Moisture Control Handbook Errata

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The Moisture Control Handbook was published in 1993 and written between 1990 and 1992. In the past decade several things have become obvious to me that are not reflected adequately in the Handbook. The most significant is the role of polyethylene on retarding the drying of building assemblies. I have come to conclude that polyethylene is really a "drying retarder" and should be avoided. The second is the difficulty in insulating basements internally without creating microclimates (really "nano"-climates) that promote mold growth.

Polyethylene should not be installed on the interior of any assembly – with the exception of above grade walls and ceilings in locations with 8,000 heating degrees or greater.

Polyethylene should never be installed on the interior of any insulated assembly on the interior of basements or other below grade assemblies – anywhere. It probably shouldn't be installed on the interior of any below grade assembly regardless of insulation approach – except in limited circumstances where the polyethylene is designed to act as an interior drainage layer.

Vinyl wall coverings and epoxy paints or any low perm interior finish should have the same use restriction as polyethylene.

With respect to basement insulation techniques, I now recommend the installation of semi-permeable foam sheathing directly on the interior of foundations when interior basement insulation is required or desired.

Illustrations of these techniques can be found on my website:
www.buildingscience.com

Joseph Lstiburek

Page number	Figure number	Comments
Page ix	Figure I-1	Should be limited to locations with 8,000 heating degree days or greater with the modification of removing the polyethylene on the interior of the basement assembly and inserting 1 inch of rigid expanded polystyrene or unskinned extruded polystyrene between the perimeter concrete foundation wall and the basement wood framing. Use kraft faced fiberglass batts or two coats of latex paint as a vapor retarder in locations with less than 8,000 heating degree days.
Page 34	Figure 2-31	Same comments as Figure I-1, page ix.
Page 35	Figure 2-32–Wall B	Polyethylene should not be installed on the interior of assemblies except in locations with 8,000 heating degree days or greater. Use kraft faced fiberglass batts or two coats of latex paint as a vapor retarder in locations with less than 8,000 heating degree days.
Page 36	Figure 2-33–Wall B	Same comments as Figure 2-32-Wall B, page 35.
Page 36	Figure 2-34–Wall B	Same comments as Figure 2-32-Wall B, page 35.
Page 36	Figure 2-35–Wall B	Same comments as Figure 2-32-Wall B, page 35.
Page 37	Figure 2-36	Same comments as Figure I-1, page ix.
Page 43	Figure 2-47	Same comments as Figure 2-32-Wall B, page 35.
Page 45	Figure 2-50	The polyethylene on the interior of the basement wood frame assembly and the polyethylene on the interior of the perimeter concrete foundation wall should be removed. Additionally, 1 inch of rigid expanded polystyrene or unskinned extruded polystyrene should be installed between the perimeter concrete foundation wall and the basement wood framing.
Page 52	Figure 3-4	Same comments as Figure 2-32-Wall B, page 35.
Page 53	Figure 3-5	Same comments as Figure 2-32-Wall B, page 35.
Page 56	Figure 3-8	Same comments as Figure 2-32-Wall B, page 35.
Page 57	Figure 3-9	Same comments as Figure 2-32-Wall B, page 35.
Page 58	Figure 3-10	The polyethylene in the wall assembly is not necessary due to the installation of the insulating sheathing – in any event it should not be installed as it creates a wall assembly that can not dry to either the interior or to the exterior.

Page 58	Figure 3-11	Same comments as Figure 3-10, page 58.
Page 61	Figure 3-16	Should be limited to locations with 8,000 heating degree days or greater.
Page 77	Figure 3-36	Same comments as Figure 2-32-Wall B, page 35.
Page 78	Figure 3-37	Same comments as Figure 2-32-Wall B, page 35.
Page 84	Figure 3-42	Same comments as Figure 2-32-Wall B, page 35.
Page 86	Figure 3-43	Same comments as Figure 2-32-Wall B, page 35.
Page 94	Figure 4-4	Same comments as Figure 2-32-Wall B, page 35.
Page 94	Figure 4-5	Same comments as Figure 2-32-Wall B, page 35.
Page 95	Figure 4-6	Same comments as Figure 2-32-Wall B, page 35.
Page 95	Figure 4-7	Same comments as Figure 2-32-Wall B, page 35.
Page 96	Figure 4-8	Same comments as Figure 2-32-Wall B, page 35. Additionally, the asphalt impregnated fiberboard or gypsum sheathing should be replaced with OSB, plywood or foam sheathing to counteract the inward flow of water vapor out of the brick veneer ("reservoir") due to solar radiation induced elevated brick temperatures.
Page 101	Figure 4-10	Same comments as Figure I-1, page ix.
Page 102	Figure 4-11	Remove polyethylene vapor diffusion retarder under the rigid insulation on top of the basement floor slab. The rigid insulation should be semi-vapor permeable such as unskinned extruded polystyrene.
Page 104	Figure 4-13	Same comments as Figure I-1, page ix.
Page 106	Figure 4-15	The foil backed gypsum board in the above grade wall should be replaced with standard gypsum board and a kraft faced fiberglass batt should be installed in the wall cavity. Additionally, 1 inch of rigid expanded polystyrene or unskinned extruded polystyrene should be installed between the perimeter concrete foundation wall and the basement wood framing. The "optional" polyethylene as damp-proofing on the interior should not be installed.
Page 108	Figure 4-17	Same comments as Figure 2-32-Wall B, page 35.
Page 109	Figure 4-18	The foil backed gypsum board in the above grade wall should be replaced with standard gypsum board and a kraft faced fiberglass batt should be installed in the

		wall cavity. A drainage plane such as building paper should be installed behind the rigid foam insulation between the rigid foam and the wood framing. The building paper bond break between the stucco and the rigid foam is not necessary.
Page 114	Figure 4-19	Same comments as Figure 2-32-Wall B, page 35.
Page 114	Figure 4-20	Same comments as Figure 2-32-Wall B, page 35.
Page 126	Figure 5-4	Same comments as Figure 2-32-Wall B, page 35.
Page 126	Figure 5-5	Same comments as Figure 2-32-Wall B, page 35.
Page 127	Figure 5-6	Same comments as Figure 2-32-Wall B, page 35. Additionally, the asphalt impregnated fiberboard or gypsum sheathing should be replaced with OSB, plywood or foam sheathing to counteract the inward flow of water vapor out of the brick veneer ("reservoir") due to solar radiation induced elevated brick temperatures.
Page 128	Figure 5-8	A drainage plane such as building paper should be installed behind the rigid foam insulation between the rigid foam insulation and the wood framing.
Page 128	Figure 5-9	Same comments as Figure 2-32-Wall B, page 35.
Page 135	Figure 5-11	Same comments as Figure I-1, page ix.
Page 136	Figure 5-12	Same comments as Figure I-1, page ix.
Page 139	Figure 5-15	Insert 1 inch of rigid expanded polystyrene or unskinned extruded polystyrene between the perimeter foundation wall and the batt insulation. The foil faced batt insulation should be replaced with a perforated vapor permeable vinyl faced batt insulation or a completely unfaced batt insulation.
Page 141	Figure 5-17	Replace the continuous vapor diffusion retarder/air retarder on the interior of the crawlspace assembly with a plastic housewrap (a vapor permeable air barrier).
Page 147	Figure 5-18	Same comments as Figure 2-32-Wall B, page 35. Additionally, the asphalt impregnated fiberboard or gypsum sheathing should be replaced with OSB, plywood or foam sheathing to counteract the inward flow of water vapor out of the brick veneer ("reservoir") due to solar radiation induced elevated brick temperatures.
Page 148	Figure 5-20	Same comments as Figure 2-32-Wall B, page 35.

Page 160	Figure 6-8	Install building paper between the polyethylene and the stucco or install two layers of building paper in place of the polyethylene. Drainage must be provided between the stucco and the plywood sheathing. A single layer of material will not provide a drainage space, however, two layers will.
Page 169	Figure 6-14	Insulation pillow should not be installed within a plastic bag. Use unfaced fiberglass batts in this location.
Page 170	Figure 6-15	Same comment as Figure 6-14, page 169. Also, install building paper between the polyethylene and the stucco or install two layers of building paper in place of the polyethylene. Drainage must be provided between the stucco and the plywood sheathing. A single layer of material will not provide a drainage space, however, two layers will.
Page 194	Figure 7-11	Install rigid insulation between new fascia board and sub fascia to control potential condensation on interior of sub-fascia.