CHAPTER 3

THE BUILDING INVENTORY

General

This chapter provides the data elements, technical definitions, data collection procedures, and coding structures which serve as the basis for developing the Building Inventory file. Institutions of higher education in North Carolina are familiar with the basic concepts and procedures described in this manual through maintenance of facilities inventories, with HEFC assistance and coordination, since 1967.

As noted in the Introduction, the 1992 NCES manual presented only two basic changes, adopted by this manual, to the framework of building concepts and definitions used in the previous N.C. and national manuals. *Structural Area* has been removed as one of the four categories of Nonassignable Area. Structural area is instead a residual, non-measurable, non-usable area of space in a building which is now neither assignable nor nonassignable. The other modification involves the former *Custodial Area* classification of nonassignable space: Custodial Area has been renamed and broadened into a Building Service category which includes public restrooms and other non-mechanical building support areas.

Definitions and depictions of the categories of Nonassignable Area (Building Service, Circulation, Mechanical) and Structural Area are presented in Appendix 4. It should be noted that HEFC does not centrally collect or maintain data on these categories of building space. Two minor exceptions are *public restrooms equipped for the mobility impaired* and *elevators*. These areas are maintained on HEFC files, with zero assignable square footage to indicate that they are nonassignable, simply to demonstrate features of a building associated with accessibility to the mobility impaired. *It is recommended that individual campus facilities inventories include data, either in terms of individual areas of space or summary statistics, on Nonassignable and Structural space. Suggested alpha codes for these areas are included at the end of the Room Use Code section in Chapter 4. In the absence of individual measurements for these areas, Nonassignable plus Structural space in a building is always equal to Gross Area less the Assignable Area.*

Figures 1 and 2 (pp. 15 and 16) present conceptual depictions of basic categories of building areas and how they relate to the inventory of individual rooms. The figures portray several concepts:

- Gross Area encompasses the entire building.

- Net Usable Area encompasses Assignable Area (which is divided into rooms, with various classifications, for the Room Inventory) and Nonassignable Area.

- Nonassignable Area includes those areas classified as Building Service, Circulation, and
Mechanical. As portrayed in the figure, Nonassignable Area is usable, but its use is confined to a general support service of the building. It is therefore not "assignable" to specific campus organizational units or program missions.

- Structural Area is a nonmeasurable space (wall thickness, internal structural features) which are not usable by occupants or other users of the building. It is therefore the residual of the Gross Area measurement less the Net Usable Area (Assign able plus Nonassignable) measurements.

- Assignable Area, often referred to as assignable square footage (ASF), net assignable square footage (NASF), or simply net area, is the basis of the Room Inventory. This space is assignable to and used regularly by occupants and outside users for specific institutional tasks and purposes. It includes neither Nonassignable Area (the building support areas) nor Structural Area. The total Assignable Area of a building, which is the sum of the individual room measurements, is included, along with Gross Area, on the Building Inventory. This summing of individual room areas is automatically machine generated by HEFC and printed on the Building and Room Inventory printouts.

- The Room Inventory uses three major classification structures to indicate to what use, basic mission or function (Program Classification), and if applicable, academic disciplines or specific support activity (Category) each room is assigned.

Because nonassignable areas (Building Service, Circulation, Mechanical) and Structural Area are not collected as separate data elements by HEFC, their definitions and figures are included in Appendix 4 instead of in this section. Individual institutions are encouraged to maintain an inventory of these areas in some form, but they are not reportable to HEFC as part of the formal Building or Room Inventories. In the exceptions already noted, HEFC does collect, for the Room Inventory, examples of two types of nonassignable space associated with a building's support of the mobility impaired: (1) public restrooms which are equipped for the mobility impaired (a Building Service area), and (2) passenger elevators (a Circulation area). Because they are data elements which do appear on the formal Building Inventory, definitions and descriptions of Gross Area and Assignable Area are included in this chapter (see pp. 32-37).

### FIGURE 1: Summary of Building Components

Definition of Building

A building is defined as a roofed structure for permanent or temporary shelter of persons, animals, plants, materials, or equipment. The Building Inventory may encompass many different types of structures, including marine and space structures (whether staffed or not); research vessels; aquarium structures; parking decks and bell towers; and trailers not on wheels.

It is almost impossible to provide an all inclusive definition for a building. For example, an outdoor swimming pool or playing field stadium is not a building by definition. If one places a removable dome or roof over it which is used only during the winter season or inclement weather, the roof is regarded as a piece of equipment and the facility not a roofed structure.

If a 1950 building has a 1992 addition, a question may arise as to whether these are separate buildings. The size of the addition, its configuration, and institutional policy are factors in making a determination. If the institution assigns a different name to the addition, it should be inventoried as a separate building. A small addition to a large building or vice versa would probably be
considered one building with the construction date of the larger section being used. The fact that two buildings are joined at one or more floor levels does not necessarily make them one building. Conversely, a completely integrated building should not have its parts designated as separate buildings on the basis of different years of construction. In the case of a complex of identical or very similar apartment buildings or married student units built at approximately the same time, it may be more useful and convenient for an institution to collapse all of the units under one building record, with totals for the Estimated Replacement Cost, Gross Area, and other statistics. Institutional discretion, based on the most useful format of the campus inventory, therefore becomes a determining criterion in resolving many questions regarding separate buildings.

**Buildings to be Included**

The Building Inventory should include buildings that are (1) under the jurisdiction or control of the institution's governing board, regardless of location; and (2) which are used (or intended to be used) for defined institutional missions and functions (which excludes investment to generate revenue). When these two criteria are met, a building should be included whether owned or not, in current active use or not, and whether an integral part of the main campus or not. Thus a building which is rented to a faculty member or provided for a President should be included in the inventory; whereas a building simply rented out to the public should not.

Where an institution exclusively occupies or uses part of a building, which occurs most frequently under a lease/rent or donation arrangement, include in the inventory only that portion of the building leased or controlled by the institution and its prorated share of Gross Area, Estimated Replacement Cost, etc., in relation to the entire building. Exclusive use (available 24 hours a day) for institutional missions remains a basic requirement for including such "partial" buildings on the inventory. (For additional discussion and examples of rental/lease arrangements, see pp. 197-198.)

*Minor structures* often pose the question as to whether or not they should be included on the inventory. The 1992 NCES manual presents a very conservative set of guidelines for inclusion/exclusion of minor structures which should be viewed as the most stringent criteria which develop a minimum inventory of these structures:

1. They are attached to a foundation;
2. They are roofed;
3. They are serviced by a utility, exclusive of lighting (i.e., a utility in addition to lighting); and
4. They are a source of significant maintenance and repair activities. ("Significant" here means on a regular maintenance/repair schedule similar to that of a conventional building).

Following these guidelines, an example of a minor structure to be included in a Building Inventory is
an information booth or bus shelter, roofed, attached to a concrete pad, with lights and at least one other utility service, and on a regular maintenance schedule. *Any structure meeting all of the above criteria should be included on the inventory. The primary criterion for inclusion of additional minor structures is again institutional preference, based on a perception of the Building Inventory as it would be most useful.*

Conventional *parking decks or garages* should be included on the Building Inventory. Because parking areas within the structure are not classified as Assignable Area (in N.C. and most other states), only the building record data elements (Estimated Replacement Cost, Gross Area, Original Building Cost, etc.) become significant statistics. If, however, such a structure contains any standard assignable areas (e.g., offices), those areas are included on the parking deck's Room Inventory. Most frequently parking decks/garages will therefore have a very large Gross Area with little or no Assignable (net) Area. *Bell towers* may also be included on the Building Inventory; as with parking decks, they generally contain little or no Assignable Area.

*Radio and TV towers, unroofed swimming pools, and open parking areas* should be excluded from the formal Building Inventory. *Outdoor stadium seating* should be excluded unless there are assignable areas under or within the seating (locker rooms, offices). In such cases, the prorations of building statistics as with "partial" buildings would apply for the Building Inventory and the assignable areas would be recorded as the Room Inventory for that seating or bleacher "building."

*Remote buildings,* such as those that appear at satellite campuses, or individual buildings located in other towns/cities, etc., should be included if they again meet the criteria of governing board control and use for defined institutional missions (instruction, research, public service, and the other functions or missions as they appear in the Program Classification Structure in Chapter 4). Institutions may choose to exclude *small remote field buildings* (plant, animal, storage) from the Building Inventory. These are frequently excluded by institutions with extensive agricultural programs which own or maintain such minor structures at several very remote sites. Again, inclusion or exclusion of these minor structures is based on institutional preference.

**Buildings to be Excluded**

In addition to the specific exclusion examples given in the previous section, the following types of buildings should not be on the Building Inventory:

1. Investment properties that are buildings used only for revenue generation and not for institutional purposes.
2. Hospitals not owned by the institution, except for any space in the hospital leased or controlled by the institution.
3. Public schools not owned by the institution, but used for practice teaching.

Again, any building which does not meet the noted criteria (under control of the institution's governing board and used for defined institutional functions) should be excluded.

New Buildings

Each new constructed, purchased, or leased/rented building which belongs on the facilities inventory will need development of a new building record, with the needed data elements, and individual room records for all assignable space within the building. A new building should be placed on the inventory if (for new constructed buildings) the structure is complete and ready for occupancy as of October 1 of the survey cycle. For purchased, leased, or rented space, availability for occupancy by October 1 is also the point of determination for inclusion on the inventory. Exceptions can be made for buildings which are eligible shortly after the October cut-off date, especially if all or part of the space is being actively utilized at some time during the fall term.

A "New Construction Form" (Figure 3) is mailed annually to each campus Project Officer with the September data collection materials. This form requests basic building information for three stages of new building acquisition, construction, or renovation: (1) buildings which have been financed and/or designed, but are not yet under construction; (2) buildings under construction with an expected completion date after October 1; and (3) buildings that have been completed or are expected to be completed on or before October 1. The third category also applies to purchased, leased, or rented facilities. This form serves as a reminder to both campus Project Officers and HEFC staff of impending or due Building Inventory work to be completed. The form should be completed and returned to HEFC as early as possible after the initiation of the survey cycle each fall.

Definitions and classifications for data elements which appear in the Building Inventory follow. Room data elements and their definitions are in Chapter 4.

Building Data Elements

The HEFC Building Inventory file, which represents a core minimum of important building information items which should be collected and maintained through updates, contains seventeen building data elements or "characteristics". Two additional information items which are output on building reports are sums taken from the building's room file. All of these items are considered useful for planning and management not only at the institutional level, but also at state and national levels. Table 3 lists the building file data elements collected and maintained by HEFC. Appendix 5 provides a list of additional building data elements which campuses may find useful to collect and maintain.
**TABLE 3: Building File Data Elements**

<table>
<thead>
<tr>
<th>Group Number</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campus Number</td>
<td>Air Conditioning Status</td>
</tr>
<tr>
<td>Building Number</td>
<td>Gross Area</td>
</tr>
<tr>
<td>Building Name</td>
<td>*Assignable Area</td>
</tr>
<tr>
<td>Residential Classification</td>
<td>*Accessible Area</td>
</tr>
<tr>
<td>Ownership Status</td>
<td>Original Building Cost</td>
</tr>
<tr>
<td>Year of Construction</td>
<td>Number of Floors</td>
</tr>
<tr>
<td>Estimated Replacement Cost</td>
<td>Last Year of Record Update</td>
</tr>
<tr>
<td>Cost of Latest Renovation</td>
<td>Record Type</td>
</tr>
<tr>
<td>Year of Latest Renovation</td>
<td></td>
</tr>
</tbody>
</table>

*Assignable and Accessible Area are automatically generated from the building's room file by computer for output printouts and files only. These two data elements are not, therefore, included in the building file's record format as maintained on machine.

Campus Number and Building Number together comprise the unique identifier for the building (e.g., Campus 016, Building 006 identifies one specific building among all N.C. institutions in the survey). Record type, as with Group Number, is included for data processing purposes only: the number "2" identifies the record as a building record. A list of all building data elements in the machine format, with field lengths, positions (columns), and field characteristics, is provided in Table 4.

The "Building Data Collection Form", shown in Figure 4, is used as a hard copy record for updating the building file. The "Action" column at the end of the form is simply for notating an "A", "C", or "D" for add, change, or delete. This form may be used in lieu of the extra "come-back" building file printout mailed to each campus in the fall for notating the updates. If the "come-back" printout is used, place an "A", "C", or "D" at the beginning of each record change. For several added buildings, it is easier to add all of the new data on the "Building Data Collection Form". This form also displays column positions for each field.

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**Building Data Element Definitions and Codes**

**GROUP NUMBER**

As noted, the Group Number is a single-digit identifier used by the HEFC office for division of the 112 campuses into groupings for central data collection and processing tasks. The eight group
divisions are outlined in Table 1 on page 10. Table 2 (page 11) lists the individual institutions within each group.

File Format: One numeric character.

**CAMPUS NUMBER**

This three-digit number serves as the unique identifier for each institution in the survey. As with the Group Number, it should appear on each record of each of the three major files: Building, Room, and Utilization. Table 2 also presents a listing of all assigned campus numbers.

File Format: Three numeric characters; leading zeros.

**BUILDING NUMBER**

This is a unique three-digit identifier (plus an optional alpha character) assigned to each building by an institution for linking building and room data. It is preferable that these numbers coincide with other building numbering systems used on the campus (e.g., fixed assets systems, registrar files) to avoid the need for crosswalking when a link is attempted. Building numbers should not be changed over time except in those special cases where a campus is standardizing these numbering systems. This continuity is necessary to preserving the integrity of the Building Inventory file over a period of years, which enables longitudinal and historical comparison studies to be undertaken.

The alpha suffix column is provided as a fourth character to be used as needed. This suffix is most often used to indicate the association of two or more buildings. An example would be a storage building 011A which serves a dining hall building 011.

File Format: Three numeric characters; leading zeros. One optional alpha suffix character.

**BUILDING NAME**

1. **Definition.** The building name is the current designation assigned to the building by institutional authorities.

2. **Description.** Most buildings have been officially named in a dedication ceremony or official publications. New buildings not yet named officially are probably best designated by using the architect's blueprint name or a descriptive term such as "New Science Building". Where the same name applies to more than one building, it is suggested that they be numbered sequentially; for example, "Faculty House #1," "Faculty House #2," etc. Houses or apartment buildings controlled and used by the institution frequently use a street address as the name designation. Neither a separate number nor name designation should be made for an addition which becomes an integral part of a building.
RESIDENTIAL CLASSIFICATION

1. Definition. Non-residential includes all space except that used to house staff, faculty, or students of the institution.

2. Description. Use the following codes for this field:

   1 Non-Residential - The amount of residential space in the building is less than or equal to 20% of the building's total assignable space.

   2 Residential - The amount of residential space is equal to or greater than 80% of the building's total assignable space.

   3 Combination - The amount of residential space is less than 80%, but greater than 20% of the building's total assignable space.

   The residential (code 2) designation should be applied to buildings where people live as opposed to spending a few nights. This category includes dormitories; houses and apartments for faculty, students, and staff; and fraternity houses. Non-residential (code 1) space, which includes all space which is not residential, also includes guest quarters, alumni houses, and visiting team quarters. The combination (code 3) designation is used only when a significant (at least 20%) amount of space is devoted to both functions. It is intended to denote those special situations where students "live and learn" in the same building or where excess dormitory space has been converted to other uses.

   This coding designation is obviously determined by the codings of the building's individual rooms (assignable area) on the Room Inventory. The HEFC office runs a computer analysis of these room codings annually to determine the correct code (Non-Residential, Residential, Combination) to be applied. A room must have a Program Code of either 55-Student Auxiliary Services or 65-Faculty and Staff Auxiliary Services, with a Category Code of 7330-Housing Services, to be eligible as residential space. In addition, at least one room in the building must be classified with a residential facilities Room Use Code (910, 920, 950, or 970). This latter requirement would exclude, for example, a separate laundry building serving a group of student apartment buildings. For a residential building which is under alteration or conversion, and which is scheduled to resume residential use when the renovation is completed, the characters "RES" should be entered into the first three positions of the Institutional Data field of the room records in the building's Room Inventory. (This notation should be confined to rooms coded Program 55 or 65 with a 7330 Category Code). Residential buildings which are inactive but capable of use should be coded as Non-Residential buildings on the Building Inventory. The extensive classification systems and codings for individual rooms, including those in residential facilities, are covered in Chapter 4.
3. **File Format.** One numeric character.

**OWNERSHIP**

1. **Definition.** The type of ownership and relation of title holder to institution.

2. **Description.** The following eight codes are used to designate ownership status:

   1. **1** Owned in fee simple.

   2. **2** Title vested in the institution and being paid for on an amortization schedule, regardless of whether the building is shared with another institution or organization.

      *Note: This category includes dormitories and other auxiliary facilities financed through a federal agency, bond issues, or interest subsidy grants.*

   3. **3** Title vested in a holding company or building corporation to which payments are being made by the institution; title will ultimately pass to the institution (includes lease-purchase arrangements).

   4. **4** Not owned by the institution, but leased or rented to the institution at a typical local rate.

   5. **5** Not owned by the institution, but made available to the institution either at no cost or at a nominal rate.

   6. **6** Not owned by the institution, but shared with an educational organization that is not a postsecondary institution.

   7. **7** Not owned by the institution, but shared with another postsecondary educational institution.

   8. **8** Other (e.g., not owned by the institution, but shared with a noneducational institution).

The first three ownership codes apply to buildings which are, or will be, owned by the institution. The remaining five codes are for buildings which are either leased/rented to the institution or made available at little or no cost. *Buildings in this latter category (codes 4-8) do not have an Original Building Cost entry on the building record because they are not, or will not be by current arrangement, owned by the institution.* There is consequently no original out-of-pocket cost. All buildings, regardless of Ownership status, do have an
Estimated Replacement Cost (current new construction cost) entry. As a result, only buildings with Ownership codes 1-3 should have entries for both Estimated Replacement Cost and Original Building Cost.

3. **File Format.** One numeric character.

**YEAR OF CONSTRUCTION**

1. **Definition.** The calendar year in which the original building was completed regardless of any later day of occupancy.

2. **Description.** The definition notes that later occupancy, sometimes referred to as "beneficial occupancy," is irrelevant, regardless of whether the building is constructed, purchased, leased, or rented. This data element is obviously designed to indicate the *physical age of the building.* It is also not related in any way to later renovations. The year of construction completion (ready for occupancy) should be entered here.

   If the year of construction is unknown, an *estimate* should be made by campus physical plant authorities based on a comparison with similar buildings. Records should be maintained at the campus denoting the construction date as an estimate.

   Because the HEFC file allows for only one construction date, a *later addition* which becomes an integral part of a building poses the question of which construction date should be entered on the HEFC central file. Most institutions prefer to use the date of construction of the *larger portion* (i.e., the larger of the older original space or the addition). In either case, local campus records should include year of construction completion dates for both original sections and additions.

3. **File Format.** Four numeric characters (calendar year).

**ESTIMATED REPLACEMENT COST**

1. **Definition.** The estimated cost to replace the building at the time of the inventory.

2. **Description.** This is the cost, *at today's construction rates,* and in accordance with current building and public safety codes and construction methods, to replace the *building and its fixed equipment,* excluding land, exterior walkways, movable equipment, and landscaping. A simple way to view this concept would be to ask the question: if the building burned down today, what would it cost to build it back tomorrow exactly as it was? Because *Estimated Replacement Cost (ERC)* is based on current construction rates, the physical condition and age of a building are not factors in the figure. These factors obviously do influence the market and insurance values of a building. A *renovation,* which can improve the condition rating of a building, also does not influence the ERC figure. An *addition* obviously increases the figure because it increases the amount of space that would need to be
3. **Basis of Calculation.** For a new building with a construction completion since the previous annual inventory, the Original Building Cost should also be entered as the Estimated Replacement Cost. The HEFC office will then apply a construction cost increase, based on an indexed change from the previous October, which will produce a slightly higher figure on the final Building Inventory Printout. HEFC develops this annual index from each October's *Means Construction Cost Indexes* report and automatically applies it by computer to the Estimated Replacement Costs of all inventoried buildings at all institutions in the survey. Because of this general blanket approach to adjusting the figure, physical plant and engineering authorities at individual campuses are encouraged to make any further adjustments deemed appropriate, based on more current or precise information. The ERC figure is used as a basis for deriving the appropriate condition codes for a building which requires restoration.

All buildings (except for a very few "loaned" buildings between divisions of the UNC-Chapel Hill campus) should have an ERC entry. For purchased or leased/rented buildings built since 1972, the HEFC office, which maintains a list of annual construction increases since that year, can construct an ERC figure by applying these factors to the Original Building Cost figure. For buildings built before 1972, the HEFC office averages the ERC per gross square foot of three similar buildings to construct the estimate. The text preceding Tables 19 and 20 of the annual *Facilities Inventory and Utilization Study* provides further information on the index calculation process and a list of these indices for several prior years.

4. **File Format.** Eight numeric characters; leading zeros.

### COST OF LATEST RENOVATION

1. **Definition.** The cost of a building's most recent renovation which involved a significant expenditure of funds.

2. **Description.** An expenditure is considered "significant" if it approximates 10% of the

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3HEFC in previous years used the *Engineering News Record* and *Dodge Building Cost Indexes for U.S. and Canadian Cities* for developing the index. Since 1987, with the lapse of the Dodge publication, the *Means Construction Cost Indexes* have been used (R.S. Means Company, Inc., Kingstown, MA).
Estimated Replacement Cost of the building. Institutions may optionally enter smaller figures in this field, which is intended to show, along with the accompanying year of the renovation, the last time a given building received some significant attention to improving its physical condition.

A renovation improves the condition of a building and does not increase the building's Gross Area, Estimated Replacement Cost, or Original Building Cost. An addition, which increases the size of a building, results in an increase in all three of these figures. Where a renovation and addition are conducted concurrently, their separate respective costs should be determined for accurate updating of the building's file record. Because a renovation can involve structural changes in the interior space of a building (e.g., adding, removing, or moving walls), such a project can increase or decrease the assignable area of the building. Any extensive renovation usually results in a change in the building's Condition Code (see Condition data element below).

3. **File Format.** Seven numeric characters; leading zeros.

**YEAR OF LATEST RENOVATION**

1. **Definition.** The last two digits of the calendar year in which the most recent significant renovation was completed.

2. **Description.** This entry should be made only in conjunction with the Cost of Latest Renovation data element described above. The date refers only to the calendar year of completion of the project.

3. **File Format.** Two numeric characters (last two digits of calendar year).

**CONDITION**

1. **Definition.** The physical status of the building at the time of the inventory, based on the judgment of those persons familiar with the physical characteristics and condition of the campus.

2. **Description.** Physical condition is entirely different from suitability of a building for its current use. Campus Project Officers should give special attention each year to updating Condition Codes for buildings on the inventory by consulting institutional physical plant and/or engineering staff for evaluation. The Condition data element uses the following codes and classifications:

   1. **Satisfactory**
      
      Suitable for continued use with normal maintenance.

   2. **Remodeling A**
      
      Requires restoration to present acceptable standards without major room use changes, alterations, or modernizations. The
approximate cost of Remodeling A is not greater than 25% of the Estimated Replacement Cost of the building.

3 Remodeling B Requires major updating or modernization of the building. The approximate cost of Remodeling B is greater than 25%, but not greater than 50% of the Estimated Replacement Cost of the building.

4 Remodeling C Requires major remodeling of the building. The approximate cost of Remodeling C is greater than 50% of the Estimated Replacement Cost of the building.

5 Demolition Should be demolished or abandoned because the building is unsafe or structurally unsound, irrespective of the need for the space or the availability of funds for a replacement. This category takes precedence over categories 1-4. If a building is scheduled for demolition, its Condition Code is recorded as 5-Demolition, regardless of its condition.

6 Termination Planned termination or relinquishment of occupancy of the building for reasons other than unsafeness or structural unsoundness, such as abandonment of temporary units or vacating of leased space. This category takes precedence over categories 1-4. If a building is scheduled for termination, its Condition Code is recorded as 6-Termination, regardless of its condition.

Condition Codes of buildings are used in conjunction with their Estimated Replacement Costs to generate estimated costs to restore unsatisfactory facilities to satisfactory condition.

3. **File Format.** One numeric character.

**AIR CONDITIONING STATUS**

1. **Definition.** That portion of a building conditioned by a cooling system, such as refrigeration cooling or evaporation cooling, which has the effect of creating comfortable temperature in hot weather.

2. **Description.** This data element becomes important in southern climates where heat can be disruptive to indoor activities and operations. The following codes and classifications are used to indicate the portion of the Gross Area of a building which is air conditioned:

   1. None
   2. 1-9 percent
3. **File Format.** One numeric character.

**GROSS AREA**

1. **Definition.** The sum of all areas on all floors of a building included within the outside faces of its exterior walls, including floor penetration areas, however insignificant, for circulation and shaft areas that connect one floor to another.

2. **Basis for Measurement.** Gross area is computed by physically measuring or scaling (blueprint) measurements from the outside faces of exterior walls, disregarding cornices, pilasters, buttresses, etc., which extend beyond the wall faces. This measurement should be made and recorded as soon as the building's construction is completed. It is most frequently taken from the final "as is" blueprints for the building.

   Gross Area is measured in terms of gross square feet (GSF). In terms of the building area definitions presented at the beginning of this chapter:

   \[ \text{Gross Area} = \text{Net Usable Area} \ (\text{Assignable} + \text{Nonassignable}) + \text{Structural Space} \]

   Figure 5 provides architectural drawings of two floor plans to depict Gross Area (shaded sections). Appendix 4 provides definitions, descriptions, and drawings for Nonassignable Area (Building Service, Circulation, and Mechanical) and Structural Area. The same information is presented for Assignable Area near the end of this chapter.

3. **Description.** In addition to all of the internal floored spaces covered above, Gross Area should include the following: excavated basement areas; mezzanines, penthouses, and usable attics; garages; enclosed porches, inner or outer balconies whether walled or not, if they are used for operational functions; and corridors whether walled or not, provided they are within the outside face lines of the building, to the extent of the roof drip line. The footprints of...
stairways, elevator shafts, and ducts (examples of building infrastructure) are to be counted as Gross Area on each floor through which they pass. The top floors of parking decks/garages, if parking is available, should also be included in Gross Area regardless of whether the structure is roofed.

4. **Limitations.** Exclude open areas such as parking lots, playing fields, courts, and light wells. 
   Gross Area also excludes portions of upper floors eliminated by rooms or lobbies with extended (cathedral-like) ceilings that rise above single floor ceiling height (see the lecture hall area in Figure 5). Areas having less than six-foot, six-inch clear ceiling heights (e.g., unusable attics and basements) should also be excluded unless the criteria of a separate structure are met (see the unexcavated section of the ground floor in Figure 5).

5. **File Format.** Seven numeric characters; leading zeros.

**ORIGINAL BUILDING COST**

1. **Definition.** The plant fund investment by the institution, to the nearest one thousand dollars, to acquire the building and its fixed equipment.

2. **Description.** Original Building Cost is the "out-of-pocket" original cost of the building and its fixed equipment. This cost excludes land, exterior walkways, landscaping, and movable equipment. *Only buildings with ownership codes 1, 2, or 3 (owned or will be owned by the institution) should have an Original Building Cost entry.* This field should be left blank for buildings showing ownership codes 4-8 (see Ownership data element above).

   Buildings which are owned by an institution fall into three categories:

   (1) **For buildings which are constructed by the institution,** the Original Building Cost is the cost of the facility and the fixed equipment within it. This cost figure, for a new building, should also be entered on the new building record as the Estimated Replacement Cost.

   (2) **For buildings which are purchased by the institution,** the Original Building Cost is simply what the institution paid for the building instead of its original construction cost. This purchase figure, unlike the Estimated Replacement Cost, which is the estimated *new* construction cost at current rates, is to a degree based on the building's condition. Because building purchases usually include the cost of the land, Project Officers should contact campus finance authorities to obtain an estimate of the cost of the building alone.

   (3) **For buildings which are donated to the institution,** the Original Building Cost is an estimate of the approximate fair market value of the building at the time it was donated. This policy is based on the assumption that the institution is "beholden" to the donor for the value of his/her gift. As with purchased buildings which are not new construction, this estimate takes into account the condition of the building.
3. **File Format.** Eight numeric characters; leading zeros.

### NUMBER OF FLOORS

1. **Definition.** The number of floors in the building, including basements, attics, and roof-top structures which have assignable area.

2. **Description.** Attics and basements should be considered floors if they are included in the Gross Area of the building. This means that they are usable (at least 6.5 feet in floor to ceiling height) and therefore have assignable square footage (see Gross Area data element above). Top unroofed levels of parking decks are included in the floor count if they are used for parking cars. "Half-level" mezzanine and stack floors are also included in the floor count.

3. **File Format.** Two numeric characters; leading zeros.

### LAST YEAR OF RECORD UPDATE

As previously noted, this two-digit figure (last two digits of the calendar year) is automatically applied and updated by HEFC software when a change to a building record, or addition of a new record, is made to the building file. It is therefore not collected as a separate data element but does appear on the Building Inventory printout ("Building Characteristic Report") at the end of each building record. The date number indicates the last survey year (designated by the fall initiation of the survey cycle) in which an update to a given building record was made.

**File Format.** Two numeric characters; leading zeros.

### RECORD TYPE

This is a single-digit record type identifier which is also automatically generated by HEFC software. For a building record this number is "2". The number appears on the "Building Data Collection Form" (Figure 4) under the heading "Card". It is used in computer programs to distinguish building records from room records (Record Type "3") and utilization records (Record Type "5").

**File Format.** One numeric character ("2").

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**Building Assignable and Accessible Area**

The Building Inventory 35
Two data items which are not collected for the building file, but which do appear on the Building Inventory printout ("Building Characteristic Report") and other building summary reports, are the building's total assignable area and total accessible area. Each of these figures is derived, by computer summing, from the building's Room Inventory, which contains the assignable square footage for each individual room and a notation as to whether or not the space is accessible to the mobility impaired.

Although assignable area is collected as a room data element, and aggregated as an information item for building reports, the definitional information and depictions of assignable area are presented here because of their importance to overall analyses of building space. This same information is provided for Nonassignable Area and Structural Area, which do not appear on HEFC building or room reports, in Appendix 4.

A building's accessible area is determined by a summing of assignable areas from specific room records for that building. Only those rooms flagged as accessible on the Room Inventory are counted. A room is accessible when it can be approached, entered, and used, without assistance, by a mobility-impaired person (see Accessibility data element in Chapter 4).

ASSIGNABLE AREA

1. **Definition.** The sum of all areas on all floors of a building assigned to, or available for assignment to, an occupant or specific use.

2. **Basis for Measurement.** Assignable Area is computed by physically measuring or scaling measurements from the inside faces of surfaces that form the boundaries of the designated areas. Deductions should not be made for necessary building columns and projections. Exclude areas having less than a six-foot, six-inch clear ceiling height unless the criteria of a separate structure are met. Also excluded are the three categories of Nonassignable Area (Building Service, Circulation, and Mechanical) and Structural Area. Figure 6 provides architectural drawing representations of a building's Assignable Area.

Assignable Area, sometimes referred to as Net Assignable Square Feet (NASF) or simply net area, is measured in terms of assignable square feet (ASF). Individual subdivisions of Assignable Area (rooms) are classified by use, assigned program or function, and if applicable, academic discipline (see Chapter 4 for these classification systems).

Assignable Area = Sum of the Ten Assignable Major Room Use Categories

3. **Description.** As the formula above in Assignable Area includes all of the space subdivisions of the ten major room use categories--classrooms, laboratories, office facilities, study facilities, special and general use facilities, support facilities, health care facilities, residential facilities, and unclassified (inactive, alteration, unfinished) areas--that are used to accomplish the institution's defined functions or missions.
Building Reports

Two standard reports are generated from a campus's building data by HEFC:

(1) The "Building Characteristic Report" is the standard printout of the Building Inventory (Figure 7). All of the building file data elements described in this chapter, with the exception of Group Number and Record Type, appear on the report. As noted, two additional data items (building total assignable and accessible area) appear on the printout as a result of computer aggregations from each building's Room Inventory. This report also includes campus totals for Estimated Replacement Cost, Accessible Area, Assignable Area, Gross Area, and Original Building Cost. Campuses are mailed extra copies of this printout each year for notating building updates for the next annual cycle.

(2) The "Campus Building Data" report (Figure 8) presents summary campus building information based on Ownership, Condition, Year of Construction, and Residential Classification data. All of these classifications are summarized in terms of number of buildings, Original Building Cost, Estimated Replacement Cost, and Gross Area. Totals are provided for all of the latter categories.

HEFC provides assistance to institutions for generating other special format or ad hoc reports based on campus building data.