

TABLE 1617.3.1  
ALLOWABLE STORY DRIFT,  $\Delta_s$  (inches)<sup>a</sup>

BUILDING	SEISMIC USE GROUP		
	I	II	III
Buildings, other than masonry shear wall or masonry wall frame buildings, four stories or less in height with interior walls, partitions, ceilings and exterior wall systems that have been designed to accommodate the story drifts	0.025 $h_{sx}$ <sup>b</sup>	0.020 $h_{sx}$	0.015 $h_{sx}$
Masonry cantilever shear wall buildings <sup>c</sup>	0.010 $h_{sx}$	0.010 $h_{sx}$	0.010 $h_{sx}$
Other masonry shear wall buildings	0.007 $h_{sx}$	0.007 $h_{sx}$	0.007 $h_{sx}$
Masonry wall frame buildings	0.013 $h_{sx}$	0.013 $h_{sx}$	0.010 $h_{sx}$
All other buildings	0.020 $h_{sx}$	0.015 $h_{sx}$	0.010 $h_{sx}$

For SI: 1 inch = 25.4 mm.

- a. There shall be no drift limit for single-story buildings with interior walls, partitions, ceilings and exterior wall systems that have been designed to accommodate the story drifts.
- b.  $h_{sx}$  is the story height below Level  $x$ .
- c. Buildings in which the basic structural system consists of masonry shear walls designed as vertical elements cantilevered from their base or foundation support which are so constructed that moment transfer between shear walls (coupling) is negligible.

**1617.5.2 Vertical distribution.** The forces at each level shall be calculated using the following equation:

$$F_x = \frac{1.2S_{DS}}{R} w_x \quad \text{(Equation 16-57)}$$

where:

$w_x$  = The portion of the effective seismic weight of the structure,  $W$ , at Level  $x$ .

**1617.5.3 Horizontal distribution.** Diaphragms constructed of untopped steel decking or wood structural panels or similar light-framed construction are permitted to be considered as flexible.

**1617.5.4 Design drift.** For the purposes of Sections 1617.3.1 and 1620.4.6, the design story drift,  $\Delta_s$ , shall be taken as 1 percent of the story height unless a more exact analysis is provided.

**1617.6 Seismic-force-resisting systems.** The provisions given in Section 9.5.2.2 of ASCE 7 shall be used except as modified in Section 1617.6.1.

**Exception:** For structures designed using the simplified analysis procedure in Section 1617.5, the provisions of Section 1617.6.2 shall be used.

**1617.6.1 Modifications to ASCE 7, Section 9.5.2.2.**

**1617.6.1.1 ASCE 7, Table 9.5.2.2.** Modify Table 9.5.2.2 as follows:

1. Bearing wall systems: Ordinary reinforced masonry shear walls shall use a response modification coefficient of 2<sup>1/2</sup>. Light-framed walls sheathed with wood structural panels rated for shear resistance or steel sheets shall use a response modification coefficient of 6<sup>1/2</sup>. Table 1617.6.2 entries for ordinary plain prestressed masonry shear walls, intermediate prestressed masonry shear walls and special prestressed masonry shear walls shall apply.
2. Building frame systems: Ordinary reinforced masonry shear walls shall use a response modification

coefficient of 3. Light-framed walls sheathed with wood structural panels rated for shear resistance or steel sheets shall use a response modification coefficient of 7. Table 1617.6.2 entries for ordinary plain prestressed masonry shear walls, intermediate prestressed masonry shear walls and special prestressed masonry shear walls shall apply.

3. Dual systems with intermediate moment frames capable of resisting at least 25 percent of prescribed seismic forces. Special steel concentrically braced frames shall use a deflection amplification factor of 4.
4. The table column titled Detailing Reference Section in Table 1617.6.2 shall apply.

**1617.6.1.2 ASCE 7, Section 9.5.2.2.2.1.** Modify Section 9.5.2.2.2.1 by adding Exception 3 as follows:

3. The following two-stage static analysis procedure is permitted to be used for structures having a flexible upper portion supported on a rigid lower portion where both portions of the structure considered separately can be classified as being regular, the average story stiffness of the lower portion is at least 10 times the average story stiffness of the upper portion and the period of the entire structure is not greater than 1.1 times the period of the upper portion considered as a separate structure fixed at the base:
  - 3.1. The flexible upper portion shall be designed as a separate structure using the appropriate values of  $R$  and  $\rho$ .
  - 3.2. The rigid lower portion shall be designed as a separate structure using the appropriate values of  $R$  and  $\rho$ . The reactions from the upper portion shall be those determined from the analysis of the upper portion amplified by the ratio of the  $R/\rho$  of the upper portion over  $R/\rho$  of the lower portion. This ratio shall not be less than 1.0.