



## 1. Performance Requirements

- .1 Regardless of exposure classification and climate zone, building envelope components and assemblies shall be designed using rainscreen principles.
- .2 Building envelope design shall include consultation with a Building Envelope Professional (BEP), or other Registered Professional recognized by the Authority Having Jurisdiction who is actively practicing in the field of Building Science and Enclosure Design.
- .3 Building envelope design shall avoid thermal bridging wherever possible. Continuous insulation is encouraged in all design and shall consider the effects of thermal bridging for all structural materials, backing, fasteners, clips, z-bars, hat channels etc.
- .4 Where structural components penetrate the building envelope, materials shall be suitable for exterior exposure (ie. corrosion protection for metals or preservative treatment for wood).
- .5 General building envelope design shall consider ease of maintenance and renewals. Components with limited designed service lives shall be easily accessible for renewals without the requirement for significant deconstruction of longer life components. For example, windows in masonry openings shall be detailed such that removal of the window frame shall not require demolition of the masonry.



**1. Performance Requirements**

- .1 All below grade membrane substrates shall be provided with adequate slope to drain. Below grade membranes shall be fully bonded to the substrate for ease of leak identification.
- .2 Below grade membrane assemblies shall be designed to accommodate cyclical temperature movements, serviceability, and deflection tolerances of the substrate. Cracks and joints of the substrate shall be carefully detailed.
- .3 All below grade membranes shall be complemented with means to limit the effects of hydrostatic pressure from adjacent landscaping materials. Drainage mat or alternative products are required.
- .4 Below grade membranes shall be tested for leaks prior to backfilling.
- .5 Protect all leading edges of membranes at vertical terminations. Provide mechanically attached termination bars and counter flashings at exposed locations.



**1. Performance Requirements**

- .1 Insulation shall be installed outboard of the plane of air-tightness (ie. the air barrier shall be on the warm side of the insulation). Insulation shall be installed tight to the air barrier plane. Design of 'split insulation' wall assemblies shall demonstrate effective control of moisture (condensation) with a considerable safety tolerance.
- .3 Insulation retention and furring shall be designed to minimize the effects of thermal bridging.
- .4 Insulation products installed in locations (ie. wall cavities) susceptible to moisture must be intended for such purposes with regards to performance and overall durability.
- .6 Where spray applied urethane insulation systems are specified, installations shall be in conformance with the CUFCA (Canadian Urethane Foam Contractors Association), "Manual for Installers of Spray Polyurethane Foam Thermal Insulation", carried out by a certified installation Contractor.



**1. Performance Requirements**

- .1 All new and retrofit building design shall define a continuous air barrier. All building envelope drawings and details, and shop drawings shall clearly identify the plane of air tightness and identify all air barrier materials and components.
- .2 Compliance of the continuous air barrier shall be demonstrated by one of the following methods:
  - .1 Materials: Using individual materials that have an air permeability not to exceed  $0.02 \text{ L/s}\cdot\text{m}^2$  under a pressure differential of  $75\text{Pa}$  when tested in accordance with ASTM E2178.
  - .2 Assemblies: Using assemblies of materials and components that have an average air leakage not to exceed  $0.2 \text{ L/s}\cdot\text{m}^2$  under a pressure differential of  $75\text{Pa}$  when tested in accordance with ASTM E2357 or ASTM E1677.
  - .3 Building: Testing the complete building and demonstrating that the air leakage rate of the building envelope does not exceed  $2.0 \text{ L/s}\cdot\text{m}^2$  under a pressure differential of  $75\text{Pa}$  when tested in accordance with ASTM E779 or an equivalent approved method.



**1. Cladding Design Guidelines**

- .1 Cladding systems shall be designed and installed utilizing rainscreen principles, where the cladding represents the first plane of protection. Cladding systems shall be compartmentalized vertically, and typically broken at each floor line to facilitate drainage and ventilation of the rainscreen cavity.
- .2 Cladding systems shall be designed to suit renewals of adjacent components such as membranes, doors, windows, vents etc. without requiring extensive removal, alteration or replacement of the cladding.



## 1. Performance Requirements

- .1 Roofing and waterproofing shall conform to the requirements of the Roofing Contractors Association of British Columbia (RCABC) Standards, as outlined in the RCABC Roofing Practices Manual.
- .2 All new and re-roofing assemblies shall pursue the RCABC third party five (5) or ten (10) year guarantee (RGC Guarantee). Confirm desired warranty standard for each specific project with FMGT. Close-out submittals from the Contractor shall include all Warrantee certificates and documentation addressed to the Owner, registered in the Owner's name, and shall include copies of all inspection and testing reports where applicable.
- .3 An independent roofing inspection agency shall be retained by UVIC to satisfy the requirements of the RGC Guarantee. UVIC will cover all costs for inspection and testing services as required to satisfy the RGC Guarantee. Re-inspection and testing required as a result of failures or faulty workmanship (re-work) by the Contractor shall be paid for by the Contractor. The Contractor shall be required to coordinate all roofing work in cooperation with the inspection agency to satisfy the inspection requirements of the RGC Guarantee.
- .3 Low slope roofs shall typically be designed as IRMA or MIRMA assemblies. Conventional roof assemblies (exposed membrane) are not preferred and shall be avoided wherever possible. Where protected (inverted) membrane assemblies are utilized, ballast and overlay materials shall be easily removable to suit maintenance and repairs. Cast-in-place concrete or asphalt overlays are not acceptable
- .4 All low slope roofing shall have a minimum of 2% slope to drain.
- .5 Provide one (1) overflow scupper per roof drain where roof parapets exceed 100mm in height. Scuppers are to be a minimum of 3" in diameter.
- .6 Provide walking paths from service access hatches, ladders or access stairs to all rooftop equipment which requires servicing. Walkways to typically be 2'x2'x2" precast concrete pavers on adjustable pedestals. Cast-in-place concrete or duckboards are not acceptable.
- .7 Performance standards for roof insulation shall be as per the minimum requirements as described in Section 7.3. Protection board shall be provided between all insulation and membrane layers.
- .8 Where conventional roof assemblies are required for special circumstances, vapor retarders shall be fully adhered modified bitumen sheet membranes.
- .9 Provide termination bars to mechanically secure all membrane up-turns. Provide counter-flashings as required to protect exposed leading edges.
- .10 Gum-lips, pitch pockets, and other sealant dependent detailing shall be avoided wherever possible. Provide drawing details showing upstands for all penetrations.



- .11 In re-roofing projects, all debris shall be disposed of through a contained waste chute. Debris shall never be thrown from a rooftop in any circumstance.



**1. Performance Requirements**

- .1 Flashing and Sheet Metal shall conform to the requirements of the Roofing Contractor's Association of British Columbia (RCABC) Standards, as outlined in the RCABC Roofing Practices Manual.
- .2 Architectural sheet metal to be fabricated in accordance with the Sheet Metal and Air Conditioning Contractor's National Association (SMACNA) manual, latest edition.
- .3 Metal flashings shall remain for cosmetic purposes and for protection to primary waterproofing materials. Flashings shall not be relied upon for waterproofing.
- .4 Provide continuous clip-type fasteners at all parapet flashings ( same material as flashing).
- .5 Avoid surface fasteners.





**.1 Firestopping and Smoke Seals**

- .1 For renovation projects, in addition to the necessary new joints and penetrations, specify the firestopping of all existing assemblies where firestopping is damaged, discontinued or absent.
- .2 Use the same product for all like applications, the same manufacturer throughout the project, and compatible materials for restoration work.
- .3 Tag penetrations and every 3 meters of joint seal with printed tags
  - .1 indicating:
    - Product
    - System #
    - Installed by: (name and phone number of subcontractor)
    - Repenetrated by & Date
  - .2 and stating:

CAUTION! FIRESTOP - DO NOT REMOVE, PUNCTURE OR DISCONTINUE UNLESS PREPARED TO RE-SEAL IMMEDIATELY WITH PROPER PRODUCTS AND METHOD!
- .4 Floor Sleeves
  - .1 Where possible, use metal sleeves for floor penetrations to prevent/mitigate the consequences of leakage or flooding.
  - .2 Specify coordination of the fire-stop contractor with mechanical and electrical trades, to ensure adequate selection and construction of firestopping systems.
- .5 Cable tray penetrations
  - .1 As through-wall cabling is often updated, cable tray penetrations shall be closed with a fire stop system for active openings.
- .6 Preferred Product: Hilti Canada



**1. Performance Requirements**

- .1 Sealants shall not be designed as the primary waterproofing component.
- .2 Use only premium high performance sealants.
- .3 Use backer rods or bond breakers at all joints including fillets.
- .4 All joints shall be tooled.
- .5 Solvent curing products are not preferable in interior applications.

**2. Applications:**

Exterior:

- .1 Where urethane sealants are specified, preference is for multi-component products.

Interior:

- .1 General purpose caulking, exposed acoustical sealant: single component, pure acrylic latex.
- .2 Concealed acoustical sealing: non-skinning, non-hardening single component synthetic rubber.
- .3 Glazing applications: single component silicone.
- .4 Sanitary applications, including washrooms, food service, countertops etc.: mildew resistant silicone (clear).