



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

**#143
1606.1
Article 1
10-26-12
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BEAMS AND GIRDERS CARRYING SPRINKLER MAIN LINES

ISSUE:

When plans are first submitted for plan check, the exact locations of the sprinkler main lines are not known. Consequently, the design engineer is not able to single out any particular beam or girder for the support of the point load due to the weight of the sprinkler main line. The uniform load commonly assumed in practice may not be adequate for the installation of large-sized sprinkler main lines. For instance, a 4 inch diameter water-filled main line weighs about 17 pounds per lineal foot which produces a point load of 400 lbs on a glulam beam spaced 24 feet on center. (May be a significant load.)

POLICY:

The sprinkler system with main lines 4 inch or larger in diameter must be reviewed to ensure that point loads imposed by the sprinkler main lines on the load carrying members are properly accounted for and do not create potential hazard due to overstress conditions.

The actual weight per linear foot of the sprinkler main lines should be checked against the assumed weights specified in the design calculations. For example, the design engineer usually includes an allowance of 1.5 lbs/ft² for "sprinklers dead load." This design uniform dead load is to be compared with the actual weight per foot of the water-filled sprinkler main line carried by the structural member. Sprinkler main lines supported by trusses shall be installed in accordance with manufacturer's specifications and instructions and with the appropriate NFPA specification.

For installation or alteration of sprinkler systems in existing buildings, check for potential overstress in bending and horizontal shear and excessive deflection, depending upon the location of the point load application on a member. If an overstress or excessive deflection condition is determined, the following correction should be made: "Verify by calculation overstress/excessive deflection condition of [member designation] for actual weight of water-filled sprinkler line," or words to that effect.

Supersedes BCM 901 Article 3 dated 05-05-97

WRITTEN BY: STEVE LAM
Senior Civil Engineer

REVIEWED BY: JUAN MADRIGAL
Senior Civil Engineer

APPROVED BY:



HASSAN ALAMEDDINE
Chief Engineer