



February 22, 2018

Mr. Brian Sargent, SET, CFPS
Mack Fire Protection LLC
15 Industrial Park Place
Middletown, CT 06457

Dear Chief Sargent:

RE: I-02-18 – Seismic Bracing for Sprinkler Piping

This is in response to your email dated January 29, 2018 in which you are seeking a formal interpretation to the following question.

Question

Is fire sprinkler piping exempt from seismic bracing in buildings with a Seismic Design Category B?

Answer:

Yes, fire sprinkler piping in Seismic Design Category B falls under Exemption 4 in ASCE-7 section 13.1.4 and would not be required to have seismic bracing.

However, fire sprinkler piping is not categorically exempt from seismic bracing. Section 1613.1 of the 2012 International Building Code portion of the 2012 State Building Code requires every structure to be designed and constructed to resist the efforts of earthquake motions in accordance with ASCE 7 – 2010 Edition. The determination of the applicability of bracing for a sprinkler system is based on the Seismic Design Category of a building and the Component Importance Factor of the system being considered.

The Seismic Design Category for a building is a function of several parameters, including site classification of the soils, the spectral acceleration at the building site and the Risk Category of a building. In Connecticut, the biggest variable is the seismic Site Class which is related to the underlying soil conditions. The most common is seismic Site Class is D, which is also the default site class per ASCE 7.

Section 13.1.3 of ASCE 7 establishes the Component Importance Factor as either 1.0 or 1.5. Sprinklers would be considered a life-safety component required to function after an earthquake, and would have a component importance factor of 1.5.

Based on seismic Site Class D and the maximum considered earthquake spectral accelerations, the majority of the structures in Connecticut in Risk Categories I, II and III would fall under Seismic Design Category B and, as such, would be exempt from the seismic bracing requirements for sprinkler systems under Exemption 4 of Section 13.1.4 of ASCE 7.

Risk Category IV structures under the same site conditions would fall under Seismic Design Category C and would be required have seismic bracing for sprinkler systems, as well as any other mechanical components with a Component Importance Factor of 1.5.

If a Risk Category IV structure is constructed on quality soils or rock that result in a lower seismic Site Class (A, B or C), it is conceivable that a Risk Category IV structure could fall under Seismic Design Category B or possibly even Seismic Design Category A, eliminating the need for seismic bracing of sprinkler piping even in essential structures.

Sincerely,



Joseph V. Cassidy, P.E.
State Building Inspector

JVC:bags