ABCO Technical Bulletin

Interior Drainage Plane

The proper construction of the drainage plane surrounding all interior wet areas is critical to keeping moisture out of the wall. You must start by selecting the proper materials to install in the tubs, showers, steam showers, and other high-moisture areas in the home. This selection starts with the backing, or drywall.

Using typical drywall or green board for backing for wall tile in tub and shower areas is not recommended and in the 2006 IRC section 702.4.2, it is not permitted. Cement, fiber-cement, and glass mat gypsum backer board are the materials specified in the 2006 IRC. The backer board is only as good as the installation and it must be installed according to the manufacturer's installation instructions. Cementious backer board is available from a number of manufacturers, including Dens-Shield® Tile Backer from G-P Gypsum Corporation, Durock® Cement Board from United States Gypsum Company, Hardibacker® from James Hardi® Building Products, and others.

ABCO is asked frequently to observe the interior drainage plane as part of our scope of work. Typically we find there are no details on the plans specifying the installation or specifying the products to be installed. The following information will provide you with suggestions for installation of the drainage plane components. The product chosen must be installed per the manufacturer's instructions and may differ from what follows.

Backer board is intended for use as a base for application of ceramic or plastic tile in bath, shower, or other high-moisture areas. The water-resistant gypsum backer board must meet the requirements of ASTM C630.

1. The panel manufacturer's published installation instructions must be strictly adhered to.
2. Board orientation shall be either parallel with or perpendicular to the wall framing and in such a manner as to minimize joints.
3. A ¼-inch gap shall be placed around lips of fixtures and receptors. Seal the gap with an approved elastomeric sealant that is compatible with the appropriate backing material, to prevent water intrusion.
4. Ends and edges of the panels shall fit closely but not forced together.
5. Steel or wood framing shall be spaced no greater than 24 inches on center for walls and 16 inches on center for ceilings.

6. Attach panels to the wood framing with 1½-inch hot-dipped galvanized roofing nails or corrosion-resistant screws spaced 6 to 8 inches on center. Fasteners should be driven flush with, and not penetrate into, the coated surface of the panel.
7. Place fasteners no closer than 3/8-inch from the edges and no closer than 2 inches to the corners.
8. Install 2-inch fiberglass tape over all joints. Embed the fiberglass tape with Type 1 organic adhesive or latex modified mortar. Allow the joints to dry before applying the tiles.
9. Inside corners should be sealed with the same mortar as in #8 above or an approved elastomeric sealant.
10. Paper tape and joint compound are not permitted on the joints or corners behind the tile area. For small areas outside the wet area that will not to be tiled, and which will not be exposed directly to moisture, joints are permitted to be finished with paper joint tape and joint compound or setting compound in a conventional manner.

Shower Pan Liners

Liners can typically be installed to conform to irregular surfaces and fitted into or around corners or projections by folding. Follow the manufacturer's installation instructions.

1. Subfloors must be clean and reasonably smooth to eliminate ponding and be free of holes and sharp projections.
2. The liners should turn up the wall 3 to 6 inches (varies by manufacturer).
3. The liner shall not be nailed or perforated at any point less than 1 inch above the finished threshold level.
4. The liner should be pitched one-fourth unit vertical to 12 units horizontal (2 percent slope) toward the fixture drain and securely fastened to the waste outlet.
5. When the liner is required to be seamed, the surfaces to be joined should overlap a minimum of 2 inches. Both surfaces shall be cleaned and solvent welded according to the manufacturer's instructions. The joint should be allowed to cure a minimum of 24 hours.

Reference Documents:
ICC-ES Legacy Report NER-572
ICC-ES Legacy Report NER-259
ICC-ES Legacy Report NER-673

ABCO Construction Services has developed this information for its clients and friends. The information may contain citations of applicable codes, manufacturer's recommendations and best practices from noted sources.

It is ABCO's desire to present the topic in an unbiased manner, using generally accepted references, to allow those confronted with the topic to make an informed decision. If you have any questions or comments please feel free to contact ABCO.