



Technical Bulletin

Corporate: P.O. Box 397 • Fortson • Georgia • 31808 • 800-755-0825 • FAX 706-569-6704

MW# 153-210201

Topic: Minor Substrate Changes in Systems

Master Wall® Systems are designed to clad over a variety of substrates. Typically framing with sheathing is common as well as a variety of masonry and concrete surfaces. The application procedures for the individual substrates are well defined, but what happens when the substrate changes? This bulletin will help guide the designer in detailing systems when substrates change.

Basic Technical Requirements

By definition, a change in substrates requires some form of expansion joint in the wall cladding. Why do we need to provide for expansion? Usually, it is because the two substrates can move differently thermally or structurally (or both). Typical suggested detailing:

System	Suggested Minimum	Expansion Provision
Aggre-flex Aggre-flex Drainage QRW1 Drainage Rollershield Drainage CIFS®	¾" (19 mm)	Sealant Joint
Cemplaster Fiberstucco Stucco Cement Board Coatings Uninsulated Finishes Superior Finishes over Stucco	Varies by design, typically ¼" (6 mm) to ¾" (19 mm)	Control Joint Sealant Joint

See our Technical Bulletins MW#131 Sealant Use and MW#149 Sealant Joint Design for specifying and detailing sealant joints.

Can a designer vary these requirements to suit their particular project? Of course, they can, they are the designer, and the overall project is their responsibility. Below are some examples of when a designer may choose to vary a manufacturers requirement.

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Signage

A common substrate change for designers involves the use of signage. Signage is used on a building requires the structural support of a wood-based panel while the rest of the building uses gypsum sheathing. This substrate change is usually irregular, making a full expansion joint detrimental to the building appearance. The designer needs to consider the following:

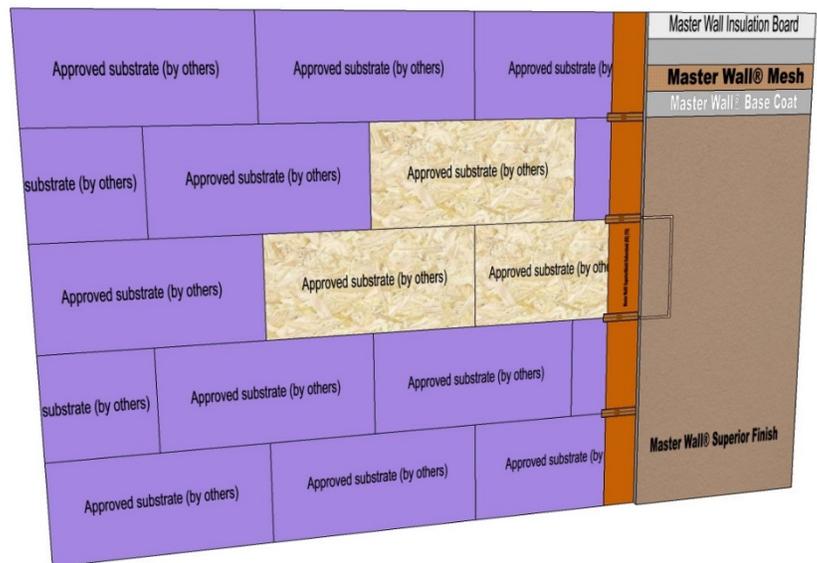
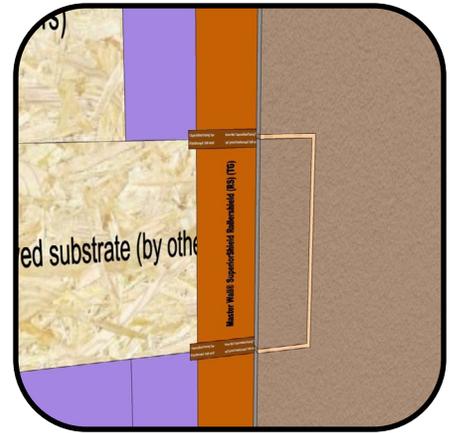
- System Type
- Insulation thickness as it relates to substrate expansion
- Methods of attachment
- Any special environmental or structural conditions (racking, wind load, earthquake, etc.)

System requirements may vary with the application. For example, adhered systems may require different attachment methods over different substrates or mechanical attachment. An Aggre-flex Drainage System is mechanically attached over all substrates and a Cemplaster or One Coat Stucco System technically uses metal lath attached to the framing as a substrate.

Oftentimes the insulation thickness, attachment methods and environmental conditions allow the designer to proceed with the wall cladding without incident. The designer, not the manufacturer, determines the suitability of these particular installations.

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Plywood to Gypsum Sheathing Transition for signage, following the rules for minor substrate transitions with a sealant joint can result in an odd-looking application

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Corner Bracing

Much like signage, it is somewhat common in light commercial construction to use plywood or oriented strand board (OSB) as structural bracing in corners with an approved gypsum panel in the rest of the wall. Using similar methods above, the designer can determine the need for a building expansion joint.

Framing Changes

Changes in structural framing require careful consideration. A change from a framed and sheathed wall to masonry almost always requires some type of expansion provision. These walls usually move differently structurally and thermally. Unless the area is relatively small in size, a designer is encouraged to incorporate an expansion joint in the wall cladding.

Panelized Framing

Sometimes wall cladding is panelized. This can include prefabricated, fully framed wall panels or some of the popular varieties of Structural Insulated Panels (SIPs). Designers need to consider the framing attachment and thermal movement qualities as they relate to wall movement. For example, a prefabricated framed wall joined at the top and bottom plates as well as adjacent panels will typically move as a unit. The same panel without adjacent panel attachment could move independently and may need an expansion provision.

Summary

As with any building project, there are many considerations for the designer. A manufacturer's general requirement may not specifically apply to a particular situation. The designer needs to consider the intent of the design condition and the overall project use before determining the need for an expansion provision when substrates change.

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