

**TABLE 1608.1.1  
SOIL LATERAL LOADS**

SOIL DESCRIPTION	UNIFIED SOIL CLASSIFICATION	DESIGN LATERAL SOIL LOAD, PSF PER FOOT
Well-graded, clean gravels; gravel-sand mixes	GW	30
Poorly graded clean gravels; gravel-sand mixes	GP	30
Silty gravels, poorly graded gravel-sand mixes	GM	45
Clayey gravels, poorly graded gravel-sand-clay mixes	GC	45
Well-graded, clean sands; gravelly-sand mixes	SW	30
Poorly graded clean sands; sand-gravel mixes	SP	30
Silty sands, poorly graded sand- silt mixes	SM	45
Sand-silt clay mix with plastic fines	SM-SC	45
Clayey sands, poorly graded sand-clay mixes	SC	60
Inorganic silts and clayey silts	ML	45
Mixture of inorganic silt and clay	ML-CL	60
Inorganic clays of low to medium plasticity	CL	60
Organic silts and silt-clays, low plasticity	CL	Note 1
Inorganic clayey silts, elastic silts	MH	60
Inorganic clays of high plasticity	CH	Note 1
Organic clays and silty clays	CH	Note 1

For SI: 1 psf = 47.8803 Pa, 1 ft = 0.305 m.

**Notes:**

1. Compliance with 1804.3 is required.

## SECTION 1608 SPECIAL LOADS

### 1608.1 Soil Pressures

**1608.1.1 Foundation and retaining walls.** Foundation walls and retaining walls shall be designed to resist applicable lateral soil loads and applicable fixed or moving surcharge loads. When a geotechnical soil analysis is not available, the soil loads of Table 1608.1.1 shall be the design lateral soil load. The design lateral soil loads given in Table 1608.1.1 are for moist conditions for the specified soils at their optimum densities. Submerged or saturated soil pressures shall include the weight of the buoyant soil plus the hydrostatic loads.

**1608.1.2 Basement floors.** In the design of basement floors and similar approximately horizontal constructions below grade, the upward pressure of water, if any, shall be taken as the full hydrostatic pressure applied over the entire area. The hydrostatic head shall be measured from the underside of the construction.

### 1608.2 Railing

#### 1608.2.1 Handrail design and construction

**1608.2.1.1** Handrails shall be designed and constructed for a concentrated load of 200 lb (890 N) applied at any point and in any direction.

**1608.2.1.2** Handrails located other than within dwelling units shall also be designed and constructed for a load of 50 plf (730 N/m) applied in any direction.

**1608.2.1.3** Loading conditions in 1608.2.1.1 and 1608.2.1.2 shall not be applied simultaneously, but each shall be applied to produce maximum stress in each of the respective components or any of the supporting components.

#### 1608.2.2 Guardrail system design and construction

**1608.2.2.1** Guardrail systems shall be designed and constructed for a concentrated load of 200 lb (890 N) applied at any point and in any direction at the top of the guardrail.

**1608.2.2.2** Guardrail systems located other than within dwelling units shall be designed and constructed for a load of 50 plf (730 N/m) applied horizontally at the

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required guardrail height and a simultaneous load of 100 plf (1459 N/m) applied vertically downward at the top of the guardrail.

**1608.2.2.3** The guardrail system shall also be designed and constructed to resist a 200 lb (890 N) concentrated horizontal load applied on a 1 sq ft area (0.093 m<sup>2</sup>) at any point in the system including intermediate rails or other elements serving this purpose.

**1608.2.2.4** Loading conditions in 1608.2.2.1, 1608.2.2.2 and 1608.2.2.3 shall not be applied simultaneously, but each shall be applied to produce maximum stress in each of the respective components or any of the supporting components.

**1608.2.3 Parking guardrails.** Impact guardrails and walls acting as impact guardrails in automobile parking garages shall be designed for a minimum horizontal ultimate load of 10,000 lb (44.5 kN) applied 18 inches (457 mm) above the floor at any point along the guardrail.

**1608.3 Helistops/Heliports.** In addition to other design requirements of this chapter, heliport and helistop landing or touchdown areas shall be designed for the maximum stress induced by the following:

1. Dead load plus actual gross weight of the helicopter plus snow load.
2. Dead load plus two single concentrated impact loads approximately 8 ft (2438 mm) apart anywhere on the touchdown pad (representing each of the helicopter's two main landing gear, whether skid type or wheeled type), with each concentrated load covering 1 sq ft (0.093 m<sup>2</sup>) and having a magnitude of 0.75 times the gross weight of the helicopter. Both loads acting together total 1.5 times the gross weight of the helicopter.
3. The dead load plus a uniform live load of 60 psf (2.9 kN/m<sup>2</sup>).