

FIRE RESISTANCE RATINGS OF CMU WALL ASSEMBLIES AND FOAM-IN-PLACE INSULATIONS

Frequently Asked Questions:

1. Can foam-in-place masonry insulation improve the fire resistance rating of concrete masonry unit (CMU) walls?

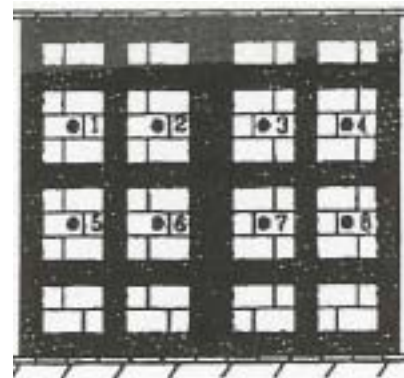
No, at least not according to the building codes criteria for minimum equivalent thickness. Calculated fire resistance ratings of 2-hour concrete walls show an increase of less than 30 minutes when foam insulation is used.

2. Are any products code-approved for increasing the fire rating of CMU walls by filling the core spaces?

Yes. These include: “. . . sand, pea gravel, crushed stone or slag;...pumice, scoria, expanded shale, expanded clay, expanded slate, expanded slag, expanded fly ash, or cinders;... perlite or vermiculite” (1999 SBCCI; 2003 IBC). **Notice that foam insulation is not listed.**

3. Won't certain brands of foam-in-place insulation raise the fire resistance rating of standard 2-hour rated CMUs to 4 hours?

Not necessarily. According to a test conducted by the Southwest Research Institute, “CMU wall assemblies **constructed as described** in the referenced Southwest Research Institute Report will provide 4-hour fire resistance ratings.” This report, No. 01-7522-607, states that “the test wall assembly was constructed and filled **with either mortar or a proprietary formulation of . . . foam insulation.**” The CMU wall design from this report appears to the right (shaded portions are grout-filled):



4. What does this mean about the wall design for my building?

According to the Southwest Research Institute report, **unless the wall is “constructed as described” AND the same “proprietary” foam insulation is used, the results may not apply.** Some things are left unclear, such as the impact of the grout on the test results.

5. Is there a difference between the “proprietary” brand of foam used for the fire wall test and the same brand of foam used on an everyday basis?

That’s a good question. The “generic” brand of foam is not recommended for applications where temperatures exceed 190°F. The “proprietary” formulation, however, survived temperatures in excess of 1500°F during the fire wall test and appeared fine in photos after the test was completed. Does this imply that the foams are not the same?

6. What affect does Core Foam Masonry Foam Insulation have on fire resistance ratings?

Negligible impact. Calculated fire resistance ratings show an increase of 25-30 minutes, depending on the type of aggregate used in the CMU.