

The specifications call for a slab on grade vapor retarder. The specifications call out for several different flooring materials for the slab on-grade, including VCT, carpet, and ceramic tile. There is a lot of items to consider for this very important component when it comes to the product type and installation location. We must make sure that these products are coordinated with all products being installed, as identified in the Contract. The answers are found in several locations throughout the specifications, manufacturer installation requirements, and code standards. This Quality Bulletin summarizes this information for your understanding and use.

Corey S. Zussman, AIA, NCARB - QA/QC Vice President



A hole in the vapor retarder the size of a 5/8" stake will allow more moisture through that hole and will likely create a localized flooring failure

Codes and other standards that affect the SOG vapor retarder material and location:

- ❑ ACI 302.1R, ACI 302.2R, ACI 360R, ASTM E1643, ASTM E1745, & ASTM F710, as well as the manufacturer requirements for the flooring being installed.

Location of the SOG vapor retarder—according to ACI 302.1R, ACI 302.2R, & ACI 360R:

- ❑ If we have a moisture sensitive floor such as VCT, sheet goods, epoxy, carpet, etc. we should be placing the vapor retarder **directly** under the SOG per ACI 302.1R & ACI 302.2R.
- ❑ If we are installing concrete SOG with out a moisture sensitive floor, however, the building enclosure will **not** be installed until after the pour...place the vapor retarder directly under the SOG.

What does the Flooring Manufacturer require:

- ❑ Most material data references ACI, ASTM E1643, ASTM E1745, & ASTM F710 to be followed.

What are the requirements of ACI 302.1R & 3.2.2R, ASTM E1643, ASTM E1745, & ASTM F710:

- ❑ Perm rating of at least 0.1 perms
- ❑ Minimum thickness of 0.010" (10 mil)
- ❑ Puncture resistance of 13.6#/ft/in (Class C), 30#/ft/in (Class B), or 45#/ft/in (Class A) as per ASTM E154, test method B.
- ❑ Class A puncture resistance is generally needed for a vapor retarder to be placed on stone, such as CA-6.
- ❑ Tensile strength of 475g (Class C), 1,700g (Class B), or 2,200g (Class A) as per ASTM D1709.
- ❑ Lap joints 6" or as instructed by the manufacturer.
- ❑ Seal laps with **manufacturer's recommended** adhesive and or pressure sensitive tape. It is NOT recommended to use another manufacturer's pressure sensitive tape.
- ❑ Seal to foundation walls, top of foundation, and seal around penetrations.
- ❑ Use concrete brick type reinforcing bar supports or provide a 6"x6" protective pad under chairs.
- ❑ Repair damage by a minimum 6" overlap in all directions.
- ❑ Vapor retarder is NOT waterproofing and should not be designed as such. (attaching to the waterproofing is not necessary).
- ❑ **Installation as described above is required per code, regardless of specifications.**



We should never use polyethylene for slab on grade vapor retarder

Does 6mil, 10mil, or even 15mil polyethylene or Visqueen meet the standards?

- ❑ Polyethylene/Visqueen typically will **NOT** meet the standards of ASTM 1745 for Class A, B, or C.
- ❑ The thicker poly (10mil) might have the perm rating needed, however...
- ❑ It does not have the puncture resistance necessary to withstand construction traffic.
- ❑ It can get brittle and decompose over time.

What should AECOM Hunt Construction recommend based on the facts?

- ❑ Minimum 15 mil multi-layer, virgin resin material, Class A, that meets or exceeds ASTM 1745.
- ❑ The use of manufacturer mastic at penetrations. This will improve labor time and overall quality.

Approximate drying time of concrete with a vapor retarder based on water/cement ratio?

- ❑ Over the years, the flooring industry has come up with a "rule of thumb" which states that the time necessary for **normal weight** concrete floors to reach an acceptable moisture content is:
1 month of drying for each inch of concrete when subjected to ideal conditions (*enclosed building with tempered air at 70°F/50%RH*). Lightweight concrete is typically greater twice that amount of time...
- ❑ The concrete floor will "re-wet" until proper environmental conditions are met, including in humid conditions.
- ❑ This is true for SOG with a vapor retarder and metal deck construction.



This is a recommended and good use of the Manufacturer's mastic material at penetrations

If your project specifications specify a non-compliant vapor retarder, please suggest the correct material and include this Technical Bulletin as back-up. or Contact the Quality Department for assistance.