
Considerations when Using Foam in Building Construction— Some Lessons Learned

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ABSTRACT

Various forms of foam insulation are being used more often during the construction and rehabilitation of building envelopes. Uses range from localized thermal and airtightness improvements to whole-building cladding applications.

Foam is seeing increased use as a building envelope component. The functions assigned to foam range from plugging small holes in the air barrier plane to primary thermal insulation to primary vapor control layer to rain-shedding barrier. Increasingly, foam is being used as a primary building envelope component assigned multiple envelope functions, both as is and in combination with other materials.

The increased variety of uses has led to some uncertainty in the industry over product suitability and code conformance. There is also a significant knowledge gap between designers, specifiers, installers, manufacturers, and code officials on issues related to material performance and interaction between materials.

This presentation explores lessons learned from case study examples of some of these various uses. This presentation looks at various applications from a building envelope practitioner perspective, with a focus on the limitations and suitability of various applications as well as some performance limitations that must be understood for suitable long-term performance. The aim of the presentation is to provide some guidance to design and construction professionals on some of the risks associated with foam applications and some means for mitigating these risks.

The presenter has seen foam used on building envelope projects ranging from exterior insulation and finish system (EIFS) cladding and re-cladding to spray polyurethane in new constructions to wall opening perimeter infill. He has also conducted existing building envelope assessments on a wide variety of building types.

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