

Chapter 13

SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS

13.1 GENERAL

13.1.1 Scope

This chapter establishes minimum design criteria for nonstructural components that are permanently attached to structures and for their supports and attachments. Where the weight of a nonstructural component is greater than or equal to 25 percent of the effective seismic weight, W , of the structure as defined in Section 12.7.2, the component shall be classified as a nonbuilding structure and shall be designed in accordance with Section 15.3.2.

13.1.2 Seismic Design Category

For the purposes of this chapter, nonstructural components shall be assigned to the same seismic design category as the structure that they occupy or to which they are attached.

13.1.3 Component Importance Factor

All components shall be assigned a component importance factor as indicated in this section. The component importance factor, I_p , shall be taken as 1.5 if any of the following conditions apply:

1. The component is required to function for life-safety purposes after an earthquake, including fire protection sprinkler systems and egress stairways.
2. The component conveys, supports, or otherwise contains toxic, highly toxic, or explosive substances where the quantity of the material exceeds a threshold quantity established by the authority having jurisdiction and is sufficient to pose a threat to the public if released.
3. The component is in or attached to a Risk Category IV structure and it is needed for continued operation of the facility or its failure could impair the continued operation of the facility.
4. The component conveys, supports, or otherwise contains hazardous substances and is attached to a structure or portion thereof classified by the authority having jurisdiction as a hazardous occupancy.

All other components shall be assigned a component importance factor, I_p , equal to 1.0.

13.1.4 Exemptions

The following nonstructural components are exempt from the requirements of this section:

1. Furniture (except storage cabinets as noted in Table 13.5-1).
2. Temporary or movable equipment.
3. Architectural components in Seismic Design Category B other than parapets supported by bearing walls or shear walls provided that the component importance factor, I_p , is equal to 1.0.
4. Mechanical and electrical components in Seismic Design Category B.
5. Mechanical and electrical components in Seismic Design Category C provided that the component importance factor, I_p , is equal to 1.0.
6. Mechanical and electrical components in Seismic Design Categories D, E, or F where all of the following apply:
 - a. The component importance factor, I_p , is equal to 1.0;
 - b. The component is positively attached to the structure;
 - c. Flexible connections are provided between the component and associated ductwork, piping, and conduit; and either
 - i. The component weighs 400 lb (1,780 N) or less and has a center of mass located 4 ft (1.22 m) or less above the adjacent floor level; or
 - ii. The component weighs 20 lb (89 N) or less or, in the case of a distributed system, 5 lb/ft (73 N/m) or less.

13.1.5 Application of Nonstructural Component Requirements to Nonbuilding Structures

Nonbuilding structures (including storage racks and tanks) that are supported by other structures shall be designed in accordance with Chapter 15. Where Section 15.3 requires that seismic forces be determined in accordance with Chapter 13 and values for R_p are not provided in Table 13.5-1 or 13.6-1, R_p shall be taken as equal to the value of R listed in Section 15. The value of a_p shall be determined in accordance with footnote *a* of Table 13.5-1 or 13.6-1.