

# Fastener Penetrations through Air Barrier Membranes

The need for mechanical fasteners to penetrate air barrier membranes is inevitable. In this Tech-Talk we will discuss best practices methods to address this need.

Fastener penetrations should be addressed as early in the design stage as possible as well as being noted in the construction documents. Prior to construction commencing, all contractors involved in the building envelope will need to acknowledge the treatment of these fastener penetrations. Henry® suggests this topic be covered in a Building Envelope pre-construction meeting to clearly identify responsibilities, means and methods. It is the responsibility of the installing contractor to properly install and accept fastener installation and associated components which will interface with the air barrier membrane in order to maintain continuity in the air barrier assembly.

Henry® defines the term “self-sealing” as a membrane that passes modified ASTM D1970 (section 7.9 Self Sealability of ASTM D1970) or modified ASTM E331/E547 as noted in AAMA 711 section 5.2 Water Penetration Resistance Around Nails. By virtue of the air barrier membrane’s elastomeric and/or adhesive qualities a seal may occur in two ways; around the shaft of the fastener upon penetrating the membrane and a gasketing effect created at the interface of the fastener head and the membrane. “Self-Sealing” is not to be confused with “self-healing”. Henry® makes no claims as to “self-healing”; the ability of the membrane to self-heal membrane damage or vacant fastener holes.

Screws should be self-tapping; the head must be larger in diameter than the shank. In addition, the point or self-drilling portion must be no larger in diameter than the shank. All fasteners should be driven perpendicularly to the substrate until flush with the air barrier membrane. The fastener head should be compressed firmly against the air barrier membrane to create a gasketing seal without damaging the membrane. Do not install fasteners through air barrier membranes over unsupported areas of the substrate, like sheathing joints. Overdriven fasteners, improperly installed fasteners, defective or broken fasteners or fasteners not properly fastened into the building structure beyond the air barrier membrane should be removed and the vacated hole sealed with a Henry® approved sealant prior to the installation of the cladding or veneer system.

If these requirements cannot be satisfactorily met, a supplemental application of a Henry® approved sealant should be applied to all fasteners penetrating air barrier membranes. It has been our experience that repairs of the air barrier membrane from the negative side are ineffective and therefore vacated holes should be sealed at the air barrier side of wall.

Masonry or concrete walls can create additional challenges to proper fastener sealing. In this case, Henry® recommends all fasteners and anchors penetrating through the air barrier membrane and into masonry or concrete walls are treated and sealed with a Henry® approved sealant. Where pre-drilling of the substrate is

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required, the resulting dirt dust and debris should be removed from the fastener hole and surrounding area to ensure best adhesion of the Henry® approved sealant. The Henry® approved sealant is typically installed to the area immediately adjacent to the fastener hole prior to installation of the fastener/anchor. The fastener/anchor is installed while the sealant is still wet.

Please refer to the appropriate Henry® Air Barrier Technical Data Sheet for more information on approved sealants and installation guidelines.