

Floor Covering Installation Systems

Deep-fill substrate preparation solutions

On rare occasions, flooring contractors are faced with a subfloor challenge where the depth that is required for remediation exceeds the stated maximum depth limitations for standard MAPEI self-leveling underlayments.

One solution that is available is to simply apply multiple lifts of self-leveling underlayments at their maximum thickness levels until the desired depth is achieved. This solution is time-consuming and expensive from a material and labor standpoint, and it also adds about 12 to 14 lbs. (5.44 to 6.35 kg) per square foot (0.09 m²) per 1" (2.5 cm) of depth that is applied to the structural load of the substrate. For example, if the desired depth of fill needed to be 6" (15 cm) in total, the added load weight would be more than 70 lbs. (31.8 kg) per square foot (0.09 m²). Therefore, multiple lifts of self-leveling underlayments are basically out of the question simply because the substrate may not accommodate the additional load.

To achieve deep-fill applications without the massive load addition, an alternative method is to use high-density, structural foam board to fill most of the area and then finish with a single pour of a MAPEI self-leveling underlayment.

A wide variety of foam boards is available from different manufacturers in varying thicknesses. Foam-board panels ranging from 1/2" to 2" (12 mm to 5 cm) are readily available from most construction material suppliers. It is important to read and understand all the technical data that is available regarding each type of foam board that is selected for use under MAPEI self-leveling underlayments.

Once the foam-board panels have been properly installed, sealed and primed, any MAPEI self-leveling underlayment can be used over them, with a requirement being a minimum thickness of 1" (2.5 cm) over the highest point of material that is being applied. This requirement will somewhat limit your selection of a MAPEI self-leveling underlayment, as not all underlayments can be applied at 1" (2.5 cm) thicknesses or greater. Refer to individual Technical Data Sheets (TDSs) for specifics on maximum depth of fill for MAPEI self-leveling underlayments.

Recommendations for high-density foam board (meeting ASTM C578)

- Extruded polystyrene (XPS) with a minimum density of 1.6 PCF (25.6 kg/m³), Type IV
- Expanded polystyrene (EPS) with a minimum density of 1.8 PCF (28.83 kg/m³), Type X

Note: MAPEI makes no claims about or offers any warranty protection for any high-density foam board that is selected by the contractor for this application.

Those claims are the sole responsibility of the foam-board manufacturer and MAPEI assumes no liability for those claims.

Adhesive recommendations for bonding of high-density foam board

High-density foam boards are not required to be bonded to the substrate or to each other, but if additional placement security is required, a high-quality, solvent-free, construction-panel adhesive may be used. MAPEI has several adhesive recommendations that will work for this purpose:

- *Ultrabond ECO® 373*
- *Ultrabond ECO 420*
- *Ultrabond ECO 907*

Primer recommendation for use over high-density foam boards

- *Primer X™*

This primer is textured to enhance the performance and adhesion and will provide the necessary profile and mechanical bond for applications of MAPEI self-leveling underlayments.

Substrate preparation

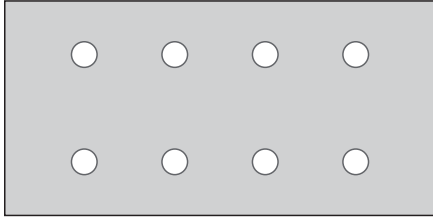
- The building must be enclosed from weather and the walls must be fully constructed.
- The subfloor must be structurally sound, dry, solid and stable. The substrate should be clean and free of dust, dirt, oil, grease, paint, curing agents, concrete sealers, loosely bonded toppings, loose particles, and any other substance or condition that may affect the overall performance of the product.
- Fill all cracks and voids with a patching compound or caulking material to avoid a self-leveler from leaking below.
- Expansion joints must be honored all the way through the system to allow for movement and expansion.

Installation

Carefully read all manufacturer guidelines for acclimation requirements and complete installation instructions.

Note: Foam board should be installed at 1" (2.5 cm) below the required fill amount.

Installation using EPS foam board



1. Holes that are 1" (2.5 cm) in diameter must be drilled every 12" (30 cm) on center and in all directions for support through the foam board (see the diagram). These holes will fill with self-leveling underlayment and create pillars of support for the entire installation.
2. Adhere the foam board to the substrate with an appropriate adhesive where required.
3. Foam tape that is 1/4" (6 mm) wide should be applied around the edges of the wall columns, supports and equipment. A bead of caulk along the walls and at every seam is also necessary to keep the self-leveling underlayment from flowing into other areas.
4. Prime the surface of the foam board with *Primer X*. Make sure to not puddle the primer. Allow it to dry.
5. Apply the self-leveling underlayment in strict accordance with the instructions that can be found on the underlayment's TDS. Self-leveling underlayments must be installed a minimum of 1" (2.5 cm) over the foam board.

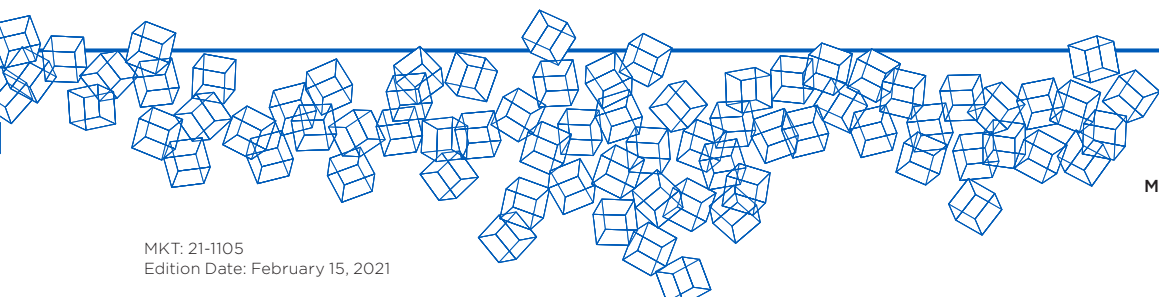
Installation using XPS foam board

1. Adhere the foam board to the substrate with an appropriate adhesive where required.
2. Foam tape that is 1/4" (6 mm) wide should be applied around the edges of the wall columns, supports and equipment. A bead of caulk along the walls and at every seam is also necessary to keep the self-leveling underlayment from flowing into other areas.
3. Prime the surface of the foam board with *Primer X*. Make sure to not puddle the primer. Allow it to dry.
4. Apply the self-leveling underlayment in strict accordance with the instructions that can be found on the underlayment's TDS. Self-leveling underlayments must be installed a minimum of 1" (2.5 cm) over the foam board.

Protection

The final installation must be protected from contamination and traffic per stated limits that can be found on respective TDSs.

For any other technical help, visit MAPEI's Website at www.mapei.com. You can also call MAPEI's Technical Services Department at 1-800-992-6273 (U.S. and Puerto Rico) or at 1-800-361-9309 (Canada).



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