Keeping TABS on the Thin Veneer Industry

TABS WALL SYSTEMS, LLC

Adhered Thin Masonry Veneer and Wood Frame Construction

3rd & 4th Quarter Newsletter

The continued growth in the use of wood framing for commercial projects, due in part to ease of construction and overall costs, is now increasingly popular with mid-rise (4-6 story) buildings.

Proper design consideration related to wood shrinkage/growth, loading of buildings and allowable deviations from flatness/plumb, is important in applications of adhered thin masonry veneer.

Wood frame construction requires consideration of not only absolute movement, but also thermal dynamic movement, dissimilar material movement and shrinkage. As many projects combine various finishes, i.e. thin masonry veneers, metal panels, composite boards and EIFS, consideration must be given to how these materials impact over-all wall movement conditions.

Characteristics of Wood Sheathings

In today's market, there are three (3) types of wood sheathing commonly used:

- Plywood
- OSB
- Waferboard (AKA flakeboard)

Of the three, plywood, made from thin layers of boards laminated together using a hot press to fuse the wood and glue, offers the best resistance to warping. This is particularly true with thickness increases. **TABS** recommends 3/4"marine grade, pressure- treated plywood versus 1/2" or 5/8".

OSB, built by pressing smaller strands of wood together with glue and wax in a hot press, tends to expand in the presence of moisture. Edges may expand as much as 15% when wet. While these expanded conditions may eventually return to normal sizing, the time frame is unpredictable.

Waferboard, made from scrap pieces is also hot pressed with glue. The propensity to absorb moisture is greater than OSB or plywood.

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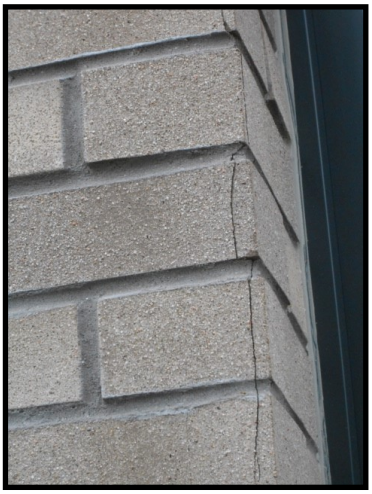
Characteristics of Wood Studs

Wood studs (as well as sheathings) may arrive at the project site with moisture contents of 15-19% or higher. As the building reaches environmental equilibrium, the studs' moisture content may drop to 8-10%. Thus there is inevitable shrinkage. Cross grain shrinkage is common as well as bending, bowing, cupping and twisting. It is not uncommon for deformed woods studs to be installed on projects. The twisting of wood studs in service is a function of cylindrical geometry and the tendency of wood fibers to grow in spirals.

Common Results of Poor Framing

Thin veneer installations, unlike full depth masonry with cavity construction, are rather unforgiving of surface imperfections. The systems will generally follow the plane of the substrate. Uneven walls will result in oil canned, cupped walls, shadows and "lipping". In addition, poor blocking, especially at building corners, will heighten the tendency for cracking of thin veneer corner units.



Design Recommendations for Architects

The architect, engineer and design professionals should consider each of the following when specifying thin adhered veneer systems installations:

- Clearly include in the Division 6 specifications that there can be no more than 1/4" in 10' of deviation in the plane for sheathings. This is a BIA standard for all types of adhered veneer.
- Also reference the need for alignment of wood sheathing (or any other sheathing) at the intersecting seams to be true and flat; the framing contractor must know that unlike full sized masonry construction with a cavity, the adhered veneer will be installed directly over the sheathing and thus will broadcast imperfections to the façade surface.
- Control joints should occur at every floor line, vertically every 16', at all inside corners, and within 2-4' of all outside corners; outside corners experience differential movement that can result in cracking of corner thin brick veneer units.
- Specify 5/8" or 3/4" marine grade, pressure- plywood sheathing in lieu of thinner plywood, OSB board and/or waffle board. Design stud framing at 16" O.C. and insure maximum deflection of L/360.