

techniques improve productivity & wall performance

LITTLE THINGS MAKE A BIG DIFFERENCE

BY JEFF SNYDER

For many, the subject of masonry accessories is mind numbingly boring. But for me and a few others, including spec writers and professional mason contractors, these little essentials and corresponding techniques to utilize them make the difference between a high performing sustainable structure and one that's not.

With this in mind, I have summarized improved techniques for four component categories common in today's unit masonry systems.

Cavity Wall Insulation

Monolithically adhered/sealed rigid sheet insulation contributes to very high net thermal performance of multi-wythe masonry cavity wall systems. Rigid polystyrene insulation board most commonly used in our market (typically 2" thick) is

99.94% impervious to water penetration. Used in conjunction with compatible adhesive/sealant, cavity wall insulation may additionally serve as an effective moisture and air/vapor barrier.

To achieve this performance, it is necessary to seal head and bed joints with compatible adhesive/sealant. A great technique (Figure 1) developed in our market requires a thin bead of adhesive/sealant installed just inside the face of each edge of rigid board insulation and head and bed joints of previously installed sheets. Crossing over protruding wire reinforcement eye sections or brick ties with sealant also serves to adhere insulation to most substrates. In one cost effective step, the mason adheres and seals seams of each sheet forming monolithic thermal and moisture performance.

Major advantages of this system include economy and all-season friendliness. Rigid polystyrene insulation can be installed in almost any breezy, wet, cold or hot weather condition. The substrate does not need to be dry to successfully install or warrant this product.

Masonry Thru-Wall Flashing

It's no secret that forming inside and outside corners, end dams and properly

lapping and sealing terminations is necessary to ensure high performance of any thru-wall flashing. What is not clear is whether corners or end dams need to be preformed at the factory.

Most approved membrane flashings, including high quality rubberized bituthene, EPDM or the plethora of laminated rolled coppers, are better suited to field forming. Field forming corners and end dams ensures accurate measurement as well as affordable and timely installation. Masons will achieve the highest levels of quality by following each manufacturer's installation instructions utilizing compatible surface conditioners, seam tapes and mastics.

Sheet metal flashings, on the other hand, require shop fabricated inside and outside corners and end dams (Figure 2). Two piece sheet metal drip edge/membrane flashings may incorporate corners and end dams field formed with membrane flashing and compatible sealants (Figure 3).

Mason contractors need options to surface mount or embed thru-wall flashing (Figure 4). Weather conditions during initial installation and when the flashing is exposed to the elements prior to veneering may be critical to its long-term performance. These might include



Figure 1.

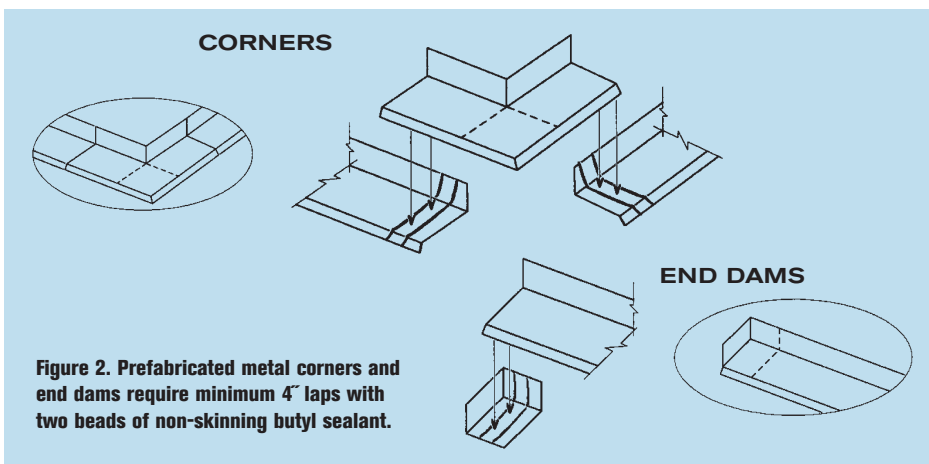


Figure 2. Prefabricated metal corners and end dams require minimum 4" laps with two beads of non-skinning butyl sealant.

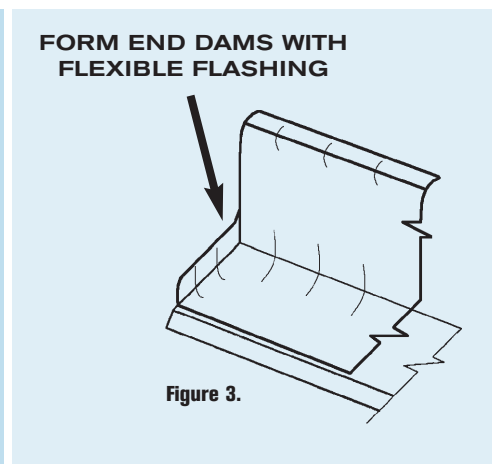
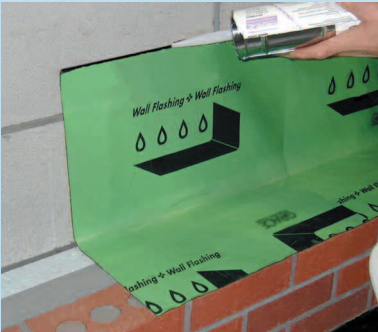


Figure 3.

SURFACE MOUNTING OPTIONS



Use of off-the-shelf pressure bars expansion pinned onto CMU or screwed over metal stud sheathing.



Some fully self adhered flashings may be surface mounted following the manufacturer's recommendations.

Figure 4.

wind, rain, extreme cold or heat, falling debris and effects of UV degradation.

Wire Reinforcement

Specifying proper wire reinforcement cannot be overstated as it has a profound impact on performance and economy of CMU wall systems (Figure 5).

Ladder wire reinforcement with cross rods spaced exactly 16" oc (no more and no less) improves bond with interlocking t's formed on inner and outer face shells every 16", leaving CMU cores clear for simpler centering of rebar installation and smoother grout flow.

Flush welded adjustable eye sections reduce wire profiles in CMU bed joints, improving mortar bond and bricklayer productivity.

Fire Rated CMU Walls

Did you know fire ratings for walls are tested through Underwriter Laboratories (UL) by assembly, not simply calculated by adding each fire rating of individual components of a particular assembly?

Many industry professionals still believe it is possible to achieve two-hour rated CMU walls by stuffing the top opening with filler and parging over it

ADVANTAGES

EMBEDDING

- ✓ Positive connection through embedment

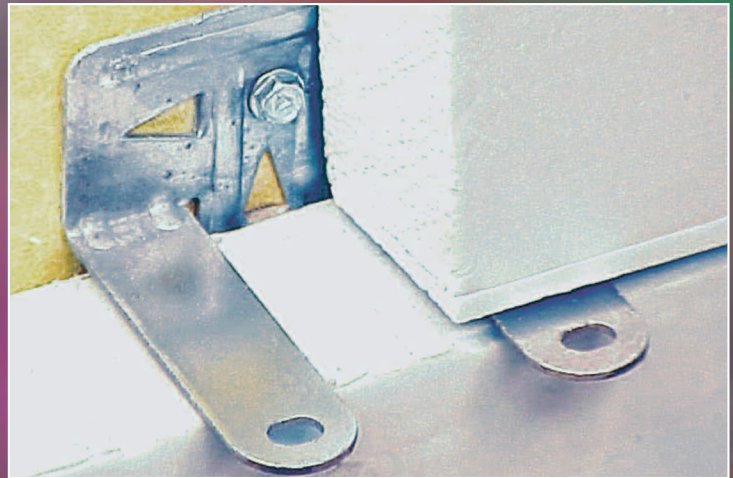
SURFACE MOUNTING

- ✓ Mechanical connection
- ✓ Flexibility
- ✓ Material is in its best condition just prior to veneering
- ✓ Eliminates exposure damage related to wind, rain, extreme cold or heat, falling debris and UV degradation
- ✓ Reduces waste using exact field measurements

DISADVANTAGES

- ✗ Limited to CMU heights for embedment
- ✗ Prone to exposure damage related to wind, rain, extreme cold or heat, falling debris and UV degradation
- ✗ Cost of mechanical pressure bar and fasteners (often offset by the advantages)

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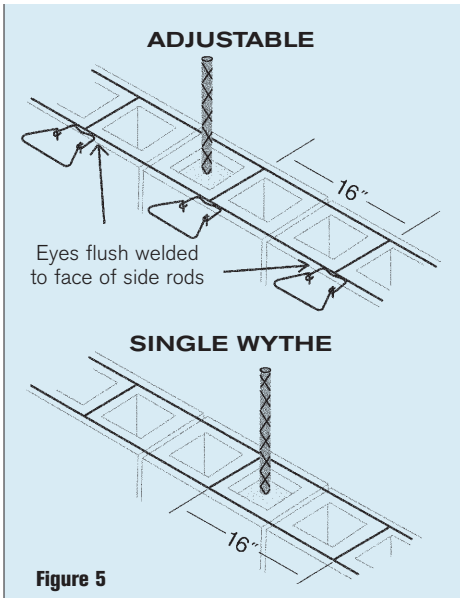


Figure 5



Figure 6

with mortar to the fire rated deck. Others perceive using mineral wool with continuous bent plate will do the trick. On the contrary, neither method meets any UL fire assembly rating and both methods cost more than modern methods of packing the space with mineral wool and spraying with any one of multiple fire liquids on the market (Figure 6).

Incorporating these four improved techniques will clearly enhance wall performance and masons' productivity on every project. The added bonus is significantly improved masonry wall system economy. ☺

Jeff Snyder, president of Masonpro Inc., has 10 years masonry field and estimating experience. He received a BA from The College of Santa Fe, NM in 1981 and an MBA from New Mexico State University in 1983. He is a Trustee for the MIM, a member of the Michigan Masonry Advisory Board and the MIM Generic Wall Design Committee. 800-659-4731, jeff@masonpro.com

