROSSTABULATION OF TYPE STRUCTURE TYPE-USACE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	USBD (1)	ULIC (2)	UMFR (3)	USFR (4)	NSUB (5)	ROW TOTAL
1 UNIT DETACHED	1	1	17	20	29	18	85
	EXP VAL	17.1	24.5	18.4	15.8	9.2	43.8%
	ROW PCT	1.2%	20.0%	23.5%	34.1%	21.2%	
	COL PCT	2.6%	30.4%	47.6%	80.6%	85.7%	
	TOT PCT	.5%	8.8%	10.3%	14.9%	9.3%	
	RESIDUAL	-16.1	-7.5	1.6	13.2	8.8	
	STD RES	-3.9	-1.5	.4	3.3	2.9	
	ADJ RES	-5.8	-2.4	.6	4.9	4.1	
1 UNIT ATTACHED	2	0	1	2	0	1	4
	EXP VAL	.8	1.2	.9	.7	.4	2.1%
	ROW PCT	0%	25.0%	50.0%	0%	25.0%	
	COL PCT	0%	1.8%	4.8%	0%	4.8%	
	TOT PCT	0%	.5%	1.0%	0%	.5%	
	RESIDUAL	.0.8	-0.2	1.1	-0.7	.6	
	STD RES	-0.9	-0.1	1.2	-0.9	.9	
	ADJ RES	-1.0	-0.2	1.4	-1.0	.9	
2 UNITS	3	0	2	7	0	0	9
	EXP VAL	1.8	2.6	1.9	1.7	1.0	4.6%
	ROW PCT	0%	22.2%	77.8%	0%	0%	
	COL PCT	0%	3.6%	16.7%	0%	0%	
	TOT PCT	0%	1.0%	3.6%	0%	0%	
	RESIDUAL	-1.8	-0.6	5.1	-1.7	-1.0	
	STD RES	-1.3	-0.4	3.6	-1.3	-1.0	
	ADJ RES	-1.5	-0.5	4.2	-1.5	-1.1	
3 TO 4 UNITS	4	2	7	3	0	0	12
	EXP VAL	2.4	3.5	2.6	2.2	1.3	6.2%
	ROW PCT	16.7%	58.3%	25.0%	0%	0%	
	COL PCT	5.1%	12.5%	7.1%	0%	0%	
	TOT PCT	1.0%	3.6%	1.5%	.0%	.0%	
	RESIDUAL	-0.4	3.5	.4	-2.2	-1.3	
	STD RES	.0.3	1.9	.2	-1.5	-1.1	
	ADJ RES	.0.3	2.3	.3	-1.7	-1.2	
(CONTINUED)	COLUMN TOTAL	39 20.1%	56 28.9%	42 21.6%	36 18.6%	21 10.8%	194 100.0%

CROSSTABULATION OF TYPE STRUCTURE TYPE-USACE By SFRAME SAMPLING FRAME

TYPE	SFRAME 1: USBD	2: USIC	3: USFR	4: NSUB	5:	ROW TOTAL
5	3	3	1	1	0	8
5 TO 9 UNITS	1.6	2.3	1.7	1.5	9	4.1%
	37.5%	37.5%	12.5%	12.5%	0%	
	7.7%	5.4%	2.4%	2.8%	0%	
	1.5%	1.5%	5%	5%	0%	
	1.4	7	-0.7	-0.5	-0.9	
	1.1	5	-0.6	-0.4	-0.9	
	1.3	6	-0.6	-0.5	-1.0	
6	0	1	1	0	1	3
10 TO 19 UNITS	6	9	6	6	3	1.5%
	0%	33.3%	33.3%	0%	33.3%	
	0%	1.8%	2.4%	0%	4.8%	
	0%	5%	5%	0%	5%	
	-0.6	1	4	-0.6	7	
	-0.8	1	4	-0.7	1.2	
	-0.9	2	5	-0.8	1.3	
7	1	0	0	0	0	1
20 TO 49 UNITS	2	3	2	2	1	5%
	100.0%	0%	0%	0%	0%	
	2.6%	0%	0%	0%	0%	
	5%	0%	0%	0%	0%	
	8	-0.3	-0.2	-0.2	-0.1	
	1.8	-0.5	0.5	-0.4	-0.3	
	2.0	-0.6	-0.5	-0.5	-0.3	
9	0	2	0	0	0	2
NONHOUSEKEEPING	4	6	4	4	2	1.0%
	0%	100.0%	0%	0%	0%	
	0%	3.6%	0%	0%	0%	
	0%	1.0%	0%	0%	0%	
	0.4	1.4	-0.4	-0.4	-0.2	
	-0.6	1.9	-0.7	-0.6	-0.5	
	0.7	2.2	-0.7	-0.7	-0.5	
COLUMN TOTAL	39	56	42	36	21	194
	20.1%	28.9%	21.6%	18.6%	10.8%	100.0%

(CONTINUED)

CROSSTABULATION OF

TYPE STRUCTURE TYPE-USAGE BY SFRAME SAMPLING FRAME

SFRAME

TYPE		UCBD (1)	ULIV (2)	UMFR (3)	USFR (4)	NSUB (5)	ROW TOTAL
10	COUNT	8	4	0	1	0	13
OFFICE BUILDING	EXP VAL	2 6	3 8	2 8	2 4	1 4	6 7%
	ROW PCT	61 5%	30 8%	0%	7 7%	0%	
	COL PCT	20 5%	7 1%	0%	2 8%	0%	
	TOT PCT	4 1%	2 1%	0%	5%	0%	
	RESIDUAL	5 4	2	-2 8	-1 4	-1 4	
	STD RES	3 3	1	-1 7	-0 9	-1 2	
	ADJ RES	3 9	2	-2 0	-1 0	-1 3	
11	COUNT	18	16	2	3	0	39
OTHER COMMERCIAL	EXP VAL	7 8	11 3	8 4	7 2	4 2	20 1%
	ROW PCT	46 2%	41 0%	5 1%	7 7%	0%	
	COL PCT	46 2%	28 6%	4 8%	8 3%	0%	
	TOT PCT	9 3%	8 2%	1 0%	1 5%	0%	
	RESIDUAL	10 2	4 7	-6 4	-4 2	-4 2	
	STD RES	3 6	1 4	-2 2	-1 6	-2 1	
	ADJ RES	4 5	1 9	-2 8	-2 0	-2 4	
12	COUNT	2	1	0	0	1	4
INDUSTRIAL	EXP VAL	8	1 2	0	7	4	2 1%
	ROW PCT	50 0%	25 0%	0%	0%	25 0%	
	COL PCT	5 1%	1 8%	0%	0%	4 8%	
	TOT PCT	1 0%	5%	0%	0%	5%	
	RESIDUAL	1 2	-0 2	0 0	-0 7	6	
	STD RES	1 3	-0 1	-0 9	-0 9	9	
	ADJ RES	1 5	-0 2	-1 1	-1 0	9	
13	COUNT	2	1	5	0	0	8
HOSP OR INST	EXP VAL	1 6	2 3	1 7	1 5	9	4 1%
	ROW PCT	25 0%	12 5%	62 5%	0%	0%	
	COL PCT	5 1%	1 8%	11 9%	0%	0%	
	TOT PCT	1 0%	5%	2 6%	0%	0%	
	RESIDUAL	4	-1 3	3 3	-1 5	-0 9	
	STD RES	3	-0 9	2 5	-1 2	-0 9	
	ADJ RES	4	-1 0	2 9	-1 4	-1 0	
(CONTINUED)	COLUMN TOTAL	39 20 1%	56 28 9%	42 21 6%	36 18 6%	21 10 8%	194 100 0%

TYPE STRUCTURE TYPE-USAGE CROSSTABULATION OF BY SFRAME SAMPLING FRAME

TYPE	SFRAME: UCBD (1)	ULIC (2)	UMFR (3)	USFR (4)	NSUB (5)	ROW TOTAL
15 EDUCATIONAL	1	1	1	2	0	5
	1 0	1 4	1 1	9	5	2 6%
	20 0%	20 0%	20 0%	40 0%	0%	
	2 6%	1 8%	2 4%	5 6%	0%	
	5%	5%	5%	1 0%	0%	
	0	-0 4	-0 1	1 1	-0 5	
	0	-0 4	-0 1	1 1	-0 7	
	0	-0 4	-0 1	1 2	-0 8	
16 OTHER NONRESIDEN	1	0	0	0	0	1
	2	3	2	2	1	5%
	100 0%	0%	0%	0%	0%	
	2 6%	0%	0%	0%	0%	
	5%	0%	0%	0%	0%	
	8	-0 3	-0 2	-0 2	-0 1	
	1 8	-0 5	-0 5	-0 4	-0 3	
	2 0	-0 6	-0 5	-0 5	-0 3	
COLUMN TOTAL	39	56	42	36	21	194
	20 1%	28 9%	21 6%	18 6%	10 8%	100 0%

CHI-SQUARE	D F	SIGNIFICANCE	MIN E F	CELLS WITH E F < 5
142 62929	52	0 0000	0 108	61 OF 70 (87 1%)

STATISTIC	SYMMETRIC	WITH TYPE DEPENDENT	WITH SFRAME DEPENDENT
LAMBDA	0 19838	0 15596	0 23188
UNCERTAINTY COEFFICIENT	0 23783	0 21885	0 26041
SOMERS' D	-0 46831	-0 45892	-0 47809
ETA		0 56179	0 64931

STATISTIC	VALUE	SIGNIFICANCE
CRAMER'S V	0 42872	
CONTINGENCY COEFFICIENT	0 65092	
KENDALL'S TAU B	-0 46841	0 0000
KENDALL'S TAU C	-0 44930	0 0000
PEARSON'S R	-0 53738	0 0000
GAMMA	-0 59178	

NUMBER OF MISSING OBSERVATIONS = 26

PITTSBURGH

CROSSTABULATION OF TYPE STRUCTURE TYPE-USAGE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UCBD	ULIC	UMFR	USFR	ROW TOTAL
1 UNIT STRUCTURE	1	0	7	54	90	151
	EXP VAL	28.6	40.5	39.1	42.9	47.6%
	ROW PCT	0%	4.6%	35.8%	59.6%	
	COL PCT	0%	8.2%	65.9%	100.0%	
	TOT PCT	0%	2.2%	17.0%	28.4%	
	RESIDUAL	-28.6	-33.5	14.9	47.1	
	STD RES	-5.3	-5.3	2.4	7.2	
	ADJ RES	-8.2	-8.5	3.8	11.8	
2 UNITS	2	0	2	12	0	14
	EXP VAL	2.6	3.8	3.6	4.0	4.4%
	ROW PCT	0%	14.3%	85.7%	0%	
	COL PCT	0%	2.4%	14.6%	0%	
	TOT PCT	0%	.6%	3.8%	0%	
	RESIDUAL	-2.6	-1.8	8.4	-4.0	
	STD RES	-1.6	-0.9	4.4	-2.0	
	ADJ RES	-1.8	-1.1	5.2	-2.4	
3 TO 4 UNITS	3	1	1	2	0	4
	EXP VAL	.8	1.1	1.0	1.1	1.3%
	ROW PCT	25.0%	25.0%	50.0%	0%	
	COL PCT	1.7%	1.2%	2.4%	0%	
	TOT PCT	.3%	.3%	.6%	0%	
	RESIDUAL	.2	-0.1	1.0	-1.1	
	STD RES	.3	-0.1	.9	-1.1	
	ADJ RES	.3	-0.1	1.1	-1.3	
5 TO 9 UNITS	4	0	2	2	0	4
	EXP VAL	.8	1.1	1.0	1.1	1.3%
	ROW PCT	0%	50.0%	50.0%	0%	
	COL PCT	0%	2.4%	2.4%	0%	
	TOT PCT	0%	.6%	.6%	0%	
	RESIDUAL	-0.8	.9	1.0	-1.1	
	STD RES	-0.9	.9	.9	-1.1	
	ADJ RES	-1.0	1.1	1.1	-1.3	
(CONTINUED)	COLUMN TOTAL	60	85	82	90	317
		18.9%	26.8%	25.9%	28.4%	100.0%

CROSSTABULATION OF TYPE STRUCTURE TYPE-USACE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UC3D 1	ULIC 2	UMFR 3	USFR 4	ROW TOTAL
5	COUNT	1	0	6	0	7
10 TO 19 UNITS	EXP VAL	1 3	1 9	1 8	2 0	2 2%
	ROW PCT	14 3%	0%	85 7%	0%	
	COL PCT	1 7%	0%	7 3%	0%	
	TOT PCT	3%	0%	1 9%	0%	
	RESIDUAL	-0 3	-1 9	4 2	-2 0	
	STD RES	-0 3	-1 4	3 1	-1 4	
	ADJ RES	-0 3	-1 6	3 7	-1 7	
6	COUNT	0	0	5	0	5
20 TO 49 UNITS	EXP VAL	9	1 3	1 3	1 4	1 6%
	ROW PCT	0%	0%	100 0%	0%	
	COL PCT	0%	0%	6 1%	0%	
	TOT PCT	0%	0%	1 6%	0%	
	RESIDUAL	-0 9	-1 3	3 7	-1 4	
	STD RES	-1 0	-1 2	3 3	-1 2	
	ADJ RES	-1 1	-1 4	3 8	-1 4	
8	COUNT	20	1	0	0	21
OFFICE BUILDING	EXP VAL	4 0	5 6	5 4	6 0	6 6%
	ROW PCT	95 2%	4 8%	0%	0%	
	COL PCT	33 3%	1 2%	0%	0%	
	TOT PCT	6 3%	3%	0%	0%	
	RESIDUAL	16 0	-4 6	-5 4	-6 0	
	STD RES	8 0	-2 0	-2 3	-2 4	
	ADJ RES	9 2	-2 4	-2 8	-3 0	
9	COUNT	30	32	1	0	63
COMMERCIAL BUIL	EXP VAL	11 9	16 9	16 3	17 9	19 9%
	ROW PCT	47 6%	50 8%	1 6%	0%	
	COL PCT	50 0%	37 6%	1 2%	0%	
	TOT PCT	9 5%	10 1%	3%	0%	
	RESIDUAL	18 1	15 1	-15 3	-17 9	
	STD RES	5 2	3 7	-3 8	-4 2	
	ADJ RES	6 5	4 8	-4 9	-5 6	
COLUMN		60	85	82	90	317
(CONTINUED) TOTAL		18 9%	26 8%	25 9%	28 4%	100 0%

CROSSTABULATION OF TYPE STRUCTURE TYPE-USACE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UCBD 1	ULIC 2	UMFR 3	USFR 4	ROW TOTAL
INDUSTRIAL	10	3	17	0	0	20
	EXP VAL	3.8	5.4	5.2	5.7	
	ROW PCT	15.0%	85.0%	0%	0%	6.3%
	COL PCT	5.0%	20.0%	0%	0%	
	TOT PCT	.9%	5.4%	0%	0%	
	RESIDUAL	-0.8	11.6	-5.2	-5.7	
	STD RES	-0.4	5.0	-2.3	-2.4	
	ADJ RES	0.5	6.1	-2.7	-2.9	
EDUCATIONAL	11	0	9	0	0	9
	EXP VAL	1.7	2.4	2.3	2.6	
	ROW PCT	0%	100.0%	0%	0%	2.8%
	COL PCT	0%	10.6%	0%	0%	
	TOT PCT	0%	2.8%	0%	0%	
	RESIDUAL	-1.7	6.6	-2.3	-2.6	
	STD RES	-1.3	4.2	-1.5	-1.6	
	ADJ RES	-1.5	5.0	-1.8	-1.9	
RELIGIOUS	12	1	4	0	0	5
	EXP VAL	.9	1.3	1.3	1.4	
	ROW PCT	20.0%	80.0%	0%	0%	1.6%
	COL PCT	1.7%	4.7%	0%	0%	
	TOT PCT	.3%	1.3%	0%	0%	
	RESIDUAL	.1	2.7	-1.3	-1.4	
	STD RES	.1	2.3	-1.1	-1.2	
	ADJ RES	.1	2.7	-1.3	-1.4	
HEALTH BUILDING	13	0	2	0	0	2
	EXP VAL	.4	.5	.5	.6	
	ROW PCT	0%	100.0%	0%	0%	.6%
	COL PCT	0%	2.4%	0%	0%	
	TOT PCT	0%	.6%	0%	0%	
	RESIDUAL	-0.4	1.5	-0.5	-0.6	
	STD RES	-0.6	2.0	-0.7	-0.8	
	ADJ RES	-0.7	2.3	-0.8	-0.9	
(CONTINUED)	COLUMN TOTAL	60 18.9%	85 26.8%	82 25.9%	90 28.4%	317 100.0%

CROSSTABULATION OF TYPE STRUCTURE TYPE-USAGE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UCBD (1)	ULIC (2)	UMFR (3)	USFR (4)	ROW TOTAL
INDUSTRIAL	10	3	17	0	0	20
	EXP VAL	3 8	5 4	5 2	5 7	6 3%
	ROW PCT	15 0%	85 0%	0%	0%	
	COL PCT	5 0%	20 0%	0%	0%	
	TOT PCT	9%	5 4%	0%	0%	
	RESIDUAL	-0 8	11 6	-5 2	-5 7	
	STD RES	-0 4	5 0	-2 3	-2 4	
	ADJ RES	0 5	6 1	-2 7	-2 9	
EDUCATIONAL	11	0	9	0	0	9
	EXP VAL	1 7	2 4	2 3	2 6	2 8%
	ROW PCT	0%	100 0%	0%	0%	
	COL PCT	0%	10 6%	0%	0%	
	TOT PCT	0%	2 8%	0%	0%	
	RESIDUAL	-1 7	6 6	-2 3	-2 6	
	STD RES	-1 3	4 2	-1 5	-1 6	
	ADJ RES	-1 5	5 0	-1 8	-1 9	
RELIGIOUS	12	1	4	0	0	5
	EXP VAL	9	1 3	1 3	1 4	1 6%
	ROW PCT	20 0%	80 0%	0%	0%	
	COL PCT	1 7%	4 7%	0%	0%	
	TOT PCT	3%	1 3%	0%	0%	
	RESIDUAL	1	2 7	-1 3	-1 4	
	STD RES	1	2 3	-1 1	-1 2	
	ADJ RES	1	2 7	-1 3	-1 4	
HEALTH BUILDING	13	0	2	0	0	2
	EXP VAL	4	5	5	6	6%
	ROW PCT	0%	100 0%	0%	0%	
	COL PCT	0%	2 4%	0%	0%	
	TOT PCT	0%	6%	0%	0%	
	RESIDUAL	-0 4	1 5	-0 5	-0 6	
	STD RES	-0 6	2 0	-0 7	-0 8	
	ADJ RES	-0 7	2 3	-0 8	-0 9	
(CONTINUED)	COLUMN TOTAL	60 18 9%	85 26 8%	82 25 9%	90 28 4%	317 100 0%

CROSSTABULATION OF

TYPE STRUCTURE TYPE-USAGE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UCBD 1	ULIC 2	UMFR 3	USFR 4	ROW TOTAL
OTHER	15	4	8	0	0	12
	COUNT	2.3	3.2	3.1	3.4	3.8%
	EXP VAL	33.3%	66.7%	0%	0%	
	ROW PCT	6.7%	9.4%	0%	0%	
	COL PCT	1.3%	2.5%	0%	0%	
	TOT PCT	1.7	4.8	-3.1	-3.4	
	RESIDUAL	1.1	2.7	-1.8	-1.8	
	STD RES	1.3	3.2	-2.1	-2.2	
	ADJ RES					
	COLUMN TOTAL	60 18.9%	85 26.8%	82 25.9%	90 28.4%	317 100.0%

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F. < 5
416.49784	36	0.0000	0.379	38 OF 52 (73.1%)

STATISTIC	SYMMETRIC	WITH TYPE DEPENDENT	WITH SFRAME DEPENDENT
LAMBDA	0.44275	0.33133	0.52423
UNCERTAINTY COEFFICIENT	0.45665	0.40788	0.51867
SOMERS' D	-0.65332	-0.64233	-0.66469
ETA		0.86848	0.87897

STATISTIC	VALUE	SIGNIFICANCE
CRAMER'S V	0.66178	
CONTINGENCY COEFFICIENT	0.75351	
KENDALL'S TAU B	-0.65342	0.0000
KENDALL'S TAU C	-0.63784	0.0000
PEARSON'S R	0.79180	0.0000
GAMMA	-0.79107	

NUMBER OF MISSING OBSERVATIONS = 0

CINCINNATI

CROSSTABULATION OF TYPE STRUCTURE TYPE-USAGE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UCBD (1)	ULIC (2)	UMFR (3)	USFR (4)	ROW TOTAL
1 UNIT STRUCTURE	COUNT	0	26	31	58	115
	EXP VAL	35.1	23.4	22.4	34.1	48.7%
	ROW PCT	0%	22.6%	27.0%	50.4%	
	COL PCT	0%	54.2%	67.4%	82.9%	
	TOT PCT	.0%	11.0%	13.1%	24.6%	
	RESIDUAL	-35.1	2.6	8.6	23.9	
	STD RES	-5.9	.5	1.8	4.1	
	ADJ RES	-9.9	.8	2.8	6.8	
2 UNITS	COUNT	0	2	1	1	4
	EXP VAL	1.2	.8	.8	1.2	1.7%
	ROW PCT	0%	50.0%	25.0%	25.0%	
	COL PCT	0%	4.2%	2.2%	1.4%	
	TOT PCT	0%	.8%	.4%	.4%	
	RESIDUAL	-1.2	1.2	.2	-0.2	
	STD RES	-1.1	1.3	.2	-0.2	
	ADJ RES	-1.3	1.5	.3	-0.2	
3 TO 4 UNITS	COUNT	0	2	2	1	5
	EXP VAL	1.5	1.0	1.0	1.5	2.1%
	ROW PCT	0%	40.0%	40.0%	20.0%	
	COL PCT	0%	4.2%	4.3%	1.4%	
	TOT PCT	.0%	.8%	.8%	.4%	
	RESIDUAL	-1.5	1.0	1.0	-0.5	
	STD RES	-1.2	1.0	1.0	-0.4	
	ADJ RES	-1.5	1.1	1.2	-0.5	
5 TO 9 UNITS	COUNT	0	1	1	0	2
	EXP VAL	.6	.4	.4	.6	.8%
	ROW PCT	0%	50.0%	50.0%	0%	
	COL PCT	0%	2.1%	2.2%	0%	
	TOT PCT	0%	.4%	.4%	0%	
	RESIDUAL	-0.6	.6	.6	-0.6	
	STD RES	-0.8	.9	1.0	-0.8	
	ADJ RES	-0.9	1.0	1.1	-0.9	
(CONTINUED)	COLUMN TOTAL	72 30.5%	48 20.3%	46 19.5%	70 29.7%	236 100.0%

CROSSTABULATION OF

TYPE STRUCTURE TYPE-USAGE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UCBD (1)	ULIC (2)	UMFR (3)	USFR (4)	ROW TOTAL
5	COUNT	0	1	0	2	3
10 TO 19 UNITS	EXP VAL	9	6	6	9	1.3%
	ROW PCT	0%	33.3%	0%	66.7%	
	COL PCT	0%	2.1%	0%	2.9%	
	TOT PCT	0%	4%	0%	8%	
	RESIDUAL	-0.9	4	-0.6	1.1	
	STD RES	-1.0	5	-0.8	1.2	
	ADJ RES	-1.2	.6	-0.9	1.4	
6	COUNT	0	0	1	0	1
20 TO 49 UNITS	EXP VAL	.3	2	2	.3	4%
	ROW PCT	0%	0%	100.0%	0%	
	COL PCT	0%	0%	2.2%	0%	
	TOT PCT	0%	0%	4%	0%	
	RESIDUAL	-0.3	-0.2	.8	-0.3	
	STD RES	-0.6	-0.5	1.8	-0.5	
	ADJ RES	-0.7	-0.5	2.0	-0.7	
8	COUNT	0	1	0	0	1
OFFICE BUILDING	EXP VAL	.3	2	.2	.3	4%
	ROW PCT	0%	100.0%	0%	0%	
	COL PCT	0%	2.1%	0%	0%	
	TOT PCT	0%	4%	0%	0%	
	RESIDUAL	-0.3	.8	-0.2	-0.3	
	STD RES	-0.6	1.8	-0.4	-0.5	
	ADJ RES	-0.7	2.0	-0.5	-0.7	
9	COUNT	70	9	7	6	92
COMMERCIAL BUIL	EXP VAL	28.1	18.7	17.9	27.3	39.0%
	ROW PCT	76.1%	9.8%	7.6%	6.5%	
	COL PCT	97.2%	18.8%	15.2%	8.6%	
	TOT PCT	29.7%	3.8%	3.0%	2.5%	
	RESIDUAL	41.9	-9.7	-10.9	-21.3	
	STD RES	7.9	-2.2	-2.6	-4.1	
	ADJ RES	12.2	-3.2	-3.7	-6.2	
COLUMN	TOTAL	72	48	46	70	236
(CONTINUED)		30.5%	20.3%	19.5%	29.7%	100.0%

CROSSTABULATION OF TYPE STRUCTURE TYPE-USAGE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UC8D 1	ULIC 2	UMFR 3	USFR 4	ROW TOTAL
INDUSTRIAL	10	0	2	0	0	2
		6	4	4	6	8%
		0%	100.0%	.0%	0%	
		.0%	4.2%	.0%	.0%	
		.0%	.8%	.0%	.0%	
		-0.6	1.6	-0.4	-0.6	
		-0.8	2.5	-0.6	-0.8	
		0.9	2.8	-0.7	-0.9	
EDUCATIONAL	11	1	3	2	0	6
		1.8	1.2	1.2	1.8	2.5%
		16.7%	50.0%	33.3%	0%	
		1.4%	6.3%	4.3%	.0%	
		.4%	1.3%	.8%	0%	
		-0.8	.8	.8	-1.8	
		-0.6	1.6	.8	-1.3	
		-0.7	1.8	.9	-1.6	
RELIGIOUS	12	1	0	0	2	3
		9	6	6	9	1.3%
		33.3%	0%	0%	66.7%	
		1.4%	0%	0%	2.9%	
		.4%	0%	0%	.8%	
		1	-0.6	-0.6	1.1	
		1	-0.8	-0.8	1.2	
		1	-0.9	-0.9	1.4	
HEALTH BUILDING	13	0	1	0	0	1
		3	2	2	3	4%
		0%	100.0%	0%	0%	
		0%	2.1%	0%	0%	
		0%	.4%	0%	0%	
		-0.3	.8	-0.2	-0.3	
		-0.6	1.8	-0.4	-0.5	
		-0.7	2.0	-0.5	-0.7	
(CONTINUED)	COLUMN TOTAL	72	48	46	70	236
		30.5%	20.3%	19.5%	29.7%	100.0%

CROSSTABULATION OF

TYPE STRUCTURE TYPE-USAGE BY SFRAME SAMPLING FRAME

TYPE	SFRAME	UCBD 1	ULIC 2	UMFR 3	USFR 4	ROW TOTAL
15	COUNT	0	0	1	0	1
OTHER	EXP VAL	.3	2	2	3	4%
	ROW PCT	0%	.0%	100.0%	.0%	
	COL PCT	.0%	.0%	2.2%	.0%	
	TOT PCT	.0%	.0%	4%	.0%	
	RESIDUAL	-0.3	-0.2	.8	-0.3	
	STD RES	-0.6	-0.5	1.8	-0.5	
	ADJ RES	-0.7	-0.5	2.0	-0.7	
	COLUMN TOTAL	72 30.5%	48 20.3%	46 19.5%	70 29.7%	236 100.0%

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F. < 5
191.12226	36	0.0000	0.195	44 OF 52 (84.6%)

STATISTIC	SYMMETRIC	WITH TYPE DEPENDENT	WITH SFRAME DEPENDENT
LAMBDA	0.50526	0.57851	0.45122
UNCERTAINTY COEFFICIENT	0.35063	0.36740	0.33533
SOMERS' D	-0.55967	-0.50923	-0.61876
ETA		0.69883	0.71956

STATISTIC	VALUE	SIGNIFICANCE
CRAMER'S V	0.51956	
CONTINGENCY COEFFICIENT	0.66893	
KENDALL'S TAU B	-0.56133	0.0000
KENDALL'S TAU C	-0.50215	0.0000
PEARSON'S R	0.65178	0.0000
GAMMA	-0.71076	

NUMBER OF MISSING OBSERVATIONS = 0

APPENDIX D: ANOVA TABLES FOR THE BUILDING MATERIALS DISTRIBUTION BY SAMPLING FRAME FOR THE FOUR CITIES.

NEW HAVEN

CRITERION VARIABLE PPWOOD % PAINTED WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.2000	.0022	.0124	.0136	90
2	ULIC	7.4347	.1403	.2729	3.8738	53
3	UMFR	21.2171	.3264	.3998	10.2279	65
4	USFR	21.9106	.6086	.3453	4.1734	36
5	NSUB	19.9571	.4868	.3307	4.3739	41
WITHIN GROUPS TOTAL		70.7195	.2481	.2845	22.6627	285

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	13.4704	4	3.3676	41.6071	.0000
LINEARITY	12.0201	1	12.0201	148.5093	.0000
DEV FROM LINEARITY	1.4503	3	.4834	5.9730	.0006
	R = .5768	R SQUARED = .3327			
WITHIN GROUPS	22.6627	280	.0809		
	ETA = .6106	ETA SQUARED = .3728			

* *

CRITERION VARIABLE PPSTEEL % PAINTED STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0939	.0010	.0070	.0043	90
2	ULIC	1.0291	.0194	.1313	.8960	53
3	UMFR	.0000	.0000	.0000	.0000	65
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	41
WITHIN GROUPS TOTAL		1.1230	.0039	.0567	.9003	285

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0157	4	.0039	1.2172	.3036
LINEARITY	.0010	1	.0010	.3202	.5720
DEV FROM LINEARITY	.0146	3	.0049	1.5163	.2105
	R =-0.0335	R SQUARED = .0011			
WITHIN GROUPS	.9003	280	.0032		
	ETA = .1307	ETA SQUARED = .0171			

* *

CRITERION VARIABLE PPALUM % PAINTED ALUM
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	2.9278	.0325	.0695	.4301	90
2	ULIC	6.8668	.1296	.2642	3.6301	53
3	UMFR	7.1928	.1107	.2730	4.7710	65
4	USFR	.9440	.0262	.1295	.5867	36
5	NSUB	1.2600	.0307	.1432	.8199	41
WITHIN GROUPS TOTAL		19.1914	.0673	.1912	10.2378	285

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.5520	4	.1380	3.7744	.0052
LINEARITY	.0040	1	.0040	.1107	.7396
DEV FROM LINEARITY	.5480	3	.1827	4.9957	.0022
	R = -0.0194	R SQUARED =	.0004		
WITHIN GROUPS	10.2378	280	.0366		
	ETA = .2262	ETA SQUARED =	.0512		

* *

CRITERION VARIABLE PPMASON % PAINTED MASON
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.2135	.0135	.0538	.2574	90
2	ULIC	.9040	.0171	.0865	.3892	53
3	UMFR	1.1690	.0180	.1068	.7300	65
4	USFR	.9410	.0261	.1424	.7101	36
5	NSUB	.5155	.0126	.0436	.0762	41
WITHIN GROUPS TOTAL		4.7430	.0166	.0879	2.1629	285

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0049	4	.0012	1602	.9583
LINEARITY	.0005	1	.0005	.0704	.7910
DEV FROM LINEARITY	.0044	3	.0015	1901	.9031
	R = .0158	R SQUARED =	.0003		
WITHIN GROUPS	2.1629	280	.0077		
	ETA = .0478	ETA SQUARED =	.0023		

* *

CRITERION VARIABLE PPCONC % PAINTED CONCR
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	3.0368	.0337	.1452	1.8773	90
2	ULIC	3.7503	.0708	.2244	2.6176	53
3	UMFR	2.2240	.0342	.1652	1.7472	65
4	USFR	1.0177	.0283	.0589	.1213	36
5	NSUB	.8978	.0219	.0463	.0856	41
WITHIN GROUPS TOTAL		10.9265	.0383	.1518	6.4490	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0735	4	.0184	.7973	.5278
LINEARITY	.0119	1	.0119	.5187	.4720
DEV FROM LINEARITY	.0615	3	.0205	.8902	.4466
	R =-0.0428	R SQUARED =	.0018		
WITHIN GROUPS	6.4490	280	.0230		
	ETA = .1061	ETA SQUARED =	.0113		

CRITERION VARIABLE PPSTUCCO % PAINTED STUCCO
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	4.8706	.0541	.2063	3.7887	90
2	ULIC	.2760	.0052	.0379	.0747	53
3	UMFR	3.1646	.0487	.1849	2.1887	65
4	USFR	.8390	.0233	.1081	.4087	36
5	NSUB	.0000	.0000	.0000	.0000	41
WITHIN GROUPS TOTAL		9.1502	.0321	.1519	6.4608	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.1449	4	.0362	1.5696	.1825
LINEARITY	.0531	1	.0531	2.3021	.1303
DEV FROM LINEARITY	.0918	3	.0306	1.3255	.2663
	R =-0.0897	R SQUARED =	.0080		
WITHIN GROUPS	6.4608	280	.0231		
	ETA = .1481	ETA SQUARED =	.0219		

CRITERION VARIABLE PPOTHER % PAINTED OTHER
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	90
2	ULIC	1094	.0021	.0130	.0088	53
3	UMFR	2.4688	.0380	.1623	1.6868	65
4	USFR	1111	.0031	.0185	.0120	36
5	NSUB	.0000	.0000	.0000	.0000	41
WITHIN GROUPS TOTAL		2.6893	.0094	.0781	1.7076	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0690	4	.0172	2.8269	.0252
LINEARITY	.0021	1	.0021	.3419	.5592
DEV FROM LINEARITY	.0669	3	.0223	3.6552	.0130
	R = .0343	R SQUARED = .0012			
WITHIN GROUPS	1.7076	280	.0061		
	ETA = .1970	ETA SQUARED = .0388			

CRITERION VARIABLE PPNOID % PAINT CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	90
2	ULIC	.0000	.0000	.0000	.0000	53
3	UMFR	.0000	.0000	.0000	.0000	65
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	41
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	285

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

CRITERION VARIABLE PBRICK % BARE BRICK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	30 6623	3407	3577	11 3906	90
2	ULIC	10 4328	1968	2994	4 6602	53
3	UMFR	13 7834	2121	3234	6 6949	65
4	USFR	4 0823	1134	2390	1 9999	36
5	NSUB	2 0182	0492	1645	1 0827	41
WITHIN GROUPS TOTAL		60 9791	2140	3037	25 8283	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	2 9379	4	7345	7 9625	0000
LINEARITY	2 6890	1	2 6890	29 1510	0000
DEV FROM LINEARITY	2490	3	0830	8996	4418
	R =-0 3057	R SQUARED =	0935		
WITHIN GROUPS	25 8283	280	0922		
	ETA = 3196	ETA SQUARED =	1021		

CRITERION VARIABLE PBLOCK % BARE BLOCK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1507	0017	0120	0129	90
2	ULIC	0867	0016	0074	0029	53
3	UMFR	0784	0012	0097	0061	65
4	USFR	2000	0056	0333	0389	36
5	NSUB	0000	0000	0000	0000	41
WITHIN GROUPS TOTAL		5158	0018	0147	0607	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0007	4	0002	7682	5467
LINEARITY	0000	1	0000	0033	9546
DEV FROM LINEARITY	0007	3	0002	1 0231	3827
	R = 0034	R SQUARED =	0000		
WITHIN GROUPS	0607	280	0002		
	ETA = 1042	ETA SQUARED =	0109		

CRITERION VARIABLE PSTONE % BARE STONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	4.7361	.0526	.1736	2.6816	90
2	ULIC	6.0544	.1142	.2685	3.7498	53
3	UMFR	.6039	.0093	.0610	.2380	65
4	USFR	.3618	.0101	.0576	.1160	36
5	NSUB	1.3781	.0336	.1086	.4715	41
WITHIN GROUPS TOTAL		13.1344	.0461	.1610	7.2568	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.3911	4	.0978	3.7728	.0052
LINEARITY	.0892	1	.0892	3.4414	.0646
DEV. FROM LINEARITY	.3019	3	.1006	3.8832	.0096
	R = -0.1080	R SQUARED =	.0117		
WITHIN GROUPS	7.2568	280	.0259		
	ETA = .2261	ETA SQUARED =	.0511		

CRITERION VARIABLE PCONCR % BARE CONRETE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	19.8483	.2205	.3084	8.4635	90
2	ULIC	7.0326	.1327	.2440	3.0964	53
3	UMFR	6.7045	.1031	.2105	2.8347	65
4	USFR	1.9784	.0550	.0589	.1214	36
5	NSUB	4.1773	.1019	.0730	.2133	41
WITHIN GROUPS TOTAL		39.7411	.1394	.2294	14.7294	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.9947	4	.2487	4.7273	.0010
LINEARITY	.7316	1	.7316	13.9083	.0002
DEV. FROM LINEARITY	.2631	3	.0877	1.6670	.1743
	R = -0.2157	R SQUARED =	.0465		
WITHIN GROUPS	14.7294	280	.0526		
	ETA = .2515	ETA SQUARED =	.0633		

CRITERION VARIABLE PMARB % BARE MARBLE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	2.6702	.0297	.1433	1.8276	90
2	ULIC	.7189	.0136	.0483	.1212	53
3	UMFR	.0000	.0000	.0000	.0000	65
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	41
WITHIN GROUPS TOTAL		3.3890	.0119	.0834	1.9487	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0487	4	.0122	1.7483	.1395
LINEARITY	.0388	1	.0388	5.5820	.0188
DEV FROM LINEARITY	.0098	3	.0033	.4704	.7032
	R =-0.1395	R SQUARED =	.0195		
WITHIN GROUPS	1.9487	280	.0070		
	ETA = .1561	ETA SQUARED =	.0244		

CRITERION VARIABLE PLIME % BARE LIMESTONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	90
2	ULIC	1.7289	.0326	.1176	.7195	53
3	UMFR	.0000	.0000	.0000	.0000	65
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	41
WITHIN GROUPS TOTAL		1.7289	.0061	.0507	.7195	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0459	4	.0115	4.4665	.0016
LINEARITY	.0019	1	.0019	.7305	.3935
DEV FROM LINEARITY	.0440	3	.0147	5.7119	.0008
	R = 0.0495	R SQUARED =	.0025		
WITHIN GROUPS	.7195	280	.0026		
	ETA = .2449	ETA SQUARED =	.0600		

CRITERION VARIABLE PGRAN % BARE GRANITE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	9012	.0100	.0832	.6154	90
2	ULIC	2.5776	.0486	.1455	1.1003	53
3	UMFR	.0540	.0008	.0056	.0020	65
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0749	.0018	.0117	.0055	41
WITHIN GROUPS TOTAL		3.6107	.0127	.0784	1.7232	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0889	4	.0222	3.6107	.0069
LINEARITY	.0136	1	.0136	2.2152	.1378
DEV. FROM LINEARITY	.0753	3	.0251	4.0758	.0074
	R = 0.0867	R SQUARED =	.0075		
WITHIN GROUPS	1.7232	280	.0062		
	ETA = .2215	ETA SQUARED =	.0491		

CRITERION VARIABLE PSTEEL % BARE STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	7.4952	.0833	.2428	5.2454	90
2	ULIC	.1682	.0032	.0134	.0094	53
3	UMFR	.0000	.0000	.0000	.0000	65
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	41
WITHIN GROUPS TOTAL		7.6634	.0269	.1370	5.2547	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.4187	4	.1047	5.5772	.0002
LINEARITY	.2570	1	.2570	13.6925	.0003
DEV. FROM LINEARITY	.1617	3	.0539	2.8721	.0367
	R =-0.2128	R SQUARED =	.0453		
WITHIN GROUPS	5.2547	280	.0188		
	ETA = .2717	ETA SQUARED =	.0738		

CRITERION VARIABLE PGLASS % GLASS
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	13.0267	.1447	.1302	1.5087	90
2	ULIC	5.0059	.0945	.1111	.6420	53
3	UMFR	4.1649	.0641	.0420	.1129	65
4	USFR	2.7849	.0774	.1151	.4633	36
5	NSUB	3.1063	.0758	.0470	.0882	41
WITHIN GROUPS TOTAL		28.0888	.0986	.1003	2.8152	285

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.3076	4	.0769	7.6492	.0000
LINEARITY	.2031	1	.2031	20.2023	.0000
DEV FROM LINEARITY	.1045	3	.0348	3.4648	.0168
	R = 0.2550	R SQUARED =	.0650		
WITHIN GROUPS	2.8152	280	.0101		
	ETA = .3139	ETA SQUARED =	.0985		

* *

22-MAY-86 SPSS-X RELEASE 2.1 FOR VAX/VMS
09:42:29 DARTMOUTH COLLEGE V1 DEC VAX-11/780 VMS V4.1

CRITERION VARIABLE PVINYL % BARE VINYL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0455	.0005	.0048	.0020	90
2	ULIC	.5789	.0109	.0563	.1650	53
3	UMFR	.0000	.0000	.0000	.0000	65
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	41
WITHIN GROUPS TOTAL		.6243	.0022	.0244	.1671	285

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0050	4	.0012	2.0849	.0829
LINEARITY	.0003	1	.0003	.5163	.4730
DEV FROM LINEARITY	.0047	3	.0016	2.6077	.0519
	R =-0.0423	R SQUARED =	.0018		
WITHIN GROUPS	.1671	280	.0006		
	ETA = .1701	ETA SQUARED =	.0289		

* *

CRITERION VARIABLE PNOOD % BARE WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.4249	.0047	.0185	.0306	90
2	ULIC	.4401	.0083	.0569	.1684	53
3	UMFR	.4500	.0069	.0369	.0871	65
4	USFR	.4674	.0130	.0558	.1088	36
5	NSUB	5.7716	.1408	.2633	2.7729	41
WITHIN GROUPS TOTAL		7.5539	.0265	.1064	3.1678	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.6271	4	.1568	13.8570	.0000
LINEARITY	.3346	1	.3346	29.5740	.0000
DEV. FROM LINEARITY	.2925	3	.0975	8.6180	.0000
	R = .2969	R SQUARED = .0882			
WITHIN GROUPS	3.1678	280	.0113		
	ETA = .4065	ETA SQUARED = .1652			

CRITERION VARIABLE POBARE % OTHER BARE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.1060	.0012	.0112	.0111	90
2	ULIC	1.8011	.0340	.1423	1.0536	53
3	UMFR	1.1952	.0184	.1075	.7403	65
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.6150	.0150	.0600	.1440	41
WITHIN GROUPS TOTAL		3.7173	.0130	.0834	1.9489	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0440	4	.0110	1.5821	.1792
LINEARITY	.0009	1	.0009	.1303	.7184
DEV. FROM LINEARITY	.0431	3	.0144	2.0660	.1049
	R = .0213	R SQUARED = .0005			
WITHIN GROUPS	1.9489	280	.0070		
	ETA = .1487	ETA SQUARED = .0221			

CRITERION VARIABLE PNOID % BARE CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	90
2	ULIC	.0000	.0000	.0000	.0000	53
3	UMFR	.0333	.0005	.0041	.0011	65
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	41
WITHIN GROUPS TOTAL		.0333	.0001	.0020	.0011	285

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0000	4	.0000	.8443	.4981
LINEARITY	.0000	1	.0000	.0817	.7752
DEV FROM LINEARITY	.0000	3	.0000	1.0985	.3501
	R = .0170	R SQUARED = .0003			
WITHIN GROUPS	.0011	280	.0000		
	ETA = .1092	ETA SQUARED = .0119			

PORTLAND

CRITERION VARIABLE PPWOOD % PAINTED WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	7.4069	.1764	.3402	4.7440	42
2	ULIC	23.5902	.3998	.3980	9.1879	59
3	UMFR	17.8771	.4063	.4233	7.7033	44
4	USFR	15.5430	.4317	.3810	5.0805	36
5	NSUB	9.7614	.4067	.3585	2.9556	24
6	NRUR	5.3757	.3584	.3639	1.8538	15
WITHIN GROUPS TOTAL		79.5544	.3616	.3838	31.5251	220

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	1.8416	5	.3683	2.5002	.0317
LINEARITY	.6462	1	.6462	4.3869	.0374
DEV. FROM LINEARITY	1.1953	4	.2988	2.0286	.0915
	R = .1392	R SQUARED = .0194			
WITHIN GROUPS	31.5251	214	.1473		
	ETA = .2349	ETA SQUARED = .0552			

CRITERION VARIABLE PPSTEEL % PAINTED STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.2200	.0290	.1482	.9010	42
2	ULIC	.0000	.0000	.0000	.0000	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		1.2200	.0055	.0649	.9010	220

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0287	5	.0057	1.3621	.2398
LINEARITY	.0113	1	.0113	2.6882	.1026
DEV. FROM LINEARITY	.0174	4	.0043	1.0306	.3924
	R =-0.1103	R SQUARED = .0122			
WITHIN GROUPS	.9010	214	.0042		
	ETA = .1756	ETA SQUARED = .0308			

CRITERION VARIABLE PPALUM % PAINTED ALUM
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	8.1085	.1931	.3634	5.4143	42
2	ULIC	1.9965	.0338	.1356	1.0671	59
3	UMFR	.8821	.0200	.1330	.7605	44
4	USFR	1.7551	.0488	.2039	1.4548	36
5	NSUB	.0797	.0033	.0099	.0023	24
6	NRUR	1.2886	.0959	.1974	.5455	15
WITHIN GROUPS TOTAL		14.1105	.0641	.2078	9.2445	220

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.9422	5	.1884	4.3620	0008
LINEARITY	.2698	1	.2698	6.2465	0132
DEV FROM LINEARITY	.6723	4	.1681	3.8909	0045
	R =-0.1628	R SQUARED =	.0265		
WITHIN GROUPS	9.2445	214	.0432		
	ETA = .3041	ETA SQUARED =	.0925		

* *

CRITERION VARIABLE PPMASON % PAINTED MASON
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.5841	.0377	.1248	.6389	42
2	ULIC	3.6420	.0617	.2062	2.4651	59
3	UMFR	1.5034	.0342	.0894	.3435	44
4	USFR	.5386	.0150	.0852	.2541	36
5	NSUB	.1383	.0058	.0135	.0042	24
6	NRUR	.1333	.0089	.0344	.0166	15
WITHIN GROUPS TOTAL		7.5398	.0343	.1319	3.7224	220

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0876	5	.0175	1.0069	4145
LINEARITY	0531	1	0531	3.0504	.0821
DEV FROM LINEARITY	0345	4	0086	.4960	.7387
	R =-0.1180	R SQUARED =	0139		
WITHIN GROUPS	3.7224	214	0174		
	ETA = 1516	ETA SQUARED =	0230		

* *

CRITERION VARIABLE PPCONC % PAINTED CONCR
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.1093	0264	.1394	.7963	42
2	ULIC	5.4326	.0921	.2352	3.2093	59
3	UMFR	0890	0020	.0121	0063	44
4	USFR	1.0052	0279	.1141	4555	36
5	NSUB	8974	.0374	.0478	0525	24
6	NRUR	.6933	0462	0540	0408	15
WITHIN GROUPS TOTAL		9.2269	0419	.1460	4.5607	220

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	2364	5	0473	2.2185	.0536
LINEARITY	.0097	1	.0097	.4539	5012
DEV FROM LINEARITY	.2267	4	.0567	2.6596	.0338
	R =-0.0449	R SQUARED =	.0020		
WITHIN GROUPS	4.5607	214	0213		
	ETA = .2220	ETA SQUARED =	0493		

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CRITERION VARIABLE PPSTUCCO % PAINTED STUCCO
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0034	8.163E-05	.0005	1.148E-05	42
2	ULIC	.0000	.0000	.0000	.0000	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		.0034	1.558E-05	.0002	1.148E-05	220

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0000	5	.0000	.8446	.5194
LINEARITY	0000	1	.0000	1.6669	1981
DEV FROM LINEARITY	.0000	4	0000	.6390	.6352
	R =-0.0874	R SQUARED =	.0076		
WITHIN GROUPS	0000	214	0000		
	ETA = .1391	ETA SQUARED =	0194		

* *

CRITERION VARIABLE PPOTHER % PAINTED OTHER
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0571	.0014	.0088	.0032	42
2	ULIC	.0040	6.780E-05	.0005	1.573E-05	59
3	UMFR	3.1392	.0713	.2283	2.2416	44
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.9883	.0412	.1388	.4429	24
6	NRUR	.2250	.0150	.0581	.0472	15
WITHIN GROUPS TOTAL		4.4137	.0201	.1130	2.7349	220

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.1796	5	.0359	2.8102	.0176
LINEARITY	.0161	1	.0161	1.2567	.2635
DEV. FROM LINEARITY	.1635	4	.0409	3.1986	.0141
	R = .0742	R SQUARED = .0055			
WITHIN GROUPS	2.7349	214	.0128		
	ETA = .2482	ETA SQUARED = .0616			

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CRITERION VARIABLE PPNOID % PAINT CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0960	.0023	.0148	.0090	42
2	ULIC	1.0125	.0172	.1161	.7824	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		1.1085	.0050	.0608	.7914	220

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0120	5	.0024	.6495	.6622
LINEARITY	.0026	1	.0026	.7051	.4020
DEV. FROM LINEARITY	.0094	4	.0024	.6356	.6377
	R =-0.0570	R SQUARED = .0032			
WITHIN GROUPS	.7914	214	.0037		
	ETA = .1223	ETA SQUARED = .0149			

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CRITERION VARIABLE PBRICK % BARE BRICK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	11.5003	.2738	.3652	5.4693	42
2	ULIC	14.4875	.2456	.3491	7.0686	59
3	UMFR	11.9504	.2716	.3885	6.4885	44
4	USFR	4.8163	.1338	.2871	2.8845	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		42.7545	.1943	.3200	21.9110	220

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	2.2876	5	.4575	4.4685	.0007
LINEARITY	1.8192	1	1.8192	17.7679	0000
DEV FROM LINEARITY	.4684	4	.1171	1.1437	3369
	R =-0.2742	R SQUARED =	.0752		
WITHIN GROUPS	21.9110	214	.1024		
	ETA = .3075	ETA SQUARED =	.0945		

CRITERION VARIABLE PBLOCK % BARE BLOCK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	42
2	ULIC	.1384	.0023	.0122	.0086	59
3	UMFR	1.0888	.0247	.1467	.9248	44
4	USFR	.4667	.0130	.0446	.0695	36
5	NSUB	.8633	.0360	.1503	.5196	24
6	NRUR	.0353	.0024	.0091	.0012	15
WITHIN GROUPS TOTAL		2.5925	.0118	.0844	1.5237	220

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0339	5	.0068	.9524	.4481
LINEARITY	0110	1	.0110	1.5406	2159
DEV FROM LINEARITY	.0229	4	.0057	.8053	.5230
	R = .0839	R SQUARED =	.0070		
WITHIN GROUPS	1.5237	214	0071		
	ETA = .1475	ETA SQUARED =	.0218		

CRITERION VARIABLE PSTONE % BARE STONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.0840	.0258	.1450	.8621	42
2	ULIC	1.5871	.0269	.1265	.9276	59
3	UMFR	.5811	.0132	.0692	.2059	44
4	USFR	.9296	.0258	.0819	.2349	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0426	.0028	.0110	.0017	15
WITHIN GROUPS TOTAL		4.2244	.0192	.1021	2.2322	220

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0214	5	.0043	.4095	.8419
LINEARITY	.0120	1	.0120	1.1471	.2854
DEV FROM LINEARITY	.0094	4	.0023	.2251	.9242
	R =-0.0729	R SQUARED =	.0053		
WITHIN GROUPS	2.2322	214	.0104		
	ETA = .0973	ETA SQUARED =	.0095		

CRITERION VARIABLE PCONCR % BARE CONRETE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	3.8211	.0910	.1556	.9927	42
2	ULIC	1.7214	.0292	.0943	.5158	59
3	UMFR	2.5474	.0579	.2016	1.7483	44
4	USFR	3.1244	.0868	.1097	.4209	36
5	NSUB	.6640	.0277	.0558	.0717	24
6	NRUR	.4126	.0275	.0366	.0187	15
WITHIN GROUPS TOTAL		12.2910	.0559	.1327	3.7681	220

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.1596	5	.0319	1.8124	.1116
LINEARITY	.0170	1	.0170	.9627	.3276
DEV FROM LINEARITY	.1426	4	.0357	2.0248	.0921
	R =-0.0657	R SQUARED =	.0043		
WITHIN GROUPS	3.7681	214	.0176		
	ETA = .2016	ETA SQUARED =	.0406		

CRITERION VARIABLE PMARB % BARE MARBLE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	42
2	ULIC	.0000	.0000	.0000	.0000	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	220

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PLIME % BARE LIMESTONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	42
2	ULIC	.0000	.0000	.0000	.0000	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	220

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PGRAN % BARE GRANITE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.0840	.0258	.1450	.8621	42
2	ULIC	1.0095	.0171	.1239	.8903	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		2.0935	.0095	.0905	1.7524	220

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0253	5	.0051	.6186	.6857
LINEARITY	.0188	1	.0188	2.2952	.1313
DEV FROM LINEARITY	.0065	4	.0016	.1995	.9384
	R =-0.1028	R SQUARED =	.0106		
WITHIN GROUPS	1.7524	214	.0082		
	ETA = .1194	ETA SQUARED =	.0142		

* *

CRITERION VARIABLE PSTEEL % BARE STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.5877	.0164	.1002	.4118	42
2	ULIC	.0000	.0000	.0000	.0000	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.0184	.0005	.0031	.0003	36
5	NSUB	1.0796	.0450	.1785	.7324	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		1.7858	.0081	.0731	1.1445	220

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0453	5	.0091	1.6956	.1369
LINEARITY	.0017	1	.0017	.3180	.5734
DEV FROM LINEARITY	.0436	4	.0109	2.0399	.0899
	R = .0378	R SQUARED = .0014			
WITHIN GROUPS	1.1445	214	.0053		
	ETA = .1952	ETA SQUARED = .0381			

CRITERION VARIABLE PGLASS % GLASS
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.6237	.0387	.0406	.0676	42
2	ULIC	2.5996	.0441	.0322	.0602	59
3	UMFR	2.8017	.0637	.0474	.0967	44
4	USFR	2.6110	.0725	.0708	.1756	36
5	NSUB	4.2437	.1768	.1374	.4343	24
6	NRUR	3.0385	.2026	.1281	.2298	15
WITHIN GROUPS TOTAL		16.9183	.0769	.0705	1.0643	220

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.6099	5	.1220	24.5280	.0000
LINEARITY	.4837	1	.4837	97.2530	.0000
DEV FROM LINEARITY	.1263	4	.0316	6.3468	.0001
	R = .5375	R SQUARED = .2889			
WITHIN GROUPS	1.0643	214	.0050		
	ETA = .6036	ETA SQUARED = .3643			

CRITERION VARIABLE PWOOD % BARE WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.9060	.0454	.1939	1.5409	42
2	ULIC	1.0598	.0180	.0580	.1948	59
3	UMFR	.9587	.0218	.1239	.6596	44
4	USFR	3.4994	.0972	.2539	2.2571	36
5	NSUB	5.2841	.2202	.3556	2.9086	24
6	NRUR	2.8424	.1895	.2915	1.1896	15
WITHIN GROUPS TOTAL		15.5504	.0707	.2022	8.7505	220

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	1.0695	5	.2139	5.2309	.0001
LINEARITY	.7101	1	.7101	17.3666	.0000
DEV. FROM LINEARITY	.3593	4	.0898	2.1970	.0704
	R = .2689	R SQUARED = .0723			
WITHIN GROUPS	8.7505	214	.0409		
	ETA = .3300	ETA SQUARED = .1089			

CRITERION VARIABLE PVINYL % BARE VINYL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	42
2	ULIC	.0000	.0000	.0000	.0000	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	220

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

CRITERION VARIABLE POBARE % OTHER BARE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.7916	.0427	.1603	1.0540	42
2	ULIC	1.1508	.0195	.1284	.9563	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.7627	.0212	.1271	.5655	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.8700	.0580	.1809	.4580	15
WITHIN GROUPS TOTAL		4.5751	.0208	.1191	3.0339	220

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0703	5	.0141	.9924	.4233
LINEARITY	.0023	1	.0023	.1638	.6860
DEV FROM LINEARITY	.0680	4	.0170	1.1996	.3120
	R =-0.0274	R SQUARED =	.0007		
WITHIN GROUPS	3.0339	214	.0142		
	ETA = .1505	ETA SQUARED =	.0227		

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CRITERION VARIABLE PNOID % BARE CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	42
2	ULIC	.0000	.0000	.0000	.0000	59
3	UMFR	.0000	.0000	.0000	.0000	44
4	USFR	.0000	.0000	.0000	.0000	36
5	NSUB	.0000	.0000	.0000	.0000	24
6	NRUR	.0000	.0000	.0000	.0000	15
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	220

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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PITTSBURGH

CRITERION VARIABLE PPWOOD % PAINTED WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.1249	.0187	.0740	.3233	60
2	ULIC	8.0101	.0942	.1564	2.0547	85
3	UMFR	12.7390	.1554	.2557	5.2976	82
4	USFR	10.7961	.1200	.1730	2.6650	90
WITHIN GROUPS TOTAL		32.6701	.1031	.1818	10.3406	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.6831	3	.2277	6.8918	.0002
LINEARITY	.4111	1	.4111	12.4443	.0005
DEV. FROM LINEARITY	.2719	2	.1360	4.1155	.0172
	R = .1931	R SQUARED = .0373			
WITHIN GROUPS	10.3406	313	.0330		
	ETA = .2489	ETA SQUARED = .0620			

CRITERION VARIABLE PPSTEEL % PAINTED STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	3.9655	.0661	.1365	1.0999	60
2	ULIC	9.9057	.1165	.2243	4.2264	85
3	UMFR	.6621	.0081	.0350	.0990	82
4	USFR	.3332	.0037	.0147	.0193	90
WITHIN GROUPS TOTAL		14.8666	.0469	.1319	5.4447	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	7258	3	.2419	13.9088	0000
LINEARITY	3929	1	3929	22.5859	0000
DEV. FROM LINEARITY	3330	2	.1665	9.5703	0001
	R =-0 2523	R SQUARED = .0637			
WITHIN GROUPS	5.4447	313	0174		
	ETA = 3430	ETA SQUARED = .1176			

CRITERION VARIABLE PPALUM % PAINTED ALUM
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.1659	.0194	.1080	.6885	60
2	ULIC	1.9479	.0229	.0875	.6431	85
3	UMFR	7.7404	.0944	.2036	3.3568	82
4	USFR	17.4778	.1942	.2603	6.0282	90
WITHIN GROUPS TOTAL		28.3320	.0894	.1850	10.7167	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	1.6599	3	.5533	16.1603	.0000
LINEARITY	1.4765	1	1.4765	43.1231	.0000
DEV FROM LINEARITY	.1834	2	.0917	2.6790	.0702
	R = .3454	R SQUARED = .1193			
WITHIN GROUPS	10.7167	313	.0342		
	ETA = .3662	ETA SQUARED = .1341			

CRITERION VARIABLE PPMASON % PAINTED MASON
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	4.2264	.0704	.1529	1.3801	60
2	ULIC	3.1900	.0375	.1248	1.3092	85
3	UMFR	.3621	.0044	.0185	.0277	82
4	USFR	.7677	.0085	.0760	.5135	90
WITHIN GROUPS TOTAL		8.5461	.0270	.1016	3.2305	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.1952	3	.0651	6.3031	.0004
LINEARITY	.1619	1	.1619	15.6889	.0001
DEV FROM LINEARITY	.0332	2	.0166	1.6103	.2015
	R = -0.2174	R SQUARED = .0473			
WITHIN GROUPS	3.2305	313	.0103		
	ETA = .2387	ETA SQUARED = .0570			

CRITERION VARIABLE PPCONC % PAINTED CONCR
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.5769	.0096	.0745	.3273	60
2	ULIC	.0000	.0000	.0000	.0000	85
3	UMFR	.1747	.0021	.0112	.0103	82
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.7516	.0024	.0328	.3375	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0041	3	.0014	1.2789	.2816
LINEARITY	.0021	1	.0021	1.9289	.1659
DEV. FROM LINEARITY	.0021	2	.0010	.9538	.3864
	R = 0.0780	R SQUARED =	.0061		
WITHIN GROUPS	.3375	313	.0011		
	ETA = .1100	ETA SQUARED =	.0121		

CRITERION VARIABLE PPSTUCCO % PAINTED STUCCO
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.5802	.0097	.0637	.2392	60
2	ULIC	.7750	.0091	.0841	.5936	85
3	UMFR	.3347	.0041	.0244	.0483	82
4	USFR	.0686	.0008	.0072	.0046	90
WITHIN GROUPS TOTAL		1.7585	0055	.0532	.8858	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0043	3	.0014	.5113	.6748
LINEARITY	.0040	1	.0040	1.4297	.2327
DEV. FROM LINEARITY	.0003	2	.0001	.0521	.9493
	R =-0.0674	R SQUARED =	.0045		
WITHIN GROUPS	.8858	313	.0028		
	ETA = .0698	ETA SQUARED =	.0049		

CRITERION VARIABLE PPOTHER % PAINTED OTHER
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.1305	.0022	.0157	.0145	60
2	ULIC	1.0991	.0129	.0499	.2093	85
3	UMFR	.1609	.0020	.0067	.0037	82
4	USFR	.3634	.0040	.0122	.0132	90
WITHIN GROUPS TOTAL		1.7538	.0055	.0277	.2408	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0066	3	.0022	2.8496	.0376
LINEARITY	.0003	1	.0003	.4527	.5016
DEV FROM LINEARITY	.0062	2	.0031	4.0480	.0184
	R =-0.0375	R SQUARED =	.0014		
WITHIN GROUPS	.2408	313	.0008		
	ETA = .1631	ETA SQUARED =	.0266		

CRITERION VARIABLE PPNOID % PAINT CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	60
2	ULIC	.0000	.0000	.0000	.0000	85
3	UMFR	.0000	.0000	.0000	.0000	82
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	317

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

CRITERION VARIABLE P3BRICK % BARE BRICK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	5333	0089	0432	1102	60
2	ULIC	7632	0090	0317	0844	85
3	UMFR	1 6136	0197	0871	6143	82
4	USFR	2 4149	0268	1103	1 0836	90
WITHIN GROUPS TOTAL		5 3251	0168	0778	1 8925	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0187	3	0062	1 0305	3793
LINEARITY	0170	1	0170	2 8065	0949
DEV FROM LINEARITY	0017	2	0009	1424	8673
	R = 0942	R SQUARED = 0089			
WITHIN GROUPS	1 8925	313	0060		
	ETA = 0989	ETA SQUARED = 0098			

CRITERION VARIABLE P3LOCK % BARE BLOCK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	2 6246	0437	1521	1 3655	60
2	ULIC	5115	0060	0212	0377	85
3	UMFR	0000	0000	0000	0000	82
4	USFR	0000	0000	0000	0000	90
WITHIN GROUPS TOTAL		3 1361	0099	0670	1 4033	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0869	3	0290	6 4581	0003
LINEARITY	0573	1	0573	12 7708	0004
DEV FROM LINEARITY	0296	2	0148	3 3018	0381
	R =-0 1960	R SQUARED = 0384			
WITHIN GROUPS	1 4033	313	0045		
	ETA = 2414	ETA SQUARED = 0583			

CRITERION VARIABLE PSTONE % BARE STONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	7.8239	.1304	.1500	1.3270	60
2	ULIC	6.7171	.0790	.1170	1.1498	85
3	UMFR	3.8437	.0469	.0616	.3075	82
4	USFR	1.8800	.0209	.0330	.0971	90
WITHIN GROUPS TOTAL		20.2647	.0639	.0959	2.8813	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.4750	3	.1583	17.2009	.0000
LINEARITY	.4621	1	.4621	50.1955	.0000
DEV FROM LINEARITY	.0130	2	.0065	.7036	.4956
	R =-0.3710	R SQUARED =	.1377		
WITHIN GROUPS	2.8813	313	.0092		
	ETA = .3762	ETA SQUARED =	.1415		

CRITERION VARIABLE PCONCR % BARE CONRETE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	16.3357	.2723	.2959	5.1647	60
2	ULIC	28.6963	.3376	.2852	6.8332	85
3	UMFR	39.4548	.4812	.3109	7.8283	82
4	USFR	35.2904	.3921	.3011	8.0666	90
WITHIN GROUPS TOTAL		119.7772	.3778	.2985	27.8928	3

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	1.7000	3	.5667	6.3590	.0003
LINEARITY	.8087	1	.8087	9.0754	.0028
DEV FROM LINEARITY	.8913	2	.4456	5.0008	.0073
	R = .1653	R SQUARED =	.0273		
WITHIN GROUPS	27.8928	313	.0891		
	ETA = .2397	ETA SQUARED =	.0574		

CRITERION VARIABLE PMARB % BARE MARBLE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.2221	.0037	.0220	.0285	60
2	ULIC	7.7583	.0913	.1785	2.6768	85
3	UMFR	5.2506	.0640	.0982	.7810	82
4	USFR	8.2008	.0911	.0629	.3520	90
WITHIN GROUPS TOTAL		21.4319	.0676	.1107	3.8384	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.3434	3	.1145	9.3354	.0000
LINEARITY	.1619	1	.1619	13.1995	.0003
DEV. FROM LINEARITY	.1816	2	.0908	7.4033	.0007
	R = .1967	R SQUARED = .0387			
WITHIN GROUPS	3.8384	313	.0123		
	ETA = .2866	ETA SQUARED = .0821			

CRITERION VARIABLE PLIME % BARE LIMESTONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1.7521	.0292	.1488	1.3059	60
2	ULIC	.9689	.0114	.0759	.4845	85
3	UMFR	2.1350	.0260	.1301	1.3718	82
4	USFR	1.0397	.0116	.0744	.4927	90
WITHIN GROUPS TOTAL		5.8958	.0186	.1081	3.6549	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0202	3	.0067	.5755	.6315
LINEARITY	.0045	1	.0045	.3845	.5357
DEV FROM LINEARITY	.0157	2	.0078	.6709	.5120
	R =-0 0350	R SQUARED = .0012			
WITHIN GROUPS	3 6549	313	.0117		
	ETA = 0741	ETA SQUARED = .0055			

CRITERION VARIABLE PGRAN % BARE GRANITE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	4831	.0081	.0322	.0614	60
2	ULIC	.0000	.0000	.0000	.0000	85
3	UMFR	.0000	.0000	.0000	.0000	82
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.4831	.0015	.0140	.0614	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0032	3	.0011	5.3628	.0013
LINEARITY	.0017	1	.0017	8.5501	.0037
DEV FROM LINEARITY	.0015	2	.0007	3.7692	.0241
	R = -0.1612	R SQUARED =	.0260		
WITHIN GROUPS	.0614	313	.0002		
	ETA = .2211	ETA SQUARED =	.0489		

CRITERION VARIABLE PSTEEL % BARE STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.4284	.0071	.0192	.0218	60
2	ULIC	3.3241	.0391	.0920	.7108	85
3	UMFR	3.1828	.0388	.0473	.1810	82
4	USFR	1.2240	.0136	.0345	.1060	90
WITHIN GROUPS TOTAL		8.1593	.0257	.0571	1.0196	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0632	3	.0211	6.4702	.0003
LINEARITY	.0000	1	.0000	.0000	.9978
DEV FROM LINEARITY	.0632	2	.0316	9.7053	.0001
	R = .0002	R SQUARED =	.0000		
WITHIN GROUPS	1.0196	313	.0033		
	ETA = .2416	ETA SQUARED =	.0584		

CRITERION VARIABLE PGLASS % GLASS
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	11.2304	.1872	.1880	2.0854	60
2	ULIC	11.3950	.1341	.0973	.7958	85
3	UMFR	5.7357	.0699	.0541	.2368	82
4	USFR	9.4699	.1052	.0393	.1378	90
WITHIN GROUPS TOTAL		37.8309	.1193	.1020	3.2558	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.5125	3	.1708	16.4227	.0000
LINEARITY	.3045	1	.3045	29.2754	.0000
DEV. FROM LINEARITY	.2080	2	.1040	9.9964	.0001
	R =-0.2843	R SQUARED =	.0808		
WITHIN GROUPS	3.2558	313	.0104		
	ETA = .3688	ETA SQUARED =	.1360		

CRITERION VARIABLE PWOOD % BARE WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	2.4595	.0410	.0880	.4565	60
2	ULIC	.9730	.0114	.0551	.2548	85
3	UMFR	.0000	.0000	.0000	.0000	82
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		3.4325	.0108	.0477	.7113	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0748	3	.0249	10.9698	.0000
LINEARITY	.0578	1	.0578	25.4535	.0000
DEV. FROM LINEARITY	.0169	2	.0085	3.7279	.0251
	R =-0.2713	R SQUARED =	.0736		
WITHIN GROUPS	.7113	313	.0023		
	ETA = .3084	ETA SQUARED =	.0951		

CRITERION VARIABLE PVINYL % BARE VINYL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0211	.0004	.0027	.0004	60
2	ULIC	.0000	.0000	.0000	.0000	85
3	UMFR	1.1046	.0135	.0895	.6488	82
4	USFR	1.2414	.0138	.0921	.7556	90
WITHIN GROUPS TOTAL		2.3671	.0075	.0670	1.4048	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0143	3	.0048	1.0647	.3643
LINEARITY	.0113	1	.0113	2.5282	.1128
DEV FROM LINEARITY	.0030	2	.0015	.3330	.7170
	R = .0894	R SQUARED = .0080			
WITHIN GROUPS	1.4048	313	.0045		
	ETA = .1005	ETA SQUARED = .0101			

CRITERION VARIABLE POBARE % OTHER BARE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	3.2074	.0535	.1667	1.6399	60
2	ULIC	.8420	.0099	.0361	.1098	85
3	UMFR	.0273	.0003	.0030	.0007	82
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		4.0767	.0129	.0748	1.7504	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.1274	3	.0425	7.5928	.0001
LINEARITY	.0894	1	.0894	15.9926	.0001
DEV FROM LINEARITY	.0379	2	.0190	3.3929	.0349
	R =-0.2182	R SQUARED = .0476			
WITHIN GROUPS	1.7504	313	.0056		
	ETA = .2605	ETA SQUARED = .0678			

CRITERION VARIABLE PNOID % BARE CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0261	.0004	.0034	.0007	60
2	ULIC	.0000	.0000	.0000	.0000	85
3	UMFR	.0000	.0000	.0000	.0000	82
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.0261	8.227E-05	.0015	.0007	317

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0000	3	.0000	1.4337	.2329
LINEARITY	.0000	1	.0000	2.2857	.1316
DEV. FROM LINEARITY	.0000	2	.0000	1.0076	.3663
	R = -0.0849	R SQUARED =	.0072		
WITHIN GROUPS	.0007	313	.0000		
	ETA = .1164	ETA SQUARED =	.0136		

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CRITERION VARIABLE PPWOOD % PAINTED WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	2.6151	.0363	.1257	1.1210	72
2	ULIC	6.7580	.1408	.2273	2.4280	48
3	UMFR	7.8441	.1705	.2273	2.3247	46
4	USFR	11.6647	.1666	.2085	3.0009	70
WITHIN GROUPS TOTAL		28.8818	.1224	.1956	8.8746	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.7933	3	.2644	6.9125	.0002
LINEARITY	.6222	1	.6222	16.2650	.0001
DEV FROM LINEARITY	.1711	2	.0855	2.2362	.1092
	R = .2537	R SQUARED = .0644			
WITHIN GROUPS	8.8746	232	.0383		
	ETA = .2864	ETA SQUARED = .0821			

CRITERION VARIABLE PPSTEEL % PAINTED STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	7.3017	.1014	.1915	2.6049	72
2	ULIC	3.7685	.0785	.2125	2.1216	48
3	UMFR	.4638	.0101	.0406	.0741	46
4	USFR	1.3968	.0200	.1078	.8013	70
WITHIN GROUPS TOTAL		12.9308	.0548	.1554	5.6019	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.3604	3	.1201	4.9751	.0023
LINEARITY	.3088	1	.3088	12.7881	.0004
DEV FROM LINEARITY	.0516	2	.0258	1.0686	.3452
	R =-0.2276	R SQUARED = .0518			
WITHIN GROUPS	5.6019	232	.0241		
	ETA = .2459	ETA SQUARED = .0604			

CRITERION VARIABLE PPALUM % PAINTED ALUM
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	8175	0114	0928	.6118	72
2	ULIC	3 7928	.0790	2091	2 0542	48
3	UMFR	3 6235	.0788	2166	2 1107	46
4	USFR	4 2011	0600	1404	1 3594	70
WITHIN GROUPS TOTAL		12 4349	0527	1626	6 1362	236

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.1913	3	0638	2 4114	0676
LINEARITY	0789	1	0789	2 9830	0855
DEV FROM LINEARITY	1124	2	0562	2 1257	1217
	R = 1117	R SQUARED =	0125		
WITHIN GROUPS	6 1362	232	.0264		
	ETA = 1739	ETA SQUARED =	0302		

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CRITERION VARIABLE PPMASON % PAINTED MASON
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1 9570	.0272	.0917	.5967	72
2	ULIC	3 6512	.0761	.2255	2 3889	48
3	UMFR	1 2351	0269	.1240	.6917	46
4	USFR	.7936	.0113	0884	.5387	70
WITHIN GROUPS TOTAL		7 6369	0324	.1348	4 2161	236

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	1260	3	.0420	2 3104	0770
LINEARITY	0233	1	.0233	1 2795	.2592
DEV FROM LINEARITY	1027	2	.0514	2 8259	0613
	R =-0 0732	R SQUARED =	.0054		
WITHIN GROUPS	4 2161	232	0182		
	ETA = 1703	ETA SQUARED =	0290		

* *

CRITERION VARIABLE PPCONC % PAINTED CONCR
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	6.0795	.0844	1800	2.2996	72
2	ULIC	1.7449	.0364	0557	1460	48
3	UMFR	1.3903	.0302	0507	1157	46
4	USFR	2.9214	0417	0874	.5277	70
WITHIN GROUPS TOTAL		12.1361	0514	1154	3.0890	236

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	1166	3	.0389	2.9196	0349
LINEARITY	0647	1	.0647	4.8557	0285
DEV FROM LINEARITY	0520	2	.0260	1.9516	1444
	R =-0.1420	R SQUARED =	0202		
WITHIN GROUPS	3.0890	232	.0133		
	ETA = 1907	ETA SQUARED =	0364		

* *

CRITERION VARIABLE PPSTUCCO % PAINTED STUCCO
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	0000	0000	0000	0000	72
2	ULIC	.0000	0000	.0000	.0000	48
3	UMFR	.3905	.0085	.0551	.1368	46
4	USFR	3.2707	.0467	.1509	1.5704	70
WITHIN GROUPS TOTAL		3.6612	0155	.0858	1.7072	236

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0993	3	.0331	4.4997	0043
LINEARITY	0777	1	.0777	10.5644	0013
DEV FROM LINEARITY	0216	2	.0108	1.4673	2327
	R = 2074	R SQUARED =	.0430		
WITHIN GROUPS	1.7072	232	0074		
	ETA = 2345	ETA SQUARED =	.0550		

* *

CRITERION VARIABLE PPOTHER % PAINTED OTHER
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	5.3870	.0748	.1818	2.3467	72
2	ULIC	3.1049	.0647	.1946	1.7801	48
3	UMFR	3.0065	.0654	.1512	1.0288	46
4	USFR	1.5678	.0224	.1108	.8475	70
WITHIN GROUPS TOTAL		13.0662	.0554	.1609	6.0031	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.1121	3	.0374	1.4440	.2307
LINEARITY	.0900	1	.0900	3.4794	.0634
DEV FROM LINEARITY	.0221	2	.0110	.4263	.6534
	R = -0.1213	R SQUARED =	.0147		
WITHIN GROUPS	6.0031	232	.0259		
	ETA = .1354	ETA SQUARED =	.0183		

CRITERION VARIABLE PPNOID % PAINT CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.3587	.0050	.0423	.1269	72
2	ULIC	.0000	.0000	.0000	.0000	48
3	UMFR	.0000	.0000	.0000	.0000	46
4	USFR	.0000	.0000	.0000	.0000	70
WITHIN GROUPS TOTAL		.3587	.0015	.0234	.1269	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0012	3	.0004	.7569	.5194
LINEARITY	.0008	1	.0008	1.5089	.2205
DEV FROM LINEARITY	.0004	2	.0002	.3809	.6837
	R = -0.0303	R SQUARED =	.0064		
WITHIN GROUPS	.1269	232	.0005		
	ETA = .0985	ETA SQUARED =	.0097		

CRITERION VARIABLE PBRICK % BARE BRICK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.2328	.0032	.0230	.0375	72
2	ULIC	.0029	5.952E-05	.0004	7.993E-06	48
3	UMFR	1313	.0029	.0194	.0169	46
4	USFR	.8617	.0123	.0738	.3759	70
WITHIN GROUPS TOTAL		1.2287	.0052	.0431	.4303	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0053	3	.0018	.9596	.4126
LINEARITY	.0031	1	.0031	1.6626	.1985
DEV FROM LINEARITY	.0023	2	.0011	.6080	.5453
	R = .0841	R SQUARED = .0071			
WITHIN GROUPS	.4303	232	.0019		
	ETA = .1107	ETA SQUARED = .0123			

CRITERION VARIABLE PBLOCK % BARE BLOCK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.3910	.0054	.0403	.1154	72
2	ULIC	.0000	.0000	.0000	.0000	48
3	UMFR	.0917	.0020	.0135	.0082	46
4	USFR	.5733	.0082	.0617	.2624	70
WITHIN GROUPS TOTAL		1.0560	.0045	.0408	.3860	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0023	3	.0008	.4561	.7132
LINEARITY	.0003	1	.0003	.1994	.6556
DEV FROM LINEARITY	.0019	2	.0010	.5845	.5582
	R = .0292	R SQUARED = .0009			
WITHIN GROUPS	.3860	232	.0017		
	ETA = .0766	ETA SQUARED = .0059			

CRITERION VARIABLE PSTONE % BARE STONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	8.7962	.1222	.1350	1.2942	72
2	ULIC	1.9589	.0408	.0490	.1130	48
3	UMFR	2.3506	.0511	.0957	.4119	46
4	USFR	2.7333	.0390	.0445	.1367	70
WITHIN GROUPS TOTAL		15.8390	.0671	.0918	1.9558	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.3184	3	.1061	12.5888	.0000
LINEARITY	.2172	1	.2172	25.7616	.0000
DEV FROM LINEARITY	.1012	2	.0506	6.0025	.0029
	R = -0.3090	R SQUARED =	.0955		
WITHIN GROUPS	1.9558	232	.0084		
	ETA = .3742	ETA SQUARED =	.1400		

CRITERION VARIABLE PCONCR % BARE CONRETE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	16.3537	.2271	.2666	5.0482	72
2	ULIC	14.1654	.2951	.3106	4.5330	48
3	UMFR	15.7473	.3423	.3098	4.3178	46
4	USFR	26.3127	.3759	.2763	5.2659	70
WITHIN GROUPS TOTAL		72.5793	.3075	.2874	19.1650	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.8557	3	.2852	3.4527	.0173
LINEARITY	.8387	1	.8387	10.1532	.0016
DEV FROM LINEARITY	.0169	2	.0085	.1024	.9027
	R = .2047	R SQUARED =	.0419		
WITHIN GROUPS	19.1650	232	.0826		
	ETA = .2067	ETA SQUARED =	.0427		

CRITERION VARIABLE PMARB % BARE MARBLE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	3.3640	.0467	.1695	2.0410	72
2	ULIC	1.0658	.0222	.1162	.6348	48
3	UMFR	1.3451	.0292	.1011	.4600	46
4	USFR	1.0676	.0153	.0932	.5989	70
WITHIN GROUPS TOTAL		6.8424	.0290	.1269	3.7348	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0381	3	.0127	.7882	.5016
LINEARITY	.0297	1	.0297	1.8421	.1760
DEV. FROM LINEARITY	.0084	2	.0042	.2612	.7704
	R = .0887	R SQUARED = .0079			
WITHIN GROUPS	3.7348	232	.0161		
	ETA = .1004	ETA SQUARED = .0101			

CRITERION VARIABLE PLIME % BARE LIMESTONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0500	.0007	.0059	.0025	72
2	ULIC	.0000	.0000	.0000	.0000	48
3	UMFR	.1905	.0041	.0281	.0355	46
4	USFR	.0055	7.900E-05	.0007	3.014E-05	70
WITHIN GROUPS TOTAL		.2460	.0010	.0128	.0380	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0006	3	.0002	1.1552	.3277
LINEARITY	.0000	1	.0000	.0190	.8904
DEV. FROM LINEARITY	.0006	2	.0003	1.7232	.1808
	R = .0090	R SQUARED = .0001			
WITHIN GROUPS	.0380	232	.0002		
	ETA = .1213	ETA SQUARED = .0147			

CRITERION VARIABLE PGRAN % BARE GRANITE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	1910	.0027	.0197	.0277	72
2	ULIC	.0000	.0000	.0000	.0000	48
3	UMFR	.0000	.0000	.0000	.0000	46
4	USFR	.0000	.0000	.0000	.0000	70
WITHIN GROUPS TOTAL		1910	.0008	.0109	.0277	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0004	3	.0001	.9841	.4010
LINEARITY	.0002	1	.0002	1.9618	.1627
DEV FROM LINEARITY	.0001	2	.0001	.4952	.6101
	R =-0 0914	R SQUARED =	.0083		
WITHIN GROUPS	.0277	232	.0001		
	ETA = .1121	ETA SQUARED =	.0126		

CRITERION VARIABLE PSTEEL % BARE STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	2.5044	.0348	.0833	.4931	72
2	ULIC	.2040	.0042	.0169	.0135	48
3	UMFR	1.0434	.0227	.0915	.3769	46
4	USFR	.2059	.0029	.0111	.0085	70
WITHIN GROUPS TOTAL		3.9577	.0168	.0620	.8920	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0459	3	.0153	3.9779	.0086
LINEARITY	.0256	1	.0256	6.6495	.0105
DEV FROM LINEARITY	.0203	2	.0102	2.6420	.0734
	R =-0.1651	R SQUARED =	.0273		
WITHIN GROUPS	.8920	232	.0038		
	ETA = .2212	ETA SQUARED =	.0489		

CRITERION VARIABLE PGLASS % GLASS
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	9 5556	1327	1399	1 3886	72
2	ULIC	6 0041	1251	0758	2698	48
3	UMFR	5 9221	1287	0572	1473	46
4	USFR	9 0838	1298	0793	4342	70
WITHIN GROUPS TOTAL		30 5656	1295	0983	2 2400	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0017	3	0006	0591	9811
LINEARITY	0002	1	0002	0161	8993
DEV FROM LINEARITY	0016	2	0008	0806	9225
	R =-0 0083	R SQUARED =	0001		
WITHIN GROUPS	2 2400	232	0097		
	ETA = 0276	ETA SQUARED =	0008		

CRITERION VARIABLE PWOOD % BARE WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	3095	0043	0301	0645	72
2	ULIC	0000	0000	0000	0000	48
3	UMFR	0000	0000	0000	0000	46
4	USFR	0000	0000	0000	0000	70
WITHIN GROUPS TOTAL		3095	0013	0167	0645	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0009	3	0003	1 1081	3465
LINEARITY	0006	1	0006	2 2091	1386
DEV FROM LINEARITY	0003	2	0002	5576	5733
	R =-0 0969	R SQUARED =	0094		
WITHIN GROUPS	0645	232	0003		
	ETA = 1189	ETA SQUARED =	0141		

CRITERION VARIABLE PVINYL % BARE VINYL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	0000	0000	0000	0000	72
2	ULIC	0933	0019	0135	0085	48
3	UMFR	0000	0000	0000	0000	46
4	USFR	6799	0097	0590	2400	70
WITHIN GROUPS TOTAL		7732	0033	0327	2486	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0043	3	0014	1 3228	2677
LINEARITY	0028	1	0028	2 6475	1051
DEV FROM LINEARITY	0014	2	0007	6604	5176
	R = 1059	R SQUARED = 0112			
WITHIN GROUPS	2486	232	0011		
	ETA = 1297	ETA SQUARED = 0168			

CRITERION VARIABLE POBARE % OTHER BARE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	2 9492	0410	1362	1 3175	72
2	ULIC	1343	0028	0137	0088	48
3	UMFR	9605	0209	1164	6094	46
4	USFR	2953	0042	0209	0301	70
WITHIN GROUPS TOTAL		4 3393	0184	0920	1 9658	236

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0627	3	0209	2 4663	0630
LINEARITY	0356	1	0356	4 2017	0415
DEV FROM LINEARITY	0271	2	0135	1 5985	2044
	R =-0 1325	R SQUARED = 0176			
WITHIN GROUPS	1 9658	232	0085		
	ETA = 1758	ETA SQUARED = 0309			

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CRITERION VARIABLE    PNOID       % BARE CANNOT ID
   BROKEN DOWN BY     SFRAME      SAMPLING FRAME

- - - - - - - - - - - - - - - - - - - - - -  A N A L Y S I S   O F   V A R I A N C E

    VALUE  LABEL                        SUM         MEAN      STD DEV   SUM OF SQ    CASES

        1  UCBD                        0000         0000        0000        0000       72
        2  ULIC                        0000         0000        0000        0000       48
        3  UMFR                        0000         0000        0000        0000       46
        4  USFR                        0432         0006        0052        0018       70
                                 -------------------------------------------------------
WITHIN GROUPS TOTAL                    0432         0002        0028        0018      236

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                    A N A L Y S I S   O F   V A R I A N C E                  *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               SUM OF                      MEAN
SOURCE                         SQUARES        D F         SQUARE          F        SIG

BETWEEN GROUPS                    0000          3           0000        7883      5015

  LINEARITY                       0000          1           0000      1 5793      2101
  DEV  FROM LINEARITY             0000          2           0000        3928      6756

                        R =       0821     R SQUARED =      0067

WITHIN GROUPS                     0018        232           0000

                      ETA =       1005   ETA SQUARED =      0101

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APPENDIX E: CHI-SQUARE TESTS AND TWO-WAY CONTINGENCY TABLES FOR THE EXPECTED MULTINOMIAL DISTRIBUTION FOR THE 21 BUILDING MATERIAL TYPES.

NEW HAVEN

CROSSTABULATION OF IMAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

IMAT	SFRAME	USBD 1	ULIC 2	UMFR 3	USFR 4	NSUB 5	ROW TOTAL
1 PAINTED WOOD	COUNT	3	16	34	30	33	116
	EXP VAL	36.6	21.6	26.5	14.7	16.7	40.7%
	ROW PCT	2.6%	13.8%	29.3%	25.9%	28.4%	
	COL PCT	3.3%	30.2%	52.3%	83.3%	80.5%	
	TOT PCT	1.1%	5.6%	11.9%	10.5%	11.6%	
	RESIDUAL	-33.6	-5.6	7.5	15.3	16.3	
	STD RES	-5.6	-1.2	1.5	4.0	4.0	
	ADJ RES	-8.7	-1.7	2.2	5.6	5.6	
2 PAINTED STEEL	COUNT	2	3	0	0	0	5
	EXP VAL	1.6	9	1.1	.6	.7	1.8%
	ROW PCT	40.0%	60.0%	0%	0%	0%	
	COL PCT	2.2%	5.7%	0%	0%	0%	
	TOT PCT	.7%	1.1%	0%	0%	0%	
	RESIDUAL	.4	2.1	-1.1	-0.6	-0.7	
	STD RES	.3	2.1	-1.1	-0.8	-0.8	
	ADJ RES	.4	2.4	-1.2	-0.9	-0.9	
3 PAINTED ALUMINUM	COUNT	27	13	11	2	1	54
	EXP VAL	17.1	10.0	12.3	6.8	7.8	18.9%
	ROW PCT	50.0%	24.1%	20.4%	3.7%	1.9%	
	COL PCT	30.0%	24.5%	16.9%	5.6%	2.4%	
	TOT PCT	9.5%	4.6%	3.9%	.7%	.4%	
	RESIDUAL	9.9	3.0	-1.3	-4.8	-6.8	
	STD RES	2.4	.9	-0.4	-1.8	-2.4	
	ADJ RES	3.2	1.1	-0.5	-2.2	-2.9	
4 PAINTED MASONRY	COUNT	4	0	3	0	0	7
	EXP VAL	2.2	1.3	1.6	.9	1.0	2.5%
	ROW PCT	57.1%	0%	42.9%	0%	0%	
	COL PCT	4.4%	0%	4.6%	0%	0%	
	TOT PCT	1.4%	0%	1.1%	0%	0%	
	RESIDUAL	1.8	-1.3	1.4	-0.9	-1.0	
	STD RES	1.2	-1.1	1.1	-0.9	-1.0	
	ADJ RES	1.5	-1.3	1.3	-1.0	-1.1	
COLUMN TOTAL		90 31.6%	53 18.6%	65 22.8%	36 12.6%	41 14.4%	285 100.0%

(CONTINUED)

CROSSTABULATION OF IMAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

IMAT	SFRAME	UC8D (1)	ULIC (2)	UMFR (3)	USFR (4)	NSUB (5)	ROW TOTAL
5 PAINTED CONCRETE	COUNT	4	3	1	0	0	8
	EXP VAL	2.5	1.5	1.8	1.0	1.2	2.8%
	ROW PCT	50.0%	37.5%	12.5%	.0%	.0%	
	COL PCT	4.4%	5.7%	1.5%	0%	0%	
	TOT PCT	1.4%	1.1%	.4%	0%	0%	
	RESIDUAL	1.5	1.5	-0.8	-1.0	-1.2	
	STD RES	.9	1.2	-0.6	-1.0	-1.1	
	ADJ RES	1.1	1.4	-0.7	-1.1	-1.2	
6 PAINTED STUCCO	COUNT	3	1	2	2	0	8
	EXP VAL	2.5	1.5	1.8	1.0	1.2	2.8%
	ROW PCT	37.5%	12.5%	25.0%	25.0%	.0%	
	COL PCT	3.3%	1.9%	3.1%	5.6%	0%	
	TOT PCT	1.1%	.4%	.7%	.7%	0%	
	RESIDUAL	.5	-0.5	.2	1.0	-1.2	
	STD RES	.3	-0.4	.1	1.0	-1.1	
	ADJ RES	.4	-0.4	.1	1.1	-1.2	
7 PAINTED OTHER	COUNT	0	0	3	0	0	3
	EXP VAL	.9	.6	2.3	1.4	.4	1.1%
	ROW PCT	.0%	.0%	100.0%	.0%	.0%	
	COL PCT	.0%	.0%	4.6%	.0%	.0%	
	TOT PCT	.0%	.0%	1.1%	.0%	.0%	
	RESIDUAL	-0.9	-0.6	2.3	-0.4	-0.4	
	STD RES	-1.0	-0.7	2.8	-0.6	-0.7	
	ADJ RES	-1.2	-0.8	3.2	-0.7	-0.7	
9 BARE BRICK	COUNT	30	6	7	2	1	46
	EXP VAL	14.5	8.4	10.5	5.8	6.6	16.1%
	ROW PCT	65.2%	13.0%	15.2%	4.3%	2.2%	
	COL PCT	33.3%	11.3%	10.8%	5.6%	2.4%	
	TOT PCT	10.5%	2.1%	2.5%	.7%	.4%	
	RESIDUAL	15.5	-2.6	-3.5	-3.8	-5.6	
	STD RES	4.1	-0.9	-1.1	-1.6	-2.2	
	ADJ RES	5.4	-1.1	-1.3	-1.8	-2.6	
COLUMN TOTAL		90	53	65	36	41	285
		31.6%	18.6%	22.8%	12.6%	14.4%	100.0%

(CONTINUED)

CROSSTABULATION OF IMAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

IMAT	SFRAME	UCBD (1)	ULIC (2)	UMFR (3)	USFR (4)	NSUB (5)	ROW TOTAL
10 BARE BLOCK	COUNT	0	1	0	0	0	1
	EXP VAL	3	2	2	1	1	4%
	ROW PCT	0%	100 0%	0%	0%	0%	
	COL PCT	0%	1 9%	0%	0%	0%	
	TOT PCT	0%	4%	0%	0%	0%	
	RESIDUAL	-0 3	8	-0 2	-0 1	-0 1	
	STD RES	-0 6	1 9	-0 5	-0 4	-0 4	
	ADJ RES	-0 7	2 1	-0 5	-0 4	-0 4	
11 BARE FIELDSTONE	COUNT	5	7	1	0	2	15
	EXP VAL	4 7	2 8	3 4	1 9	2 2	5 3%
	ROW PCT	33 3%	46 7%	6 7%	0%	13 3%	
	COL PCT	5 6%	13 2%	1 5%	0%	4 9%	
	TOT PCT	1 8%	2 5%	4%	0%	7%	
	RESIDUAL	3	4 2	-2 4	-1 9	-0 2	
	STD RES	1	2 5	-1 3	-1 4	-0 1	
	ADJ RES	2	2 9	-1 5	-1 5	-0 1	
12 BARE CONCRETE	COUNT	12	2	3	0	4	21
	EXP VAL	6 6	3 9	4 8	2 7	3 0	7 4%
	ROW PCT	57 1%	9 5%	14 3%	0%	19 0%	
	COL PCT	13 3%	3 8%	4 6%	0%	9 8%	
	TOT PCT	4 2%	7%	1 1%	0%	1 4%	
	RESIDUAL	5 4	-1 9	-1 8	-2 7	1 0	
	STD RES	2 1	-1 0	-0 8	-1 6	6	
	ADJ RES	2 6	-1 1	-1 0	-1 8	6	
18 BARE GLASS	COUNT	0	1	0	0	0	1
	EXP VAL	3	2	2	1	1	4%
	ROW PCT	0%	100 0%	0%	0%	0%	
	COL PCT	0%	1 9%	0%	0%	0%	
	TOT PCT	0%	4%	0%	0%	0%	
	RESIDUAL	-0 3	8	-0 2	-0 1	-0 1	
	STD RES	-0 6	1 9	-0 5	-0 4	-0 4	
	ADJ RES	-0 7	2 1	-0 5	-0 4	-0 4	
COLUMN TOTAL		90 31 6%	53 18 6%	65 22 8%	36 12 6%	41 14 4%	285 100 0%

CHI-SQUARE	D F	SIGNIFICANCE	MIN E F	CELLS WITH E F < 5
166 49842	44	0 0000	0 126	44 OF 60 (73 3%)

STATISTIC	SYMMETRIC	WITH IMAT DEPENDENT	WITH SFRAME DEPENDENT
LAMBDA	0 18132	0 15976	0 20000
UNCERTAINTY COEFFICIENT	0 20020	0 18787	0 21428
SOMERS' D	-0 44106	-0 43667	-0 44554
ETA		0 44963	0 62842

STATISTIC	VALUE	SIGNIFICANCE
CRAMER'S V	0 38217	
CONTINGENCY COEFFICIENT	0 60726	
KENDALL'S TAU B	-0 44108	0 0000
KENDALL'S TAU C	-0 42413	0 0000
PEARSON'S R	-0 41802	0 0000
GAMMA	-0 55659	

NUMBER OF MISSING OBSERVATIONS = 0

PORTLAND

CROSSTABULATION OF IMAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

IMAT	SFRAME	USBD (1)	ULIC (2)	UMFR (3)	USFR (4)	NSUB (5)	ROW TOTAL
1 PAINTED WOOD	COUNT	18	45	34	24	16	137
	EXP VAL	28.1	39.4	29.4	24.1	16.0	66.8%
	ROW PCT	13.1%	32.8%	24.8%	17.5%	11.7%	
	COL PCT	42.9%	76.3%	77.3%	66.7%	66.7%	
	TOT PCT	8.8%	22.0%	16.6%	11.7%	7.8%	
	RESIDUAL	-10.1	5.6	4.6	-0.1	0	
	STD RES	-1.9	.9	.8	0	0	
	ADJ RES	-3.7	1.8	1.7	0	0	
2 PAINTED STEEL	COUNT	2	0	0	0	0	2
	EXP VAL	.4	.6	.4	.4	.2	1.0%
	ROW PCT	100.0%	0%	0%	0%	0%	
	COL PCT	4.8%	0%	0%	0%	0%	
	TOT PCT	1.0%	0%	0%	0%	0%	
	RESIDUAL	1.6	-0.6	-0.4	-0.4	-0.2	
	STD RES	2.5	-0.8	-0.7	-0.6	-0.5	
	ADJ RES	2.8	-0.9	-0.7	-0.7	-0.5	
3 PAINTED ALUMINUM	COUNT	11	8	0	1	0	20
	EXP VAL	4.1	5.8	4.3	3.5	2.3	9.8%
	ROW PCT	55.0%	40.0%	0%	5.0%	0%	
	COL PCT	26.2%	13.6%	0%	2.8%	0%	
	TOT PCT	5.4%	3.9%	0%	.5%	0%	
	RESIDUAL	6.9	2.2	-4.3	-2.5	-2.3	
	STD RES	3.4	.9	-2.1	-1.3	-1.5	
	ADJ RES	4.0	1.2	-2.5	-1.6	-1.7	
4 PAINTED MASONRY	COUNT	2	0	2	1	1	6
	EXP VAL	1.2	1.7	1.3	1.1	.7	2.9%
	ROW PCT	33.3%	0%	33.3%	16.7%	16.7%	
	COL PCT	4.8%	0%	4.5%	2.8%	4.2%	
	TOT PCT	1.0%	0%	1.0%	.5%	.5%	
	RESIDUAL	.8	-1.7	.7	-0.1	.3	
	STD RES	.7	-1.3	.6	-0.1	.4	
	ADJ RES	.8	-1.6	.7	-0.1	.4	
COLUMN TOTAL		42 20.5%	59 28.8%	44 21.5%	36 17.6%	24 11.7%	205 100.0%

(CONTINUED)

CROSSTABULATION OF MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

MAT	SFRAME	1 USB	2 ULIC	3 UMFR	4 USFR	5 NSUB	ROW TOTAL
5 PAINTED CONCRETE	COUNT	1	3	1	1	0	6
	EXP VAL	1.2	1.7	1.3	1.1	.7	
	ROW PCT	16.7%	50.0%	16.7%	16.7%	0%	2.9%
	COL PCT	2.4%	5.1%	2.3%	2.8%	0%	
	TOT PCT	.5%	1.5%	.5%	.5%	0%	
	RESIDUAL	-0.2	1.3	-0.3	-0.1	-0.7	
	STD RES	-0.2	1.0	-0.3	-0.1	-0.8	
	ADJ RES	-0.2	1.2	-0.3	-0.1	-0.9	
9 BARE BRICK	COUNT	5	2	4	8	0	19
	EXP VAL	3.9	5.5	4.1	3.3	2.2	
	ROW PCT	26.3%	10.5%	21.1%	42.1%	0%	9.3%
	COL PCT	11.9%	3.4%	9.1%	22.2%	0%	
	TOT PCT	2.4%	1.0%	2.0%	3.9%	0%	
	RESIDUAL	1.1	-3.5	-0.1	4.7	-2.2	
	STD RES	.6	-1.5	0	2.6	-1.5	
	ADJ RES	.7	-1.8	0	3.0	-1.7	
10 BARE BLOCK	COUNT	0	0	1	0	2	3
	EXP VAL	.6	.9	.6	.5	.4	
	ROW PCT	0%	0%	33.3%	0%	66.7%	1.5%
	COL PCT	0%	0%	2.3%	0%	8.3%	
	TOT PCT	0%	0%	.5%	0%	1.0%	
	RESIDUAL	-0.6	-0.9	.4	-0.5	1.6	
	STD RES	-0.8	-0.9	.4	-0.7	2.8	
	ADJ RES	-0.9	-1.1	.5	-0.8	3.0	
11 BARE FIELDSTONE	COUNT	1	1	1	0	0	3
	EXP VAL	.6	.9	.6	.5	.4	
	ROW PCT	33.3%	33.3%	33.3%	0%	0%	1.5%
	COL PCT	2.4%	1.7%	2.3%	0%	0%	
	TOT PCT	.5%	.5%	.5%	0%	0%	
	RESIDUAL	.4	.1	.4	-0.5	-0.4	
	STD RES	.5	.1	.4	-0.7	-0.6	
	ADJ RES	.6	.2	.5	-0.8	-0.6	
(CONTINUED)	COLUMN TOTAL	42 20.5%	59 28.8%	44 21.5%	36 17.6%	24 11.7%	205 100.0%

CROSSTABULATION OF

IMAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

IMAT	SFRAME	USGD 1	ULIC 2	UMFR 3	USFR 4	NSUB 5	ROW TOTAL
12 BARE CONCRETE	COUNT	1	0	1	1	3	6
	EXP VAL	1.2	1.7	1.3	1.1	.7	2.9%
	ROW PCT	16.7%	0%	16.7%	16.7%	50.0%	
	COL PCT	2.4%	0%	2.3%	2.8%	12.5%	
	TOT PCT	.5%	0%	.5%	.5%	1.5%	
	RESIDUAL	-0.2	-1.7	-0.3	-0.1	2.3	
	STD RES	-0.2	-1.3	-0.3	-0.1	2.7	
	ADJ RES	-0.2	-1.6	0.3	-0.1	3.0	
16 BARE GALVAN STEE	COUNT	0	0	0	0	1	1
	EXP VAL	.2	.3	.2	.2	.1	.5%
	ROW PCT	0%	0%	0%	0%	100.0%	
	COL PCT	0%	0%	0%	0%	4.2%	
	TOT PCT	0%	0%	0%	0%	.5%	
	RESIDUAL	-0.2	-0.3	-0.2	-0.2	.9	
	STD RES	-0.5	-0.5	-0.5	-0.4	2.6	
	ADJ RES	-0.5	-0.6	-0.5	-0.5	2.8	
17 BARE WOOD	COUNT	1	0	0	0	1	2
	EXP VAL	.4	.6	.4	.4	.2	1.0%
	ROW PCT	50.0%	0%	0%	0%	50.0%	
	COL PCT	2.4%	0%	0%	0%	4.2%	
	TOT PCT	.5%	0%	0%	0%	.5%	
	RESIDUAL	.6	-0.6	-0.4	-0.4	.8	
	STD RES	.9	-0.8	-0.7	-0.6	1.6	
	ADJ RES	1.0	-0.9	-0.7	-0.7	1.7	
COLUMN TOTAL		42 20.5%	59 28.8%	44 21.5%	36 17.6%	24 11.7%	205 100.0%

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F. < 5
82.43885	40	0.0001	0.117	48 OF 55 (87.3%)

STATISTIC	SYMMETRIC	WITH IMAT DEPENDENT	WITH SFRAME DEPENDENT
LAMBDA	0.09346	0.00000	0.13699
UNCERTAINTY COEFFICIENT	0.14094	0.15781	0.12733
SOMERS' D	-0.05017	-0.04210	-0.06208
ETA		0.24073	0.41112

STATISTIC	VALUE	SIGNIFICANCE
CRAMER'S V	0.31707	
CONTINGENCY COEFFICIENT	0.53554	
KENDALL'S TAU B	-0.05112	0.1928
KENDALL'S TAU C	0.04128	0.1928
PEARSON'S R	0.09963	0.0776
GAMMA	-0.07716	

NUMBER OF MISSING OBSERVATIONS = 15

PITTSBURGH

CROSSTABULATION OF IMAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

IMAT	SFRAME	1: WOOD	2: ULIC	3: UMFR	4: USFR	ROW TOTAL
1 PAINTED WOOD	COUNT	18	49	73	75	215
	EXP VAL	40 7	57 6	55 6	61 0	67 8%
	ROW PCT	8 4%	22 8%	34 0%	34 9%	
	COL PCT	30 0%	57 6%	89 0%	83 3%	
	TOT PCT	5 7%	15 5%	23 0%	23 7%	
	RESIDUAL	-22 7	-8 6	17 4	14 0	
	STD RES	-3 6	-1 1	2 3	1 8	
	ADJ RES	-7 0	-2 3	4 8	3 7	
2 PAINTED STEEL	COUNT	24	24	4	6	58
	EXP VAL	11 0	15 6	15 0	16 5	18 3%
	ROW PCT	41 4%	41 4%	6 9%	10 3%	
	COL PCT	40 0%	28 2%	4 9%	6 7%	
	TOT PCT	7 6%	7 6%	1 3%	1 9%	
	RESIDUAL	13 0	8 4	-11 0	-10 5	
	STD RES	3 9	2 1	-2 8	-2 6	
	ADJ RES	4 8	2 8	-3 7	-3 4	
3 PAINTED ALUMINUM	COUNT	4	7	5	8	24
	EXP VAL	4 5	6 4	6 2	6 8	7 6%
	ROW PCT	16 7%	29 2%	20 8%	33 3%	
	COL PCT	6 7%	8 2%	6 1%	8 9%	
	TOT PCT	1 3%	2 2%	1 6%	2 5%	
	RESIDUAL	-0 5	6	-1 2	1 2	
	STD RES	-0 3	2	-0 5	5	
	ADJ RES	-0 3	3	-0 6	6	
4 PAINTED MASONRY	COUNT	1	2	0	0	3
	EXP VAL	6	8	8	9	9%
	ROW PCT	33 3%	66 7%	0%	0%	
	COL PCT	1 7%	2 4%	0%	0%	
	TOT PCT	3%	6%	0%	0%	
	RESIDUAL	4	1 2	-0 8	-0 9	
	STD RES	6	1 3	-0 9	-0 9	
	ADJ RES	6	1 6	-1 0	-1 1	
(CONTINUED)	COLUMN TOTAL	60 18 9%	85 26 8%	82 25 9%	90 28 4%	317 100 0%

CROSSTABULATION OF IMAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

IMAT	SFRAME: UCBD (1)	ULIC (2)	UMFR (3)	USFR (4)	ROW TOTAL
7 PAINTED OTHER	COUNT 0	0	0	1	1
	EXP VAL 2	3	3	3	.3%
	ROW PCT .0%	.0%	.0%	100.0%	
	COL PCT .0%	.0%	.0%	1.1%	
	TOT PCT .0%	.0%	.0%	.3%	
	RESIDUAL -0.2	-0.3	-0.3	.7	
	STD RES -0.4	-0.5	-0.5	1.3	
	ADJ RES -0.5	-0.6	-0.6	1.6	
10 BARE BLOCK	COUNT 6	1	0	0	7
	EXP VAL 1.3	1.9	1.8	2.0	2.2%
	ROW PCT 85.7%	14.3%	.0%	.0%	
	COL PCT 10.0%	1.2%	.0%	.0%	
	TOT PCT 1.9%	.3%	.0%	.0%	
	RESIDUAL 4.7	-0.9	-1.8	-2.0	
	STD RES 4.1	-0.6	-1.3	-1.4	
	ADJ RES 4.6	-0.8	-1.6	-1.7	
11 BARE FIELDSTONE	COUNT 6	2	0	0	8
	EXP VAL 1.5	2.1	2.1	2.3	2.5%
	ROW PCT 75.0%	25.0%	.0%	.0%	
	COL PCT 10.0%	2.4%	.0%	.0%	
	TOT PCT 1.9%	.6%	.0%	.0%	
	RESIDUAL 4.5	-0.1	-2.1	-2.3	
	STD RES 3.6	-0.1	-1.4	-1.5	
	ADJ RES 4.1	-0.1	-1.7	-1.8	
14 BARE LIMESTONE	COUNT 1	0	0	0	1
	EXP VAL .2	.3	.3	.3	.3%
	ROW PCT 100.0%	.0%	.0%	.0%	
	COL PCT 1.7%	.0%	.0%	.0%	
	TOT PCT .3%	.0%	.0%	.0%	
	RESIDUAL .8	-0.3	-0.3	-0.3	
	STD RES 1.9	-0.5	-0.5	-0.5	
	ADJ RES 2.1	-0.6	-0.6	-0.6	
COLUMN TOTAL	60 18.9%	85 26.8%	82 25.9%	90 28.4%	317 100.0%

CHI-SQUARE	D.F.	SIGNIFICANCE	MIN E.F.	CELLS WITH E.F. < 5
104.77786	21	0.0000	0.189	21 OF 32 (65.6%)

STATISTIC	SYMMETRIC	WITH IMAT DEPENDENT	WITH SFRAME DEPENDENT
LAMBDA	0.11854	0.05882	0.14537
UNCERTAINTY COEFFICIENT	0.13825	0.16169	0.12075
SOMERS' D	-0.35298	-0.29487	-0.43960
ETA		0.42206	0.50413

STATISTIC	VALUE	SIGNIFICANCE
CRAMER'S V	0.33508	
CONTINGENCY COEFFICIENT	0.50196	
KENDALL'S TAU B	-0.36003	0.0000
KENDALL'S TAU C	-0.29281	0.0000
PEARSON'S R	-0.35754	0.0000
GAMMA	-0.55626	

NUMBER OF MISSING OBSERVATIONS = 0

CINCINNATI

CROSSTABULATION OF IMAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

IMAT	SFRAME	UCBD (1)	ULIC (2)	UMFR (3)	USFR (4)	ROW TOTAL
1 PAINTED WOOD	COUNT	16	32	34	62	144
	EXP VAL	43 9	29 3	28 1	42 7	61 0%
	ROW PCT	11 1%	22 2%	23 6%	43 1%	
	COL PCT	22 2%	66 7%	73 9%	88 6%	
	TOT PCT	6 8%	13 6%	14 4%	26 3%	
	RESIDUAL	-27 9	2 7	5 9	19 3	
	STD RES	-4 2	5	1 1	3 0	
	ADJ RES	-8 1	9	2 0	5 6	
2 PAINTED STEEL	COUNT	35	10	4	6	55
	EXP VAL	16 8	11 2	10 7	16 3	23 3%
	ROW PCT	63 6%	18 2%	7 3%	10 9%	
	COL PCT	48 6%	20 8%	8 7%	8 6%	
	TOT PCT	14 8%	4 2%	1 7%	2 5%	
	RESIDUAL	18 2	-1 2	-6 7	-10 3	
	STD RES	4 4	-0 4	-2 1	-2 6	
	ADJ RES	6 1	-0 5	-2 6	-3 5	
3 PAINTED ALUMINUM	COUNT	1	2	4	0	7
	EXP VAL	2 1	1 4	1 4	2 1	3 0%
	ROW PCT	14 3%	28 6%	57 1%	0%	
	COL PCT	1 4%	4 2%	8 7%	0%	
	TOT PCT	4%	8%	1 7%	0%	
	RESIDUAL	-1 1	6	2 6	-2 1	
	STD RES	-0 8	5	2 3	-1 4	
	ADJ RES	-0 9	5	2 6	-1 7	
4 PAINTED MASONRY	COUNT	2	0	0	0	2
	EXP VAL	6	4	4	6	8%
	ROW PCT	100 0%	0%	0%	0%	
	COL PCT	2 8%	0%	0%	0%	
	TOT PCT	8%	0%	0%	0%	
	RESIDUAL	1 4	-0 4	-0 4	-0 6	
	STD RES	1 8	-0 6	0 6	-0 8	
	ADJ RES	2 1	-0 7	-0 7	-0 9	
COLUMN TOTAL		72 30 5%	48 20 3%	46 19 5%	70 29 7%	236 100 0%

(CONTINUED)

CROSSTABULATION OF

MAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

MAT	SFRAME	UC3D 1	ULIC 2	UMFR 3	USFR 4	ROW TOTAL
5 PAINTED CONCRETE	COUNT	3	1	2	1	7
	EXP VAL	2.1	1.4	1.4	2.1	3.0%
	ROW PCT	42.9%	14.3%	28.6%	14.3%	
	COL PCT	4.2%	2.1%	4.3%	1.4%	
	TOT PCT	1.3%	.4%	.8%	.4%	
	RESIDUAL	.9	-0.4	.6	-1.1	
	STD RES	.6	-0.4	.5	-0.7	
	ADJ RES	.7	-0.4	.6	-0.9	
7 PAINTED OTHER	COUNT	3	0	0	0	3
	EXP VAL	.9	.6	.6	.9	1.3%
	ROW PCT	100.0%	0%	0%	0%	
	COL PCT	4.2%	0%	0%	0%	
	TOT PCT	1.3%	0%	0%	0%	
	RESIDUAL	2.1	-0.6	-0.6	-0.9	
	STD RES	2.2	-0.8	-0.8	-0.9	
	ADJ RES	2.6	-0.9	-0.9	-1.1	
9 BARE BRICK	COUNT	0	0	0	1	1
	EXP VAL	.3	.2	.2	.3	.4%
	ROW PCT	0%	0%	0%	100.0%	
	COL PCT	0%	0%	0%	1.4%	
	TOT PCT	0%	0%	0%	.4%	
	RESIDUAL	-0.3	-0.2	-0.2	.7	
	STD RES	-0.6	-0.5	-0.4	1.3	
	ADJ RES	-0.7	-0.5	-0.5	1.5	
10 BARE BLOCK	COUNT	1	0	0	0	1
	EXP VAL	.3	.2	.2	.3	.4%
	ROW PCT	100.0%	0%	0%	0%	
	COL PCT	1.4%	0%	0%	0%	
	TOT PCT	.4%	0%	0%	0%	
	RESIDUAL	.7	-0.2	-0.2	-0.3	
	STD RES	1.3	-0.5	-0.4	-0.5	
	ADJ RES	1.5	-0.5	-0.5	-0.7	
(CONTINUED)	COLUMN TOTAL	72 30.5%	48 20.3%	46 19.5%	70 29.7%	236 100.0%

CROSSTABULATION OF

IMAT MAT TYPE INDICATOR BY SFRAME SAMPLING FRAME

IMAT	SFRAME	CCBD (1)	ULIC (2)	UMFR (3)	USFR (4)	ROW TOTAL
11	COUNT	8	2	1	0	11
RARE FIELDSTONE	EXP VAL	3 4	2 2	2 1	3 3	4 7%
	ROW PCT	72 7%	18 2%	9 1%	0%	
	COL PCT	11 1%	4 2%	2 2%	0%	
	TOT PCT	3 4%	8%	4%	0%	
	RESIDUAL	4 6	-0 2	-1 1	-3 3	
	STD RES	2 5	-0 2	-0 8	-1 8	
	ADJ RES	3 1	-0 2	-0 9	-2 2	
12	COUNT	3	1	1	0	5
RARE CONCRETE	EXP VAL	1 5	1 0	1 0	1 5	2 1%
	ROW PCT	60 0%	20 0%	20 0%	0%	
	COL PCT	4 2%	2 1%	2 2%	0%	
	TOT PCT	1 3%	4%	4%	0%	
	RESIDUAL	1 5	0	0	-1 5	
	STD RES	1 2	0	0	-1 2	
	ADJ RES	1 4	0	0	-1 5	
COLUMN TOTAL		72 30 5%	48 20 3%	46 19 5%	70 29 7%	236 100 0%

CHI-SQUARE	D F	SIGNIFICANCE	MIN E F	CELLS WITH E F < 5
57 22518	27	0 0000	0 195	32 OF 40 (80 0%)

STATISTIC	SYMMETRIC	WITH IMAT DEPENDENT	WITH SFRAME DEPENDENT
LAMBDA	0 26953	0 20652	0 30488
UNCERTAINTY COEFFICIENT	0 17143	0 18193	0 16208
SOMERS D	-0 43586	-0 38551	-0 50133
ETA		0 35949	0 56172

STATISTIC	VALUE	SIGNIFICANCE
CRAMER'S V	0 37057	
CONTINGENCY COEFFICIENT	0 54016	
KENDALL'S TAU B	-0 43962	0 0000
KENDALL'S TAU C	-0 38016	0 0000
PEARSON'S R	-0 33818	0 0000
GAMMA	-0 63622	

NUMBER OF MISSING OBSERVATIONS = 0

APPENDIX F: ANOVA TABLES FOR THE BUILDING MATERIALS DISTRIBUTION FOR THE SINGLE-UNIT STRUCTURES BY SAMPLING FRAME FOR THE FOUR CITIES.

The appendix is organized by material type (the criterion variable), broken down by the building type (TYPE = 1, the one-unit), and then subclassified for each sampling frame. Values are presented on a city-by-city basis, with mean values, standard deviations and the number of cases (number of buildings) that fall within each sampling frame within a particular material.

NEW HAVEN

CRITERION VARIABLE PPWOOD % PAINTED WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	3.3680	.4811	.2911	.5084	7
3	UMFR	12.8105	.4417	.4171	4.8702	29
4	USFR	20.6042	.7631	.1894	.9324	27
5	NSUB	19.7397	.5335	.3124	3.5134	37
WITHIN GROUPS TOTAL		56.5224	.5652	.3199	9.8244	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	1.5863	3	.5288	5.1668	.0024
LINEARITY	.1372	1	.1372	1.3409	.2498
DEV. FROM LINEARITY	1.4491	2	.7245	7.0798	.0014
	R = .1097	R SQUARED = .0120			
WITHIN GROUPS	9.8244	96	.1023		
	ETA = .3729	ETA SQUARED = .1390			

CRITERION VARIABLE PPSTEEL % PAINTED STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	100

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

CRITERION VARIABLE PPALUM % PAINTED ALUM
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	1.4364	.2052	.3046	.5566	7
3	UMFR	5.7113	.1969	.3567	3.5631	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		7.1477	.0715	.2072	4.1197	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.9086	3	.3029	7.0581	.0002
LINEARITY	.7103	1	.7103	16.5509	.0001
DEV. FROM LINEARITY	.1984	2	.0992	2.3116	.1046
	R = -0.3758	R SQUARED = .1413			
WITHIN GROUPS	4.1197	96	.0429		
	ETA = .4251	ETA SQUARED = .1807			

CRITERION VARIABLE PPMASON % PAINTED MASON
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.9160	.0316	.1378	.6969	29
4	USFR	.0200	.0007	.0038	.0004	27
5	NSUB	.5155	.0139	.0458	.0755	37
WITHIN GROUPS TOTAL		1.4515	.0145	.0897	.7727	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0151	3	.0050	.6237	.6014
LINEARITY	.0010	1	.0010	.1303	.7189
DEV. FROM LINEARITY	.0140	2	.0070	.8704	.4221
	R = -0.0365	R SQUARED = .0013			
WITHIN GROUPS	.7727	96	.0080		
	ETA = .1383	ETA SQUARED = .0191			

CRITERION VARIABLE PPCONC % PAINTED CONCR
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	29
4	USFR	.9177	.0340	.0647	.1089	27
5	NSUB	.8258	.0223	.0476	.0816	37
WITHIN GROUPS TOTAL		1.7435	.0174	.0446	.1905	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0192	3	.0064	3.2284	.0259
LINEARITY	.0092	1	.0092	4.6578	.0334
DEV FROM LINEARITY	.0100	2	.0050	2.5137	.0863
R = .2099	R SQUARED = .0441				
WITHIN GROUPS	.1905	96	.0020		
ETA = .3027	ETA SQUARED = .0916				

CRITERION VARIABLE PPSTUCCO % PAINTED STUCCO
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	1.5300	.0528	.1811	.9182	29
4	USFR	.2242	.0083	.0432	.0484	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		1.7542	.0175	.1003	.9667	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0518	3	.0173	1.7151	.1690
LINEARITY	.0217	1	.0217	2.1528	.1456
DEV FROM LINEARITY	.0301	2	.0151	1.4962	.2292
R =-0.1459	R SQUARED = .0213				
WITHIN GROUPS	.9667	96	.0101		
ETA = .2255	ETA SQUARED = .0509				

CRITERION VARIABLE PPOTHER % PAINTED OTHER
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	2.3102	.0797	.2381	1.5873	29
4	USFR	.1111	.0041	.0214	.0119	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		2.4213	.0242	.1291	1.5992	100

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.1259	3	.0420	2.5187	.0626
LINEARITY	.0501	1	.0501	3.0048	.0862
DEV FROM LINEARITY	.0758	2	.0379	2.2756	.1082
	R =-0.1703	R SQUARED =	.0290		
WITHIN GROUPS	1.5992	96	.0167		
	ETA = .2701	ETA SQUARED =	.0730		

* *

CRITERION VARIABLE PPNOID % PAINT CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	100

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

* *

CRITERION VARIABLE PBRICK % BARE BRICK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	4578	.0654	.1372	.1130	7
3	UMFR	2.0096	.0693	.1693	.8028	29
4	USFR	1.1598	.0430	.0860	.1925	27
5	NSUB	.3200	.0086	.0272	.0267	37
WITHIN GROUPS TOTAL		3.9472	.0395	.1087	1.1350	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0660	3	.0220	1.8603	.1415
LINEARITY	.0599	1	.0599	5.0668	.0267
DEV FROM LINEARITY	.0061	2	.0030	.2571	.7738
	R =-0.2233	R SQUARED =	.0499		
WITHIN GROUPS	1.1350	96	.0118		
	ETA = .2344	ETA SQUARED =	.0549		

CRITERION VARIABLE PBLOCK % BARE BLOCK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0192	.0027	.0073	.0003	7
3	UMFR	.0000	.0000	.0000	.0000	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		.0192	.0002	.0018	.0003	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0000	3	.0000	4.9600	.0030
LINEARITY	.0000	1	.0000	4.5015	.0364
DEV FROM LINEARITY	.0000	2	.0000	5.1892	.0072
	R =-0.2015	R SQUARED =	.0406		
WITHIN GROUPS	.0003	96	.0000		
	ETA = .3663	ETA SQUARED =	.1342		

CRITERION VARIABLE PSTONE % BARE STONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0095	.0003	.0018	8.758E-05	29
4	USFR	.3455	.0128	.0665	.1149	27
5	NSUB	1.3781	.0372	.1138	.4665	37
WITHIN GROUPS TOTAL		1.7330	.0173	.0778	.5815	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0257	3	.0086	1.4150	.2431
LINEARITY	.0232	1	.0232	3.8227	.0535
DEV. FROM LINEARITY	.0026	2	.0013	.2112	.8100
	R = .1953	R SQUARED = .0381			
WITHIN GROUPS	.5815	96	.0061		
	ETA = .2058	ETA SQUARED = .0423			

CRITERION VARIABLE PCONCR % BARE CONRETE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.9444	.1349	.1093	.0716	7
3	UMFR	1.7094	.0589	.0716	.1434	29
4	USFR	1.7075	.0632	.0612	.0975	27
5	NSUB	3.7706	.1019	.0755	.2053	37
WITHIN GROUPS TOTAL		8.1319	.0813	.0734	.5178	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0591	3	.0197	3.6547	.0152
LINEARITY	.0047	1	.0047	.8631	.3552
DEV. FROM LINEARITY	.0545	2	.0272	5.0505	.0082
	R = .0898	R SQUARED = .0081			
WITHIN GROUPS	.5178	96	.0054		
	ETA = .3202	ETA SQUARED = .1025			

CRITERION VARIABLE PMARB % BARE MARBLE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	100

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

* *

CRITERION VARIABLE PLIME % BARE LIMESTONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	100

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

* *

CRITERION VARIABLE PGRAN % BARE GRANITE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0095	.0003	.0018	8.758E-05	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0749	.0020	.0123	.0055	37
WITHIN GROUPS TOTAL		.0844	.0008	.0076	.0055	100

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0001	3	.0000	.4817	.6958
LINEARITY	.0001	1	.0001	.9173	.3406
DEV. FROM LINEARITY	.0000	2	.0000	.2638	.7686
	R = .0970	R SQUARED = .0094			
WITHIN GROUPS	.0055	96	.0001		
	ETA = .1218	ETA SQUARED = .0148			

* *

CRITERION VARIABLE PSTEEL % BARE STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	100

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

* *

CRITERION VARIABLE PWOOD % BARE WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.1313	.0045	.0244	.0166	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	5.7716	.1560	.2731	2.6851	37
WITHIN GROUPS TOTAL		5.9028	.0590	.1678	2.7017	100

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.5525	3	.1842	6.5436	.0004
LINEARITY	.3837	1	.3837	13.6358	.0004
DEV. FROM LINEARITY	.1687	2	.0844	2.9975	.0546
	R = .3434	R SQUARED = .1179			
WITHIN GROUPS	2.7017	96	.0281		
	ETA = .4120	ETA SQUARED = .1698			

* *

CRITERION VARIABLE PGLASS % GLASS
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.7741	.1106	.0591	.0209	7
3	UMFR	1.7622	.0608	.0247	.0171	29
4	USFR	1.5646	.0579	.0195	.0098	27
5	NSUB	2.7606	.0746	.0423	.0645	37
WITHIN GROUPS TOTAL		6.8615	.0686	.0342	.1123	100

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0185	3	.0062	5.2765	.0021
LINEARITY	.0002	1	.0002	.1743	.6773
DEV FROM LINEARITY	.0183	2	.0092	7.8276	.0007
	R =-0.0395	R SQUARED =	.0016		
WITHIN GROUPS	.1123	96	.0012		
	ETA = .3762	ETA SQUARED =	.1415		

* *

CRITERION VARIABLE PVINYL % BARE VINYL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0000	.0000	.0000	.0000	37
WITHIN GROUPS TOTAL		0000	.0000	.0000	.0000	100

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

* *

CRITERION VARIABLE POBARE % OTHER BARE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	0667	.0023	.0124	.0043	29
4	USFR	0000	.0000	.0000	.0000	27
5	NSUB	6150	.0166	.0630	.1430	37
WITHIN GROUPS TOTAL		6817	.0068	0392	.1473	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0057	3	.0019	1 2446	2979
LINEARITY	.0037	1	.0037	2.4166	.1233
DEV FROM LINEARITY	.0020	2	.0010	.6586	5199
	R = .1557	R SQUARED = .0242			
WITHIN GROUPS	.1473	96	.0015		
	ETA = .1935	ETA SQUARED = .0374			

CRITERION VARIABLE PNOID % BARE CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0333	.0011	.0062	.0011	29
4	USFR	.0000	.0000	.0000	.0000	27
5	NSUB	.0000	.0000	.0000	0000	37
WITHIN GROUPS TOTAL		.0333	.0003	.0033	.0011	100

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0000	3	.0000	.8114	.4906
LINEARITY	.0000	1	.0000	.9382	.3352
DEV FROM LINEARITY	.0000	2	.0000	.7480	.4760
	R =-0.0976	R SQUARED = .0095			
WITHIN GROUPS	.0011	96	0000		
	ETA = .1573	ETA SQUARED = .0247			

PORTLAND

CRITERION VARIABLE PPWOOD % PAINTED WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.5040	.5040	.0000	.0000	1
2	ULIC	14.7350	.8668	.0442	.0312	17
3	UMFR	10.0217	.5011	.4275	3.4725	20
4	USFR	15.5337	.5356	.3521	3.4705	29
5	NSUB	7.6375	.4243	.3511	2.0954	18
6	NRUR	3.2220	.2929	.3470	1.2040	11
WITHIN GROUPS TOTAL		51.6539	.5381	.3379	10.2736	96

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	2.7594	5	.5519	4.8347	.0006
LINEARITY	2.0255	1	2.0255	17.7436	.0001
DEV. FROM LINEARITY	.7340	4	.1835	1.6075	.1793
	R =-0.3942	R SQUARED =	.1554		
WITHIN GROUPS	10.2736	90	.1142		
	ETA = .4601	ETA SQUARED =	.2117		

* *

CRITERION VARIABLE PPSTEEL % PAINTED STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	96

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

* *

CRITERION VARIABLE PPALUM % PAINTED ALUM
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0187	.0187	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.8821	.0441	.1973	.7393	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.0797	.0044	.0113	.0022	18
6	NRUR	.9183	.0835	.2132	.4547	11
WITHIN GROUPS TOTAL		1.8989	.0198	.1153	1.1961	96

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0787	5	.0157	1.1846	.3230
LINEARITY	.0111	1	.0111	.8335	.3637
DEV FROM LINEARITY	.0676	4	.0169	1.2724	.2868
	R = .0932	R SQUARED = .0087			
WITHIN GROUPS	1.1961	90	.0133		
	ETA = .2485	ETA SQUARED = .0617			

* *

CRITERION VARIABLE PPMASON % PAINTED MASON
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.3733	.3733	.0000	.0000	1
2	ULIC	.1924	.0113	.0289	.0134	17
3	UMFR	.6385	.0319	.0541	.0556	20
4	USFR	.0273	.0009	.0051	.0007	29
5	NSUB	.0667	.0037	.0108	.0020	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		1.2982	.0135	.0282	.0716	96

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.1447	5	.0289	36.3489	.0000
LINEARITY	.0219	1	.0219	27.4708	.0000
DEV. FROM LINEARITY	.1228	4	.0307	38.5685	.0000
	R = 0.3179	R SQUARED = .1011			
WITHIN GROUPS	.0716	90	.0008		
	ETA = .8178	ETA SQUARED = .6688			

* *

CRITERION VARIABLE PPCONC % PAINTED CONCR
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	1.0052	.0347	.1266	.4487	29
5	NSUB	.8974	.0499	.0493	.0413	18
6	NRUR	.6933	.0630	.0539	.0291	11
WITHIN GROUPS TOTAL		2.5960	.0270	.0759	.5191	96

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0531	5	.0106	1.8408	.1128
LINEARITY	.0483	1	.0483	8.3671	.0048
DEV FROM LINEARITY	.0048	4	.0012	.2092	.9327
	R = .2704	R SQUARED = .0843			
WITHIN GROUPS	.5191	90	.0058		
	ETA = .3046	ETA SQUARED = .0928			

* *

CRITERION VARIABLE PPSTUCCO % PAINTED STUCCO
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	96

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PPOTHER % PAINTED OTHER
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	2.3756	.1188	.2902	1.6002	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.9833	.0546	.1590	.4299	18
6	NRUR	.2250	.0205	.0678	.0460	11
WITHIN GROUPS TOTAL		3.5839	.0373	.1519	2.0761	96

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.2067	5	.0413	1.7920	.1224
LINEARITY	.0006	1	.0006	.0263	.8715
DEV. FROM LINEARITY	.2061	4	.0515	2.2335	.0716
	R = -0.0163	R SQUARED =	.0003		
WITHIN GROUPS	2.0761	90	.0231		
	ETA = .3009	ETA SQUARED =	.0905		

* *

CRITERION VARIABLE PPNOID % PAINT CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	96

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PBRICK % BARE BRICK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0667	.0667	.0000	.0000	1
2	ULIC	.5778	.0340	.0388	.0241	17
3	UMFR	2.7739	.1387	.2984	1.6921	20
4	USFR	2.4049	.0829	.2285	1.4619	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		5.8232	.0607	.1879	3.1781	96

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.2550	5	.0510	1.4442	.2162
LINEARITY	.0615	1	.0615	1.7428	.1901
DEV. FROM LINEARITY	.1935	4	.0484	1.3696	.2508
	R =-0.1339	R SQUARED =	.0179		
WITHIN GROUPS	3.1781	90	.0353		
	ETA = .2725	ETA SQUARED =	.0743		

CRITERION VARIABLE PBLOCK % BARE BLOCK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0870	.0051	.0211	.0071	17
3	UMFR	.1168	.0058	.0182	.0063	20
4	USFR	.3333	.0115	.0439	.0539	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.5371	.0056	.0274	.0674	96

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0020	5	.0004	.5218	.7592
LINEARITY	.0002	1	.0002	.3276	.5685
DEV FROM LINEARITY	.0017	4	.0004	.5704	.6848
	R =-0.0595	R SQUARED =	.0035		
WITHIN GROUPS	.0674	90	.0007		
	ETA = .1678	ETA SQUARED =	.0282		

CRITERION VARIABLE PSTONE % BARE STONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0187	.0187	.0000	.0000	1
2	ULIC	.1315	.0077	.0232	.0086	17
3	UMFR	.4530	.0226	.1013	.1949	20
4	USFR	.5748	.0198	.0659	.1216	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		1.1779	.0123	.0601	.3251	96

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0086	5	.0017	.4741	.7947
LINEARITY	.0020	1	.0020	.5632	.4549
DEV. FROM LINEARITY	.0065	4	.0016	.4518	.7708
	R =-0.0781	R SQUARED =	.0061		
WITHIN GROUPS	.3251	90	.0036		
	ETA = .1602	ETA SQUARED =	.0257		

CRITERION VARIABLE PCONCR % BARE CONRETE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.3838	.0226	.0422	.0285	17
3	UMFR	1.1571	.0579	.2087	.8276	20
4	USFR	2.3484	.0810	.0810	.1839	29
5	NSUB	.4822	.0268	.0509	.0441	18
6	NRUR	.3038	.0276	.0396	.0157	11
WITHIN GROUPS TOTAL		4.6753	.0487	.1105	1.0998	96

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0594	5	.0119	.9721	.4393
LINEARITY	.0000	1	.0000	.0000	.9959
DEV. FROM LINEARITY	.0594	4	.0148	1.2151	.3100
	R =-0.0065	R SQUARED =	.0000		
WITHIN GROUPS	1.0998	90	.0122		
	ETA = .2264	ETA SQUARED =	.0512		

CRITERION VARIABLE PMARB % BARE MARBLE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	96

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PLIME % BARE LIMESTONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	96

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PGRAN % BARE GRANITE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0187	.0187	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.0187	.0002	.0000	.0000	96

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PSTEEL % BARE STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.0184	.0006	.0034	.0003	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.0184	.0002	.0019	.0003	96

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0000	5	.0000	.4487	.8132
LINEARITY	.0000	1	.0000	.0187	.8914
DEV. FROM LINEARITY	.0000	4	.0000	.5561	.6950
	R = .0143	R SQUARED = .0002			
WITHIN GROUPS	.0003	90	.0000		
	ETA = .1559	ETA SQUARED = .0243			

* *

CRITERION VARIABLE PWOOD % BARE WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0093	.0005	.0023	8.199E-05	17
3	UMFR	.0455	.0023	.0102	.0020	20
4	USFR	3.4994	.1207	.2787	2.1750	29
5	NSUB	4.3961	.2442	.3789	2.4400	18
6	NRUR	2.3777	.2162	.3160	.9983	11
WITHIN GROUPS TOTAL		10.3281	.1076	.2498	5.6153	96

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.8989	5	.1798	2.8813	.0185
LINEARITY	.7639	1	.7639	12.2442	.0007
DEV. FROM LINEARITY	.1349	4	.0337	.5406	.7063
	R = .3425	R SQUARED = .1173			
WITHIN GROUPS	5.6153	90	.0624		
	ETA = .3715	ETA SQUARED = .1380			

* *

CRITERION VARIABLE PGLASS % CLASS
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0187	.0187	.0000	.0000	1
2	ULIC	.7516	.0442	.0195	.0061	17
3	UMFR	1.0830	.0541	.0259	.0127	20
4	USFR	1.9171	.0661	.0592	.0980	29
5	NSUB	3.4570	.1921	.1279	.2779	18
6	NRUR	2.3898	.2173	.1186	.1406	11
WITHIN GROUPS TOTAL		9.6172	.1002	.0771	.5353	96

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.4386	5	.0877	14.7487	.0000
LINEARITY	.3414	1	.3414	57.3917	.0000
DEV FROM LINEARITY	.0973	4	.0243	4.0879	.0043
	R = .5920	R SQUARED = .3505			
WITHIN GROUPS	5353	90	.0059		
	ETA = .6711	ETA SQUARED = .4504			

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CRITERION VARIABLE PVINYL % BARE VINYL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	96

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE POBARE % OTHER BARE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.7627	.0263	.1416	.5616	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.8700	.0791	.2097	.4397	11
WITHIN GROUPS TOTAL		1.6327	.0170	.1055	1.0013	96

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0611	5	.0122	1.0984	.3669
LINEARITY	.0264	1	.0264	2.3725	.1270
DEV. FROM LINEARITY	.0347	4	.0087	.7798	.5412
	R = .1576	R SQUARED = .0248			
WITHIN GROUPS	1.0013	90	.0111		
	ETA = .2398	ETA SQUARED = .0575			

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CRITERION VARIABLE PNOID % BARE CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
1	UCBD	.0000	.0000	.0000	.0000	1
2	ULIC	.0000	.0000	.0000	.0000	17
3	UMFR	.0000	.0000	.0000	.0000	20
4	USFR	.0000	.0000	.0000	.0000	29
5	NSUB	.0000	.0000	.0000	.0000	18
6	NRUR	.0000	.0000	.0000	.0000	11
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	96

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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PITTSBURGH

CRITERION VARIABLE PPWOOD % PAINTED WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	1.3683	.1955	.3000	.5401	7
3	UMFR	10.0965	.1870	.2912	4.4931	54
4	USFR	10.7961	.1200	.1730	2.6650	90
WITHIN GROUPS TOTAL		22.2610	.1474	.2281	7.6981	151

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.1685	2	.0843	1.6200	.2014
LINEARITY	.1535	1	.1535	2.9514	.0879
DEV. FROM LINEARITY	.0150	1	.0150	.2886	.5919
	R = -0.1397	R SQUARED =	.0195		
WITHIN GROUPS	7.6981	148	.0520		
	ETA = .1464	ETA SQUARED =	.0214		

CRITERION VARIABLE PPSTEEL % PAINTED STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0489	.0009	.0042	.0010	54
4	USFR	.3332	.0037	.0147	.0193	90
WITHIN GROUPS TOTAL		.3822	.0025	.0117	.0203	151

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0003	2	.0002	1.1337	.3246
LINEARITY	.0003	1	.0003	2.1532	.1444
DEV. FROM LINEARITY	.0000	1	.0000	.1142	.7359
	R = .1197	R SQUARED =	.0143		
WITHIN GROUPS	.0203	148	.0001		
	ETA = .1228	ETA SQUARED =	.0151		

CRITERION VARIABLE PPALUM % PAINTED ALUM
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0593	.0085	.0207	.0026	7
3	UMFR	6.6287	.1228	.2254	2.6923	54
4	USFR	17.4778	.1942	.2603	6.0282	90
WITHIN GROUPS TOTAL		24.1658	.1600	.2428	8.7231	151

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.3409	2	.1705	2.8920	0586
LINEARITY	.3329	1	.3329	5.6474	0188
DEV. FROM LINEARITY	.0080	1	.0080	.1366	.7122
	R = .1916	R SQUARED = .0367			
WITHIN GROUPS	8.7231	148	.0589		
	ETA = .1939	ETA SQUARED = .0376			

CRITERION VARIABLE PPMASON % PAINTED MASON
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0373	.0007	.0038	.0008	54
4	USFR	.7677	.0085	.0760	.5135	90
WITHIN GROUPS TOTAL		.8051	.0053	.0589	.5143	151

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0023	2	.0011	.3285	.7206
LINEARITY	.0021	1	.0021	.5924	.4427
DEV. FROM LINEARITY	.0002	1	.0002	.0645	.7999
	R = .0631	R SQUARED = .0040			
WITHIN GROUPS	.5143	148	.0035		
	ETA = .0665	ETA SQUARED = .0044			

CRITERION VARIABLE PPCONC % PAINTED CONCR
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0653	.0012	.0064	.0022	54
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.0653	.0004	.0038	.0022	151

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0001	2	.0000	1.7374	.1795
LINEARITY	.0000	1	.0000	1.7177	1920
DEV FROM LINEARITY	.0000	1	.0000	1.7371	.1870
	R =-0.1065	R SQUARED =	.0113		
WITHIN GROUPS	.0022	148	.0000		
	ETA = .1515	ETA SQUARED =	.0229		

* *

CRITERION VARIABLE PPSTUCCO % PAINTED STUCCO
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.2747	.0051	.0290	.0447	54
4	USFR	.0686	.0008	.0072	.0046	90
WITHIN GROUPS TOTAL		.3432	.0023	.0183	.0493	151

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0007	2	.0003	1.0035	3691
LINEARITY	.0003	1	.0003	.8421	3603
DEV FROM LINEARITY	0004	1	.0004	1.1650	2822
	R =-0.0749	R SQUARED =	.0056		
WITHIN GROUPS	0493	148	.0003		
	ETA = .1157	ETA SQUARED =	.0134		

* *

CRITERION VARIABLE PPOTHER % PAINTED OTHER
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.1081	.0020	.0067	.0024	54
4	USFR	.3634	.0040	.0122	.0132	90
WITHIN GROUPS TOTAL		.4715	.0031	.0103	.0156	151

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0002	2	.0001	1.0029	.3693
LINEARITY	.0002	1	.0002	2.0058	.1588
DEV. FROM LINEARITY	.0000	1	.0000	.0000	.9945

R = .1156 R SQUARED = .0134

WITHIN GROUPS	.0156	148	.0001		

ETA = .1156 ETA SQUARED = .0134

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CRITERION VARIABLE PPNOID % PAINT CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	54
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	151

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PBRICK % BARE BRICK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.8340	.0154	.0897	.4263	54
4	USFR	2.4149	.0268	.1103	1.0836	90
WITHIN GROUPS TOTAL		3.2489	.0215	.1010	1.5100	151

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0078	2	.0039	.3810	.6838
LINEARITY	.0077	1	.0077	.7550	.3863
DEV FROM LINEARITY	.0001	1	.0001	.0071	.9331
	R = .0712	R SQUARED = .0051			
WITHIN GROUPS	1.5100	148	.0102		
	ETA = .0716	ETA SQUARED = .0051			

* *

CRITERION VARIABLE PBLOCK % BARE BLOCK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	54
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	151

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PSTONE % BARE STONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.6042	.0863	.0571	.0196	7
3	UMFR	1.9752	.0366	.0444	.1046	54
4	USFR	1.8800	.0209	.0330	.0971	90
WITHIN GROUPS TOTAL		4.4594	.0295	.0387	.2213	151

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0320	2	.0160	10.6907	.0000
LINEARITY	.0269	1	.0269	17.9829	.0000
DEV. FROM LINEARITY	.0051	1	.0051	3.3985	.0673
	R =-0.3258	R SQUARED =	.1062		
WITHIN GROUPS	.2213	148	.0015		
	ETA = .3553	ETA SQUARED =	.1262		

CRITERION VARIABLE PCONCR % BARE CONRETE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	3.6185	.5169	.3395	.6916	7
3	UMFR	23.5206	.4356	.3384	6.0706	54
4	USFR	35.2904	.3921	.3011	8.0666	90
WITHIN GROUPS TOTAL		62.4295	.4134	.3165	14.8288	151

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.1423	2	.0712	.7103	.4932
LINEARITY	.1360	1	.1360	1.3577	.2458
DEV. FROM LINEARITY	.0063	1	.0063	.0629	.8023
	R =-0.0953	R SQUARED =	.0091		
WITHIN GROUPS	14.8288	148	.1002		
	ETA = .0975	ETA SQUARED =	.0095		

CRITERION VARIABLE PMARB % BARE MARBLE
BROKEN DOWN BY SFRAME SAMPLING FRAME

- A N A L Y S I S O F V A R I A N C E

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.2183	.0312	.0612	.0224	7
3	UMFR	4.2112	.0780	.1137	.6851	54
4	USFR	8.2008	.0911	.0629	.3520	90
WITHIN GROUPS TOTAL		12.6304	.0836	.0846	1.0596	151

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* A N A L Y S I S O F V A R I A N C E *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0260	2	.0130	1.8172	.1661
LINEARITY	.0211	1	.0211	2.9404	.0885
DEV. FROM LINEARITY	.0050	1	.0050	.6941	.4061
	R = .1393	R SQUARED = .0194			
WITHIN GROUPS	1.0596	148	.0072		
	ETA = .1548	ETA SQUARED = .0240			

* *

CRITERION VARIABLE PLIME % BARE LIMESTONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

- A N A L Y S I S O F V A R I A N C E

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.6840	.0977	.2585	.4010	7
3	UMFR	2.1350	.0395	.1592	1.3430	54
4	USFR	1.0397	.0114	.0744	.4927	90
WITHIN GROUPS TOTAL		3.8588	.0256	.1229	2.2367	151

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* A N A L Y S I S O F V A R I A N C E *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0647	2	.0323	2.1390	.1214
LINEARITY	.0607	1	.0607	4.0136	.0470
DEV FROM LINEARITY	.0040	1	.0040	.2645	.6078
	R =-0.1623	R SQUARED = .0264			
WITHIN GROUPS	2.2367	148	.0151		
	ETA = .1676	ETA SQUARED = .0281			

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CRITERION VARIABLE PQRAN % BARE GRANITE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	54
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	151

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PSTEEL % BARE STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.5910	.0844	.0601	.0217	7
3	UMFR	1.9541	.0362	.0447	.1060	54
4	USFR	1.2240	.0136	.0345	.1060	90
WITHIN GROUPS TOTAL		3.7690	.0250	.0397	.2336	151

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0432	2	.0216	13.6781	.0000
LINEARITY	.0403	1	.0403	25.5274	.0000
DEV. FROM LINEARITY	.0029	1	.0029	1.8288	.1783
	R =-0.3815	R SQUARED =	.1456		
WITHIN GROUPS	.2336	148	.0016		
	ETA = .3950	ETA SQUARED =	.1560		

* *

CRITERION VARIABLE PWOOD % BARE WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	54
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	151

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PGLASS % GLASS
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.4342	.0620	.0184	.0020	7
3	UMFR	3.0204	.0559	.0350	.0651	54
4	USFR	9.4699	.1052	.0393	.1378	90
WITHIN GROUPS TOTAL		12.9245	.0856	.0372	.2049	151

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0861	2	.0430	31.0838	.0000
LINEARITY	.0726	1	.0726	52.4489	.0000
DEV. FROM LINEARITY	.0135	1	.0135	9.7186	.0022
	R = .4996	R SQUARED = .2496			
WITHIN GROUPS	.2049	148	.0014		
	ETA = .5439	ETA SQUARED = .2958			

CRITERION VARIABLE PVINYL % BARE VINYL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	1.0227	.0189	.1097	.6381	54
4	USFR	1.2414	.0138	.0921	.7556	90
WITHIN GROUPS TOTAL		2.2641	.0150	.0970	1.3936	151

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0025	2	.0013	.1351	.8738
LINEARITY	.0000	1	.0000	.0000	.9965
DEV FROM LINEARITY	.0025	1	.0025	.2701	.6040
	R =-0.0004	R SQUARED = .0000			
WITHIN GROUPS	1.3936	148	.0094		
	ETA = .0427	ETA SQUARED = .0018			

CRITERION VARIABLE POBARE % OTHER BARE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	54
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	151

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PNOID % BARE CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	7
3	UMFR	.0000	.0000	.0000	.0000	54
4	USFR	.0000	.0000	.0000	.0000	90
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	151

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PPWOOD % PAINTED WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	5.0329	.1936	.2541	1.6144	26
3	UMFR	6.4248	.2073	.2276	1.5540	31
4	USFR	11.0017	.1897	.2199	2.7555	58
WITHIN GROUPS TOTAL		22.4595	.1953	.2300	5.9238	115

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0063	2	.0032	.0599	.9419
LINEARITY	.0010	1	.0010	.0198	.8882
DEV FROM LINEARITY	.0053	1	.0053	.0999	.7525
	R =-0.0133	R SQUARED =	.0002		
WITHIN GROUPS	5.9238	112	.0529		
	ETA = .0327	ETA SQUARED =	.0011		

* *

CRITERION VARIABLE PPSTEEL % PAINTED STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	0365	0014	0036	.0003	26
3	UMFR	2454	.0079	.0399	.0477	31
4	USFR	1052	.0018	.0053	.0016	58
WITHIN GROUPS TOTAL		.3872	.0034	.0210	.0496	.115

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0009	2	.0004	.9954	.3728
LINEARITY	.0000	1	.0000	.0458	.8309
DEV FROM LINEARITY	.0009	1	.0009	1.9451	.1659
	R =-0.0200	R SQUARED =	.0004		
WITHIN GROUPS	.0496	112	.0004		
	ETA = .1322	ETA SQUARED =	.0175		

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TERION VARIABLE PPALUM % PAINTED ALUM
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	3 6393	1400	.2707	1.8320	26
3	UMFR	2 9445	.0950	.2385	1.7060	31
4	USFR	4 0212	.0693	.1519	1.3160	58
WITHIN GROUPS TOTAL		10 6050	.0922	.2082	4.8540	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0899	2	.0450	1.0373	.3578
LINEARITY	.0879	1	.0879	2.0279	.1572
DEV FROM LINEARITY	.0020	1	.0020	.0467	.8293
	R =-0 1333	R SQUARED =	.0178		
WITHIN GROUPS	4 8540	112	.0433		
	ETA = .1349	ETA SQUARED =	.0182		

CRITERION VARIABLE PPMASON % PAINTED MASON
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	1.9956	.0768	.2137	1.1417	26
3	UMFR	.2571	.0083	.0462	.0640	31
4	USFR	.0000	.0000	.0000	.0000	58
WITHIN GROUPS TOTAL		2.2527	.0196	.1038	1.2057	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.1112	2	.0556	5.1635	.0072
LINEARITY	.0916	1	.0916	8.5070	.0043
DEV FROM LINEARITY	.0196	1	.0196	1.8201	.1800
	R =-0.2637	R SQUARED =	.0695		
WITHIN GROUPS	1.2057	112	.0108		
	ETA = .2906	ETA SQUARED =	.0844		

CRITERION VARIABLE PPCONC % PAINTED CONCR
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	1.1205	.0431	.0446	.0498	26
3	UMFR	.6673	.0215	.0383	.0440	31
4	USFR	2.4219	.0418	.0940	.5040	58
WITHIN GROUPS TOTAL		4.2097	.0366	.0731	.5978	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0097	2	.0048	.9072	.4066
LINEARITY	.0002	1	.0002	.0422	.8377
DEV FROM LINEARITY	.0095	1	.0095	1.7723	.1858
	R = .0192	R SQUARED = .0004			
WITHIN GROUPS	.5978	112	.0053		
	ETA = .1263	ETA SQUARED = .0159			

CRITERION VARIABLE PPSTUCCO % PAINTED STUCCO
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	26
3	UMFR	.3905	.0126	.0671	.1352	31
4	USFR	2.6054	.0449	.1429	1.1635	58
WITHIN GROUPS TOTAL		2.9959	.0261	.1077	1.2988	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0439	2	.0220	1.8931	.1554
LINEARITY	.0418	1	.0418	3.6046	.0602
DEV FROM LINEARITY	.0021	1	.0021	.1816	.6708
	R = .1764	R SQUARED = .0311			
WITHIN GROUPS	1.2988	112	.0116		
	ETA = .1808	ETA SQUARED = .0327			

CRITERION VARIABLE PPOTHER % PAINTED OTHER
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	2.2992	.0884	.2285	1.3052	26
3	UMFR	1.4004	.0452	.1371	.5642	31
4	USFR	.2521	.0043	.0154	.0134	58
WITHIN GROUPS TOTAL		3.9517	.0344	.1297	1.8828	115

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* ANALYSIS OF VARIANCE *

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SOURCE	SUM OF SQUARES	D.F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.1319	2	.0659	3.9226	.0226
LINEARITY	.1319	1	.1319	7.8434	.0060
DEV FROM LINEARITY	.0000	1	.0000	.0019	.9653
	R =-0.2558	R SQUARED =	.0654		
WITHIN GROUPS	1.8828	112	.0168		
	ETA = .2559	ETA SQUARED =	.0655		

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CRITERION VARIABLE PPNOID % PAINT CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	26
3	UMFR	.0000	.0000	.0000	.0000	31
4	USFR	.0000	.0000	.0000	.0000	58
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	115

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

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CRITERION VARIABLE PBRICK % BARE BRICK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	0000	0000	0000	0000	26
3	UMFR	0000	0000	0000	0000	31
4	USFR	7385	0127	0797	3619	58
WITHIN GROUPS TOTAL		7385	0064	0568	3619	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	0047	2	0023	7212	4884
LINEARITY	0038	1	0038	1 1708	2816
DEV FROM LINEARITY	0009	1	0009	2716	6033
R = 1016		R SQUARED = 0103			
WITHIN GROUPS	3619	112	0032		
ETA = 1128		ETA SQUARED = 0127			

CRITERION VARIABLE PBLOCK % BARE BLOCK
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	0000	0000	0000	0000	26
3	UMFR	0000	0000	0000	0000	31
4	USFR	0600	0010	0079	0035	58
WITHIN GROUPS TOTAL		0600	0005	0056	0035	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	0000	2	0000	4870	6158
LINEARITY	0000	1	0000	7905	3758
DEV FROM LINEARITY	0000	1	0000	1834	6693
R = 0837		R SQUARED = 0070			
WITHIN GROUPS	0035	112	0000		
ETA = 0928		ETA SQUARED = 0086			

CRITERION VARIABLE PSTONE % BARE STONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.5994	.0231	.0406	.0412	26
3	UMFR	1.9489	.0629	.1105	.3663	31
4	USFR	2.4090	.0415	.0457	.1193	58
WITHIN GROUPS TOTAL		4.9572	.0431	.0686	.5267	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0227	2	.0114	2.4136	.0941
LINEARITY	.0025	1	.0025	.5240	.4707
DEV FROM LINEARITY	.0202	1	.0202	4.3033	.0403
	R = .0670	R SQUARED = .0045			
WITHIN GROUPS	.5267	112	.0047		
	ETA = .2033	ETA SQUARED = .0413			

CRITERION VARIABLE PCONCR % BARE CONRETE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	6.4928	.2497	.2955	2.1828	26
3	UMFR	10.9985	.3548	.2938	2.5891	31
4	USFR	22.6209	.3900	.2621	3.9143	58
WITHIN GROUPS TOTAL		40.1123	.3488	.2785	8.6862	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.3549	2	.1774	2.2878	.1062
LINEARITY	.3285	1	.3285	4.2351	.0419
DEV FROM LINEARITY	.0264	1	.0264	.3405	.5607
	R = .1906	R SQUARED = .0363			
WITHIN GROUPS	8.6862	112	.0776		
	ETA = .1981	ETA SQUARED = .0393			

CRITERION VARIABLE PMARB % BARE MARBLE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.2658	0102	.0251	.0157	26
3	UMFR	1044	0034	.0130	0051	31
4	USFR	1.0676	0184	.1022	5956	58
WITHIN GROUPS TOTAL		1.4378	.0125	.0742	.6164	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0047	2	.0024	.4309	.6510
LINEARITY	.0021	1	.0021	.3904	.5334
DEV. FROM LINEARITY	.0026	1	.0026	.4714	.4938
	R = .0588	R SQUARED = .0035			
WITHIN GROUPS	.6164	112	0055		
	ETA = 0874	ETA SQUARED = .0076			

CRITERION VARIABLE PLIME % BARE LIMESTONE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	26
3	UMFR	.1905	.0061	.0342	.0351	31
4	USFR	.0055	9.534E-05	.0007	3.005E-05	58
WITHIN GROUPS TOTAL		.1960	.0017	.0177	.0351	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D F	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0008	2	.0004	1.3335	.2677
LINEARITY	.0000	1	.0000	.1019	.7501
DEV FROM LINEARITY	.0008	1	.0008	2.5651	.1121
	R =-0.0298	R SQUARED = .0009			
WITHIN GROUPS	.0351	112	.0003		
	ETA = .1525	ETA SQUARED = .0233			

CRITERION VARIABLE PGRAN % BARE GRANITE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	26
3	UMFR	.0000	.0000	.0000	.0000	31
4	USFR	.0000	.0000	.0000	.0000	58
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	115

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

* *

CRITERION VARIABLE PSTEEL % BARE STEEL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0857	.0033	.0168	.0071	26
3	UMFR	.9825	.0317	.1104	.3657	31
4	USFR	.1553	.0027	.0112	.0072	58
WITHIN GROUPS TOTAL		1.2235	.0106	.0582	.3799	115

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0188	2	.0094	2.7745	.0667
LINEARITY	.0010	1	.0010	.2881	.5925
DEV. FROM LINEARITY	.0178	1	.0178	5.2608	.0237
	R =-0.0495	R SQUARED =	.0025		
WITHIN GROUPS	.3799	112	.0034		
	ETA = .2173	ETA SQUARED =	.0472		

* *

CRITERION VARIABLE PWOOD % BARE WOOD
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	26
3	UMFR	.0000	.0000	.0000	.0000	31
4	USFR	.0000	.0000	.0000	.0000	58
WITHIN GROUPS TOTAL		.0000	.0000	.0000	.0000	115

NO VARIANCE WITHIN GROUPS - ANALYSIS OF VARIANCE CANCELLED

TEST FOR LINEARITY ALSO CANCELLED

* *

CRITERION VARIABLE PGLASS % GLASS
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	3.7879	.1457	.0529	.0699	26
3	UMFR	4.3658	.1408	.0437	.0572	31
4	USFR	7.9190	.1365	.0703	.2818	58
WITHIN GROUPS TOTAL		16.0727	.1398	.0604	.4089	115

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG
BETWEEN GROUPS	.0016	2	.0008	.2126	.8088
LINEARITY	.0016	1	.0016	.4248	.5159
DEV FROM LINEARITY	.0000	1	.0000	.0005	.9828
	R =-0.0615	R SQUARED =	.0038		
WITHIN GROUPS	.4089	112	.0037		
	ETA = .0615	ETA SQUARED =	.0038		

* *

CRITERION VARIABLE PVINYL % BARE VINYL
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0933	.0036	.0183	.0084	26
3	UMFR	.0000	.0000	.0000	.0000	31
4	USFR	.2519	.0043	.0331	.0623	58
WITHIN GROUPS TOTAL		.3452	.0030	.0251	.0707	115

* *

* ANALYSIS OF VARIANCE *

* *

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0004	2	.0002	.3109	.7334
LINEARITY	.0001	1	.0001	.0823	.7747
DEV FROM LINEARITY	.0003	1	.0003	.5394	.4642
	R = .0270	R SQUARED =	.0007		
WITHIN GROUPS	.0707	112	.0006		
	ETA = .0743	ETA SQUARED =	.0055		

* *

CRITERION VARIABLE POBARE % OTHER BARE
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.1231	.0047	.0184	.0084	26
3	UMFR	.0955	.0031	.0132	.0052	31
4	USFR	.2231	.0038	.0219	.0274	58
WITHIN GROUPS TOTAL		.4416	.0038	.0192	.0411	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0000	2	.0000	.0526	.9487
LINEARITY	.0000	1	.0000	.0190	.8907
DEV FROM LINEARITY	.0000	1	.0000	.0863	.7695
	R =-0.0130	R SQUARED =	.0002		
WITHIN GROUPS	.0411	112	.0004		
	ETA = .0306	ETA SQUARED =	.0009		

CRITERION VARIABLE PNOID % BARE CANNOT ID
BROKEN DOWN BY SFRAME SAMPLING FRAME

ANALYSIS OF VARIANCE

VALUE	LABEL	SUM	MEAN	STD DEV	SUM OF SQ	CASES
2	ULIC	.0000	.0000	.0000	.0000	26
3	UMFR	.0000	.0000	.0000	.0000	31
4	USFR	.0432	.0007	.0057	.0018	58
WITHIN GROUPS TOTAL		.0432	.0004	.0040	.0018	115

ANALYSIS OF VARIANCE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	.0000	2	.0000	.4870	.6158
LINEARITY	.0000	1	.0000	.7905	.3758
DEV FROM LINEARITY	.0000	1	.0000	.1834	.6693
	R = .0837	R SQUARED =	.0070		
WITHIN GROUPS	.0018	112	.0000		
	ETA = .0928	ETA SQUARED =	.0086		

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