SPRAY POLYURETHANE FOAM INSULATION
BULLETIN

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In the last several years, considerable attention has been given to energy lost through the building envelope. In response to increasingly demanding energy code requirements, professionals are now incorporating control layers (water, air, thermal and vapor), whenever possible, in their masonry wall designs. Spray polyurethane foam (SPF) insulation is somewhat unique in that manufacturers of this product claim that it can provide all four control layers in one application. For that reason, there has been interest in using SPF.

The Generic Wall Design Committee (GWDC) operates under the auspices of the Masonry Institute of Michigan (MIM). As a complement to the sets of details that address masonry cavity walls with rigid insulation and mineral wool insulation, GWDC began developing a set of masonry cavity wall details utilizing SPF insulation. However, this effort was suspended in 2013, when a paper that revealed some concerns with SPF came to the attention of the MIM. The paper was titled, Dimensional Stability Considerations in Spray Polyurethane Foam Air Barriers, and was presented at an ASTM Symposium on Building Walls Subject to Water Intrusion and Accumulation: Lessons from the Past and Recommendations for the Future, after which it was published in ASTM STP 1549.

The following considerations were presented in the referenced paper:

- SPF undergoes short and long term shrinkage, which must be considered in the design and detailing.
- The potential for shrinkage and curling must be considered where the foam interfaces with other wall and roof system components (i.e., flashing membranes, transition membranes, closures, terminations, air barriers, water barriers and other accessory materials).
- Because SPF is site-mixed, its physical properties can vary. Factors that affect the physical properties of SPF include mixture proportions, thicknesses, ambient and substrate temperatures, moisture or humidity conditions, as well as other factors.

Additional concerns that have come to the attention of MIM include:

- Required protection of other building components, pedestrians, vehicles, and landscaping in the vicinity where SPF is being applied is more extensive than with other products.
- Guides for how to repair out-of-compliance SPF are not available.

Guidance for design, detailing, and application of SPF to address the considerations and concerns raised have not been developed by the spray foam industry. Until the time when such guidance is available, the GWDC masonry cavity wall details that incorporate SPF will not be finalized nor published by MIM.

If you have any questions regarding this Bulletin, please feel free to contact the Masonry Institute of Michigan at 248-663-0415.

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