

**NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
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**Wall Penetrations Related to Type I-A, I-B, II-A, III-A and V-A
Fire-Resistant-Rated Construction**

Code: 2018 Building Code
Section: 714.3

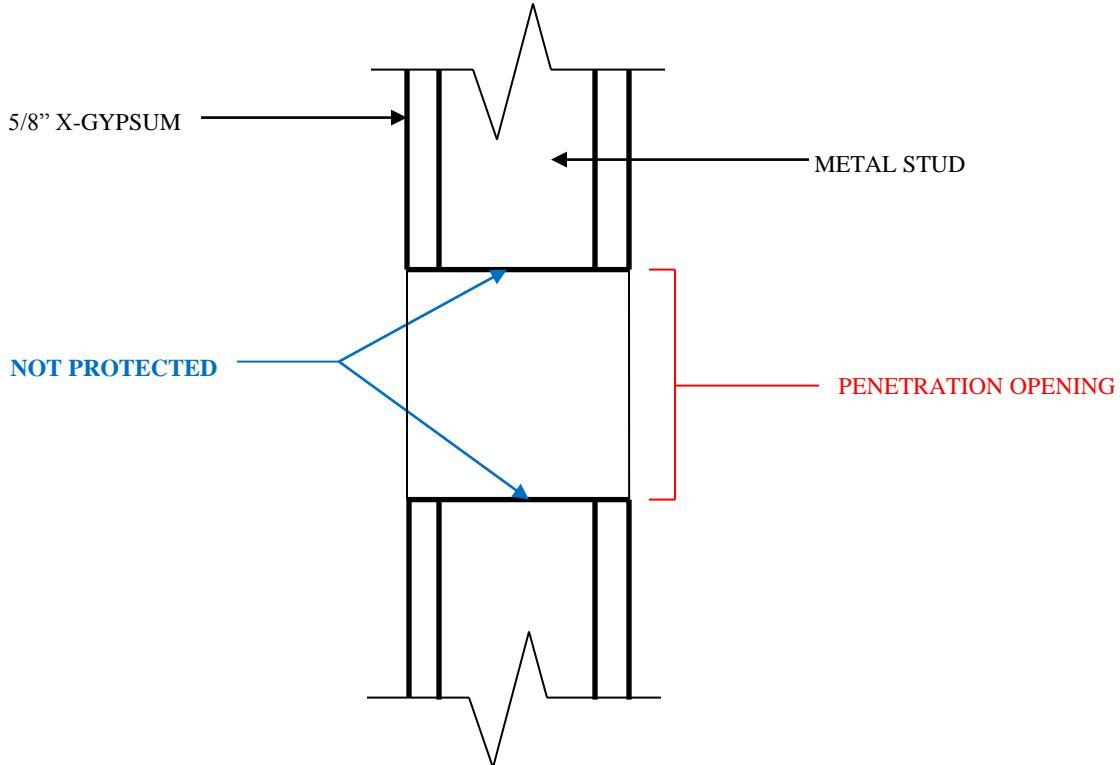
Date: September 5, 2018

Question:

Are penetrations in a load-bearing wall of Type I-A, I-B, II-A, III-A and V-A construction required to comply with NC Building Code (NCBC), Section 714.3 if the wall is rated for the sole purpose of achieving the “construction type” as described in the NCBC, Chapter 6?

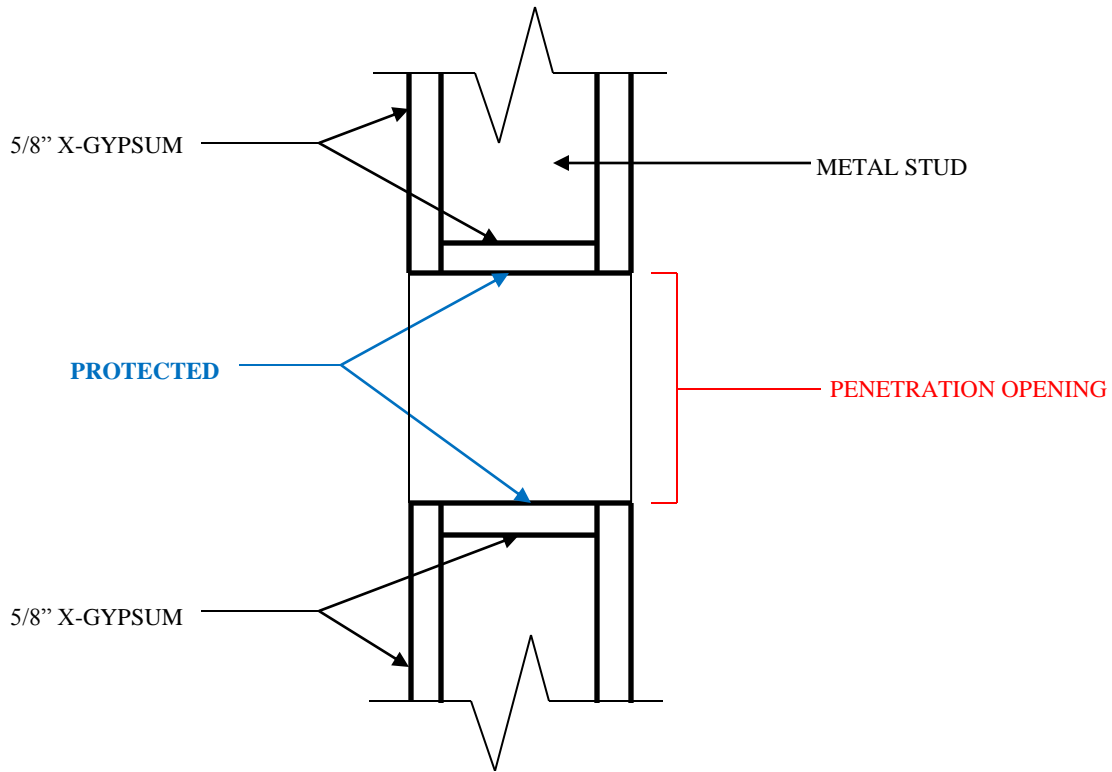
Answer:

No. The penetration is not required to comply with NCBC, Section 714.3 as long as the wall is not required to be fire-resistant-rated for any other reason than “construction type”. The penetration, however, cannot compromise the required rating of the wall. See figure 1 below for an example of an unacceptable and figure 2 below for an example of acceptable penetrations through a 1-hour fire-resistant-rated load-bearing wall for Construction Type II-A.



UNACCEPTABLE 1-HOUR WALL SECTION

Figure 1



ACCEPTABLE 1-HOUR WALL SECTION

Figure 2

For other types of construction where the load bearing walls may be constructed of wood studs, the opening created for a proposed penetration could be protected by the wood framing that creates the opening. The American Wood Council indicates that typical wood framing chars at a rate of 1-hour per 1.5" of material thickness; so, a 2x4 could provide 1-hour of protection for a penetration opening.

For any construction type a letter of engineering judgement by a qualified engineer is acceptable.

Keywords:

Construction type, fire rated, Type I-A, Type IA, Type 1A, Type I-B, Type IB, Type 1B, Type IIA, Type 2A, Type III-A, Type IIIA, Type 3A, Type V-A, Type VA, Type 5A