

**VA**



**U.S. Department of Veterans Affairs**

Office of Construction & Facilities Management

Office of Facilities Planning

Facilities Standards Service



Structural

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# designmanual

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## 1.0 GENERAL

- A. The structural design of all new facilities, new additions, and renovation/retrofit of existing buildings shall comply with the latest editions of the following codes and standards:
  - 1. International Building Code (IBC)
  - 2. VA Handbook H-18-8 Seismic Design Requirements
  - 3. VA Physical Security and Resiliency Design Manual (PSRDM)
  - 4. VA Fire Protection Design Manual (for fireproofing requirements of structural elements)
- B. Significant variations from the above in local building codes shall be brought to the attention of VA.
- C. Where there is a conflict between a requirement in the IBC and referenced VA standards in the design handbooks/manuals above, the VA standards shall govern.

## 2.0 STRUCTURAL DESIGN LOAD REQUIREMENTS

- A. Minimum uniform basic design live loads shall conform to IBC requirements, except as shown in Table 1 and Table 2.
- B. Allowance of 20 psf shall be made for partitions on floors where specified live load is less than 100 psf, in addition to all other loads. Where live loads are 100 psf and greater, specific partition locations may be used for design; however, appropriate notes must be made on the drawings.
- C. Provision shall be made in designing floors for a concentrated load of 2000 lb, placed upon any space 2.5 ft square, wherever this load upon an otherwise unloaded floor would produce stresses greater than those caused by the uniform load. On walk-on ceiling the design concentrated load shall be 300 lb.
- D. In order to provide a flexible design allowing certain range of occupancy changes in the future, generalized live load categories should be applied to large areas preferably one category to any one floor.
- E. Roof live loads shall be based on geographical location and local governing building code requirements; however, they shall not be less than 20 psf.
- F. Where actual occupancy load requirements or concentrated equipment loads distributed over a reasonable area exceed the equivalent generalized uniform live loads, the areas in question shall be designed to meet the specific load conditions. Refer to Table 2 of selected functional areas with special uniform load requirements and heavy equipment loads that may require special consideration.
- G. For Parking Structures, there shall be no live load reduction for design of horizontal framing members.



**Table 1 – Minimum Uniformly Distributed Live Loads <sup>a</sup>**

Occupancy or Use	Live Loads (psf)	Notes
Administrative Services, Office Areas	80	-
Nursing Homes (Community Living Centers) – All Future Floors (Unless Otherwise Noted) – for bedrooms only	60	All non-bed areas of future floors shall be designed for a live load of 100 psf.
All Future Floors (Unless Otherwise Noted) – All Others	100	-
Bedrooms/ward rooms	40	-
Catwalks/Service Platforms	40	-
Clinical and Support Services	80	-
Corridors - In Wards, Nursing Home	60	-
Corridors - All Others	100	-
File and Computer Rooms	125	-
Interstitial Floor (Walk-on Ceilings)	25	This load may be reduced to 15 psf in combination with floor live load.
Kitchen and Dining Areas	100	-
Laundries	200	Areas occupied by special equipment, such as, Flat-Work Ironer, Monorail, Washer Extractor, etc., shall be designed actual equipment loads.
Libraries & Light Storage	125	-
Loading Docks and Platforms	250	-
Lobbies	100	-
Machine Room	150	Areas supporting heavy equipment shall be designed for the actual operating weight of such equipment.
Mechanical Rooms	150	-
Pharmacy	100	-
Retail	100	-
Recreation Areas	100	-
Research and Education Buildings	100	-

<sup>a</sup> Design Live Loads shall be noted on the drawings in the general notes and on plans to indicate specific areas designated for different loads. Column design loads shall be noted in column schedules.



**Table 2 – Special Load Requirements**

<b>Functional Departments</b>	<b>Special Areas Uniform Load</b>	<b>Loads (psf)</b>	<b>Special Equipment Loads</b>
Dietetic Service	Refrigeration & Frozen Storage	200	Baking Oven, Cooking Oven, Refrigerators, Ice-making Machines, Dishwashers
Engineering Service	Maintenance & Repair Shops	150	-
Laboratory Service	Morgue	150	-
Laundry	Washers/Dryers	200	Flat Work Ironer Monorail, Washer-Extractor
Medical Research	Gas Cylinder Storage	250	Mechanical Cage Washer, Concrete Dog Cages
Radiology Service	X-Ray Film Storage, Stationary Files	250	Radiographic & Fluroscope Equip, Tomograph Table Cobalt 60 Units, Linear Accelerators, Overhead Equipment
Radiology Service	Mobile (Rolling)	400	Radiographic & Fluroscope Equip, Tomograph Table Cobalt 60 Units, Linear Accelerators, Overhead Equipment
Supply Service	Light Storage	150	Automatic Cart Washer, Heavy Sterilizer, Storage Tank, Vaults
Supply Service	Heavy Storage/Warehouse	250	Automatic Cart Washer, Heavy Sterilizer, Storage Tank, Vaults
Supply Service	Loading Dock	250	Automatic Cart Washer, Heavy Sterilizer, Storage Tank, Vaults
Miscellaneous Services	Mobile (Rolling) Storage & Record Files	300	-

