

SECTION 2-7: DEFINITION AND MEASUREMENT OF SPACE

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2-7-00 POLICY

The purpose of this section is to provide uniform definitions of space and the measurement of space for computing net and gross areas of HHS facilities. Planning and programmatic documents for new facilities contain maximum net and gross area limits. This section shall be used in determining if proposed design concepts conform to those limits. Any exceptions to the provisions of this section must be approved in writing by OFMP.

Because such space as stairwells, elevator shafts and lobbies, mechanical equipment rooms, and permanent corridors are counted as gross but not net square meters, the gross areas of new HHS laboratory and health care facilities commonly range from one and one-half to two times as high as their net areas. The ratio between gross and net space is much smaller for staff quarters and, with certain exceptions for apartment buildings. Space limits for quarters units are normally expressed in gross square meters.

This section only addresses net and gross space; the standard categories used in planning and programming documents and related budget justifications. However, it should be noted that additional potential categories also may be used in facilities documents. Some HHS OPDIVs include "net assignable" or "departmental gross" space categories in planning and programming documents. In addition, space utilization information is developed for the General Services Administration on an "occupiable" space basis.

2-7-20 GUIDANCE AND INFORMATION

A. GROSS AREA

1. Gross areas of floors, "crawl" space, interstitial space, and equipment penthouses are counted at the following rates:
 - a. All areas 1,980 mm high or higher are counted on a 100 percent basis.
 - b. All areas between 1,220 mm and 1,980 mm in height are counted on a 50 percent basis.
 - c. All areas that are less than 1,220 mm in height are excluded from the gross area computations.
2. Covered walkways, bridges, canopied areas, covered building entrances, trellis-type entrances, and other covered but unenclosed areas are counted on a 50 percent basis. Fully enclosed bridges between buildings are counted on a 100 percent basis.
3. Normal building overhangs, unroofed courtyards or plazas, bay windows extending outside the building line, catwalks providing access to equipment, mezzanines in the maintenance or central supply department which utilize open metal grating and are used for storage purposes only,

cooling towers, other unroofed equipment, and unfinished attics in quarters units are not counted as gross area.

4. Measurements used in the computations shall be taken from the outside face of the exterior walls, disregarding such architectural projections as cornices, buttresses, and roof overhangs. Stated differently, the normal thickness of the exterior wall is included in the gross area.
5. In determining whether the gross area of a floor is computed on a 100 percent or 50 percent basis, the height is taken as the average distance from the surface of the floor to the underside of the structural beams or girders supporting the floor or roof above.
6. The height of crawl space is taken as the average distance between the surface of the earth or finished floor and the bottom of the predominant framing members (normally, the joists or trusses). It is expected that girders, pipes, or ducts may occasionally protrude below this height.
7. When areas are represented as crawl space for gross area computation purposes, either in the 1,220 mm to 1,980 mm high (50 percent) category or the less than 1,220 mm high (excluded) category, it is expected that the depth of footings, lack of finishing, etc., will support the position that the areas will be used for access purposes only.
8. Interstitial space is defined as a space created by placing a deck above the ceiling system and below the floor above for purpose of housing utility systems.
9. New construction shall not include the following building appurtenances in the total gross area. However, this area shall be included in the real property space inventory.
 - a. Mechanical penthouses (equipment protection only), utility chases/pipe tunnels, and other special equipment enclosures (e.g., emergency sewage holding tanks, air intake plenums, cooling towers, etc.).
 - b. Loading docks, emergency entrances, covered entrances and drive thrus.
 - c. Space associated with energy efficient envelope designs, seismic details, and/or innovative construction techniques (i.e., extra thickness in arctic walls/floors/roofs, seismic bracing, and double walls required by modular construction when two unit modules are attached together) including vestibules and arctic entries not to exceed 10 square meters per entrance.

B. NET AREA

1. The terms net space or net area refer to those portions of the facility available for use for program operations and for supply storage, building maintenance/operation (e.g., boiler rooms, electrical power plant rooms, or shops), and other necessary support functions. These areas are specifically delineated in the planning and programming documents (e.g., areas include a 12 net square meter office, or a 10 net square meter outpatient examination room), but do not include space such as plumbing chases or electrical closets.
2. The sizes of net areas represented on design drawings or actually constructed are computed by measuring from the inside of the permanent exterior wall to the near side of permanent walls separating the area from stairwells, elevators, mechanical rooms, permanent corridors, or other portions of the building not categorized as net space in the program of requirements document. No deductions shall be made for space occupied by structural columns; interior partitions; radiators; heating, ventilation and air-conditioning (HVAC) convector units; or for baseboard

heating units within the area. However, deductions shall be made for large duct and elevator shafts passing through it.

C. UNITS OF MEASUREMENT

Unless otherwise provided by law, HHS is required to use, to the extent economically feasible and practical the metric system (system international) of measurement in Federal Government procurement, grants, and other business-related activities in accordance with “Executive Order 12770 Metric Usage in Federal Government Programs”; 15 USC 6, Weights and Measures and Standard Time; and P.L. 94-168, The Metric Conversion Act, Dec. 23, 1975. See also HHS GAM Chapter 8-25, HHS Metric Program and 41 CFR 102-76.25(c).

D. INTERSTITIAL SPACE

HHS programs require buildings to be designed with flexibility to meet varying project requirements (both short and long term) due to ever changing program needs. These requirements may be accomplished by the design and use of interstitial space. Interstitial space is counted in the gross area calculations based on the height of the space as previously defined. A systematic design approach to the use of interstitial space is essential. Past experiences, where HHS facilities have been designed with interstitial space, have shown that all advantages are lost if the design and construction phases are not controlled to provide carefully laid out utility systems.

Interstitial space designs should address each of the following areas and provide viable solutions for any deficiencies or conflicts which may be identified: structural systems, floor to floor heights, interstitial access, fire and life safety, utilities, schedules and cost estimates. OPDIVs are encouraged to develop standards and guidelines for the design and utilization of interstitial space.

E. GROSSING FACTORS

Grossing factors are important in developing budgets for construction and determining planning efficiencies. The cost of a building is not based on the net area but on the gross area of the building. Grossing factors are multipliers applied to net area to plan and determine gross area. Grossing factors are based on internal circulation patterns, interior partitions, exterior walls, utility distribution, mechanical equipment configuration, etc. The following table synthesizes ranges of grossing factors used for HHS facilities and space.

<u>Functional Area</u>	<u>Grossing Factors</u>
Administration/Office	1.25 -1.33
Cafeteria	1.33
Credit Union	1.33
Hospitals	
Inpatient Services	
Acute Care Nursing	1.50
Nursery	1.45
Intensive Care; Surgery; Labor/Delivery	1.55
Substance Abuse; Psychiatric Nursing	1.25
Diagnostic Services	
Laboratory	1.30
Radiology – Diagnostic Imaging	1.45
Ambulatory Services	
Emergency and Urgent Care; Ambulatory Care	1.35
Community Health	1.20
Dental Clinic	1.30
Pharmacy	1.25
Physical Therapy; Respiratory Therapy	1.30
Dialysis Treatment	1.25
Administrative Services	
Administration	1.25
Health Records	1.20
Employee Facilities; Education and Consultation	1.15
Public Facilities	1.15
Support Facilities	
Medical Supply	1.15
Building Services; Property and Supply	1.10
Dietetics Unit	1.20
Housekeeping and Linen	1.05
Facilities Management	1.15
Clinical Engineering	1.15
Research Laboratory	1.54 – 2.00
Special Purpose (Instrument) Laboratory	1.50
Animal Research Facilities	1.80 – 2.00