

## CODE

**Table 4.10.2.1—Minimum requirements for structural integrity**

Member type	Section
Nonprestressed one-way cast-in-place slabs	7.7.7
Nonprestressed two-way slabs	8.7.4.2
Prestressed two-way slabs	8.7.5.6
Nonprestressed two-way joist systems	8.8.1.6
Cast-in-place beam	9.7.7
Nonprestressed one-way joist system	9.8.1.6
Precast joints and connections	16.2.1.8

**4.11—Fire resistance**

**4.11.1** Structural concrete members shall satisfy the fire protection requirements of the general building code.

**4.11.2** Where the general building code requires a thickness of concrete cover for fire protection greater than the concrete cover specified in **20.5.1**, such greater thickness shall govern.

**4.12—Requirements for specific types of construction****4.12.1** *Precast concrete systems*

**4.12.1.1** Design of precast concrete members and connections shall include loading and restraint conditions from initial fabrication to end use in the structure, including form removal, storage, transportation, and erection.

**4.12.1.2** Design, fabrication, and construction of precast members and their connections shall include the effects of tolerances.

## COMMENTARY

detailing requirements for other member types address structural integrity indirectly.

**R4.11—Fire resistance**

Additional guidance on fire resistance of structural concrete is provided by **ACI 216.1M**.

**R4.12—Requirements for specific types of construction**

This section contains requirements that are related to specific types of construction. Additional requirements that are specific to member types appear in the corresponding member chapters.

**R4.12.1** *Precast concrete systems*

All requirements in the Code apply to precast systems and members unless specifically excluded. In addition, some requirements apply specifically to precast concrete. This section contains specific requirements for precast systems. Other sections of this Code also provide specific requirements, such as required concrete cover, for precast systems.

Precast systems differ from monolithic systems in that the type of restraint at supports, the location of supports, and the induced stresses in the body of the member vary during fabrication, storage, transportation, erection, and the final interconnected configuration. Consequently, the member design forces to be considered may differ in magnitude and direction with varying critical sections at various stages of construction. For example, a precast flexural member may be simply supported for dead load effects before continuity at the supporting connections is established and may be a continuous member for live or environmental load effects due to the moment continuity created by the connections after erection.

**R4.12.1.2** For guidance on including the effects of tolerances, refer to the *PCI Design Handbook* (**PCI MNL 120**).