

components shall be designed to accommodate the seismic relative displacements defined in Section 13.3.2.

13.6.4 Electrical Components

Electrical components with I_p greater than 1.0 shall be designed for the seismic forces and relative displacements defined in Sections 13.3.1 and 13.3.2 and shall satisfy the following additional requirements:

1. Provision shall be made to eliminate seismic impact between components.
2. Loads imposed on the components by attached utility or service lines that are attached to separate structures shall be evaluated.
3. Batteries on racks shall have wrap-around restraints to ensure that the batteries will not fall from the racks. Spacers shall be used between restraints and cells to prevent damage to cases. Racks shall be evaluated for sufficient lateral load capacity.
4. Internal coils of dry type transformers shall be positively attached to their supporting substructure within the transformer enclosure.
5. Electrical control panels, computer equipment, and other items with slide-out components shall have a latching mechanism to hold the components in place.
6. Electrical cabinet design shall comply with the applicable National Electrical Manufacturers Association (NEMA) standards. Cutouts in the lower shear panel that have not been made by the manufacturer and reduce significantly the strength of the cabinet shall be specifically evaluated.
7. The attachments for additional external items weighing more than 100 lb (445 N) shall be specifically evaluated if not provided by the manufacturer.
8. Where conduit, cable trays, or similar electrical distribution components are attached to structures that could displace relative to one another and for isolated structures where such components cross the isolation interface, the components shall be designed to accommodate the seismic relative displacements defined in Section 13.3.2.

13.6.5 Component Supports

Mechanical and electrical component supports (including those with $I_p = 1.0$) and the means by which they are attached to the component shall be designed for the forces and displacements determined in Sections 13.3.1 and 13.3.2. Such supports include structural members, braces, frames, skirts, legs,

saddles, pedestals, cables, guys, stays, snubbers, and tethers, as well as elements forged or cast as a part of the mechanical or electrical component.

13.6.5.1 Design Basis

If standard supports, for example, ASME B31, NFPA 13, or MSS SP-58, or proprietary supports are used, they shall be designed by either load rating (i.e., testing) or for the calculated seismic forces. In addition, the stiffness of the support, where appropriate, shall be designed such that the seismic load path for the component performs its intended function.

13.6.5.2 Design for Relative Displacement

Component supports shall be designed to accommodate the seismic relative displacements between points of support determined in accordance with Section 13.3.2.

13.6.5.3 Support Attachment to Component

The means by which supports are attached to the component, except where integral (i.e., cast or forged), shall be designed to accommodate both the forces and displacements determined in accordance with Sections 13.3.1 and 13.3.2. If the value of $I_p = 1.5$ for the component, the local region of the support attachment point to the component shall be evaluated for the effect of the load transfer on the component wall.

13.6.5.4 Material Detailing Requirements

The materials comprising supports and the means of attachment to the component shall be constructed of materials suitable for the application, including the effects of service conditions, for example, low temperature applications. Materials shall be in conformance with a nationally recognized standard.

13.6.5.5 Additional Requirements

The following additional requirements shall apply to mechanical and electrical component supports:

1. Seismic supports shall be constructed so that support engagement is maintained.
2. Reinforcement (e.g., stiffeners or Belleville washers) shall be provided at bolted connections through sheet metal equipment housings as required to transfer the equipment seismic loads specified in this section from the equipment to the structure. Where equipment has been certified per Section 13.2.2, 13.2.5, or 13.2.6, anchor bolts or other fasteners and associated hardware as included in the certification shall be installed in conformance