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Cladding Attachment to BuildSMART Wall Panels

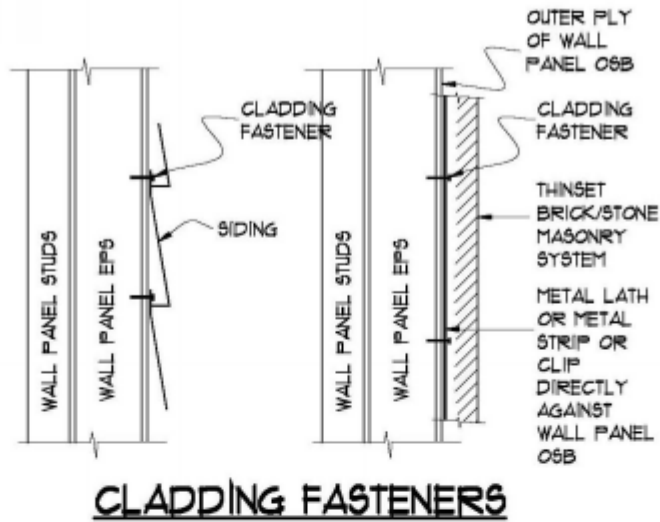
Abstract

Various finish claddings will be placed onto BuildSMART wall panels. These claddings vary from very light vinyl and metal siding to somewhat heavier cement-wood siding (Hardi Plank, for example) to substantially heavier thin set brick and stone veneer. Then, of course, some buildings will feature full width brick veneer or case stone masonry as an exterior finish.

It is not practical to try to support the weight of full width brick and case rock by attaching them to BuildSMART wall panels or any other wood framed wall. The weight of these finishes must be supported on some building element other than BuildSMART wall panels.

Nonetheless, the weight of the lighter claddings can safely be supported by BuildSMART panels. Two modes of interconnection must be provided – the support of the weight of the cladding and the attachment of the cladding against being pulled laterally from the wall by wind or seismic forces. Fasteners used to attach cladding to exterior walls must simultaneously support the weight of the cladding as well as resist pullout of the fasteners from the wall structure. BuildSMART panels utilize a ply of 7/16" oriented strand board (OSB) as the substrate to which claddings are attached. Consequently, the strength of attachments to BuildSMART panels are based on the interaction of the gravity and wind/seismic forces on screws engaging the outer ply of OSB.

This nature of this interaction between the cladding and the BuildSMART wall panel is dependent on the transfer of weight and wind/seismic forces directly along the face of the outer ply of OSB. It is **imperative that the plane of transfer of force take place directly beneath the heads of attachment fasteners immediately outside of the face of the BuildSMART wall panel OSB.** This is not a problem for most claddings such as vinyl, aluminum, or wood-cement board siding. For thin set masonry applications the attachment must employ a thin, but stiff, material through which the fasteners penetrate and their heads "bottom out" against. This may be metal lath or metal clips or strips that directly contact the BuildSMART wall panel OSB. This is illustrated below:



Cladding Fastener Distribution

Distribution of fasteners is given below for various cladding weights and wind speeds using No. 6 screws, 1 1/2" long:

Screw Spacing	Cladding Weight, psf		
	10	15	18
Wind Speed, mph	Horiz / Vertical	Horiz / Vertical	Horiz / Vertical
110	16" / 12"	16" / 12"	16" / 10"
130	12" / 12"	12" / 12"	12" / 10"
150	12" / 10"	12" / 10"	12" / 8"