

DIVISION 07 THERMAL AND MOISTURE PROTECTION

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Unless stated otherwise, the standards in this Facilities Design Manual (FDM) are directed to the Design Professional to incorporate into the Project.

Although the Owner encourages improved concept, method and product recommendations by the Design Professional, deviation from these standards, including product requests for “approved equivalent” status, requires written justification from the Design Professional and written approval from the Owner’s Representative before completion of Design Development Documents.

07 00 00 THERMAL AND MOISTURE PROTECTION

A. REFERENCE ABBREVIATIONS

1. ASTM ASTM International (formerly in the USA: American Society for Testing and Materials)

07 10 00 DAMPPROOFING AND WATERPROOFING

A. BASEMENT WALL WATERPROOFING

1. Specify a drainage fabric/membrane barrier system such as the Miradrain 6000/6200 series by Carlisle Coatings & Waterproofing (<http://www.carlisle-ccw.com/Doco/tdsMiradrain6000-6200.pdf>) or approved equivalent.

B. SHOWER PAN MEMBRANE

1. Specify a waterproof membrane below showers and other unusually wet areas.

07 21 00 THERMAL INSULATION

A. EXTERIOR ENCLOSURE

1. To control heat transfer, design the building enclosure with a continuous high performance thermal barrier between the exterior environment and conditioned space.
 - a. Discuss design and thermal resistance requirements with the Owner's Representative.

07 26 00 VAPOR RETARDERS

A. GENERAL

1. For exterior walls, do not locate near the interior surface unless vapor semi-permeable (1 < 10 perms).
2. For built-in cold rooms, locate on the warm side of walls, ceiling and floor.
3. Install between roof deck and roofing system only when expected winter interior relative humidity is 45% or greater at 68°F.

B. INTERIOR CONCRETE SLAB ON GRADE

1. Specify a reinforced puncture and abrasion resistant vapor retarder such as Moistop Underslab by Fortifiber Building Systems Group (http://www.fortifiber.com/moistop_underslab.html) or approved equivalent.
2. Specify the following requirements.
 - a. Locate the membrane immediately below the slab.
 - b. Extend the membrane edges to the slab top surface.
 - c. Seal joints and seal around penetrations.
 - d. Locate water stop between slab edges and footings or walls.

07 27 00 AIR BARRIERS

A. EXTERIOR ENCLOSURE

1. To control the effects of heat and moisture, design the building exterior wall with rigid or rigidly supported durable materials that create a continuous air barrier between the exterior environment and conditioned space.
 - a. Select air barrier materials that will last the life of the building.
 - b. Discuss air barrier design with the Owner's Representative.
2. Show air barrier continuity in details at openings and penetrations, where different air barrier materials meet and at building expansion joints.

07 50 00 MEMBRANE ROOFING

A. DESIGN

1. The roof system type specified will vary with the choice of deck substrate and roof design.
 - a. Do not specify ballasted ethylene propylene diene monomer (EPDM) rubber roofing systems.
 - b. Do not specify white EPDM products.
 - c. Discuss roof systems types with the Owner's Representative.
2. Maintain a positive roof slope of at least 1/4 inch per foot over the entire roof.
3. Maintain a minimum distance of 8 inches between the membrane and top of counter-flashing.
4. Show roof drain elevations, roof slope, and elevation of roof edges on Drawings.
5. Locate roof drains at roof areas where the most deflection can be expected.
6. Begin roof valleys at corners of roof section and end at area roof drains.
7. Extend the roof membrane and insulation up the inside of the parapet wall and terminate on the face side.
8. Locate scuppers through parapets at regular intervals.
9. For roofing submittals, specify details required for each roof penetration.
10. Do not locate piping and electrical wiring on the roof.
11. For new roofing system installations, specify a minimum 15 year manufacturer's roof system warranty.
12. Specify a Contractor's 5 year warranty certified on a form furnished by the Owner.

07 60 00 FLASHING AND SHEET METAL

A. GENERAL

1. Specify flashing material to last the life of the building.
2. Specify a leak-free flashing installation that routes wind-driven water out of the building enclosure.
 - a. Specify preformed corners and end dams instead of fabricating on site
3. Specify parapets to have a metal cap or masonry coping over through-wall flashing, and as follows.
 - a. Locate expansion joints every 10 to 15 feet.
 - b. Cover the parapet cap joints with a strip of like material that interlocks with the parapet cap.
4. Specify parapet caps, counter flashings, valley flashings, etc are of stainless steel, copper, or other durable material approved by Owner's Representative.
5. Specify metal copings attached with continuous metal cleat on face side of parapet and corrosive resistant mechanical fasteners with rubber grommets on back side of parapet to facilitate removal for re-roofing.
6. For thermoplastic roof membranes, specify a two-piece manufactured roof edge instead of the membrane manufacturer's coated metal except at scuppers or similar areas where welding of the membrane is required.
7. In exterior walls, specify sills, lintels and relieving angles flashed with flexible, self-adhering sheet flashing attached to the substrate and to a stainless steel drip edge extending beyond the face of the wall.
8. Locate drip flashings above windows to prevent water sheeting on windows.

07 84 00 FIRE STOPPING

A. GENERAL

1. As appropriate, specify one of the following intumescent sealants rated to 3 hours per ASTM E814 (UL 1479) and capable of expanding from 8 to 10 times when exposed to temperatures of 250° F.
 - a. Flame Safe by W R Grace (<http://www.na.graceconstruction.com/prodline.cfm?did=4>)

- b. Series SSS Latex Intumescent Sealant by Specified Technologies Inc
(http://www.stifirestop.com/product_information/product_selector/sss_sealant.html)
 - c. Fire Barrier CP 25WB+ Intumescent Caulk by 3M
(http://solutions.3m.com/wps/portal/3M/en_US/FP/FireProtection/Products/ProductCatalog?PC_7_0_2FM2_nid=GSMBBFC1C1be3LPCLC0PX0gl)
 - d. Fire Barrier Water Tight Sealant 3000 WT (intumescent silicone) by 3M
(http://solutions.3m.com/wps/portal/3M/en_US/FP/FireProtection/Products/ProductCatalog?PC_7_0_2FM2_nid=BK7B98MLKMbe3LPCLC0PX0gl)
 - e. Equivalent or alternative fire stop product approved by the Owner's Representative.
2. Where piping, ducts, conduit or cable penetrates floors or walls, specify the space between piping, ducts, conduits or cables and structural materials or sleeves sealed with an approved fire retardant material.
 - a. To prevent flooding water from passing through floor penetrations, specify sleeves embedded in concrete floor slabs that extend no less than 2 inches above the floor.
 3. For raceways and penetrations which must be reopened frequently for installation or removal of wires, specify fire stop putty or other approved product that remains permanently pliable.

07 90 00 JOINT PROTECTION

A. GENERAL

1. For building joints exposed to weather, typically specify one part or two part polyurethane or pre-cured silicone sealants as appropriate.
2. Specify sealant in the following exterior joints.
 - a. Between masonry and concrete.
 - b. Between precast concrete units and between precast concrete units and dissimilar materials.
 - c. Between concrete and dissimilar materials.
 - d. Joints around metal frames.
 - e. Construction joints in concrete slabs.
 - f. Intersecting masonry partitions.
 - g. Parapet masonry coping joints.
 - h. Above counter flashing at reglets.
 - i. Where caulking or sealant is noted on the Drawings.
3. For new sealant installations, specify a minimum 10 year manufacturer's sealant warranty and a 5-year contractor's warranty.

END OF DIVISION 07 THERMAL AND MOISTURE PROTECTION