Revisiting Wood Framing

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Wood Species	MOE
Aspen	800,000 to 1,100,000
Yellow Poplar	1,100,000 to 1,500,000
Beech-Birch-Hickory	1,200,000 to 1,700,000
Douglas Fir-Larch	1,300,000 to 1,900,000
Southern Pine	1,200,000 to 1,900,000

In the Fall of 2017, **TABS WALL SYSTEMS** published a newsletter regarding concerns with wood frame construction. In more recent times, **TABS** has seen a shift in the use of wood framing from a 40% share of the framing market in lightweight construction to a 70% versus light gauge steel. There has also been a significant shift in the composition of sheathings with more structural engineered wood products, structural insulated sheathings and more OSB & Waferboard panels. It is the latter two materials that raise some concerns.

The Modulus of Elasticity, i.e. the degree to which materials will flex is greater with OSB and Waferboard. There is a range, as noted in the Wood Species Table that identifies an over 100% range in the woods that can be used. Typically, lower grades of wood fibers are used to make OSB and Waferboard.

The degree to which OSB and Waferboard can flex under deflection loads raises the question of whether **TABS**' (and industry standards) requirements of limiting deflection to L/360 can be met. Add to this the fact that edges of OSB and Waferboard can experience as much as 15% expansion when wet. A net result could be structurally unstable conditions that can cause bowing and oil canning of wall sections; and twisting of corners resulting in cracked veneer units.

TABS has observed on projects the degree to which wood construction can have its own inherent problems. These problems can be avoided, but there has to be attention via specifications, site meeting and field coordination.

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TABS WALL SYSTEMS strongly recommends the following to minimize issues associated with wood frame construction:

1. Specify 5/8-3/4" marine grade, pressure treated plywood in lieu of OSB or Waferboard.
2. Exterior sheathings should be inspected for **before** the installation of building wraps. There should be significant focus on seams between wood panels. Adhered thin veneer installations will follow the sheathings imperfections at these junctures.
3. Provide control joints at **every** floor line to reduce the incidence of buckling due to restriction of movement and live loading.
4. Provide control joints both sides of outside building corners within 2'. **TABS** has noted no issues with differential and/or shrinkage-expansion movement at these locations when there are control joints at 2' from corners. (This is a change from 2017 when we recommended 2-4' at outside corners)
5. Install **TABS'** pre-bent corner panels at all outside corners. Combined with control placement, the TABS' structural steel panels actually reinforce building corners. Thus, cracking of thin veneer corner units is extremely rare.

Floor Line Buckling Due to absence of control Joint

Corner Cracking at upper floors with wood framing; no cracking at 1st floor with steel framing