PDHonline Course C227 (2 PDH)

Indoor Mold and Moisture Basics

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2012

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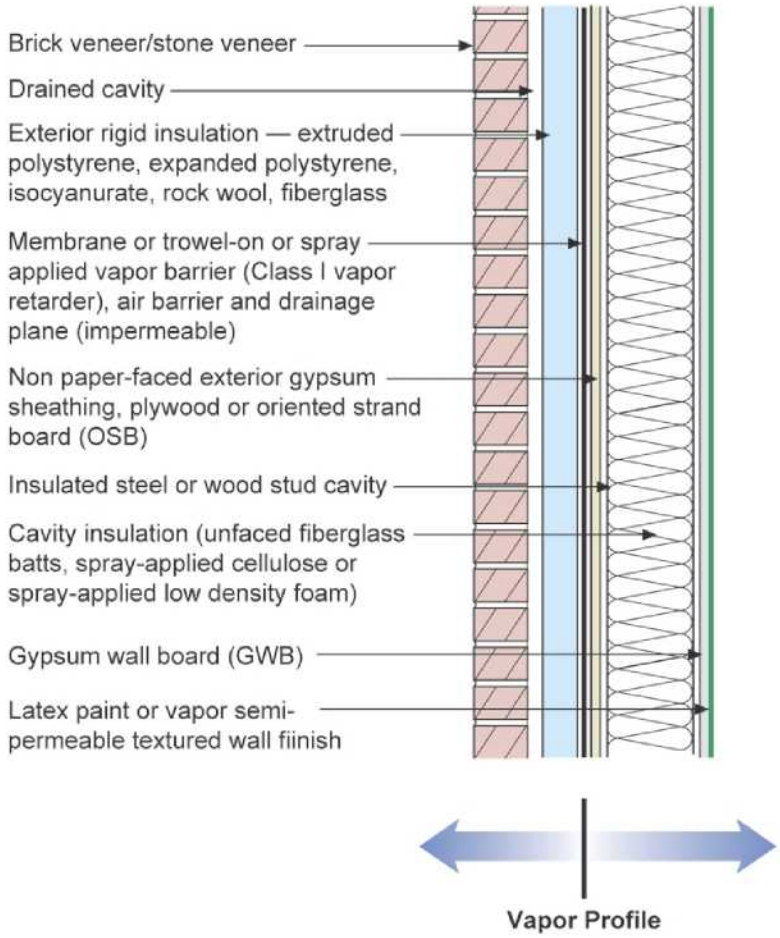
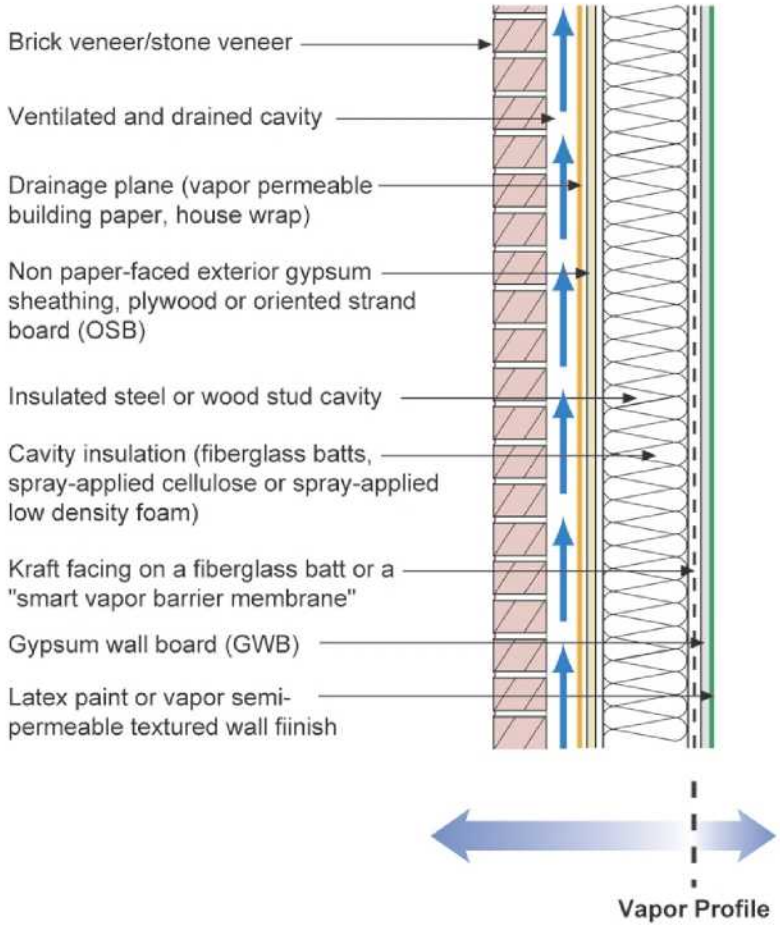
Figure 8
Frame Wall With Exterior Rigid Insulation With Cavity Insulation and Brick or Stone Veneer



Applicability: All hygro-thermal regions except subarctic/arctic – in cold and very cold regions the thickness of the foam sheathing should be determined by hygro-thermal analysis so that the interior surface of the foam sheathing remains above the dew point temperature of the interior air (see **Appendix III – section 4**)

This wall is a variation of Figure 5. In cold climates condensation is limited on the interior side of the vapor barrier as a result of installing some of the thermal insulation on the exterior side of the vapor barrier (which is also the drainage plane and air barrier in this assembly). In hot climates any moisture that condenses on the exterior side of the vapor barrier will be drained to the exterior since the vapor barrier is also a drainage plane. This wall assembly will dry from the vapor barrier inwards and will dry from the vapor barrier outwards. Since this wall assembly has a vapor barrier that is also a drainage plane it is not necessary to back vent the brick veneer reservoir cladding as in Figure 6 and Figure 7. Moisture driven inwards out of the brick veneer will condense on the vapor barrier/drainage plane and be drained outwards.

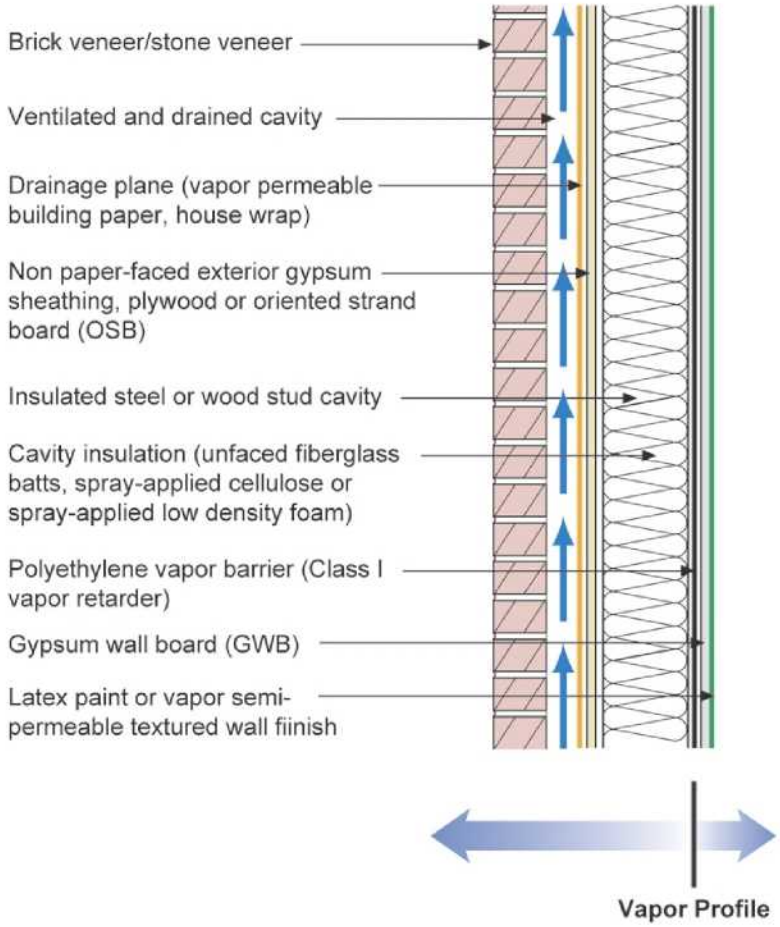
Figure 9
Frame Wall With Cavity Insulation and Brick or Stone Veneer With Interior Vapor Retarder



Applicability: Limited to cold and very cold regions

This wall is a variation of Figure 6 except it has a Class II vapor retarder on the interior limiting its inward drying potential – but not eliminating it. It still considered a flow through assembly – it can dry to both the exterior and the interior. It is critical in this wall assembly – as in Figure 6 and Figure 7 - that the exterior brick veneer (a "reservoir" cladding) be uncoupled from the wall assembly with a ventilated and drained cavity. Experience has shown that this assembly works well when the cavity behind the brick veneer is at least 2 inches wide and is free from mortar droppings. It must also have air inlets at its base and air outlets at its top in order to provide back ventilation of the brick veneer. The drainage plane in this assembly is the building paper or building wrap. The air barrier can be any of the following: the interior gypsum wallboard, the exterior gypsum wallboard or the exterior building wrap.

Figure 10
Frame Wall With Cavity Insulation and Brick or Stone Veneer With Interior Vapor Barrier



Applicability: Limited to very cold, subarctic and arctic regions

This wall is a further variation of Figure 6 but now it has a Class I vapor retarder on the interior (a "vapor barrier") completely eliminating any inward drying potential. It is considered the "classic" cold climate wall assembly. It is critical in this wall assembly – as in Figure 6, Figure 7 and Figure 9 - that the exterior brick veneer (a "reservoir" cladding) be uncoupled from the wall assembly with a ventilated and drained cavity. Experience has shown that this assembly works well when the cavity behind the brick veneer is at least 2 inches wide and is free from mortar droppings. It must also have air inlets at its base and air outlets at its top in order to provide back ventilation of the brick veneer. The drainage plane in this assembly is the building paper or building wrap. The air barrier can be any of the following: the interior polyethylene vapor barrier, the interior gypsum wallboard, the exterior gypsum wallboard or the exterior building wrap.