



BUILDING CODE MANUAL  
COUNTY OF LOS ANGELES  
DEPARTMENT OF PUBLIC WORKS  
BUILDING AND SAFETY DIVISION  
Based on the 2011 LACBC

#119  
704  
Article 1  
10-11-11  
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**FIRE-RESISTIVE PROTECTION—PRESTRESSING STEEL ELEMENTS**

Table 720.1(1) – MINIMUM PROTECTION OF STRUCTURAL PARTS BASED ON TIME PERIODS FOR VARIOUS NONCOMBUSTIBLE INSULATING MATERIALS of the 2011 Los Angeles County Building Code contains prescriptive concrete cover for various materials including bonded or un-bonded pre-tensioned or post-tensioned reinforcement. For the most part, the listed items in this Table have been tested in accordance with the fire-resistance ratings indicated. When using one of the assemblies of the Table, it is also important to review all of the applicable footnotes.

In addition to Section 720 (Prescriptive Fire Resistance), Section 721 of the Code (Calculated Fire Resistance) renders another method by which the fire resistance of specific materials or combinations of materials is established by calculations. The calculation method is based on engineering principles, taking into account the time-temperature condition of the standard fire test. The support of the flexural member is the most important factor affecting structural behavior of the element during a fire, therefore developed prescriptive tables consider in addition to concrete aggregate types, the (a) restrained or (b) un-restrained condition of the floor or roof slabs or beams. For example, Table 721.2.3(2) indicates the minimum thickness of concrete cover over reinforcement for pre-stressed solid or hollow-core one-way or two-way slabs with flat undersurfaces. Table 721.2.3(4) applies to beams 8" (203mm) or greater in width and Table 721.2.3(5) applies to beams of any width, in case of differences between the values determined from these tables, it is permitted to use the smaller value.

**Condition (a).** Floor or roof slabs and an individual beam are considered restrained when the surrounding or supporting structure is capable of resisting substantial thermal expansion throughout the range of anticipated elevated temperatures. Interior spans of multiple bays slabs and beams are usually restrained.

**Condition (b).** Floor or roof slabs and an individual beam are considered un-restrained when they are free to expand or rotate. Single span and simply supported end spans of multiple bays are usually un-restrained.

Plan check reviewer shall compare the minimum concrete cover of these tables with the minimum concrete cover requirements of ACI 318-05, Chapter 7, and enforce the most stringent condition.

Supersedes BCM 703.1 Article 1 dated 04-17-01

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