



Masonry Advisory Council

MASONRY ADVISORY COUNCIL

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To: Architects, Engineers, Builder Developers / Contractors / Owners & Building Officials

From: Charles Ostrander, P.E. Executive Director of the Illinois Masonry Institute

Re: Ramblings Part 6 - Tolerances, Limestone Caps and Vapor Barrier / Condensation Analysis

Ramblings 6

3 Points of Interest

- Major changes in design using steel studs and rigid insulation
- Tolerance in masonry related to poured concrete foundations
- Good limestone cap details to be shared and learned from

A. Batt insulation in steel studs less than ideal:

Because of mold growth and thermal shorting, the shortcomings of using batt insulation in steel stud assemblies are rapidly emerging. Consequently, the crowds of lawyers attending AIA mold remediation seminars are growing even more rapidly (like mold). As a result, many designers are opting to avoid using batt insulation because it absorbs or encapsulates moisture – providing an ideal environment for mold growth. In addition, once batt insulation becomes wet, it loses most of its insulation value.

In lieu of batt insulation, many designers are starting to use rigid board insulation continuously outside the exterior sheathing. This insulation can be extruded polystyrene (by Dow, Owens Corning, PACTIV, etc.) or foil faced Polyisocyanurate insulation (by Dow, R-Max, Atlas, etc.) For additional information on this subject (and 1 AIA/CES LU) please review the enclosed “Moisture Management in Steel Stud Assemblies” by Dow. A vapor barrier analysis by your mechanical engineer will also play a more critical part in the design of your next exterior wall system.

B. Concrete Foundation Tolerances or A Brick Hangover!

Ask your low-priced concrete contractor if they have ever heard of ACI 117 – “Tolerances for Concrete Construction”. The concrete footing, under 3.2-lateral alignment, supporting masonry, can be +/- 1/2”(if the footings are that accurate, why can’t the placement of forms and concrete walls above them be as accurate?); You know in the photos to the right something is wrong! Lately, some owners are lucky if their concrete foundation walls are on the right lot! Corbelled, unreinforced masonry can overhang a foundation wall by up to 1/3 its bed depth with 2/3 bearing on the concrete wall. [For a 3 5/8” bed depth brick that means an overhang of about 1 1/8”. This would mean 2 1/2” of the brick would be resting on the foundation.] If there is more than 1 1/8” overhanging the foundation, an engineer should be contacted to design a small angle to be bolted into the foundation wall to support the brick.

If concrete contractors do not take enough pride in their work to frame and pour that footing and wall within ACI tolerances, then design an alternate for the next job to be constructed with a grouted and reinforced concrete masonry foundation wall. The mason contractor will know the importance of placing the foundation wall in the correct location, because in most cases they will be installing the masonry above it. Try it as an alternate, you will be pleasantly surprised, but you won’t be reinventing the wheel, our neighboring states all have a larger percentage of their foundations built with CMU’s, do they know something we don’t?

“MOISTURE MANAGEMENT IN STEEL STUD ASSEMBLIES” -DOW



BRICK HANGOVERS



(OVER)



Ramblings Part 6 (Continued)

C. Limestone Caps not all Created Equal

In a previous cover letter regarding flashing, I discussed self adhesive flashing and stainless steel drip edges. I showed photos of my bank (see photo on right) and BIA's Detail from Tech Note 21B (see illustration bottom right). As a follow up to this discussion while a guest at a local golf course (I'm working all the time!), I noticed the recent remodeling and careful detailing of the new masonry and the existing older brick and limestone detailing of the clubhouse. This designer was very careful in matching the original detailing, but he/she updated the limestone cap and flashing detail for the 21st century. Great work!

OLD CAP DETAIL

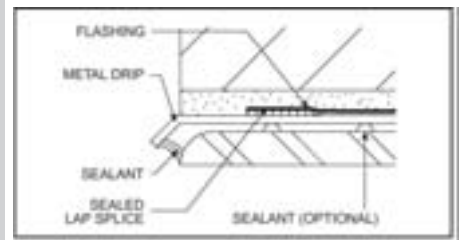


POORLY DETAILED COPING



My Bank: (Note the efflorescence, and the flush limestone cap- it should have had 1 1/2" projection or a drip edge and flashing under the cap)

PROPER DETAIL



**BIA Detail, Technical Note 21B
Revised, April 2002, Figure 1.**

NEW FLUSH CAP WITH EXPOSED DRIP EDGE & FLASHING

