Instructions for completing a field worksheet for inventorying building materials

Carolyn J. Merry
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A worksheet for use in the field was developed to inventory building materials in four northeastern cities in support of the EPA Acid Rain program. The initial form was tested for two of the cities; the redesigned and simplified form discussed in this report was used in the two remaining cities. The worksheet was designed to provide information on the 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 above 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. The worksheet is recommended for future surveys of building materials in other cities.
PREFACE

This report was prepared by Carolyn J. Merry, Research Physical Scientist, Geological Sciences Branch, U.S. Army Cold Regions Research and Engineering Laboratory. This work was funded as part of the National Acid Precipitation Assessment Program by the U.S. Environmental Protection Agency under reimbursable order no. DW21930284-01-0. The author expresses her appreciation to Harlan L. McKim, who is a co-investigator on this project; to Perry LaPotin for assistance in developing the computer format for the field worksheet; to Stephen Bowen and Donna Murphy for their helpful suggestions in the worksheet layout and for preparing the final worksheet form; to William Porter, Celia Nawawi, 1LT Jeffrey Songco, Perry LaPotin and Nancy Humiston for using preliminary versions of the form and providing feedback for redesigning the form; to Celia Nawawi for providing excellent feedback on her field experiences and for documenting her thoughts for doing the field work; and to Bill Karaffa (Pittsburgh District) and James Loper (Louisville District) for technically reviewing the report.
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INTRODUCTION

The Corps of Engineers conducted a field sampling program for inventorying building materials in the northeastern United States during 1984 and early 1985. Data were collected in New Haven, Connecticut; Portland, Maine; Pittsburgh, Pennsylvania; and Cincinnati, Ohio (Fig. 1). The field inventory program and the collected data for each of the cities are described in more detail in a series of data reports (Merry and LaPotin 1985, 1986a, 1986b, 1986c).

The four cities were subdivided into sampling frames. The sampling frames for each city were developed using information from census variables and the U.S. Geological Survey (USGS) digital land cover data base (Rosenfield 1984, Wray 1984, 1985). Each sampling frame consists of a number of census tracts that are similar in population density, number of single-unit dwellings and land use (Rosenfield 1984). Five to six sampling frames were defined for each city and included 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).
There were 107 sample point locations generated by the U.S. Geological Survey for each sampling frame.* The 107 points were selected to ensure that at least 70 buildings were sampled per sampling frame. The points were generated using a stratified, systematic, unaligned random sampling procedure (Rosenfield 1984, Merry and LaPotin 1985). Each sampling point had a corresponding "footprint," or a given spatial area on the ground that had to be visited in the field. The sample points were generated in UTM (Universal Transverse Mercator) coordinates and plotted on USGS topographic maps for use in the field.

The sizes of the footprints were calculated using a computer program that required information on building density. The building density was calculated using census data from the UCBD (Merry and LaPotin 1985). (In the case of New Haven, building densities were determined from aerial photography for selected areas of the city.) The proportionality constant (building density vs land area) used to scale the footprints for all the sampling frames were constrained by two factors: 1) there could only be 107 sample points per sampling frame, and 2) the sum of the 107 footprint areas could not be more than 30% of the area of the UCBD sampling frame.

The field worksheet form was developed to inventory materials in the cities of New Haven, Portland, Pittsburgh and Cincinnati. The building worksheet was first developed for New Haven by a committee composed of representatives from CRREL, the Bureau of Standards and the Environmental Protection Agency, Research Triangle Park. CRREL subsequently revised the form after surveys in New Haven and Portland. The final form described in this report (Appendix A) was used for inventorying building materials in Pittsburgh and Cincinnati.

The purpose of this report is to describe the field worksheet and the method for completing it.

**PRELIMINARY OFFICE WORK**

The field survey teams received 1:24,000 topographic maps of a city with the sample points plotted on an overlay. The footprints on the overlay covered a given area on the ground that was to be sampled in the field.

The field teams may want to transfer the point locations to the topographic map. Some field teams color-coded the footprints to coincide with each sampling frame. Also, the field teams may want to complete the first part of the field forms—the sample point number, the sampling frame, the census tract number, and the land cover unit—prior to the survey to avoid confusion in the field.

A checklist to use in preparing for a field trip is shown in Appendix B. The camera is important for taking pictures of the buildings being inventoried. Polaroid cameras were used

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*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.*
in the Pittsburgh field sampling, although the Cincinnati teams said the film was too expen-
sive, slow and messy. A number of lenses are available for 35-mm single-lens reflex cam-
eras that are adjustable from 28 mm (wide angle) to 85 mm (slight telephoto). These lenses
offer extremely flexible adjustment, so that building details can be photographed.

The calculator was another important consideration, although not all teams did full calcu-
lations in the field. A soft-touch calculator was recommended. If calculators are not used in
the field, enough detail should be marked on the field sheet so that the calculations can be
performed later.

DESCRIPTION OF THE FIELD WORKSHEET

The building inventory worksheet is shown in Appendix A. The small numbers to the
left of the lines are for use in coding the data in the office. The following sections describe
how the worksheet is to be completed.

Tract/MCD
This is the predefined census tract number (or minor civil division, MCD) that contains
the sample point. The topographic maps should be carefully labeled prior to the field work.

Sampling frame
The sample frames are UCBD (1), ULIC (2), UMFR (3), USFR (4), NSUB (5) and
NRUR (6). The sample frame will be previously defined for each sample point.

Sample point number
This is the sample point number within each sampling frame. The number will be as-
signed and located on USGS topographic maps.

USGS land cover unit
This is the land cover unit defined for the sample point based on the USGS land
use/land cover mapping scheme (Anderson et al. 1976). The codes that will be assigned
previously for each point will be one of the following:

URBAN OR BUILT-UP LAND
  11 Residential
  12 Commercial and services
  13 Industrial
  14 Transportation, communications and utilities
  15 Industrial and commercial complexes
  16 Mixed urban or built-up land
  17 Other urban or built-up land
AGRICULTURAL LAND
21 Cropland and pasture
22 Orchards, groves, vineyards, nurseries and
ornamental horticultural areas
23 Confined feeding operations
24 Other agricultural land

RANGELAND
31 Herbaceous rangeland
32 Shrub and brush rangeland
33 Mixed rangeland

FOREST LAND
41 Deciduous forest land
42 Evergreen forest land
43 Mixed forest land

Building type
The codes on the worksheet are used to classify the building type. You can either circle
the building type or fill in the appropriate code.

Sketch of building
A sample sketch is shown in Figure 2. Making a complete sketch and writing down as
much as you can will be helpful when you calculate surface areas.

Figure 2. Example of a building sketch.
One field team recommended estimating building material percentages and calculating roof, chimney, flashing and fencing areas while at the site. The final wall area percentages were calculated later.

Become comfortable with distance estimates. Pace a few buildings to get a feel for distance (approximately 3 ft per pace). Test your eye for accuracy by guessing and then verifying through measurement. Use familiar objects, such as people and cars, for comparison. Also, use common sense; a door is usually 7 ft or more in height.

Age of building

Determining the age of the building may involve some guesswork. The year that a commercial building was built is often indicated on a cornerstone, usually located at the bottom right. If that is not available, the architecture may provide some clues. Familiarize yourself with the age of neighborhoods by driving through areas of town that can be dated. Note the architectural detail, house size and height, and size of trees. Houses from the 1950s look alike; houses from the 1960s and 1970s can be determined by the age of trees. Contemporary houses are usually 1975 or later in the Midwest. Many of the ornate buildings with art nouveau sculptures were built in the 1920s. Towers and elaborate cornices tend to be Victorian (1860-1900). Make an educated guess or ask someone. A guide by Blumenson (1977) was recommended by the National Park Service for aid in determining the building age.*

Height

This is the average building height. A rangefinder, used in the field surveys, gives a good estimate of building height.† A rule of thumb is 12 ft to a story. If you are unsure of the number of stories in a building, especially in downtown areas, check the elevator for the number of stories in that building.

Side 1

Note in feet the length (or width) of the building. To save confusion, these were labeled side 1 and side 2. Pace the building, if possible. Perspective is deceptive, and you may get sloppy with estimates after a long, tiring day.

Side 2.

This is treated the same as side 1.

*Personal communication with S. Sherwood, 1984.
†For example, for a double-image coincidental-focusing rangefinder, the height accuracy is 1.6 ft at 66 ft, 2.9 ft at 100 ft and 4.6 ft at 130 ft.
Lot size, side 1
Note the dimension of one side of the lot the sample point resides in. If the sample point is empty, still note the lot size associated with that point. The ground cover at the site should be noted, whether it be parking lot, cemetery, grass, trees or marsh. If the lot is huge, as for a railroad track or interstate, then the footprint size will be sufficient; note this on the field form. The footprint sizes for each sampling frame will be previously calculated.

Lot size, side 2
This is treated the same as side 1.

Exposed walls in footprint
The exposed walls in the footprint, the EWIF value, is the perimeter of the exposed walls of the building within the footprint.* This is calculated by summing the length and width of the building(s) that are partially or totally within a footprint.

Number of buildings
The number of buildings in the footprint needs to be recorded, whether they are partially or entirely within the footprint.

*In New Haven and Portland, every building within a footprint was inventoried. For Pittsburgh and Cincinnati, a large number of buildings were encountered in the footprints, principally because of the larger footprint sizes. Therefore, in these two cities the centermost building was sampled, and to ensure that we had a representative sample per footprint (for example, that the spatial area of the building was extremely small compared to the footprint area), we sampled enough buildings so that the total area of the sampled buildings was at least 10% of the footprint area. The buildings inventoried in the field were chosen randomly about the centerpoint of the footprint.
termost building, and in C, building 1) would need to be inventoried. Also, additional buildings would need to be inventoried so that at least 10% of the footprint was inventoried. For case A, buildings 2 and 3 would need to be inventoried; for case B, buildings 1, 2 and 3; and in case C, just building 1.

**Number of buildings**

The number of buildings in the footprint needs to be recorded, whether they are partially or entirely within the footprint.

**Photo ID**

This is useful for noting the exposure number on the film roll. A picture showing two sides of the building is helpful for estimating areas and verifying dimensions. Generally this can be done with one picture; otherwise take two. Take the photos last, as this will be the most controversial item in dealing with people.

**Street address**

The street address is recorded for completeness in locating the sample point.

**Wall area**

Determine the material type of the building walls. Walk up and touch the walls if it is difficult to identify. However, be careful to avoid walking on private property. This part of the form is for the calculations, normally done in the office.

**Roofs**

Circle the material type of the roof. Also, circle whether the roof is sloped or flat. Calculate the surface area at the site if possible, particularly if there are multiple roofs; if you plan to do the calculations at the office, make sure you have all the proper dimensions. The roof area (in square feet) that falls within the footprint is entered on this line. The following formulas can be used for roof area calculations:

- area of a flat roof = width x length
- area of 3:12 gable = width* + (3% x length)
- area of 5:12 gable = width + (8% x length)
- area of 10:12 gable = width + (30% x length)
- area of 12:12 (45°) gable = width + (40% x length)

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*Width includes total distance from overhang to overhang, usually 3–4 ft greater than the building width.
Roof-mounted apparatus
Circle the predominant material type of vents, flues and stacks. Also count these items.
Circle the framing material of any skylights that are present. Count the skylights. Circle the material type of flashing. Also estimate the area of the flashing in square feet.

Chimneys
Circle the material type of the chimneys, and calculate the total exposed surface area of the chimneys in square feet.

Rain gutters
Circle the material type of the rain gutters, and note the length of the rain gutters in feet.

Downspouts
If there is a rain gutter, there is normally a downspout, so doublecheck. Circle the material type of the downspouts, and note the length of the downspouts in feet. Most rain gutters and downspouts will be painted. Many commercial buildings have built-in and hidden drains.

Fences
Circle the material type of the fences, and note the length and height of the fence in feet.
Appendix C lists additional suggestions from previous field teams.
The data from the building worksheet were coded into the computer at CRREL. The computer format used for the field form is shown in Appendix D.

SUMMARY
The field inventory worksheet was used successfully in the Corps field surveys for the four cities. The worksheet is recommended for future surveys of building materials in other cities.
LITERATURE CITED


Appendix A. Building Inventory Worksheet

The worksheet was designed to fit on an 8⅛ x 14 in. page on both sides. The form could be folded in two places so that it would easily fit in a pocket or on a clipboard (Fig. A1). The copy of the worksheet shown here has been reduced to fit on the page.

Figure A1. Directions for folding the worksheet.
### ROOFS

- Material: tar, asphalt shingle, wood, painted metal, bare galvanized, tile, slate, copper, other.
- Sloped or flat.
- Surface area (sq ft).

### ROOF-MOUNTED APPARATUS

- Vents, flues, and stacks: painted, bare galvanized, bare aluminum, other.
- Number of items.
- Skylights (framing): painted, bare galvanized, bare aluminum, other.
- Flashing: painted, bare galvanized, bare aluminum, other.
- Area (sq ft).

### CHIMNEYS

- Material: painted, brick, stone, other.
- Exposed surface area (sq ft).

### RAIN GUTTERS

- Material: painted, bare galvanized, vinyl, copper, other.
- Length (ft).

### DOWNSPOUTS

- Material: painted, bare galvanized, vinyl, copper, other.
- Length (ft).

### FENCES

- Material: bare galvanized chain link, bare galvanized stock, painted, brick, concrete block, field stone, bare wood, other.
- Length (ft).
- Height (ft).

### BUILDING INVENTORY WORKSHEET

- Tract/MCD
- Sampling frame
- Sample point number
- USGS land cover unit
- Building type:
  - Residential
  - Office
  - Commercial
  - Industrial
  - Educational
  - Religious
  - Health
  - Farm
  - Other
  - Cannot identify
Sketch of Building

ESTIMATED QUANTITIES OF BUILDING MATERIALS

FIRST STORY

ALL STORIES ABOVE 1st

SIDE 1:

SIDE 2:

SIDE 3:

SIDE 4:

<table>
<thead>
<tr>
<th>No. of buildings in footprint</th>
</tr>
</thead>
</table>

SPECIAL NOTES/SKETCH:

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Painted walls
1. Wood (excl. stained)
2. Steel
3. Aluminum
4. Masonry
5. Concrete
6. Stucco
7. Other (_______)
8. Cannot identify

Bare walls
9. Wood (incl. stained)
10. Galvanized steel
11. Concrete
12. Brick
13. Block
14. Field stone
15. Marble
16. Limestone
17. Granite
18. Glass
19. Vinyl
20. Other (_______)
21. Cannot identify

Total 100 100 100

---

<table>
<thead>
<tr>
<th>Foundation</th>
<th>1st story</th>
<th>All stories above 1st</th>
</tr>
</thead>
</table>

---

13-18 Age of building
19-21 Height (ft)
22-24 Side 1 (ft)
25-27 Side 2 (ft)
28-30 Lot size, side 1 (ft)
31-33 Lot size, side 2 (ft)

Exposed walls in footprint

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Photo ID

Street address
Appendix B. Checklist for the field work

1. Hotel reservations

2. Car with gas credit card

3. A box containing:
   field forms, clipboards,
   topographic maps, city maps,
   cameras, film, range finder,
   pens, pencils, sharpener, scissors, ruler, paper clips, tape,
   envelopes and calculator

4. Personal items that have proved useful to other teams, depending on the survey area:
   sunglasses
   water container
   first aid kit (particularly aspirin, bandaids)
   sunscreen
   canvas bag to tote your materials in
   comfortable walking shoes
   umbrella
   gloves during cold weather
Appendix C. Hints for the field work

Two-person teams are recommended.
Good organization is very important. Plan your routes to maximize your time and minimize backtracking.
For the downtown area, where the sample points are within walking distance, the fastest method is to split up, take separate maps and do groups of points at a time. For points in the rural areas, one person should drive and one should navigate. One person can complete the form and measure building dimensions while the other takes photos and discusses the materials to write down.
Make sure you know how to read a USGS topographic map and can operate the camera.
Be careful to label distinctly the different rolls of film. It will save time and effort back at the office. One field team photographed a sign saying "Roll 1" as the first exposure and thus were able to keep their rolls of film straight.
Be prepared for people asking questions. Try to avoid long conversations; be polite but abrupt. Most people understand if you tell them you have a job to get done. Work quickly and be subtle.
Take some form of government ID. People seem to respect official-looking forms. Be prepared to have a quick, simple explanation of who you are, what you are doing, and the days you will be in the locality. Try to do as much as possible from the car.
Be familiar with the forms before going out in the field. Be comfortable with identifying building materials and judging distances and dimensions.
Do any necessary additional work on the field forms that same evening, while your memory is still fresh.
Appendix D. Computer format for coding the data from the building material worksheet.

Each sample point consists of two lines of data, 80 columns each line. The variables for each point are to be read as follows:

(Card 1)

<table>
<thead>
<tr>
<th>Column no.</th>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>TRACT</td>
<td>Census tract number</td>
</tr>
<tr>
<td>5</td>
<td>SFRAME</td>
<td>Sampling frame, where: 1 = UCBD, 2 = ULIC, 3 = UMFR, 4 = USFR, 5 = NSUB, and 6 = NRUR</td>
</tr>
<tr>
<td>6-8</td>
<td>SPOINT</td>
<td>Sampling point number within sampling frame</td>
</tr>
<tr>
<td>9-10</td>
<td>LU</td>
<td>US Geological Survey land use/land cover classification, where: 11 = residential, 12 = commercial and services, 13 = industrial, 14 = transportation, communications and utilities, 15 = industrial and commercial complexes, 16 = mixed urban or built up land, 17 = other urban or built up land, 21 = cropland and pasture, 22 = orchard, groves, vineyards, nurseries, and ornamental agricultural areas, 23 = confined feeding operations, 24 = other agricultural land, 31 = herbaceous rangeland, 32 = shrub and brush rangeland, 33 = mixed rangeland, 41 = deciduous forestland, 42 = evergreen forestland, 43 = mixed forestland, 51 = streams and canals, 52 = lakes, 53 = reservoirs, 54 = bays and estuaries, 61 = forested wetland, 62 = nonforested wetland, 71 = dry salt flats, 72 = beaches, 73 = sandy areas other than beaches, 74 = bare exposed rock, 75 = strip mines, quarries, and gravel pits, 76 = transitional areas, 77 = mixed barren land.</td>
</tr>
<tr>
<td>11-12</td>
<td>TYPE</td>
<td>Building type, where: 0 = No building, 1 = 1 housing unit, 2 = 2 housing units, 3 = 3 to 4 housing units, 4 = 5 to 9 housing units, 5 = 10 to 19 housing units, 6 = 20 to 49 housing units, 7 = 50 or more housing units, 8 = office building, 9 = commercial building, 10 = industrial building, 11 = educational building, 12 = religious building, 13 = health-related building, 14 = farm building, 15 = other building, 16 = cannot identify building.</td>
</tr>
<tr>
<td>13-15</td>
<td>AGE</td>
<td>Approximate age of building, where 1900 is the base year (year 0). To obtain age, add</td>
</tr>
</tbody>
</table>
the value to 1900. Ages less then 1900 are coded as negative values.

<table>
<thead>
<tr>
<th>Column Range</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>16–18</td>
<td>HT</td>
<td>Average building height, ft.</td>
</tr>
<tr>
<td>19–21</td>
<td>SIDE1</td>
<td>Side 1 of building, ft.</td>
</tr>
<tr>
<td>22–24</td>
<td>SIDE2</td>
<td>Side 2 of building, ft.</td>
</tr>
<tr>
<td>25–27</td>
<td>LOT1</td>
<td>Lot size associated with sampling point, side 1, ft.</td>
</tr>
<tr>
<td>28–30</td>
<td>LOT2</td>
<td>Lot size associated with sampling point, side 2, ft.</td>
</tr>
<tr>
<td>31–33</td>
<td>EWIF</td>
<td>Exposed walls within footprint, ft.</td>
</tr>
<tr>
<td>34–35</td>
<td>MF1</td>
<td>First material type found in foundation, where:</td>
</tr>
</tbody>
</table>

0 = no material, 1 = painted wood (excluding stained), 2 = painted steel, 3 = painted aluminum, 4 = painted masonry, 5 = painted concrete, 6 = painted stucco, 7 = other painted material, 8 = cannot identify painted material, 9 = bare wood, including stained, 10 = bare galvanized steel, 11 = bare concrete, 12 = bare brick, 13 = bare block, 14 = bare field stone, 15 = bare marble, 16 = bare limestone, 17 = bare granite, 18 = bare glass, 19 = bare vinyl, 20 = other bare material, and 21 = cannot identify bare material.

<table>
<thead>
<tr>
<th>Column Range</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>36–38</td>
<td>PF1</td>
<td>Percentage of first material type found in foundation</td>
</tr>
<tr>
<td>39–40</td>
<td>M11</td>
<td>First material type found in first floor walls, see above list</td>
</tr>
<tr>
<td>41–43</td>
<td>P11</td>
<td>Percentage of first material type found in first floor walls</td>
</tr>
<tr>
<td>44–45</td>
<td>M21</td>
<td>First material type found in all stories above first, see above list</td>
</tr>
<tr>
<td>Range</td>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>46-48</td>
<td>P21</td>
<td>Percentage of first material type found in all stories above first</td>
</tr>
<tr>
<td>49-50</td>
<td>MF2</td>
<td>Second material type found in foundation, see above list</td>
</tr>
<tr>
<td>51-53</td>
<td>PF2</td>
<td>Percentage of second material type found in foundation</td>
</tr>
<tr>
<td>54-55</td>
<td>M12</td>
<td>Second material type found in first floor walls, see above list</td>
</tr>
<tr>
<td>56-58</td>
<td>P12</td>
<td>Percentage of second material type found in first floor walls</td>
</tr>
<tr>
<td>59-60</td>
<td>M22</td>
<td>Second material type found in all stories above first, see above list</td>
</tr>
<tr>
<td>61-63</td>
<td>P22</td>
<td>Percentage of second material type found in all stories above first</td>
</tr>
<tr>
<td>64-65</td>
<td>MF3</td>
<td>Third material type found in foundation, see above list</td>
</tr>
<tr>
<td>66-68</td>
<td>PF3</td>
<td>Percentage of third material type found in foundation</td>
</tr>
<tr>
<td>69-70</td>
<td>M13</td>
<td>Third material type found in first floor walls, see above list</td>
</tr>
<tr>
<td>71-73</td>
<td>P13</td>
<td>Percentage of third material type found in first floor walls</td>
</tr>
<tr>
<td>74-75</td>
<td>M23</td>
<td>Third material type found in all stories above first, see above list</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>76–78</td>
<td>P23</td>
<td>Percentage of third material type found in all stories above first</td>
</tr>
<tr>
<td>79–80</td>
<td>MF4</td>
<td>Fourth material type found in foundation, see above list</td>
</tr>
</tbody>
</table>

(Card 2)

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1–3</td>
<td>PF4</td>
<td>Percentage of fourth material type found in foundation</td>
<td></td>
</tr>
<tr>
<td>4–5</td>
<td>M14</td>
<td>Fourth material type found in first floor walls, see above list</td>
<td></td>
</tr>
<tr>
<td>6–8</td>
<td>P14</td>
<td>Percentage of fourth material type found in first floor walls</td>
<td></td>
</tr>
<tr>
<td>9–10</td>
<td>M24</td>
<td>Fourth material type found in all stories above first, see above list</td>
<td></td>
</tr>
<tr>
<td>11–13</td>
<td>P24</td>
<td>Percentage of fourth material type found in all stories above first</td>
<td></td>
</tr>
<tr>
<td>14–15</td>
<td>MF5</td>
<td>Fifth material type found in foundation, see above list</td>
<td></td>
</tr>
<tr>
<td>16–18</td>
<td>PF5</td>
<td>Percentage of fifth material type found in foundation</td>
<td></td>
</tr>
<tr>
<td>19–20</td>
<td>M15</td>
<td>Fifth material type found in first floor walls, see above list</td>
<td></td>
</tr>
<tr>
<td>21–23</td>
<td>P15</td>
<td>Percentage of fifth material type found in first floor walls</td>
<td></td>
</tr>
<tr>
<td>Column</td>
<td>Value</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>24-25</td>
<td>M25</td>
<td>Fifth material type found in all stories above first, see above list</td>
<td></td>
</tr>
<tr>
<td>26-28</td>
<td>P25</td>
<td>Percentage of fifth material type found in all stories above first</td>
<td></td>
</tr>
<tr>
<td>29-30</td>
<td>MF6</td>
<td>Sixth material type found in foundation, see above list</td>
<td></td>
</tr>
<tr>
<td>31-33</td>
<td>PF6</td>
<td>Percentage of sixth material type found in foundation</td>
<td></td>
</tr>
<tr>
<td>34-35</td>
<td>M16</td>
<td>Sixth material type found in first floor walls, see above list</td>
<td></td>
</tr>
<tr>
<td>36-38</td>
<td>P16</td>
<td>Percentage of sixth material type found in first floor walls</td>
<td></td>
</tr>
<tr>
<td>39-40</td>
<td>M26</td>
<td>Sixth material type found in all stories above first, see above list</td>
<td></td>
</tr>
<tr>
<td>41-43</td>
<td>P26</td>
<td>Percentage of sixth material type found in all stories above first</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>ERMAT</td>
<td>Exposed roof material, where:</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>SLOPE</td>
<td>Roof configuration, where: 0= sloped, 1= flat</td>
<td></td>
</tr>
<tr>
<td>46-51</td>
<td>ESAREA</td>
<td>Exposed roof surface area in footprint, sq ft.</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>RMAT</td>
<td>Material type of vents, flues and stacks, where:</td>
<td></td>
</tr>
</tbody>
</table>
0 = no vents, flues and stacks observed, 1 = painted, 2 = bare galvanized, 3 = bare aluminum, 4 = other material, and 9 = cannot identify material.

<table>
<thead>
<tr>
<th>53–54</th>
<th>ITEM1</th>
<th>Number of items (vents, flues and stacks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>SKYM</td>
<td>Framing material of skylights, where:</td>
</tr>
<tr>
<td>56–57</td>
<td>ITEM2</td>
<td>Number of skylights</td>
</tr>
<tr>
<td>58</td>
<td>FLMAT</td>
<td>Material type of flashing, where:</td>
</tr>
<tr>
<td>59–61</td>
<td>FLAREA</td>
<td>Area of flashing, sq ft</td>
</tr>
<tr>
<td>62</td>
<td>CMAT</td>
<td>Material type of chimney, where:</td>
</tr>
<tr>
<td>63–66</td>
<td>CAREA</td>
<td>Exposed surface area of chimney, above roof, sq ft.</td>
</tr>
<tr>
<td>67</td>
<td>RGMAT</td>
<td>Rain gutter material type, where:</td>
</tr>
<tr>
<td>68–70</td>
<td>RGLNGTH</td>
<td>Length of rain gutters, ft.</td>
</tr>
<tr>
<td>71</td>
<td>DSPOUT</td>
<td>Material type of downspouts, where:</td>
</tr>
<tr>
<td>72–74</td>
<td>DSLENG</td>
<td>Length of downspouts, ft.</td>
</tr>
</tbody>
</table>
75 FENCE Material type of fences, where:

0 = no fences observed, 1 = bare galvanized chain link, 2 = bare galvanized stock, 3 = painted fence, 4 = brick, 5 = concrete block, 6 = field stone, 7 = bare wood, 8 = other fence material, and 9 = cannot identify fence material.

76–78 FAREA Area of fence, sq ft.

79–80 NBUILD Number of buildings observed in the footprint