

Barrel-Style Versus Plate-Style Brick Veneer Anchors

AUTOMOBILES MANUFACTURED AND SOLD IN THE UNITED STATES CONTINUE TO BREAK RECORDS FOR FUEL EFFICIENCY. Over the past 40 years of innovation, cars and trucks have on average doubled their fuel economy while simultaneously cutting harmful emissions in half. This has been accomplished with technical innovations and ruthless engineering scrutiny of every lug nut, spark plug and piston. Engineers shave ounces which add up to pounds, which translates into even greater fuel economy. This attention to detail and the ever-increasing demands from the U.S. Environmental Protection Agency and U.S. Department of Energy will continue to drive innovation and push the envelope of hyper-efficient automobile engineering.

By Jason Wigboldy

The same trends can be seen in construction and building technology. Ever-fluctuating energy prices, building and energy code performance standards, and smarter building science will continue to drive building innovation. Just like automobile engineers, building architects and engineers know that overlooking small details in a new building design can translate into long-term energy waste.

Building envelope energy performance has been a major focal point in the industry due to recent energy code changes. R-value requirements have increased, air barrier system performance is required to prevent the free flow of air and moisture through the envelope, and a layer of continuous insulation is often now required to minimize heat loss through thermal bridging.

These changes should come as no surprise to builders or masons. To maintain air barrier performance as designed and to achieve maximum thermal efficiency, the finest details need to be scrutinized — right down to the screws and anchors that hold the building envelope together. This is why brick anchors for cavity walls are so important, as they can help achieve better building performance.

Single-barrel veneer anchor with brick-tie washers to help secure the insulation and maintain air barrier performance.

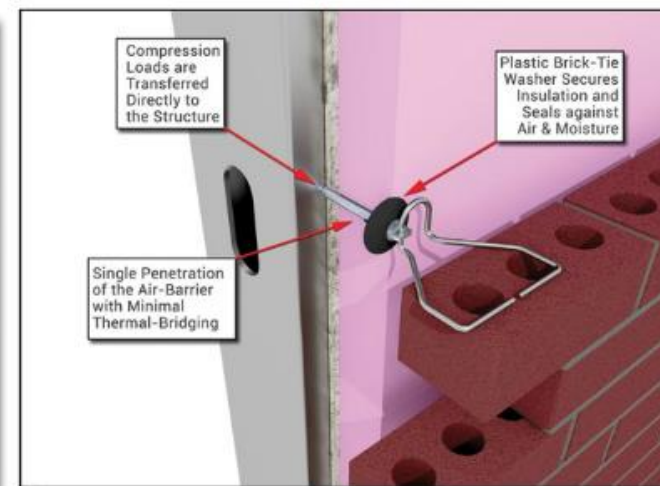
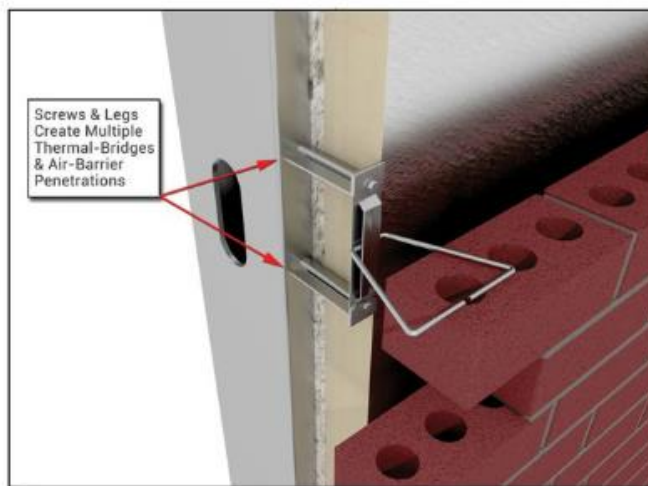
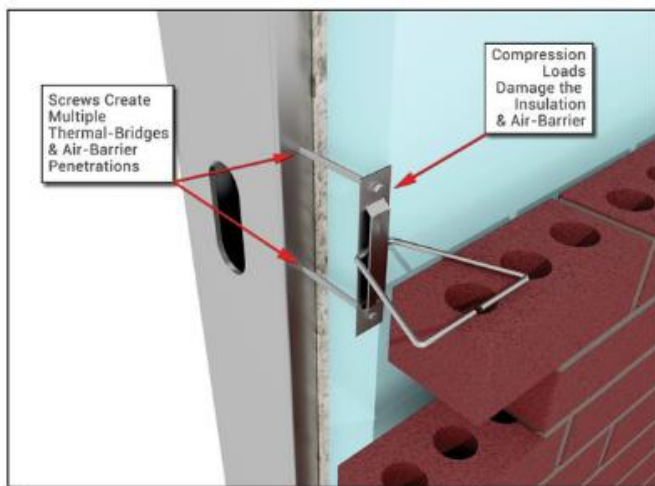


ABOVE: Single-barrel veneer anchor with brick-tie washers to help secure the insulation and maintain air barrier performance.

BOTTOM OF PAGE: (left) Plate-style veneer anchor with two screws and penetrations of the air barrier.

(middle) Plate-style veneer anchor with multiple penetrations of the air barrier.

(right) Single-barrel veneer anchors reduce thermal bridging and penetrations through the air barrier.



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Smart solutions include barrel-style veneer anchors instead of traditional plate-style veneer anchors. The single penetration of the air barrier and insulation created by a barrel-style veneer anchor is significantly more energy efficient than that of a traditional plate-style anchor. A plate-style anchor creates multiple penetrations through the air barrier and increases thermal bridges through the insulation. Furthermore, the large metal plate anchor sits on the outside surface of the insulation, effectively creating radiators that soak up and transmit energy through the building envelope. Have you ever observed a commercial roof with frost or light snow and seen every metal insulation plate transposed through the roofing membrane and the melting snow? That same transfer of energy is occurring on the sidewall with every plate-style veneer anchor. This highlights



Single-barrel veneer anchor with a thermal clip and brick-tie washer to secure the insulation and prevent thermal bridging.

the importance of reducing thermal bridging by using a single-screw, barrel-style veneer anchor as opposed to a multiple penetration plate anchor.

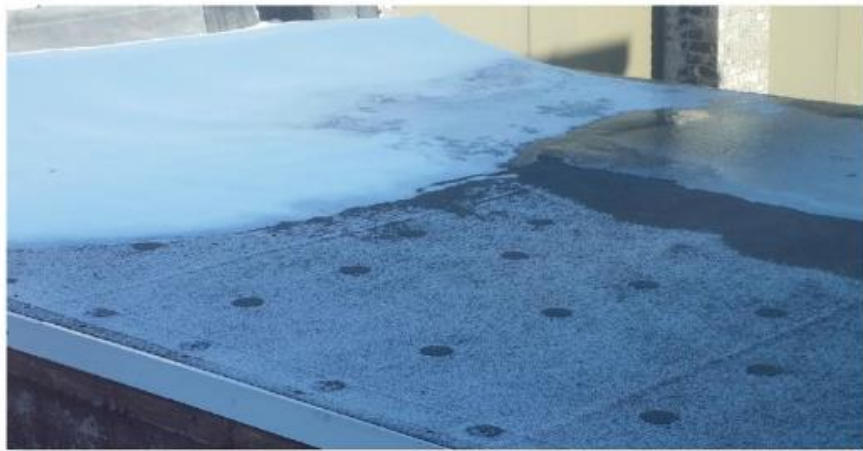
Large-diameter plastic brick-tie washers should be used with barrel-style veneer anchors to help permanently secure the continuous insulation while also helping to seal the anchor penetration against air and moisture infiltration. The use of a brick-tie washer is especially important when the continuous insulation

system is also being installed as part of the air barrier assembly. This is often the case with rigid insulation attached directly to steel studs using air barrier system tested screws and washers and the complete sealing of board joints, door and window penetrations, etc. Traditional plate-style anchors are difficult, if not impossible, to seal against air and moisture if the insulation is being used as the air barrier.

Even greater energy performance can be achieved with the addition of a plastic thermal clip snapped over the head of the barrel veneer anchor, which prevents thermal bridging from the wire tie to the barrel veneer anchor. In addition to better energy and air barrier sealing performance, barrel-style veneer anchors are easily installed and reduce labor costs significantly compared to plate-style anchors. Simply put, barrel-style veneer anchors help achieve thermal efficiency, increase air barrier system performance and reduce installation costs.

An additional trend visible in the industry is building envelope systemization. The goal of commercial wall systemization is to simplify specifying and building complete walls that meet and exceed the new energy code requirements for air barrier performance, thermal efficiency and fire protection.

Individual component manufacturers are collaborating to design fully engineered, specified and warrantied wall systems for brick veneer cavity walls. It is important for builders and masons to be familiar with these specified wall systems and understand that every detail and component has been designed to work together with a purpose to meet and exceed codes. Just like an automobile, every part, piece and component needs to work together to ensure long-term and peak performance. **IMAS**



Metal roofing plates transposing through roofing membrane and melting snow due to thermal bridging.