

of load increase shall be permitted in accordance with Chapter 23.

1605.3.1.2 Other loads. Where F_a is to be considered in design, the load combinations of Section 2.4.2 of ASCE 7 shall be used.

1605.3.2 Alternative basic load combinations. In lieu of the basic load combinations specified in Section 1605.3.1, structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following combinations. When using these alternative basic load combinations that include wind or seismic loads, allowable stresses are permitted to be increased or load combinations reduced where permitted by the material chapter of this code or the referenced standards. For load combinations that include the counteracting effects of dead and wind loads, only two-thirds of the minimum dead load likely to be in place during a design wind event shall be used. Where wind loads are calculated in accordance with Chapter 6 of ASCE 7, the coefficient ω in the following equations shall be taken as 1.3. For other wind loads, ω shall be taken as 1. When using these alternative load combinations to evaluate sliding, overturning and soil bearing at the soil-structure interface, the reduction of foundation overturning from Section 12.13.4 in ASCE 7 shall not be used. When using these alternative basic load combinations for proportioning foundations for loadings, which include seismic loads, the vertical seismic load effect, E_v , in Equation 12.4-4 of ASCE 7 is permitted to be taken equal to zero.

Exception: [OSHPD 2] Intermittent connections such as inserts for anchorage of nonstructural components shall not be allowed the one-third increase in allowable stresses.

$$D + L + (L_r \text{ or } S \text{ or } R) \quad \text{(Equation 16-16)}$$

$$D + L + (\omega W) \quad \text{(Equation 16-17)}$$

$$D + L + \omega W + S/2 \quad \text{(Equation 16-18)}$$

$$D + L + S + \omega W/2 \quad \text{(Equation 16-19)}$$

$$D + L + S + E/1.4 \quad \text{(Equation 16-20)}$$

$$0.9D + E/1.4 \quad \text{(Equation 16-21)}$$

Exceptions:

1. Crane hook loads need not be combined with roof live loads or with more than three-fourths of the snow load or one-half of the wind load.
2. Flat roof snow loads of 30 psf (1.44 kN/m²) or less need not be combined with seismic loads. Where flat roof snow loads exceed 30 psf (1.44 kN/m²), 20 percent shall be combined with seismic loads.

1605.3.2.1 Other loads. Where F , H or T are to be considered in the design, each applicable load shall be added to the combinations specified in Section 1605.3.2.

1605.4 Special seismic load combinations. For both allowable stress design and strength design methods where specifically required by Section 1605.1 or by Chapters 18 through 23, elements and components shall be designed to resist the forces

calculated using Equation 16-22 when the effects of the seismic ground motion are additive to gravity forces and those calculated using Equation 16-23 when the effects of the seismic ground motion counteract gravity forces.

$$1.2D + f_1L + E_m \quad \text{(Equation 16-22)}$$

$$0.9D + E_m \quad \text{(Equation 16-23)}$$

where:

E_m = The maximum effect of horizontal and vertical forces as set forth in Section 12.4.3 of ASCE 7.

f_1 = 1 for floors in places of public assembly, for live loads in excess of 100 psf (4.79 kN/m²) and for parking garage live load, or
= 0.5 for other live loads.

1605.5 Heliports and helistops. Heliport and helistop landing areas shall be designed for the following loads, combined in accordance with Section 1605:

1. Dead load, D , plus the gross weight of the helicopter, D_h , plus snow load, S .
2. Dead load, D , plus two single concentrated impact loads, L , approximately 8 feet (2438 mm) apart applied anywhere on the landing area (representing the helicopter's two main landing gear, whether skid type or wheeled type), having a magnitude of 0.75 times the gross weight of the helicopter. Both loads acting together total one-and one-half times the gross weight of the helicopter.
3. Dead load, D , plus a uniform live load, L , of 100 psf (4.79 kN/m²).

Exception: Landing areas designed for helicopters with gross weights not exceeding 3,000 pounds (13.34 kN) in accordance with Items 1 and 2 shall be permitted to be designed using a 40 psf (1.92 kN/m²) uniform live load in Item 3, provided the landing area is identified with a 3,000 pound (13.34 kN) weight limitation. This 40 psf (1.92 kN/m²) uniform live load shall not be reduced. The landing area weight limitation shall be indicated by the numeral "3" (kips) located in the bottom right corner of the landing area as viewed from the primary approach path. The landing area weight limitation shall be a minimum of 5 feet (1524 mm) in height.

**SECTION 1606
DEAD LOADS**

1606.1 General. Dead loads are those loads defined in Section 1602.1. Dead loads shall be considered permanent loads.

1606.2 Design dead load. For purposes of design, the actual weights of materials of construction and fixed service equipment shall be used. In the absence of definite information, values used shall be subject to the approval of the building official.