TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

Specifications
~ Roof Replacement ~

500 Mariner Way,
Coquitlam, BC
Project #25-1233

PREPARED FOR:

CITY OF COQUITLAM

Coquitlam

CONTACT: Brie-Anne Mason

ROOF AREAS: BLDGS 1-3
RAs 100, 200, 300, 400

ISSUE DATE: December 2025

TABLE OF CONTENTS

01 11 00 - Summary of Work

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 Apply in accordance with the Drawings, Specifications and the requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association's Roofing Manual and/or RCABC Roofing Practices Manual.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect Work including all amendments up to the Project closeout. No plea of misunderstanding will be considered on account of ignorance thereof. Notify the Consultant immediately in writing of any provisions in Drawings, Specifications or Contract, which are contrary to or inconsistent with any law, rule or regulation.

1.1.3 Where Documents differ, the most stringent interpretation will apply.

1.2 TYPE OF FACILITY

1.2.1 This Contract will be carried out on the premises of industrial buildings.

1.2.2 Exercise appropriate care and keep construction noise and disruption to an absolute minimum and to the satisfaction of the Owner.

1.2.3 Take special precautions where alterations are required above and, in all areas, occupied by staff, or pedestrians.

PART 2 ROOF REPLACEMENT

2.1 DEMOLITION PHASE

2.1.1 Remove and dispose of all the following existing components and assemblies within the Scope of Work, including but not limited to:

.1 Sheet metal flashings, roof membranes and membrane flashings, insulation, vents, roof drains, redundant equipment, and all other accessories down to the level of the existing tongue and groove wood deck.

2.1.2 Upon observation, the roofer shall inform the Owner and Consultant of any deteriorated components.

2.2 RECONSTRUCTION PHASE

2.2.1 Remove and replace any unsound/deteriorated roofing components or substrates, prior to the installation of new roofing materials.

2.2.2 Existing deck and substrates shall be cleaned and prepared for the installation of new roofing materials and components.

2.3 NEW ROOF ASSEMBLIES

2.3.1 Supply and install the new roofing systems comprised of the following (from the top down):

.1 **Building 1 – RA 100**

(a) 1-Ply granulated modified bituminous cap sheet, torch-applied

(b) 1-Ply modified bituminous base sheet pre-laminated to 13mm (0.5”) high density polyisocyanurate support panel in adhesive

(c) Tongue & groove wood deck (existing)

(d) Membrane Flashings: 1-ply modified bitumen cap sheet torch applied, and 1-ply modified bitumen base sheet self-adhered

(e) **Base Bid:** Replace all barrel skylights with new acrylic skylights.

(i) For the replacement of skylights, see **Section 08 60 00 – Skylights**

.2 **Building 1 – RA 200**

(a) 1-Ply granulated modified bituminous cap sheet, torch-applied

(b) 1-Ply modified bituminous base sheet pre-laminated to 13mm (0.5”) high density polyisocyanurate support panel in adhesive

(c) 1% tapered polyisocyanurate insulation package, in adhesive

(d) Self-adhering vapour barrier

(e) Tongue & groove wood deck (existing)

(f) Membrane Flashings: 1-ply modified bitumen cap sheet torch-applied, and 1-ply modified bitumen base sheet self-adhered

.3 **Building 2, RA 300**

(a) 1-Ply granulated modified bituminous cap sheet, torch-applied

(b) 1-Ply modified bituminous base sheet pre-laminated to 13mm (0.5”) high density polyisocyanurate support panel in adhesive

(c) 25mm (1”) polyisocyanurate insulation, in adhesive

(d) Self-adhering vapour barrier

(e) Tongue & groove wood deck (existing)

(f) Membrane Flashings: 1-ply modified bitumen cap sheet torch applied, and 1-ply modified bitumen base sheet self-adhered

.4 **Building 3, RA 400**

(a) 1-Ply granulated modified bituminous cap sheet, torch-applied

(b) 1-Ply modified bituminous base sheet pre-laminated to 13mm (0.5”) high density polyisocyanurate support panel in adhesive

(c) 2% tapered polyisocyanurate cricket (between drains), in adhesive

(d) 25mm (1”) polyisocyanurate insulation, in adhesive

(e) Self-adhering vapour barrier

(f) Tongue & groove wood deck (existing)

(g) Membrane Flashings: 1-ply modified bitumen cap sheet torch applied, and 1-ply modified bitumen base sheet self-adhered

.5 Conform to Section 07 52 13 – Modified Bituminous Membrane Roofing.

2.4 EXISTING ASSEMBLIES

2.4.1 It is the Contractor's choice to cut and confirm the roof assemblies. No additional costs will be accepted or approved for/or by the Owner. The existing roofing assemblies are:

.1 **Building 1, RA 100, 200**

(a) Modified bitumen cap sheet

(b) Multi-ply built-up roofing membranes

(c) 0.5" fibreboard overlay

(d) Tongue and groove wood deck

.2 **Building 2, RA 300**

(a) Modified bitumen cap sheet

(b) Modified bitumen base sheet

(c) 1% tapered polyisocyanurate cricket (to drains)

(d) **Middle Section Only:** 1" polyisocyanurate insulation

(e) Self-adhering vapour barrier

(f) Tongue and groove wood deck

.3 **Building 3, RA 400**

(a) Modified bitumen cap sheet

(b) Modified bitumen base sheet

(c) **Middle Section Only:** 1" polyisocyanurate insulation

(d) Tongue and groove wood deck

PART 3 WALL PANEL INSTALLATION – BUILDING 1, RA 200

3.1 SCOPE OF WORK

3.1.1 Remove and dispose of existing metal wall panels and any associated wall membranes or vapour barriers.

3.1.2 Pricing to include for craning off and on the oversized RTU, if required.

3.2 DEMOLITION PHASE

3.2.1 Remove and dispose of the existing crossbroken wall panels and doors, and any wall membranes.

3.3 NEW WALL ASSEMBLY

3.3.1 Supply and install the new wall assembly (from the inside, out)

.1 Air vapour barrier membrane (AVB), self-adhesive

(a) Install new air/vapour barrier (AVB) membranes across entire wall. Tie into roofing membranes.

.2 24-gauge corrugated metal wall panels, pre-painted (colour to be selected by Owner)

3.3.2 For the installation of AVB Membranes, see Section 07 26 00 – Air/Vapour Barrier Membranes

3.3.3 For the installation of Metal Wall Panels, see Section 07 42 13 – Metal Panels.

PART 4 BARREL SKYLIGHT REPLACEMENT

4.1 SCOPE OF WORK – BUILDING 1 RA 200

4.1.1 Remove the metal fall-protection cages and set aside for reinstallation.

.1 Metal fall protection cages shall be painted with two coats of rust-inhibiting paint (black or grey) and reinstalled.

4.1.2 Remove and dispose of the existing barrel acrylic skylights.

4.1.3 Supply and install new acrylic barrel skylights, to match existing.

4.1.4 For the installation of skylights, see **Section 08 60 00 – Skylights.**

PART 5 ADDITIONAL REQUIREMENTS

5.1.1 **Attached:** Hazardous Materials Investigation Report 2025

5.1.2 **All Buildings:** Build up all perimeters to achieve 152mm (6”) above finished roof height.

5.1.3 **Building 1:**

.1 All HVAC Units on temporary wood blocking – supply and install new wood sleepers and roof-in as per the Details.

.2 Replace all barrel skylights with new. Match existing material and colour.

.3 Skylight fall protection cages shall be repainted with high-quality rust inhibiting paint (black or silver), and reinstalled.

.4 Delete redundant sleepers from new roof assembly.

.5 **Optional Pricing:** Supply and install new engineered roof access ladders (2). Certification paperwork shall be provided to Owner.

(a) Supply and install 2 concrete pavers on 1” XPS insulated padding at lands of each ladder.

5.1.4 **Buildings 2 & 3:**

.1 Optional Pricing is required to replace all skylight domes (each building).

.2 Unit Rate Pricing is required to replace skylight domes (per 1)

5.1.5 Supply and install liquid applied PMMA in all locations where installing modified bitumen flashing membranes is not possible.

5.1.6 Roofer is responsible for all electrical and mechanical work within the scope of work. All electrical penetrations associated with the various mechanical units on the roof top are required to be flashed through the new roofing system using gooseneck style metal flashings. If electrical lines are too short, extensions are required.

5.1.7 All rusted rooftop equipment shall be painted with two coats of rust inhibiting paint.

5.1.8 Supply and install the new roofing components in accordance with the Contract Documents.

5.1.9 Utilize a single source supplier of membrane and related primary materials.

5.1.10 The Contractor will furnish the Owner and the Consultant with a standard 2-year Roofing Contractors labour warranty and the material manufacturer’s standard 15-year L&M warranty, and a 5- or 10-year RoofStar Guarantee (as selected by owner). All observation/inspection fees for the RoofStar Guarantee are to be included within the Base Bid.

.1 Inter-Provincial Roofing Consultants Ltd. A Division of Tri-Tech Pinnacle Group is to be retained as the Observation Firm for the RoofStar Guarantee.

5.1.11 Dispose of all debris/waste in approved containers and transfer to an approved municipal

and/or provincial disposal site(s).

END OF SECTION 01 11 00

06 10 00 - Rough Carpentry

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 All conditions of the Contract and Divisions 00 and 01 apply to this section and to the requirements of the Canadian Roofing Contractors Association Roofing Manual Specifications as referred to herein.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules, and Regulations that in any way affect the Work, including all amendments up to the Project closeout.

1.1.3 Apply in accordance with the Drawings, Specifications and the requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association's Roofing Manual and/or RCABC Roofing Practices Manual.

1.1.4 All Standards, Regulations and Specifications listed herein are the latest edition.

1.2 CO-ORDINATION

1.2.1 Co-ordinate Work of this Section with Work of:

.1 Section 01 11 00 Summary of Work

.2 Section 07 52 16 SBS Modified Bituminous Membrane Roofing

.3 Section 07 62 00 Sheet Metal Flashing and Trim.

.4 Section 07 92 00 Joint Sealants.

1.3 REFERENCE STANDARDS

1.3.1 Carpentry materials, products, and accessories shall be in accordance with the most current applicable industry standards including but not limited to:

.1 ASTM INTERNATIONAL

(a) ASTM A123/A123M Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

(b) ASTM A307, Carbon Steel Bolts & Studs.

(c) ASTM A653/A653M Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealled) by Hot-Dip Process.

(d) ASTM-D1037 – Wood Based Fiber & Particle Panels (Hardboard, OSB)

(e) ASTM D1761 Mechanical Fasteners in Wood.

(f) ASTM D5456 Evaluation of Structural Composite Lumber Products.

(g) ASTM F1667, Nails, Spikes & Staples

.2 ANSI/ASME

(a) ANSI/ASME B18.6.1 – Wood Fasteners

(b) ANSI/ASME B18.6.3 – Steel Fasteners

.3 CSA INTERNATIONAL

(a) CAN/CSA Asphalt Coated Roofing Sheets

(b) CSA B111 - Wire Nails, Spikes and Staples.

(c) CSA 080 – Preservative Treatment of Timber by Pressure Process.

(d) CSA O112 Series - CSA Standards for Wood Adhesives.

(e) CSA O121 - Douglas Fir Plywood.

(f) CAN/CSA O122 - Structural Glued-Laminated Timber.

(g) CSA O141 - Softwood Lumber.

(h) CSA O151 - Canadian Softwood Plywood.

(i) CSA O153 - Poplar Plywood.

(j) CSA O325 - Construction Sheathing.

(k) CSA O437 Series - Standards on OSB and Waferboard.

.4 FOREST STEWARDSHIP COUNCIL (FSC)

(a) FSC-STD-01-001 - FSC Principle and Criteria for Forest Stewardship.

(b) FSC-STD-20-002 - Structure and Content of Forest Stewardship Standards V2-1.

(c) FSC Accredited Certified Bodies.

.5 NATIONAL LUMBER GRADES AUTHORITY (NLGA)

(a) Standard Grading Rules for Canadian Lumber.

.6 UNDERWRITERS' LABORATORIES OF CANADA (ULC)

(a) CAN/ULC-S706 - Standard for Wood Fibre Insulating Boards for Buildings.

1.4 QUALITY ASSURANCE

1.4.1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

1.4.2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ASTM standards.

PART 2 PRODUCTS

2.1 COMPATIBILITY

2.1.1 Compatibility between materials is an essential requirement of the Contract.

2.2 WOOD

2.2.1 BLOCKING AND ROUGH FRAMING

.1 Grade No. 2, Northern Softwood in accordance with “Standard Grading Rules for Canadian Lumber” as issued by National Lumber Grades Authority (N.L.G.A.).

.2 Spruce, #1Softwood, conforming to CSA 0151.

.3 Wood Blocking: 38mm x 38mm (1.5” x 1.5”, 2x2 nominal), 38mm x 89mm (1.5” x 3.5”, 2x4 nominal), 38mm x 140mm (1.5” x 5.5”, 2x6 nominal) 38 x 184mm (1.5” x 7.25”, 2x8 nominal), 38mm x 254mm (1.5” x 9.25”, 2x10 nominal)), 38mm x 286.35mm (1.5” x 11.25” (2x12 nominal).

2.2.2 PLYWOOD SHEATHING

.1 Exterior, Spruce #1, conforming to CSA 0151 or O121, exterior grade, G1S. Thickness of 12.7mm (1/2”) and/or 19.05mm (3/4”) as noted on the Drawings.

2.2.3 WOOD PRESERVATIVE

.1 Copper or Zinc Naphtanate of 5% Pentachlorophenol solution, water repellent preservative to CSA Series 080, green or clear colour or approved alternate. If preservative is Ammonium Copper Quartenary (ACQ), then stainless steel 300 fasteners are to be used.

2.2.4 NAILS

.1 Ardox spiral, to CSA Standard B111, length to give 25.4mm (1") minimum penetration into the materials being fastened.

2.2.5 SCREWS

.1 Fasteners for wood: Galvanized steel wood screws with countersunk heads of size and length to provide a minimum 38mm (1.5") penetration into the underlying member.

.2 Fasteners for steel substrates: Flat head, self-tapping steel screw with galvanized finish as supplied by Fastening House, or Approved Alternate. Length: to suit. Penetrate through the member a minimum of 19.05mm (3/4").

.3 Fasteners for masonry and concrete substrates: Tapcon fasteners with "ClimaSeal" corrosion resistant finish, as manufactured by Buildex/Red Head, or Approved Alternate. Screw to be of sufficient length to penetrate into the substrate a minimum of 38mm (1.5").

.4 Bolts, Washers and Nuts: to ASTM A307. Size as indicated on the Drawings. Hot dipped galvanized or an approved equivalent corrosion resistant finish.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 All carpentry Work is to comply with the best practices of trade and by skilled carpenters.

3.1.2 Provide carpentry alterations and comply with best trade practices. Anchor all wood blocking securely to the existing surfaces and to each other.

3.1.3 Make adjustments to the specified procedures caused by weather and site conditions only with the Owner's approval.

3.1.4 Maintain all equipment in good Working order to ensure the control of roofing operations and the protection of the Work. Equipment and laying techniques are to meet the approval of the Consultant.

3.2 EXAMINATION

3.2.1 Ensure that existing wood blocking to be incorporated with the Work is in good condition and is permanently and properly secured to the existing surfaces.

3.2.2 Inform the Consultant of any unacceptable conditions immediately upon discovery.

3.2.3 Proceed with installation only after the unacceptable conditions have been remedied.

3.2.4 Replace all damaged material and re-seal masonry anchors as required to conform to the design intent herein described.

3.2.5 Remove all sharp edges that would otherwise damage materials that come in contact.

3.3 INSTALLATION

3.3.1 Cut, align, plumb, and secure the wood to conform to the full intent of the Details. Shim the new wood assembly where required in order to obtain true to line levels.

3.3.2 Construct continuous members from pieces of the longest practical length. Treat all saw cuts with wood preservative.

3.3.3 Countersink bolts where necessary to provide clearance for other Work.

3.3.4 Install spanning members with "crown-edge" up.

3.3.5 Install continuous plywood sheathing, wood blockings, studs, nailers and continuous shims where required and Detailed on the Drawings and Details. Shims are to be of sufficient

height to ensure a minimum two (2%) percent positive slope on all parapet, perimeter, and dividing walls.

3.3.6 Install the roof sheathing in accordance with the requirements of the NBC (National Building Code).

3.3.7 Install furring and blocking as required to space-out and support facings, fascia, soffit, siding, and other work as required. All lumber is to be installed with butt joints offset 52mm (2”). Fasten at 457.2mm (18”) o.c. using a 57mm (2-1/4”) Ardox spiral nail.

3.3.8 Install furring to support siding applied vertically where sheathing is not suitable for direct nailing.

3.3.9 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

3.3.10 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

3.3.11 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

3.3.12 Securely the anchor wood blocking, nailers and shims in place at 304.8mm (12”) on centre in a staggered pattern. Fasten studs to the top and bottom plates with two screw fasteners. Fasten wood blocking, nailers and shims to existing substrate with appropriate screw fasteners.

3.3.13 Fasten the plywood along the supported edges at a minimum of 152.4mm (6”) on centre. Fasten to the framing members within the field of the plywood panel at a maximum of 406.35mm (16”) on centre. Fasten the plywood to the framing and the existing substrate with the appropriate fasteners.

3.3.14 Re-fasten any loose existing wood blocking, shims and plywood with screw fasteners where permitted to remain as part of the finished Work and to the satisfaction of the Consultant.

3.3.15 Coordinate Work to keep cutting and remedial Work to a minimum. Fasteners are to be of size and spacing required to assure secure anchorage. Fastener spacing of the wood blocking to the substrate and to each other is not to exceed 304.8mm (12”) o.c. unless otherwise accepted in writing by the Consultant.

3.3.16 Construct wood blocking as per Details. Build-up all perimeter details to accommodate the height of the new roof assembly where required. Install wood blocking so that the new wood blocking extends a minimum of 152 mm (6”) above the required finished roof surface. Install sloped wood blocking along the top of the perimeter sloping inward towards the roof. Build-up all unit curbs a minimum of 203mm (8”) above the finished roof level to accommodate the height of the new roof assembly.

3.3.17 Offset blocking layers 304.8mm (12”) and weave corners.

3.3.18 Assemble blocking using two staggered rows of nailing. Space nails in any row a maximum of 609.6.35mm (24”) on center. Within 2440mm (8’) of outside corners, reduce maximum spacing to 304.8mm (12”) on center.

3.3.19 Install asphalt protection board along the perimeters/curbs/walls, from the top of the existing deck to the top edge of the wood blocking along the perimeters/curbs/walls. The asphalt protection board is to be secured 152.4mm (6”) on center horizontally with fasteners spaced no more than 304.8mm (12”) on center vertically.

3.4 MECHANICAL CURBS

3.4.1 All fans, HVAC, vents, skylight curbs etc. are to be box framed to a minimum height of 204mm (8”) above the finished roof surface.

3.4.2 This includes all roof top openings except drains, electrical conduits, soil stacks, hot stacks and vent stacks.

3.4.3 38mm (1-1/2") thick lumber is to be used or as detailed. Widths as may be required to achieve design intent.

3.4.4 Disconnecting, extending, and reconnecting electrical services to fans, HVAC units etc. Is to be completed by a Mechanical Contractor.

3.4.5 Extending ductwork and vent pipes to new elevations, as required, is to be performed as part of this Contract.

3.5 GAS LINE SUPPORTS

3.5.1 Install new adjustable supports at each pipe elbow, threaded joint, and where the pipe changes in direction, as well as approximately every 6' as per the current CSA B149.1 guidelines, Table 6.2 for the distance of the gas line/conduit tray.

3.5.2 Repair damage to adjacent materials caused by rough carpentry installation.

3.6 PROTECTION

3.6.1 Protect the installed products and components from damage during construction.

3.6.2 Repair damage to adjacent materials caused by rough carpentry installation.

3.7 CLEANING

3.7.1 Clean in accordance with 01 10 00 General Requirements.

3.7.2 Remove all surplus materials and debris resulting from the foregoing work daily as the Work proceeds and upon completion.

END OF SECTION 06 10 00

07 26 00 – Air/Vapour Barrier

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.1.2 Abide by all Federal, Provincial, Municipal and local laws or codes, rules and regulations that in any way affect the work, including all amendments up to the Project closeout.

1.1.3 All standards, regulations and specifications listed herein are the latest edition.

1.2 CO-ORDINATION

1.2.1 Co-ordinate work of this Section with work of:

.1 Section 01 11 00 Summary of Work

.2 Section 07 42 13 Metal Wall Panels

.3 Section 07 52 16 Styrene-Butadiene-Styrene Modified Bituminous Membrane Roofing

.4 Section 07 92 00 Joint Sealants

1.3 REFERENCE STANDARDS

1.3.1 CAN/ULC-S701 – Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering

1.3.2 ASTM C578-12b – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation

1.3.3 ASTM D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics

1.3.4 ASTM E96 – Standard Test Methods for Water Vapor Transmission of Materials

1.4 DELIVERY, STORAGE AND HANDLING

1.4.1 An authorized representative of the Contractor must be on site to receive all materials. The Owner will not accept delivery or supervise unloading or designate placement location of any delivered materials. Materials are to be delivered and stored in appropriate locations indicated by Owner/building manager.

1.4.2 Storage areas are to be fully protected from damage. Any damage to storage areas will be the responsibility of the Contractor.

1.4.3 Materials are to be stored in their original wrapping/containers with the manufacturer's labels intact, indicating the material manufacturer, material name, etc. Materials are to be fully tapered and protection from the weather, vandalism, theft, open flame, and any ignition sources at all times.

1.4.4 Materials are not to be stored in direct contact with the ground, road surface or landscaped areas. Place skids under the materials to protect them from absorbing moisture.

1.4.5 Protect insulation from physical damage at all times. Broken or damaged boards will not be accepted in the installation.

1.5 SUBMITTALS

1.5.1 Upon the request of the Consultant, and/or Owner, the Contractor is to provide the following:

.1 Submit manufacturer's printed product literature, specification, and data sheets. Manufacturer's product date and installation instructions for all materials including and

not limited to Air Vapour Barriers and Adhesives.

.2 Certification that material complies with the specification requirements and is suitable for the intended use.

.3 Material manufacturer's warranties.

1.6 MOCK-UPS

1.6.1 Construct a portion of the exterior wall including masonry, insulation, air-vapour retarder, ties, and reinforcement to establish a standard of construction, workmanship and appearance.

1.6.2 Mock-up is to be reviewed and approved by the Consultant and the Owner before proceeding with any other work. Once mock-up has been approved it can be left as part of the finished work.

1.6.3 If mock-up is not approved, it is the Contractor's responsibility to remove the mock-up and construct a new mock-up for approval, at their own costs.

1.6.4 Contractor is to provide the Consultant and the Owner with 24 to 48 hours' notice to schedule an inspection of the mock-up.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Air/Vapour Barrier Membrane: self-adhering vapour permeable, water resistive membrane consisting of a film and permeable adhesive which is laminated to a split-back poly-release film.
Acceptable product: Blueskin VP160 by Henry Company Canada or approved alternate.

2.1.2 Air/Vapour Barrier Membrane Primer: a rubber-based adhesive for self-adhered membranes. Acceptable product: Blueskin Adhesive by Henry Company Canada or approved alternate.

2.1.3 Air/Vapour Barrier Mastic/Sealant: trowel consistency, solvent type, synthetic rubber-based sealant which cures to flexible film resisting air leakage, to seal around openings and leading edges.
Acceptable product: Air-Bloc 21 by Henry Company Canada or approved alternate.

2.1.4 Through Wall Flashing Membrane (if required): self-adhered membrane consisting of SBS rubberized asphalt which is laminated to a yellow cross-laminated polyethylene film.
Acceptable product: Blueskin TWF by Henry Company Canada or approved alternate.

2.1.5 Through Wall Flashing Primer: rubber-based adhesive for self-adhered membranes.

Acceptable product: Blueskin Adhesive by Henry Company Canada or approved alternate.

Note: The Contractor must supply all primers, mastics, and membranes from a single source manufacturer. No alternates will be accepted without written approval from the Consultant.

PART 3 EXECUTION

3.1 AIR/VAPOUR BARRIER PRIMER APPLICATION

3.1.1 Ensure all surfaces to receive primer are smooth, sound, dry, clean and free from any contaminants which may affect primer adhesion.

3.1.2 Apply primer, continuously by lamb's wool roller, brush or spray equipment at a rate of 1 litre per 2-6m^2 depending on porosity and texture of surface. If spray equipment is used all adjacent areas are to be fully protected from over spray.

3.1.3 Allow primer to dry 30 minutes prior to applying air/vapour barrier membranes. All primed surfaces are to be covered the same day with air/vapour barrier membranes. Areas not covered the same day or that have become dirty are to be re-primed prior to the installation of air/vapour barrier membranes.

3.2 AIR/VAPOUR BARRIER INSTALLATION

3.2.1 Ensure all surfaces to receive self-adhering air/vapour barrier have been primed and are smooth, sound, dry, clean and free from any contaminants which may affect the adhesion of the self- adhering membrane.

3.2.2 The air/vapour barrier membrane is to be installed from the top of the wall down the wall as per details.

3.2.3 Position and align the air/vapour barrier membrane, remove protective field and press firmly in place. Ensure membrane is laying smooth, flat and free of voids, wrinkles, fishmouths and punctures across the entire wall. Repair all voids, wrinkles, fishmouths and punctures according to manufacturer's written instructions.

3.2.4 The air/vapour barrier membrane is to be overlapped a minimum of 50.8mm (2") at end and side laps. Offset end laps a minimum of 914.4mm (3') from the lap above. All laps and membrane are to be rolled with countertop roller to ensure seal has been created and membrane is fully bonded in place.

3.2.5 Seal the top edge of the air/vapour barrier membrane, where it meets the existing block, at the end of each day's work using the air/vapour barrier mastic/sealant.

3.2.6 Air/vapour barrier membrane and mastic/sealant are not designed for permanent exposure and should be covered as soon as possible. Should membrane be left exposed it is to be fully protected from the weather using tarps.

3.3 FINISH

3.3.1 Perform a daily clean up to collect all wrappings, empty containers, and any other debris from the Site.

3.3.2 Upon completion, all debris is to be disposed of in a legally acceptable manner.

3.3.3 Prior to the final inspection, the Contractor is to perform a pre-inspection to review all work and to verify that all flashings have been completed as well as the application of all caulking.

END OF SECTION 07 26 00

07 42 13 – Metal Wall Panels

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 All conditions of Contract and Divisions 0 and 1 apply to this section and to requirements of Canadian Roofing Contractors Association Roofing Manual Specifications as referred to herein.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect work including all amendments up to project date.

1.2 CO-ORDINATION

1.2.1 Co-ordinate work of this Section with work of:

.1 Section 01 11 00 Summary of Work.

.2 Section 07 26 00 Air/Vapour Barrier

.3 Section 07 62 00 Sheet Metal Flashing and Trim.

.4 Section 07 92 00 Joint Sealants.

1.3 STANDARDS

1.3.1 Co-ordinate work of this Section with work of:

1.3.2 ASTM A653/A653-11: Standard specification for sheet steel, zinc coated (galvanized) or zinc-iron alloy-coated (galvannealed) by the hot-dip process.

1.3.3 CAN/CSA-S136-07: North American specification for the design of cold-formed steel structural members.

1.3.4 Canadian Sheet Steel Building Institute: Standard for sheet steel cladding for architectural, industrial and commercial building applications. CSSBI 20M-2008

1.4 QUALIFICATIONS

1.4.1 Contractor qualifications are listed in the GENERAL CONDITIONS under section 01 43 23 CONTRACTOR QUALIFICATIONS.

1.5 QUALITY CONTROL

1.5.1 Quality controls are listed in the GENERAL CONDITIONS under section 01 45 00 QUALITY CONTROL – GOOD ROOFING PRACTICES

1.6 PRE-START MEETING

1.6.1 A pre-start meeting is to be scheduled one week prior to any work commencing. The roofing contractor, the consultant, the on-site contact and/or owner's representative should be present.

1.6.2 The following items will be discussed at the pre-start meeting:

.1 methods and procedures relating to the roof assembly installation

.2 on-site procedures

.3 on-site material storage

.4 the construction schedules

1.7 DELIVERY, STORAGE & HANDLING

1.7.1 Delivery, storage, and handling are listed in the GENERAL CONDITIONS under section 01 66

00 STORAGE & DELIVERY OF MATERIALS.

1.8 DESIGN REQUIREMENTS

1.8.1 Deflection of the metal wall panel system shall not exceed 1/180th of the span for the wind load.

1.8.2 Allow for thermal movements from ambient and surface temperature changes by preventing buckling, overstressing of components, failure of connections. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime sky heat loss. Temperature change (range): 20 degrees C, ambient; 40 degrees C, material surfaces.

1.8.3 Incorporate expansion joints to accommodate movement in cladding between cladding and structure to prevent permanent distortion or damage.

1.8.4 Metal wall panel system to maintain the following tolerances:

.1 Maximum variation from plane or location shown on shop drawings: 20mm/10m (3/4 inch/30 feet)

.2 Maximum offset from true alignment between two adjacent members abutting end to end in line: 1mm (0.04 inches).

PART 2 PRODUCTS

2.1 MANUFACTURERS

2.1.1 Agway Metals Inc. or approved equivalent

2.2 MATERIALS

2.2.1 Zinc coated sheet steel shall conform to ASTM A653/A653-11: Standard specification for sheet steel, zinc coated (galvanized) or zinc-iron alloy-coated (galvannealed) by the hot-dip process, minimum Grade 230, minimum zinc coating designation Z275. The base steel design thickness shall be 0.46mm or greater.

2.2.2 Prefinished sheet steel, in addition to meeting the requirements of 2.2.1, shall be coated in coil form with colours of proven durability for exterior exposure that will meet the performance standards of CSSBI S8 Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products.

2.2.3 Fasteners for attaching cladding to structural framing or other structural supports, for attaching flashing to cladding, and joining cladding components together shall be as recommended by the manufacturer.

2.2.4 Metal Wall Panel Profile: Industrial/Commercial Cladding, Ultima by Agway Metals Inc. (24 ga.) with Perspectra Seris by Baycoat. Do not order metal without written confirmation from Owner.

2.2.5 Metal Wall Panel Colour: Colour of metal siding panels to be selected from standard colour swatch.

2.3 ACCESSORIES

2.3.1 Flashing: material to match metal wall panel in exposed locations, galvanized material in concealed areas. Use preformed corners as supplied by metal wall panel manufacturer.

2.3.2 Closures: metal closures to suit profile selected and supplied by metal wall panel manufacturer.

2.3.3 Sealants: as recommended by metal wall panel manufacturer.

2.3.4 Cap metal at roof parapet is to be replaced to suit the installation of the metal wall panels. Metal to be 26 gauge pre-painted galvanized; Series 8000 baked enamel finish; colour to match existing, to ASTM A653/A653M-10. 24-gauge metal for all cleats and hook strips. Colour to be

confirmed by owner.

PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Verify all surfaces are ready to accept the installation of metal wall panels. Notify architect/consultant of any areas which are not acceptable for installation of metal wall panels. Repair areas to accept metal wall panels.

3.2 INSTALLATION

3.2.1 Frame all openings in cladding as per Manufacturers written instructions.

3.2.2 Install starter flashings, drip flashing, corner, edging, window and door flashing as required by the Manufacturer.

3.2.3 Install exterior metal wall panels as per manufacturer's written procedures, providing all required laps and detailing to ensure panels are watertight. Install finishing flashings and closures.

3.2.4 Apply sealant at junctions with adjoining materials as per drawings.

3.2.5 At the east and west elevations, the existing louvers are to be removed. Once the sub-girts have been installed, extend the existing venting to reach the exterior surface of the metal wall panels. Install new louver to match siding colour.

3.3 CLEAN-UP

3.3.1 At the east and west elevations, the existing louvers are to be removed. Once the sub-girts have been installed, extend the existing venting to reach the exterior surface of the metal wall panels. Install new louver to match siding colour.

3.3.2 Repair and touch up with color matching enamel minor surface damage, as supplied by metal wall panel manufacturer. Touch up areas are to be reviewed with owner/architect, should these areas not be acceptable to the owner/architect, metal wall panel(s) will need to be removed and replaced.

END OF SECTION 07 42 13

07 52 16 - Styrene-Butadiene-Styrene Modified Bituminous Membrane Roofing

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 Apply in accordance with the Drawings, Specifications and the requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association's Roofing Manual and/or RCABC Roofing Practices Manual.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect work including all amendments up to project date.

1.2 SECTION INCLUDES

1.2.1 Building 1 RA 100 & 200

1.2.2 Building 2 RA 300

1.2.3 Building 3 RA 400

1.3 CO-ORDINATION

1.3.1 Co-ordinate work of this Section with work of:

.1 Section 01 11 00 Summary of Work

.2 Section 06 10 00 Rough Carpentry.

.3 Section 07 26 00 Air/Vapour Barrier

.4 Section 07 62 00 Sheet Metal Flashing and Trim.

.5 Section 07 92 00 Joint Sealants.

1.4 STANDARDS

1.4.1 CAN/CSA O80 SERIES-08 – Wood Preservation.

1.4.2 CAN/CGSB 19.13-M87: Single Compound, One-Component, Elastomeric, Chemical Curing.

1.4.3 CSA A123.23: Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.

1.4.4 CGSB 37-GP-9MA: Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.

1.4.5 CGSB 37-GP-64M: Mat Reinforcing, Fibrous Glass, for Membrane Waterproofing Systems and Built-up Roofing.

1.4.6 ASTM C165-12: Standard Test Method for Measuring Compressive Properties of Thermal Insulations.

1.4.7 ASTM D6164/D6164M-11: Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

1.4.8 ASTM A653/A653M-10: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.

1.4.9 ASTM E84-12: Standard Test Method for Surface Burning Characteristics of Building Materials

1.4.10 UL 790: Standard Test Methods for Fire Tests of Roof Coverings

1.4.11 UL 1256: Fire Test of Roof Deck Constructions.

1.5 SYSTEM DESCRIPTION

1.5.1 Building 1 RA 100

.1 2-Ply Conventional Modified Bitumen Roof System: 1-ply granulated modified bitumen cap sheet, torch-applied; over 1-ply modified bitumen base sheet, pre-laminated to high-density polyisocyanurate overlay board, in adhesive; over the tongue and groove wood deck.

1.5.2 Building 1 RA 200

.1 2-Ply Conventional Modified Bitumen Roof System: 1-ply granulated modified bitumen cap sheet, torch-applied; over 1-ply modified bitumen base sheet, pre-laminated to high-density polyisocyanurate overlay board, in adhesive; over tapered polyisocyanurate insulation in adhesive, over self-adhering vapour barrier; over the tongue and groove wood deck.

1.5.3 Building 2 RA 300

.1 2-Ply Conventional Modified Bitumen Roof System: 1-ply granulated modified bitumen cap sheet, torch-applied; over 1-ply modified bitumen base sheet, pre-laminated to high-density polyisocyanurate overlay board, in adhesive; over polyisocyanurate insulation in adhesive, over self-adhering barrier; over the tongue and groove wood deck.

1.5.4 Building 3 RA 400

.1 2-Ply Conventional Modified Bitumen Roof System: 1-ply granulated modified bitumen cap sheet, torch-applied; over 1-ply modified bitumen base sheet, pre-laminated to high-density polyisocyanurate overlay board, in adhesive; over tapered polyisocyanurate insulation in adhesive; over flat polyisocyanurate insulation in adhesive; self-adhering vapour barrier; over the tongue and groove wood deck.

1.5.5 Membrane Flashings (For All Roof Areas):

.1 1-ply granulated modified bitumen cap sheet, torch-applied; and 1-ply modified bitumen base sheet, self-adhering.

1.6 QUALIFICATIONS

1.6.1 Contractor qualifications are listed in the GENERAL CONDITIONS under section 01 43 23 CONTRACTOR QUALIFICATIONS.

1.7 QUALITY CONTROL

1.7.1 Quality controls are listed in the GENERAL CONDITIONS under section 01 45 00 QUALITY CONTROL – GOOD ROOFING PRACTICES

1.8 PRE-START MEETING

1.8.1 A pre-start meeting is to be scheduled one week prior to any work commencing. The roofing contractor, the consultant, the on-site contact and/or owner's representative should be present. The following items will be discussed at the pre-start meeting:

.1 methods and procedures relating to the roof assembly installation

.2 on-site procedures

.3 on-site material storage

.4 the construction schedules

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Roof Membrane (Modified Bitumen – Cap Sheet): Modified bituminous cap membranes, granulated top and thermofusible bottom surfaces. Non-woven polyester reinforced, conforming to CSA A123.23 Type B

2.1.2 Roof Membrane (Modified Bitumen – Pre-Laminated Base Sheet): Modified bituminous membranes, pre-laminated to 13mm (0.5") high density polyisocyanurate insulation, polyester reinforced membrane, conforming to CSA A123.23 Type B

2.1.3 Flashing Membrane (Modified Bitumen – Cap Sheet): Modified bituminous cap membranes, granulated top and thermofusible bottom surfaces. Non-woven polyester reinforced, conforming to CSA A123.23 Type B

2.1.4 Flashing Membrane (Modified Bitumen – Base Sheet): Modified bituminous membranes, thermofusible top and self-adhering bottom surfaces. Non-woven polyester reinforced, conforming to CSA A123.23 Type B

2.1.5 Roof Membrane Primer & Adhesive – As recommended by Manufacturer

2.1.6 Pre-Laminated Base Sheet & Tapered Insulation Adhesive: Low-rise, two-part polyurethane foam adhesive.

2.1.7 Tapered Insulation (**BLDG 1 RA 200**): Fully tapered polyisocyanurate insulation to provide a finished slope of 1% as per design. Crickets are to be used at all openings and/or mechanical curbs. Flat areas around the drains are not to exceed 50ft2. Meeting and exceeding the requirements of CAN/CSA-A247-M86 and CAN/ULC-S706.

2.1.8 Tapered Crickets (**BLDG 3 RA 400**): Tapered polyisocyanurate crickets and perimeter backslope to provide slope away from walls and between drains, as per design, to achieve a finished slope of 2%. Meeting and exceeding the requirements of CAN/CSA-A247-M86 and CAN/ULC-S706.

2.1.9 Insulation (**BLDG 2 RA300 & BLDG 3 RA 400)**: 25mm (1") Polyisocyanurate insulation (4'x4' boards). Type: closed cell polyisocyanurate foam roof board insulation with inorganic coated glass facer, meeting the requirements of CAN/ULC S704, Type 2 Class 3 materials and ASTM C1289, Type II, Class 2, Grade 2.

2.1.10 Self-Adhering Vapour Barrier (**BLDG 2 RA 300 & BLDG 3 RA 400)**: Self-adhering bottom side with tri-laminated woven polyethylene facer & SBS modified bitumen underside covered with silicone release film, conforming to CAN/CGSB-51.33-M89.

2.1.11 Self-Adhering Membrane (Perimeter Parapets): Self-adhering, self-sealing, composite membrane consisting of a high softening point with SBS rubberized asphalt compound.

2.1.12 Self-Adhering Membrane Adhesive (Perimeter Parapets): Rubber based adhesive for self-adhering membranes.

2.1.13 Asphalt Protection Board: 6.35mm (1/4") thick (4'x4' boards), torch safe, semi-rigid protection board.

2.1.14 Mastic: One-part, solvent & asbestos free, moisture curing elastomer.

2.1.15 Liquid Applied PMMA Membrane Flashings: Two-component polymethacrylate liquid membrane with catalyst and mesh reinforcement. UV stable and VOC compliant. Conforming to ASTM D5147.

2.2 ACCESSORIES

2.2.1 Wood Blocking, Plywood Sheathing: Construction grade; free from warping and visible decay; pressure-treated spruce, to CAN/CSA O80 SERIES-08.

2.2.2 Metal Flashing: 24 gauge pre-painted galvanized; Series 8000 baked enamel finish; colour to match existing, to ASTM A653/A653M-10. 22-gauge metal for all cleats and hook strips. Colour to be confirmed by the Owner.

2.2.3 Pitch Pan: Pre-manufactured type; 16 oz. copper, fully soldered, minimum 152.4 mm (6") high above finished roof level, complete with copper caps.

2.2.4 Pitch Pan Sealant: M-1 Structural sealant and 1-part pourable sealer by ChemLink.

2.2.5 Self-Adhering Membrane (Perimeter Parapet): Self-adhering, self-sealing, composite membrane consisting of a high softening point with SBS rubberized asphalt compound.

2.2.6 Self-Adhering Membrane Adhesive (Perimeter Parapet): Rubber based adhesive for self-adhering membranes.

2.2.7 Sealant: single component; moisture cure; polyurethane sealant conforming to CAN/CGSB19.13M87.

2.2.8 Fasteners: 25 mm square or round head, ring shanked galvanized or non-ferrous type, length as required to suit application.

2.2.9 Drains: New Copper Retrofit Drain, with flange, dome, and blue drain seals by Menzies Metal Products

2.2.10 Control Flow Mechanism: As supplied by the drain manufacturer (if required by Municipality)

2.2.11 Tall Cones: all sizes (1.5" – 12"): Menzies Metal Products

2.2.12 Gooseneck Flashing: Electrical Roof Flashings by Menzies Metal Products

2.2.13 Vent Stacks: Prefabricated, insulated, 3" or 4". Spun aluminum with a vandal proof cap by Menzies Metal Products

2.2.14 Termination Bar: 10' Alum Termination Bar by Menzies Metal Products

2.2.15 Gas Line Supports: Gas line support with prefabricated insulation cushion

2.2.16 Gas Line Paint: Paint to conform to CSA B149.1. Tremclad Yellow by Tremco or Corrostop by SICO.

2.2.17 Foam Gasket: EMSEAL MST Multi-Use Sealant Tape or EMSEAL UST Sealant Tape.

2.2.18 Overflow Scuppers: Sheet metal with soldered joints, 8" width and 4" height.

2.2.19 Skylights: Aluminum curb, double glazing (to match existing). Dome Glazing colour to be selected by Owner (from standard colour options). Acceptable Product: Artistic Skylight Domes; or approved alternate.

NOTE: The contractor must supply all primers, mastics, and membranes from a single source Manufacturer. No alternates will be accepted without written approval from the Consultant

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Supply and install perimeter safety warning as prescribed by the Provincial Occupational Health and Safety Code and all local codes before starting any other work.

3.1.2 It is the contractor's responsibility to obtain all required permits for this project and must carry this cost in his bid price.

3.1.3 The ground areas around the building are to be protected as much as possible. All disposal boxes must be placed on planks. The interior areas of the building, where the roofing contractor has access, are to be protected.

3.1.4 It is the responsibility of the roofing contractor to contact the Owner to mark the exact location of buried utilities.

3.1.5 Remove the existing roofing down to the existing wood deck. Dispose of all debris at an appropriate licensed dump site. No garbage is to be stored on the roof. Remove the existing metal flashings and membrane flashings down to the existing substrates.

3.1.6 Should the wood deck be found to be deteriorated, requiring replacement, the roofing Contractor is responsible to document all areas with photographs and measurements indicated on a roof plan, on a daily basis and provide them to both the Consultant and Owner. Wood deck replacement quantities proposed for replacement are to be approved in writing by the Consultant and Owner prior to any area being replaced.

.1 Should the existing wood deck require replacement, the roofing Contractor is responsible to have an engineer review the installation of the wood deck and provide a written and stamped report indicating that the deck has been installed according to code requirements and is structurally adequate. All reports are to be submitted to the Consultant and Owner.

3.1.7 Should the roofing Contractor proceed to install any structural deck without photos, measurements and written approval, no additional funds will be paid for these areas. All pricing for the deck replacement will be taken from the unit prices provided in the Bid Form. Should approval not be obtained the same day, the roofing Contractor will be responsible for temporarily waterproofing the area.

3.1.8 Inspect the structural deck and report any deficiencies to the Owner's Representative. Do not apply any new roofing over deficiencies, other than temporary waterproofing, until all deficiencies have been corrected.

3.1.9 Do not remove more of the existing roofing than can be completely waterproofed in one day.

3.1.10 The roofing contractor shall be responsible for all roof leaks (both on the existing roofing assembly and the new roofing assembly) at the building once they begin to set-up and load materials onto the roof at the beginning of the project.

3.1.11 The roofing contractor is responsible to disconnect and reconnect any mechanical, electrical conduit, cabling, and/or gas lines which are affecting the roof installation. The roofing contractor is responsible for all satellites. The satellites are to be moved and put back in the approximate same location. Roofing contractor is responsible for repositioning satellites to obtain proper signal.

3.1.12 Should wall anchors, roof anchors, and/or davit arm bases require re-certification it will be the roofing contractor's responsibility to do so and is to be carried in the tender price.

3.1.13 Remove all designated redundant equipment, pipes, cones, pitch pans, conduits, unused anchors, davits and equipment as identified by the Owner.

3.2 REDUNDANT EQUIPMENT/OPENINGS

3.2.1 Remove all designated redundant equipment, pipes, cones, pitch pans, etc. Install new metal plate over the openings. Metal will be installed on a continuous bead of elastomeric sealant and screwed down with stainless steel self-tapping screws a minimum of 152.4mm (6") on centre around the perimeter. All redundant equipment will be marked with yellow paint by building operator.

3.3 CARPENTRY

3.3.1 Construct wood blocking as per details. Build-up all perimeter details to accommodate the height of the new roof assembly. Outside perimeter wood blocking is to be minimum 152mm (6") above the finished roof surface and sloped inward toward the roof. Install sloped wood blocking along the outside perimeters. Build-up all unit curbs a minimum of 203mm (8") above the finished roof level to accommodate the height of the new roofing assembly where required.

3.3.2 Offset blocking layers 304.8mm (12") and weave corners.

3.3.3 Assemble blocking using two staggered rows of nailing. Space nails in any row a maximum of 609.6mm (24") on centre. Within 2440mm (8') of outside corners, reduce maximum spacing to 304.8mm (12") on centre.

3.3.4 Install asphalt protection board along all perimeters, curbs and walls, from the top of the deck to the top of the details. The asphalt protection board is to be secured 6" on centre horizontally with fasteners spaced no more than 12" on centre vertically.

3.4 VAPOUR BARRIER (DEPENDING ON ROOF AREA)

3.4.1 Verify all substrates to receive the vapour barrier primer are clean, dry and free from any contaminants that could affect adhesion of the primer and/or vapour barrier.

3.4.2 All substrates to receive vapour barrier are to be primed. The primer is to be applied by brush, roller or sprayer. Allow primer to be dry to touch prior to applying the vapour barrier.

3.4.3 Over the clean, dry and primed substrates (wood deck, wood blocking, etc.) apply the self-adhering vapour barrier membrane.

3.4.4 Roll out the vapour barrier and allow it to relax prior to application. Cut lengths to fit the application. Set in place and pull back the release film 152.4mm to 304.8mm (6" to 12") and place it on the prepared surface. Remove the release film from the remainder of the sheet and apply pressure to ensure proper contact with prepared surface.

3.4.5 Overlaps: side laps to be 76.2mm (3") and end laps to be 152.4mm (6")

3.4.6 Commence the vapour barrier application at the lowest edge of drain. Proceed up the slope form the lowest point on the roof.

3.4.7 At terminations and penetrations, the vapour barrier is to be extended up the vertical surface, above the insulation a minimum of 50.8mm (2").

3.5 INSULATION (DEPENDING ON ROOF AREA)

3.5.1 Verify all substrates to receive insulation in adhesive are clean, dry and free from any contaminants that could affect adhesion of adhesive.

3.5.2 Ensure all insulation boards are fully supported, joints staggered, and all edges are butted tight with no gaps between boards. All joints to be staggered a minimum of 609.6mm (2') per row.

3.5.3 Apply foamable adhesive directly to the field in a ribbon pattern. The ribbons are to be between 12.7mm to 19mm (1/2" to ¾") wide ribbons. The ribbons are to be spaced 10" continuously across each board within the field, 6" continuously across each board within 12'

of the perimeters, and 4" continuously across each board within 12' of a corner.

3.5.4 As foamable adhesive is applied, embed the insulation immediately. Do not allow the adhesive to skin over.

3.5.5 Keep insulation a minimum of 75mm (3") from heat emitting devices and a minimum of 52mm (2") from sidewalls of CAN/ULC S604 Type "A" chimneys and CN/CGA 149.2 Type B & L vents, (commonly called B-Vents or Hot Stacks).

3.5.6 Do not apply more insulation than can be covered with membranes in the same Workday.

3.5.7 Install sloped prefabricated insulation sumps 2438.4mm x 2438.4mm (8'x8') around all roof drains. Adjust the insulation thickness to accommodate the sumps.

3.5.8 No damaged or wet insulation will be accepted. All rejected materials will be marked and must be stored on site. They are not to be removed until the Project is completed.

3.6 TAPERED INSULATION OR TAPERED CRICKETS (DEPENDING ON ROOF AREA)

3.6.1 Verify all substrates to receive tapered insulation boards are clean, dry and free from contaminants that could affect adhesion and installation of the board.

3.6.2 Install tapered insulation (to achieve 1% slope) in adhesive, as designed.

3.6.3 Install tapered insulation cricket in adhesive, as designed.

3.6.4 Ensure that all insulation boards are fully supported, joints staggered, and all edges are butted tight with no gaps between boards. Insulation is to be placed with all joints staggered a minimum of 609.6mm (2') per row.

3.6.5 Apply foamable adhesive directly to the field in a ribbon pattern. The ribbons are to be between 12.7mm to 19mm (1/2" to ¾") wide ribbons. The ribbons are to be spaced 10" continuously across each board within the field 6" continuously across each board within 12' of the perimeters and 4" continuously across each board within 12' of a corner.

3.6.6 As foamable adhesive is applied, embed the board immediately. Do not allow the adhesive to skin over.

3.6.7 Keep insulation a minimum of 75mm (3") from heat emitting devices and a minimum of 52mm (2") from sidewalls of CAN/ULC S604 Type "A" chimneys and CN/CGA 149.2 Type B & L vents, (commonly called B-Vents or Hot Stacks).

3.6.8 No damaged or wet boards will be accepted. All rejected materials will be marked and must be stored on site. They are not to be removed until the project is completed

3.7 MEMBRANE APPLICATION – BASE SHEET PRE-LAMINATED TO HIGH DENSITY POLYISOCYANURATE INSULATION BOARDS

3.7.1 Verify all substrates to receive high density polyisocyanurate insulation boards with pre-laminated base sheet are clean, dry, and free from contaminants that could affect adhesion of the foamable adhesive and installation of the board. No damaged or wet boards will be accepted. All rejected materials will be marked and must be stored on site. They are not to be removed until the project is completed.

3.7.2 Ensure that all boards are fully supported, joints staggered, and all edge are butted tight with no gaps between boards.

3.7.3 Apply foamable adhesive directly to the insulation in a ribbon pattern. The ribbons are to be between 12.7mm to 19mm (1/2" to ¾") wide ribbons. The ribbons are to be spaced 10" continuously across each board within the field 6" continuously across each board within 12' of the perimeters and 4" continuously across each board within 12' of a corner.

3.7.4 Pre-laminated high density polyisocyanurate insulation boards are to be butted tight to the next board, outside perimeters, curbs, and walls.

3.7.5 As foamable adhesive is applied, embed the pre-laminated insulation boards immediately. Do not allow the adhesive to skin over.

3.7.6 The first parts of the side laps are to be fully adhered and pressed in place using a membrane roller, then hot air weld the remaining part of the side laps.

3.7.7 Over the clean dry pre-laminated insulation board end laps, apply protection membrane.

3.8 PROTECTION MEMBRANE

3.8.1 Over the clean and dry pre-laminated high density polyisocyanurate insulation boards and wood blocking at curbs and perimeters, (prior to installing the modified bituminous base sheet flashings), apply protection membrane over all vertical to horizontal transitions in the roofs. Apply 13" strip of protection membrane centered over the joints and vertical to horizontal transitions. Ensure the protection membrane lie flat, with no wrinkles, fishmouths, or blisters and are fully bonded.

3.9 FIRE WATCH

3.9.1 It is absolutely required that in all areas where a thermofusible (torch applied) membrane was applied, the work area be carefully inspected for fire, a minimum of 3 hours after work has stopped for the day, using an infrared gun and before the crew leaves the roof.

3.10 MEMBRANE APPLICATION – CAP SHEET (TORCHED)

3.10.1 Verify all substrates to receive cap sheet membranes are clean, dry and free from contaminants that could affect adhesion of the and installation.

3.10.2 Unroll the granulated modified bituminous cap sheet membranes and allow them to relax, as per manufacturer's written instructions.

3.10.3 Offset all cap sheet membranes 457mm (18") from the base sheet membranes.

3.10.4 Beginning at the drains, perpendicular to the slope and shingled to shed water, install the modified bituminous cap sheet torched in place to the base sheet. The modified bituminous cap sheet field membranes are to be terminated at the base of the horizontal to vertical transition.

3.10.5 Install the cap sheet membrane in parallel courses with the end laps staggered a minimum of 914.4mm(36") from each other and a minimum of 914.4mm(36") from the base sheet membranes. Side laps are to be 76.2mm (3") and end laps are to be 152.4mm (6"). All corners, at end laps are to be cut as per membrane manufacturer's requirements.

3.10.6 Install the cap sheet membrane, torched in place. Ensure that approximately 6.35mm (1/4") bleed out is achieved at all laps.

3.10.7 Ensure that the cap sheet membranes lie flat, with no wrinkles, fishmouths, or blisters, and are fully bonded to the underlying substrate(s).

3.10.8 Ensure the roofing substrates and/or construction elements pose no fire hazards during the use of torch equipment. Do not torch on to wood substrates or at locations that could project flames onto combustible materials. Where any wood substrates are discovered, a compatible self-adhered **cap sheet** is to be applied instead of the thermo-fusible **cap sheet**, the base sheet is to be compatible with the self-adhering granulated cap sheet.

3.11 NIGHT SEAL

3.11.1 Roofer is responsible to have all roofs closed-in and in a watertight condition at the end of each production day.

3.11.2 It is the Foreman's responsibility to thoroughly check this detail at the end of each day before leaving the roof.

3.12 MEMBRANE FLASHINGS

3.12.1 **Membrane flashings:** 1-ply of self-adhered modified bituminous base sheet membrane and 1-ply of modified bituminous cap sheet membrane torched in place. All seam overlaps on the base sheets are to be heat welded.

3.12.2 **Primer:** All surfaces to receive self-adhering modified bitumen base sheets and base sheet membrane flashings are to receive a primer at a rate of 150 sq. ft. per gallon. Ensure that all surfaces are clean and dry before primer application.

3.12.3 Unroll the modified bituminous membrane flashings and allow them to relax, as per manufacturer's written instructions.

3.12.4 Install flashings, including laps, splices, joints, bonding, adhesion and attachment as required and in accordance with manufacturer's written instructions and details.

3.12.5 Ensure that all membrane flashings are smooth, free from wrinkles, blisters, fishmouths and fully bonded in place.

3.12.6 Flashing membranes are to be terminated 304.8mm (12") above the base of vertical surfaces at all locations. If weep holes are present, terminate membrane flashings 1-course below the weep holes/weepers.

3.12.7 Perimeter (Outside Perimeters):

.1 If required, raise the existing perimeter to accommodate the height of the roof assembly and slope inward towards the roof, as per details.

.2 Install 6.35mm (1/4") asphalt protection board over exposed substrate. Asphalt recovery board is to be continuous. It is to extend from the top of the structural deck to the top of the wall.

.3 After the application of the modified bituminous base sheet field membranes, apply 1-ply of modified bituminous base sheet flashing membranes, extending onto the field of the roof a minimum of 101.6mm (4").

.4 Once the modified bituminous cap sheet field membranes have been installed, 1-ply modified bituminous cap sheet flashing membranes, extending onto the field of the roof a minimum of 101.6mm (4"). Cap sheet flashing membrane to be installed in 1-meter widths with 76.2mm (3") side laps. Cap sheet flashing side laps to be staggered 101.6mm (4") from the cap sheet field membrane overlaps.

.5 Continuously seal the top edge of the granulated modified bituminous cap sheet membrane flashings with elastomeric sealant.

.6 At high wall locations, a termination bar is to be installed through the flashing membranes, approximately 12.7mm (0.5") below the top of the membrane. It is to be secured 152.4mm (6") on centre.

.7 Fully cover the membrane flashings with new pre-painted metal flashings.

3.12.8 Equipment Curb Flashings:

.1 Build-up all unit curbs a minimum of 203mm (8") above the finished roof level to accommodate the height of the new roofing assembly where required.

.2 Install 6.35mm (1/4") asphalt recovery board over exposed substrate. Asphalt recovery board is to be continuous. It is to extend from the top of the structural deck to the top of the curb.

.3 Temporarily disconnect each HVAC/fan unit, completely lift the unit off the curb and set it on the roof while flashing the curb. The unit is to be set on plywood, protecting the roof membrane. Once the curb has been flashed, the unit is to be lifted off the roof and set back on the curb. Then once the unit has been reinstalled and reconnected it is to be

tested to ensure it is working properly. The unit work must be performed only by qualified HVAC contractors. Roofing contractor is responsible for these costs in his bid price.

.4 After the application of the modified bituminous base sheet field membrane, apply 1 ply of modified bituminous base sheet flashing membrane, extending over top of the curb, and down onto the field of the roof a minimum of 100mm (4.0”).

.5 After the application of the modified bituminous cap sheet field membrane, apply 1 ply of modified bituminous cap sheet flashing membrane, extending onto the field of the roof. Extending a minimum of 100mm (4.0”) beyond the 1st ply onto the field of the roof and extending over top of the curb. Ensure that the laps of the 2nd ply do not coincide with the laps of the 1st ply.

.6 The cap sheet flashing membrane is to be nailed every 6.0” o.c. at the top of the curb.

.7 Fully cover the membrane flashings with new pre-painted 24-gauge metal.

.8 Install new foam gasket over top of the metal flashings prior to reinstalling mechanical equipment. Ensure foam gasket is continuous, creating a permanent seal between the mechanical equipment/skylights and metal flashings.

3.12.9 Pitch Pans:

.1 All pitch pans will be replaced. Pitch pans must be a minimum of 152.4mm (6”) high with a 125 mm (5.0") primed roof flange. The sides of the pan will be a minimum of 50.8mm (2”) from the projection. Where possible use a copper gooseneck instead of a pitch pan.

.2 Secure a metal cone down to the deck. The cone must extend up past the finished level of the roofing a minimum of 50.8mm (2”). Install the roofing vapour barrier so that it extends above the insulation surface. The insulation should butt up against the metal cone (depending on roof area and configuration).

.3 Over the new modified bituminous base sheet field membrane, embed the flange of the new pitch pan/gooseneck in elastomeric sealant.

.4 Install 1 ply of modified bituminous base sheet flashing membrane over the flange. The base sheet flashings shall be applied starting 38mm (1.5”) away from the upright and extend a minimum of 101.6mm (4”) beyond the flange. The modified bituminous cap sheet field membrane shall be applied tight to the upright. Elastomeric sealant is to be applied where the modified bituminous cap sheet field membrane meets the pitch pan along the base.

.5 Ensure the penetration and the inside walls of the new pitch pans are clean and free from any dirt or debris before applying any sealant.

.6 Fill all pitch pans using 1-part pourable sealant.

.7 Supply and install a new metal cap completely covering the pitch pan sealant.

3.12.10 Plumbing Vents:

.1 Stack jack flange must be primed before installation.

.2 Mechanically fasten a metal cone down to the deck. The cone must extend up past the finished level of the roofing a minimum of 50.8mm (2”). Install the roofing vapour barrier so that it extends above the insulation surface. The insulation should butt up against the metal cone (depending on roof area and configuration).

.3 Over the new modified bituminous base sheet field membrane, embed the flange of the new soil stack in elastomeric sealant. No cracked or broken stacks will be accepted.

.4 Install 1 ply of modified bituminous base sheet flashing membrane over the flange. The

base sheet flashings shall be applied starting 38mm (1.5") away from the upright and extend a minimum of 101.6mm (4") beyond the flange. The modified bituminous cap sheet field membrane shall be applied tight to the upright. Elastomeric sealant is to be applied where the modified bituminous cap sheet field membrane meets the vent flashing along the base.

.5 Install insulating sleeve.

.6 Mechanically fasten soil stack cover with 2 self-tapping stainless-steel metal screws.

3.12.11 Furnace Stacks:

.1 Replace any damaged cones. Prime all flanges, paint all existing stacks using double duty aluminum paint.

.2 Secure a metal cone down to the deck. The cone must extend up past the finished level of the roofing a minimum of 50mm (2"). Install the roofing vapour barrier so that it extends above the insulation surface. The insulation should butt up against the metal cone (depending on roof area and configuration.

.3 Over the new modified bituminous base sheet field membrane, embed the flange of a second metal cone in elastomeric sealant.

.4 Install 1 ply of modified bituminous base sheet flashing membrane over the flange. The base sheet flashings shall be applied starting 38mm (1.5") away from the upright and extend a minimum of 100mm (4") beyond the flange. The modified bituminous cap sheet field membrane shall be applied tight to the upright. Elastomeric sealant is to be applied where the modified bituminous cap sheet field membrane meets the vent flashing along the base.

.5 Install double storm collars around stack openings and seal with caulking.

3.12.12 Roof Drains:

.1 Plug the drains temporarily while working around them.

.2 Sump the area around the new drains 13mm (0.5") deep, a minimum of 610mm (24") from the centre of the drain in all directions.

.3 Over the new modified bituminous base sheet field membrane, install new U-Flow drain inserts complete with U-Flow seals in a full bed of elastomeric sealant. Check the drainpipes on the underside of the deck to ensure the installation of the proper length of insert down-pipe. Ensure that the pipe does not impede the flow of water.

.4 Apply 1 coat of primer to the flange.

.5 Install 1 ply of modified bituminous base sheet flashing membrane extending a minimum of 457mm (18") from the centre of the drain.

.6 Install 1 ply of modified bituminous cap sheet field membrane over the base sheet flashing membrane.

.7 The new metal strainer and control flow mechanism are to be installed immediately following the installation of the flashing membranes. Therefore, if the roof has 10 drains and only two drains have been flashed (that particular day), those two drains are to have the metal strainer and control flow mechanism installed at the end of that workday.

3.12.13 Sleepers/Separation Curbs:

.1 Build-up all sleepers a minimum of 203mm (8") above the finished roof level to accommodate the height of the new roof assembly where required. Wood blocking to be pressure treated. Ensure positive drainage between sleepers, under the mechanical equipment.

.2 Install 6.35mm (1/4") asphalt recovery board over exposed substrate. Asphalt recovery board is to be continuous. It is to extend from the top of the deck to the top of the sleeper.

.3 Temporarily disconnect each HVAC/fan unit, completely lift the unit off the sleepers and set it on the roof while flashing the sleepers. The HVAC/fan unit is to be set on plywood, protecting the roof membrane. Once the sleepers have been flashed, new metal is to be installed, the unit is to be lifted off the roof and set back on the curb. Then once the unit has been reinstalled and reconnected it is to be tested to ensure it is working properly. The unit work must be performed only by qualified HVAC contractors.

.4 Apply one coat of quick dry primer on all surfaces to receive modified bituminous membranes at a rate of 150 sq.ft. per gallon. Ensure that all surfaces are clean and dry before primer application.

.5 After the application of the modified bituminous base sheet field membranes, apply 1-ply of modified bituminous base sheet flashing membrane, extending onto the field minimum 101mm (4") on both sides of the sleepers.

.6 Base sheet flashing membranes are to be installed in 1-meter widths with 76.2mm (3") side laps. Base sheet flashing side laps to be staggered 152.4mm (6") from the base sheet field membrane overlaps. The base sheet flashings are to be extended a minimum of 101.6mm (4") onto the field of the roof.

.7 Once the modified bituminous cap sheet field membranes have been installed, 1-ply of modified bituminous granulated cap sheet flashing membranes. Cap sheet flashing membrane to be installed in 1-meter widths with 76.2mm (3") side laps. Cap sheet flashing side laps to be staggered 101.6mm (4") from the cap sheet field membrane overlaps.

.8 The cap sheet flashings are to be extended a minimum of 203.2mm (8") onto the field of the roof, on both sides of the sleepers.

.9 Fully cover the membrane flashings with new pre-painted 24-gauge metal.

3.12.14 Masonry Wall (Double Gum Lip):

.1 Flashing membranes at masonry walls are to be terminated 304.8mm (12") up the wall.

.2 After the application of the modified bituminous base sheet field membranes, apply 1-ply modified bituminous base sheet flashing membrane.

.3 After the application of the modified bituminous cap sheet field membranes, apply 1-ply granulated modified bituminous cap sheet, extending a minimum of 101.6mm (4") beyond the modified bituminous membrane base sheet flashings onto the roof surface and extending to the top of the perimeter. Ensure that the laps of the granulated modified bituminous cap sheet flashings do not coincide with the laps of the modified bituminous membrane base sheet flashings.

.4 Continuously seal the top edge of the flashing membranes with elastomeric sealant.

.5 A termination bar is to be installed through the flashing membranes, approximately 12.7mm (0.5") below the top of the membrane. It is to be secured 152.4mm (6") on centre.

.6 Fully cover the membrane flashings with new pre-painted metal flashings and apply a continuous bead of sealant between the masonry and new metal flashings.

.7 Install an additional section of new pre-painted metal flashings and apply a continuous bead of sealant between the masonry and new metal flashings (double gum lip).

3.12.15 Liquid-Applied PMMA Membrane Flashings:

.1 After the application of the 2-ply modified bituminous base and cap sheet field membranes, install mastic/sealant around the base of the metal support post and the field membranes.

.2 After mixing catalyst, apply primer to clean and prepared substrate using approved rollers or brushes. Allow primer to cure prior for a minimum of 30-45 minutes prior to the installation of the liquid applied PPMA membranes

.3 After mixing, apply resin to substrate at a rate of 0.14 to 0.31 kg/ft2 (1.5 to 3.3 kg/m2) (depending on substrate, as approved by material manufacturer) using approved rollers or brushes. The PMMA resin should be spread evenly onto the surface.

.4 Roll PMMA Fleece reinforcement directly into the resin, avoiding any folds and wrinkles. Use a roller to work the resin into the fleece, saturating from the bottom up. The fleece should darken in appearance, with no white spots showing. When required peel back fleece and apply additional resin onto the substrate, then slowly roll the fleece back into the resin, using care to remove any air pockets. All side and end laps of scrim must have a minimum 102mm (4.0") overlap.

.5 Apply an even coat of resin over top of the installed fleece at a rate of 0.09 kg/ ft2 (1.0 kg/m2) using approved rollers. Use caution not to spread resin too thin.

3.13 ROOF ACCESS

3.13.1 Install new concrete patio pavers on 25.4mm (1") extruded polystyrene insulation. The extruded polystyrene insulation is to be cut 50.8mm (2") smaller (all the way around) than the concrete patio pavers. Therefore, if the concrete paver is 609.6mm x 609.6mm (2'x2') the extruded polystyrene insulation should be 508mm x 508mm (1'8"x 1'8").

3.13.2 Install four concrete patio pavers on 25.4mm (1") extruded polystyrene insulation, in a square pattern at roof ladder landings.

3.14 FINISH

3.14.1 Perform a daily clean up to collect all wrappings, empty containers, and any other debris from the project site.

3.14.2 Upon completion, all debris is to be disposed of in a legally acceptable manner.

3.14.3 Prior to the final inspection, the Contractor is to perform a pre-inspection to review all work and to verify that all flashings have been completed as well as the application of all caulking.

END OF SECTION 07 52 16

07 62 00 - Sheet Metal Flashing & Trim

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 Apply in accordance with the Drawings, Specifications and the requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association's Roofing Manual and/or RCABC Roofing Practices Manual.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect the Work including all amendments up to the Project closeout.

1.2 CO-ORDINATION

1.2.1 Co-ordinate the Work of this Section with the Work of:

.1 Section 01 11 00 Summary of Work

.2 Section 07 52 16 SBS Modified Bituminous Membrane Roofing

.3 Section 07 62 00 Sheet Metal Flashing and Trim.

.4 Section 07 92 00 Joint Sealants.

1.3 REFERENCE STANDARDS

1.3.1 Sheet metal work, products and accessories shall be in accordance with the most current applicable industry standards including but not limited to:

1.3.2 THE ALUMINUM ASSOCIATION INC. (AAI)

.1 AAI-Aluminum Sheet Metal Work in Building Construction

.2 AAI DAF45-[03]; Designation System for Aluminum Finishes.

1.3.3 AMERICAN SOCIETY FOR TESTING AND MATERIALS INTERNATIONAL (ASTM)

.1 ASTM A167: Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.2 ASTM A240/A240M: Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

.3 ASTM A606: Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.

.4 ASTM A653/A653M: Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.

.5 ASTM A792/A792M: Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by Hot-Dip Process.

.6 ASTM B32:Solder Metal.

.7 ASTM B370:Copper Sheet and Strip for Building Construction.

.8 ASTM B813; Flux

.9 ASTM D41; Asphalt Primer

.10 ASTM D226; Asphalt or Tar Saturated Roofing felt.

.11 ASTM D1970; Self-Adhering Ice Dam Protection

.12 ASTM D523:Test Method for Specular Gloss.

.13 ASTM D822:Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

.14 ASTM F1667; Nails, Spikes and Staples

1.3.4 CANADIAN ROOFING CONTRACTORS ASSOCIATION (CRCA)

.1 Roofing Specifications Manual, latest edition.

1.3.5 CANADIAN SHEET STEEL BUILDING INSTITUTE (CSSBI)

.1 CSSBI Bulletin SSF-3; Care & Maintenance of Prefinished Sheet Steel Building Products.

.2 CSSBI Technical Bulletin S-8; Quality & Performance Specification for Prefinished Sheet metal Used for Building Products.

1.3.6 CANADIAN STANDARDS ASSOCIATION (CSA INTERNATIONAL)

.1 CSA A123.3: Asphalt Saturated Organic Roofing Felt.

.2 AAMA/WDMA/CSA 101/I.S.2/A440-[2008], Standard/Specification for Windows, Doors, and Unit Skylights.

.3 CSA A123.22; Self-Adhering Polymer Modified Eave Protection

.4 CSA B111: Wire Nails, Spikes and Staples.

1.3.7 GREEN SEAL ENVIRONMENTAL STANDARDS

.1 Standard GS-03-[93]; Anti-Corrosive Paints.

.2 Standard GS-11-[97]; Architectural Paints.

.3 Standard GS-36-[00]; Commercial Adhesives.

1.3.8 HEALTH CANADA/WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

.1 Safety Data Sheets (SDS).

1.3.9 SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA)

.1 SMACNA Manual, latest Edition

1.4 APPROVAL

1.4.1 Do not install any metal work until the membrane flashings have been inspected and accepted by the Owner's Representative. The colour is to be determined by the Owner.

1.4.2 In all cases and prior to the fabrication of the finished product, supply and install a sample for approval by the Owner's representative.

1.5 SCHEDULE

1.5.1 Schedule the Work so that the membrane flashings are not left exposed for more than thirty (30) days.

1.6 WARRANTY

1.6.1 Guarantee the metal flashing in conjunction with the membrane roofing for TWO (2) year. Submit on the same form as for the membrane roofing, CRCA Warranty.

1.7 QUALITY CONTROL

1.7.1 Quality control for Work of this Section is to be performed by the Consultant under the work of and as specified in Section 01 10 10 General Requirements.

1.7.2 Work of this Section is to be carried out by a specialist having a minimum of five (5) years of related experience.

1.7.3 Work is to be performed in accordance with the practices and details of SMACNA Architectural Manual – 6th Edition (Sheet Metal and Air Conditioning Contractors National Association Inc.), unless otherwise required in the Contract Documents.

PART 2 PRODUCTS

2.1 COMPATIBILITY

2.1.1 Compatibility between roofing materials is an essential requirement of the Contract.

2.2 METAL COUNTERFLASHINGS

2.2.1 PREFINISHED STEEL METAL:

.1 Pre-painted galvanized steel 24 ga. core nominal thickness, Series 8000 with a baked enamel finish to ASTM A653.

.2 The finish is to be Dofasco Perspectra Series, Valspar WeatherX factory baked finish, or an approved alternate.

.3 The colour is to be approved by the Owner.

2.2.2 GALVANIZED STEEL:

.1 Galvanized sheet steel, Z275 (G90) zinc coating. Thickness as specified or shown on the Drawings.

2.2.3 HOOK, STARTER, LOCK STRIP / CLEAT:

.1 Fabricated from pre-finished steel, 22 ga. core nominal thickness, Z275 (G90) zinc coating to ASTM A653. Width minimally 102mm (4”). Colour to match prefinished sheet metal where exposed. Starter strips are to be continuous.

2.2.4 COPPER:

.1 Copper to be 0.8mm (16 oz.) cold rolled to ASTM B370.

2.2.5 SOLDER & FLUX:

.1 Solder to be lead-free.

.2 Flux is a rosin, cut hydrochloric acid or commercial preparation suitable for materials to be soldered.

2.2.6 WEDGES:

.1 Rolled Plumber sheet lead.

2.2.7 ISOLATION COATING:

.1 Asphalt based back paint for application to sheet metal in contact with masonry. Use asphalt primer to ASTM D41.

2.2.8 PITCH PAN:

.1 Size as specified in the Summary of Work or as shown in the Detail. One piece pre-fabricated aluminium of fabricated from 26 ga. pre-painted steel or 16 oz. Copper.

2.2.9 PITCH PAN FILLER:

.1 One (1) or two (2) part elastomer such as ChemLink M-1 Sealant, Sopramastic SP-2 or approved alternate.

2.2.10 TOUCH-UP PAINT:

.1 As recommended by the prefinished sheet metal Manufacturer.

2.2.11 FASTENERS:

.1 Nails: Hot dipped galvanized steel flat head roofing nails of length and thickness to suit the application.

.2 Where exposed, use Hex Head screws with 12.7mm (1/2") dome and neoprene

washers as supplied by Weather Guard, or equal.

.3 Fasteners for masonry and concrete: Tapcon fasteners with “Climaseal” corrosion resistant finish, or an approved equivalent, of sufficient length to provide a minimum 38mm (1.5”) penetration into the substrate.

.4 Expansion Fasteners: A tamper-proof nail drive anchor which has a body formed from Zamac alloy. Zamac Nail-in.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 Apply in accordance with the Drawings, Specifications and the requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association’s Roofing Manual.

3.1.2 Regard the Manufacturer's printed recommendations and Specifications as a minimum requirement for materials, methods and quality of Work not otherwise specified herein.

3.1.3 Make adjustments to the specified procedures caused by weather and site conditions only with the Owner's approval.

3.1.4 Maintain all the equipment in good working order to ensure control of roofing operations and protection of the Work. Equipment and laying techniques are to meet the approval of the Consultant.

3.2 FABRICATION

3.2.1 Shop fabricate the flashings and trims in accordance with the applicable requirements of SMACNA Architectural Manual and in accordance with the Contract Documents. Form sheet metal on a bending brake. Shaping, trimming and seaming on a bench.

3.2.2 Form sections square, true, and accurate to size, free from distortion, oil canning and other defects detrimental to the appearance and performance, and to the dimensions as indicated/required.

3.2.3 Fabricate the cap flashings, starter strips, and base counter flashings less than 304.8mm (12”) in height in 2440mm (96”) maximum lengths. Form the counter flashings between 304.8mm and 609.6.35mm (12” and 24”) in height in 1219.2mm (48”) maximum lengths.

3.2.4 Provide a counter flashing and an intermediate vertical flashing where the cap flashing is greater than 610 m (24”) above the top of the roofing membrane. Form the vertical flashings in 1220 mm (48”) maximum lengths.

3.2.5 Provide an "S-Lock" joint at all end joints and at all horizontal joints between the cap flashing and the vertical flashing and between the vertical flashing and the base counter flashing.

3.2.6 Hem all exposed edges at least 12.7mm (1/2”) for appearance and stiffness.

3.2.7 Provide a horizontal stiffening “V” or “X” break on all face metal exceeding 228.6mm (9”) in girth. Centre the V or X break in mid-span of the panel. Cross break the metal face flashing on all parapet flashings exceeding 457.2mm (18”) in girth.

3.2.8 Mitre and form the standing seams at all corners. Make allowances for movement at the joints.

3.2.9 Apply an isolation coating to the metal surfaces to be embedded in concrete or mortar joints.

3.3 PITCH PAN FABRICATION / INSTALLATION

3.3.1 All boxes shall be minimum 152mm (6.0") high above finished roof surface, with 125 mm (5.0") roof flange as approved by the Consultant. Make all seams continuous and soldered. Tapered rain collars to be included

3.3.2 Install new pitch pans where required and as shown on Drawings.

3.3.3 Apply asphalt primer on the underside of flange. Embed flange in a layer of mastic on to the built-up / modified roof membrane.

3.3.4 BUR: Apply a minimum of two plies of No.15 asphalt perforated felts over the flange followed by one ply of glass fibre felts. The first ply is to extend a minimum of 150 mm (6") beyond the outside of the flange. Each additional ply shall extend a further 100 mm (4") beyond the underlying flashing ply.

3.3.5 Modified Bitumen: Flash in with one ply base sheet membrane to manufacturer's recommendations.

3.3.6 Fill the bottom two-thirds (2/3) of the pitch pan with polyurethane foam . Apply polyurethane pitch pocket sealant on the exposed interior face and fill the top third of the pitch pan with the pourable sealer. The pourable sealer is to extend 13 mm (1/2") above the pitch pan at the centre and cove it to shed water.

3.3.7 Once the sealant has cured, apply the specified storm collar and clamp to existing protrusion to provide complete protection over the pitch pan. Apply sealant if required.

3.4 SCUPPER FABRICATION AND INSTALLATION

3.4.1 Fabricate scuppers from copper. Fabricate scuppers to suit a 102 mm (4") diameter down spout and in general accordance with CRCA standard flashing detail FL 9. Solder all joints in the scupper. Ensure flange is continuous by filling in outside corners.

3.4.2 Fabricate deck flange to provide a 152 mm (6") wide apron. Ensure flange is continuous by filling in outside corners. Apply isolation coating on deck flange. Provide a gravel stop soldered in place across scupper opening.

3.4.3 Provide copper or stainless steel strainers for outlet.

3.4.4 Install new scuppers at existing and/or new scupper locations, where applicable. Set pre-primed flange in a full bed of rubberized mastic for BUR and Modified bitumen membranes.

3.4.5 Install scuppers in general accordance with CRCA standard flashing detail FL. 9 or to Detail.

3.5 COPPER SLEEVE FABRICATION AND INSTALLATION

3.5.1 Fabricate sleeve flashing for existing penetrations from copper.

3.5.2 Provide a two piece or split sleeve with a minimum height of 305 mm (12").

3.5.3 Fabricate deck flange to provide a 152 mm (6") wide apron. Ensure flange is continuous by filling in outside corners.

3.5.4 Fabricate sleeve and flange with flat lock joints suitable for field soldering.

3.5.5 Apply isolation coating on surface of penetration.

3.5.6 Install copper sleeve flashing around penetrations.

3.5.7 Close and solder all joints and seams. Clean copper on joint surfaces to receive solder with steel wool. Flux and fill joints with molten solder.

3.5.8 Wipe and wash clean all traces of acid from the flux immediately after the joints are made.

3.5.9 Install split storm collar in strict accordance with Manufacturer's recommendations. Apply silicone sealant, as specified in Section 07 92 00 - Joint Sealants, at joint between storm collar and gas line penetration.

3.5.10 Install rain collar with sealant bead.

3.6 SHEET METAL UNDERLAYMENT INSTALLATION

3.6.1 Install self-adhesive bituminous membrane as per the Detail Drawings, according to Manufacturer's instructions.

3.6.2 Provide membrane underlayment beneath sheet metal flashings at all locations, except where membrane flashings are present.

3.6.3 Ensure all surface areas are free from frost, dust, grease, oil, loose or spalled material.

3.6.4 Apply primer as per Manufacturer's printed instructions. Allow the primer to dry and install underlayment membrane on the same day as priming.

3.6.5 Proceed only when weather is favourable. Should installation be undertaken at temperature below 4°C (40°F), consult Manufacturer regarding special procedures.

3.6.6 Maintain the recommended minimum side lap and end lap as per the Manufacturer's printed instructions.

3.6.7 Roll the membrane underlayment immediately after placement to ensure continuous adhesion. The roller to be of the type and size recommended by the Manufacturer.

3.6.8 Ensure the continuity of the membrane underlayment is maintained at all penetrations and terminations. Apply membrane sealant as required to fill inaccessible gaps following the Manufacturer's instructions.

3.6.9 Do not cover the membrane underlayment until it is reviewed and approved by the *Consultant*.

3.7 TERMINATION BAR INSTALLATION

3.7.1 Provide continuous termination bar along top of membrane flashings where indicated on Drawings and at locations and where membrane flashings terminate at the base of a wall and no other means of mechanical securement is specified or indicated.

3.7.2 Install the termination bar 3 mm (⅛") below the top edge of the base flashing membrane and mechanically secure to the masonry wall using 38 mm (1½") 'Tapcon fasteners, or Zamac Nail-ins at 152 mm (6") o.c.

3.7.3 Seal the top of the termination bar with rubberized mastic or polyurethane based sealant.

3.8 METAL DRIP EDGE FLASHING INSTALLATION

3.8.1 Install new pre-finished aluminum metal drip edge along eaves at area of work.

3.8.2 Metal is to extend onto perimeter wood substrate 52 mm (2") minimum. Fasten metal to wood substrate with roofing nails installed every 152 mm (6") on-centre, along edge. Nails are to be set in 25 mm (1") and parallel from edge of metal.

3.8.3 Metal drip flashings to be fabricated up to 3048 mm (10') lengths and overlapped at joints 76.2mm (3") minimum. Apply sealant within joints prior to securement.

3.9 SHEET METAL INSTALLATION

3.9.1 Install the cap flashings, counter flashings, starter strips, and other miscellaneous sheet metal Work in accordance with the Contract Documents.

3.9.2 Provide a continuous starter (hook) strip where detailed or required to present a true, non-waving, leading edge. Fasten the starter strip to the substrate at a minimum of 304.8mm (12") on centre in a "Z" pattern using roofing nails of at least 25.4mm (1") length.

3.9.3 Ensure the parapet cap flashings are installed with a minimum positive slope of 2% toward the roof area. The slope is to be provided by the installation of continuous wood shims, plywood or wood blockings as detailed in accordance with Section 00 61 00 – Rough

Carpentry.

3.9.4 Install cross-broken flat stock metal to entire parapet wall over 304.8mm (12”) in height.

3.9.5 Caulk all horizontal joints less than 1:100 slope (1%).

3.9.6 Join all sheet metal with evenly spaced flat lock seams 25.4mm (1") wide to allow for thermal movement.

3.9.7 Counter flash bituminous flashing membranes at roof joints, walls, perimeters, parapets and curbs. Flash joints in metal flashings using S-locks and standing seams forming tight fit over hook strips. Construct internal and external mitres.

3.9.8 End joints where adjacent lengths of metal flashing meet to be made using an "S-lock" joint. This is to be executed by inserting the end of one length in a 25.4mm (1”) deep "S" lock formed in the end of the adjacent length. The concealed portion of the "S" lock is to extend 25.4mm (1”) outwards and is to be nailed to the substrate. Face nailing of joints will not be permitted.

3.9.9 Insert the top edge of the sheet metal flashing under the cap flashings to form weather tight junctions.

3.9.10 Turn the top edge of the flashings into recessed reglets or mortar joints a minimum of 25.4mm (1”). Fasten the sheet metal flashing into the reglet joint at a maximum spacing of 457.2mm (18”) or more often if required.

3.9.11 Ensure all fasteners are located a minimum of 304.8mm (12”) above the surface of the roofing membrane, unless otherwise detailed.

3.9.12 Where detailed or required, saw cut existing/new reglets into the masonry surfaces to receive metal flashings. The reglet is to be a minimum 19.05mm wide x 13 mm deep (3/4” x 1/2”).

3.9.13 Lock seam corners. Do not use pop rivets.

3.9.14 Install the sheet metal with concealed fasteners. Exposed fastening is permitted only upon the Consultant's approval.

3.9.15 Use lead plugs or an approved expansion shield and screw in place with rubber washers where metal is installed over concrete or masonry.

3.9.16 Install sheet metal in a uniform manner, level, true to line, free of warp or distortions.

3.9.17 Install metal flashings under cap flashings and behind other claddings a minimum of 38mm (1.5”) to form a weather tight junction.

3.9.18 All outside perimeter cap flashings are to completely cover all fascia, or otherwise extend a minimum of 76.2mm (3”) below deck or wood blocking level.

3.9.19 Properly cover the area to be protected with the metal flashings lightly touching the gravel pour and firmly secured to prevent movement or stripping by the wind.

3.9.20 No irregular or badly fitted metal work will be accepted. Provide metal strips, cleats, as required.

3.9.21 Install self-adhering modified bituminous membrane over all exposed masonry, concrete or wood to be flashed with metal. Secure in place.

3.9.22 At walls or junctions, re-cut the reglet joint, wedge the flashings with lead wedge at 304.8mm (12") o.c. Turn top edge of flashing into reglet or mortar joint a minimum of 25.4mm (1”).

3.10 SEALANTS

3.10.1 Apply sealant at the junction between the sheet metal counterflashing and the reglet joint in

accordance with Section 07 92 00 – Joint Sealants.

3.11 CLEANING

3.11.1 Remove completely from surfaces and crevices the flux residue, other deposits, stains and protections and wash the visible metal left unpainted

END OF SECTION 07 62 00

07 92 00 - Joint Sealants

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 Apply in accordance with the Drawings, Specifications and the requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association's Roofing Manual and/or RCABC Roofing Practices Manual.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect the Work including all amendments up to the Project closeout.

1.2 CO-ORDINATION

1.2.1 Co-ordinate Work of this Section with Work of:

.1 Section 01 11 00 Summary of Work

.2 Section 06 10 00 Rough Carpentry.

.3 Section 07 52 16 SBS Modified Bituminous Membrane Roofing

.4 Section 07 62 00 Sheet Metal Flashing and Trim.

1.3 REFERENCE STANDARDS

1.3.1 Sealant work, materials, products and accessories shall be in accordance with the most current applicable industry standards including but not limited to:

1.3.2 AMERICAN SOCIETY FOR TESTING AND MATERIALS INTERNATIONAL, (ASTM)

.1 ASTM C919:-Use of Sealants in Acoustical Applications.

.2 ASTM C920; Elastomeric Joint Sealants, Type S, grade NS.

.3 ASTM C1311; Solvent Release Sealants

1.3.3 DEPARTMENT OF JUSTICE CANADA (JUS)

.1 Canadian Environmental Protection Act, 1999 (CEPA).

1.3.4 GENERAL SERVICES ADMINISTRATION (GSA) - FEDERAL SPECIFICATIONS (FS)

.1 TT-S-00227E; Sealing Compound Elastomeric Type- Multi-Component, Class A, Type 2.

.2 TT-S-00230C; Sealing Compound elastomeric Type- Single component, Class A, Type 2.

1.3.5 HEALTH CANADA/WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

.1 Safety Data Sheets (SDS).

1.3.6 TRANSPORT CANADA (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.4 CLIMATE CONDITIONS

1.4.1 ENVIRONMENTAL LIMITATIONS

.1 Do not proceed with the installation of joint sealants under the following conditions:

(a) When ambient and substrate temperature conditions are outside the limits permitted by the joint sealant manufacturer.

(b) When joint substrates are wet.

.2 Joint-Width Conditions:

(a) Do not proceed with the installation of joint sealants where the joint widths are less than those allowed by the joint sealant manufacturer for the applications indicated.

.3 Joint-Substrate Conditions:

(a) Do not proceed with the installation of joint sealants until contaminants capable of interfering with adhesion are removed from the joint substrates.

1.5 ENVIRONMENTAL REQUIREMENTS

1.5.1 Comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Safety Data Sheets (SDS) acceptable to Labour Canada.

1.5.2 Conform to the manufacturer's recommended temperatures, relative humidity, and substrate moisture content for the application and curing of sealants including special conditions governing use.

1.6 WARRANTY

1.6.1 Provide all applicable material and labour Warranties offered by the material Manufacturer for a minimum of two (2) years.

1.6.2 Defective joint sealant installation covered under Warranty is to include but not be limited to:

.1 joint leakage, hardening, craze cracking, crumbling, melting, bubbling, shrinkage, runs, sags, change of colour, loss of adhesion, loss of cohesion and staining of adjoining or adjacent material surfaces.

1.6.3 Carry out all replacement and repair Work during the Warranty period as directed by the Consultant and at no additional cost to the Owner.

1.7 QUALITY CONTROL

1.7.1 Quality control for Work of this Section is to be performed by the Consultant under the Work of and as specified in Section 01 10 10 General Requirements.

PART 2 PRODUCTS

2.1 COMPATIBILITY

2.1.1 All materials in a sealant system are to be compatible with each other and with the substrate.

2.1.2 Colour or colours of the sealants are to be selected are to match existing substrate and are to be approved by the Consultant.

2.2 SEALANT MATERIALS

2.2.1 Exterior Metal To Wood, Masonry, Stone Or Porous Surfaces:

.1 One-part elastomeric, non-sag urethane based sealant. Accepted products:

(a) “Dymonic” as manufactured by Tremco

(b) “Sikaflex 1-A” as manufactured by Sika Canada

(c) “Vulkem 931” by Mameco as manufactured by Tremco

(d) “SK-1 Structural Sealant” as supplied by Chemlink.

2.2.2 Exterior And Interior Metal To Metal And Metal To Glass Joints:

.1 One-part Silicone based sealant. Accepted Products:

(a) “Spectrum 2” as manufactured by Tremco

(b) "Contractors SCS 1000 Sealant" as manufactured by GE Silicones Canada

(c) "DC 999-A Silicone Building & Glazing Sealant" as manufactured by DowCorning Canada.

2.3 JOINT BACKING

2.3.1 Extruded polyethylene, urethane, neoprene or vinyl foam recommended by sealant Manufacturer. Extruded closed-cell foam, Shore "A" Hardness 20, Tensile Strength of 140-200 Kpa.

2.3.2 Circular shape with a diameter 25% greater than the joint width before installation.

2.4 VOID FILLER-

2.4.1 Glass fibre or Rockwool insulation with a nominal density of 14 kg/m^3 (2.86 lbs. / cu. ft.) Sized for 25% compression.

2.5 BOND BREAKER TAPE

2.5.1 Pressure sensitive plastic tape which will not bond to sealants. Supplied or recommended by the sealant Manufacturer.

2.6 PRIMER

2.6.1 As recommended by the sealant Manufacturer to assure adhesion of the compound and to prevent staining of the substrate.

2.7 CLEANING AGENTS

2.7.1 Joint cleaning compounds as recommended by the sealant Manufacturer. Xylol (Xylene), Methyl Ethyl Ketone (MEK) or non-corrosive type compatible with joint forming materials.

PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Inspect existing conditions, and substrates upon which Work of this Section is dependent. Report to the *Consultant* in writing any defects or discrepancies. Commencement of Work implies acceptance of existing conditions and assuming full responsibility for the finished condition of the Work.

3.1.2 Verify, before commencing Work, that the joint size, depth and substrate will not adversely affect execution, performance or quality of completed Work; and that the joints can be sealed in an acceptable condition by means of preparation specified in this Section. Verify site conditions together with sealant Manufacturer's representative.

3.1.3 Defective Work resulting from application to unsatisfactory joint conditions will be considered the responsibility of those performing the Work of this Section.

3.2 GENERAL

3.2.1 Apply in accordance with the Drawings, Specifications and requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association's Roofing Manual.

3.2.2 Regard the Manufacturer's printed recommendations and Specifications as a minimum requirement for materials, methods and quality of Work not otherwise specified herein.

3.2.3 Make adjustments to the specified procedures caused by weather and site conditions only with the Consultants approval.

3.2.4 Conform to the Details.

3.2.5 Examine joints before caulking to ensure that the configuration, surface and widths are suitable for the sealant and service, and that the execution of caulking and performance of

sealants will not be adversely affected.

3.2.6 Verify, before commencing the Work, that the joint size, depth and substrate will not adversely affect the execution, performance or quality of the completed Work; and that joints can be sealed in an acceptable condition by means of the preparation specified in this Section. Verify the site conditions together with the sealant Manufacturer's representative.

3.2.7 Defective Work resulting from the application to unsatisfactory joint conditions will be rejected.

3.3 REMOVAL & PREPARATION

3.3.1 Remove the existing sealant and backing material and all deleterious material from the joint. Use the method of surface preparation suitable for substrate that does not damage adjacent surfaces, as recommended by the sealant Manufacturer.

3.3.2 Rake out joints, cracks and crevices to receive sealant to a depth measuring half (1/2) the joint width.

3.3.3 Brush, scrub, scrape or grind the inner face surfaces to remove loose mortar, dust, oil, grease, oxidation, mill scale, and other materials which will affect the adhesion and integrity of the sealant.

3.3.4 Wipe down metal surfaces with clean cellulose sponges or rags soaked in solvent compatible with the sealant, and dry with clean cloths. Ensure solvents do not damage painted surfaces.

3.3.5 Ensure that surfaces have not been coated with release agents, coating or other treatments, or that, if present, they are entirely removed.

3.3.6 Examine joint sizes and correct to achieve width to depth ratio of 1:2 with joint size no less than 12.7mm (1/2") width and 25.4mm (1") depth.

3.3.7 Install joint filler to achieve correct depth, if required.

3.3.8 Where necessary to prevent staining, mask adjacent surfaces prior to priming and sealant application.

3.3.9 Apply bond breaker tape where required to sealant Manufacturer's printed instructions.

3.4 JOINT DEPTH

3.4.1 Provide the following Depth To Width Ratios:

.1 Masonry:

(a) 6.35mm (1/4") deep, up to 12.7mm (1/2") wide

(b) 9.53.16mm (3/8") deep, up to 19.05mm (3/4") wide

(c) 12.7mm (1/2") deep, up to 25.4mm (1") wide

(d) 19.05mm (3/4") deep, up to 50.8mm (2") wide.

.2 Non Porous Materials:

(a) Joint depth and width to be not be less than 6.35mm (1/4").

(b) Maintain a minimum of a 2:1 width to depth ratio or what is listed above in 3.3.1.1 and 3.3.1.2, whichever is more stringent.

3.5 PRIMING

3.5.1 Prime the inner face surfaces of joints as necessary for the substrate, in accordance with the sealant Manufacturer's Specification, to provide full adhesion and to prevent staining of the face surface at the joint.

3.5.2 Prime surfaces prior to installing the joint backing rod.

3.6 JOINT FILLING AND BACKING

3.6.1 Install joint backing where required to maintain the joint depth.

3.6.2 Pack joints tightly with sealant in accordance with the Manufacturer's Specifications using pressure guns. Fill joints completely to the required depths with sealant compound. Use sufficient pressure to fill all voids and joints. Sealant is to bond to both sides of the joint.

3.6.3 Apply bond breaker tape, prior to applying sealant, where joints are of insufficient size to install backer rod or at 90° junctions or where recommended by the sealant Manufacturer or Consultant. Ensure bond surface area meets the minimum required size recommended by the sealant Manufacturer.

3.6.4 Mask, with masking tape, all surfaces adjacent to joints which are likely to become coated with sealant during sealant application.

3.6.5 Apply sealant using gun dispenser with proper size nozzle for joint to be sealed to leave a weather tight, airtight installation.

3.6.6 Fill joints completely to required depths with sealant compound. Use sufficient pressure to fill all voids and joints solid. Sealant shall bond to both sides of the joints but not to backing material. ***Superficial pointing with skin bead is not acceptable***.

3.6.7 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets or embedded impurities. Neatly tool surface to create a slightly concave joint.

3.6.8 Slope sealant surface at top of surface reglet flashings to create positive water shed.

3.6.9 Finish joints smooth, free of wrinkles, ridges, air pockets and imbedded foreign materials. Tool joints to a slight concave surface using a soap/water mixture.

3.6.10 Cure sealants in accordance with the sealant Manufacturer's instructions.

3.6.11 Do not cover up sealants until proper curing has taken place.

3.6.12 Do not allow sealants to cover or spot surfaces outside of joints. Use masking tape on all surfaces adjacent to joints which may become coated with sealant during the caulking process.

3.7 CLEAN UP

3.7.1 Remove from surfaces of other work sealant smears, droppings and masking tape immediately after caulking. Use recommended cleaners as required.

3.7.2 Clean surfaces soiled by Work of this Section. Do not use chemicals, scrapers, or other tools in cleaning which will damage surfaces. Make good other Work.

3.7.3 Clean up and remove from the job site on a daily basis, all rubbish and surplus materials resulting from this Work.

3.7.4 Joint sealants shall be protected from physical damage and the elements until such time as the sealant will not be affected by same.

END OF SECTION 07 92 00

08 60 00 – Skylights

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 Apply in accordance with the Drawings, Specifications and the requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association's Roofing Manual and/or RCABC Roofing Practices Manual.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect work including all amendments up to project date.

1.2 SECTION INCLUDES

1.2.1 Furnish all labor, material, plant and services required to complete fabrication and shipment of skylights as specified herein.

1.2.2 Work is limited to skylight system only, and includes the following.

.1 Thermal aluminum vinyl frame system.

.2 Glazing and glazing gaskets.

.3 Factory installation or installation by factory approved contractor with site supervision as required.

1.3 CO-ORDINATION

1.3.1 Co-ordinate work of this Section with work of:

.1 Section 01 11 00 Summary of Work

.2 Section 06 10 00 Rough Carpentry.

.3 Section 07 52 16 SBS Modified Bituminous Membrane Roofing

.4 Section 07 62 00 Sheet Metal Flashing and Trim.

.5 Section 07 92 00 Joint Sealants.

1.4 REFERENCE STANDARDS

1.4.1 Aluminum Association (AA) M12C22A41 - Anodized Plus Finish.

1.4.2 Aluminum Association (AA) M12C22A32/A34 - Color anodized: Class II, Color Anodic Finish.

1.4.3 American Architectural Manufacturer's Association (AAMA) 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.

1.4.4 American Architectural Manufacturer's Association (AAMA) 605.2 - Voluntary Specification for High Performance Organic Coatings.

1.4.5 Architectural Aluminum manufacturers Association (AAMA) 607.1 - Voluntary Guide Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.

1.4.6 Architectural Aluminum Manufactures Association (AAMA) 612 - Voluntary Specifications and Performance Requirements and Test Procedures for Combined Coatings of Anodic Oxide and Transparent Coatings on Architectural Aluminum, for Finishes such as Anodized Plus.

1.4.7 American Society for Testing and Materials (ASTM) B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

1.4.8 American Society for Testing and Materials (ASTM) C1048 - Standard Specification for Heat-Treated Flat Glass Kind HS, Kind FT Coated and Uncoated Glass.

1.4.9 American Society for Testing and Materials (ASTM) E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

1.4.10 American Society for Testing and Materials (ASTM) E773 - Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units.

1.4.11 American Society for Testing and Materials (ASTM) E774 - Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units.

1.4.12 AWS Structural Welding Code.

1.5 SUBMITTALS

1.5.1 Submit under provisions of Section 01 30 00.

1.5.2 [Product Data]: Manufacturer's data sheets on each product to be used, including:

.1 Preparation instructions and recommendations.

.2 Storage and handling requirements and recommendations.

.3 Indicate materials, finishes and installation procedures recommended by manufacturer.

.4 Indicate compliance with specified design criteria.

.5 Indicate compliance with performance requirements.

.6 Include product specific glazing details.

1.5.3 Shop Drawings:

.1 Indicate material types, gauges and finishes, fabrication details and installation details.

.2 Show glazing types, methods of attachment and thermal movement provisions.

1.5.4 Indicate compliance with specified structural design criteria.

.1 Submitted design calculations shall bear seal of a professional engineer licensed in the State in which the skylight is to be installed.

.2 Certify that engineer has reviewed shop drawings.

1.5.5 Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

1.5.6 Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.5.7 Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

1.5.8 Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.6 QUALITY ASSURANCE

1.6.1 Manufacturer Qualifications:

.1 Skylight manufacturer shall have a minimum of five years experience in skylight manufacturing, qualified by having performed similar work and having experienced workmen to perform work of type required by contract documents and licensed where appropriate.

1.6.2 Installer Qualifications:

.1 Installer shall be trained and approved by manufacturer.

.2 Installer shall have five years experience with skylight type, size and complexity.

1.6.3 Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

.1 Finish areas designated by Architect.

.2 Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

.3 Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

1.7.1 Store products in manufacturer's unopened packaging until ready for installation.

1.7.2 Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 PROJECT CONDITIONS

1.8.1 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

1.9.1 Skylights are guaranteed for a period of 5 years from date of purchase against defects in materials or workmanship.

1.9.2 Custom skylight systems are guaranteed for a period of 2 years from date of installation against leakage and defects in materials or workmanship.

1.9.3 The guarantee is limited to repair or replacement, at manufacturer's discretion, and does not cover freight, installation, or consequential damages.

PART 2 PRODUCTS

2.1 MATERIALS (BARREL/CONTINUOUS SKYLIGHTS)

2.1.1 Product: Mullions shall consist of 4 inches (102 mm) mill finish or baked enamel, pre-arced, extruded aluminum channel and pressure plate, 6063-T6 alloy, with resilient neoprene and vinyl gaskets. Mullion spacing to be approximately 4 feet (1219 mm) on centre.

2.1.2 Framing systems shall be extruded aluminum, 6063-T6 alloy, with extruded rigid vinyl thermal break.

2.1.3 Exposed aluminum surfaces shall be standard mill finish or brown or clear anodized. Custom finishes and colors as scheduled or indicated.

2.1.4 Sealants, as designated on drawings, shall be neutral cure architectural grade silicone.

2.1.5 Fasteners shall be stainless steel or cadmium plated steel. Exposed fasteners to match specified color of adjacent aluminum.

2.1.6 Gaskets to be continuous co-extruded vinyl, neoprene, EPDM, or Santoprene rubber held with constant pressure.

2.1.7 Glazing shall be:

.1 Plastic glazed units to be double acrylic, cold formed only of thickness and colors as

required by design criteria.

(a) White tinted

2.2 FABRICATION

2.2.1 Skylights shall be factory assembled and shipped as such. Work which cannot be permanently assembled will be shipped in pre-assembled sections to minimize field assembly.

2.3 SKYLIGHT PERFORMANCE

2.3.1 Load:

.1 Deflection of framing members shall not exceed L/180 or 1 inch (25 mm) whichever is less.

.2 Acrylic and/or polycarbonate unit skylights shall meet the requirements of uniform load test ASTM E330 that requires glazing to withstand a positive and negative test pressure of 60 psf.

2.3.2 Air Infiltration:

.1 Acrylic and/or polycarbonate unit skylights shall meet the requirements of ASTM E283 that allows a maximum air infiltration of 0.06 cfm (.0017 cu. m/m) of the total glazed surface area.

2.3.3 Water Infiltration:

.1 Acrylic and/or polycarbonate unit skylights shall meet the requirements of ASTM E547/E331 that allows for no water infiltration at a test pressure of 12 psf (571 Pa).

PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Do not begin installation until substrates have been properly prepared.

3.1.2 If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

3.2.1 Clean surfaces thoroughly prior to installation.

3.2.2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

3.3.1 Installer shall inspect area to receive skylights to determine that the conditions are in accordance with shop drawings and specifications. Any variance shall be recorded in writing and corrections made before beginning installation.

3.3.2 Installation shall be in strict accordance with these specifications and the manufacturers shop drawings and installation instructions.

3.3.3 All materials provided by installer shall be in accordance with those shown on the shop drawings.

3.4 PROTECTION

3.4.1 Installer shall remove all labels and protective packaging from components and shall leave the installation free of all heavy construction dirt and sealant smears.

3.4.2 Final cleaning and physical protection of all installed materials shall be performed by the general contractor.

3.4.3 Protect installed products until completion of project.

3.4.4 Touch-up, repair or replace damaged products before Substantial Completion.

3.5 FINISH

3.5.1 Perform a daily clean up to collect all wrappings, empty containers, and any other debris from the project site.

3.5.2 Upon completion, all debris is to be disposed of in a legally acceptable manner.

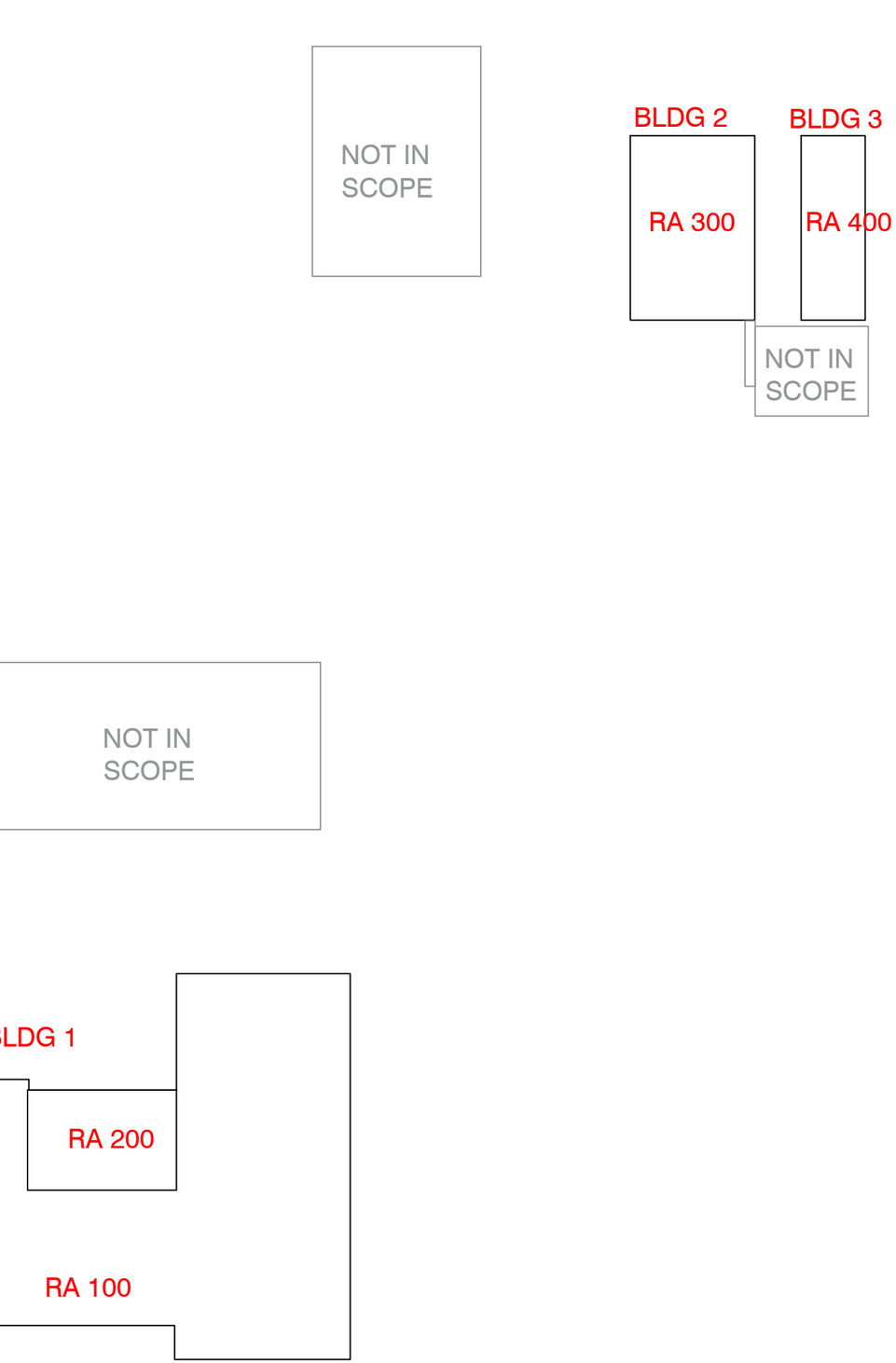
3.5.3 Prior to the final inspection, the Contractor is to perform a pre-inspection to review all work and to verify that all flashings have been completed as well as the application of all caulking.

END OF SECTION 08 60 00

SCHEDULE A – LIST OF PLANS AND DETAILS

Dwg #	Drawing Title	Issued/Revised	Date
1)	Roof Plan	For BID	December 2025
2)	Perimeter Detail	For BID	December 2025
3)	Curb Detail	For BID	December 2025
4)	Soil Stack Detail	For BID	December 2025
5)	Furnace Stack Detail	For BID	December 2025
6)	Pitch Pan Detail	For BID	December 2025
7)	Sleeper & Separation Curb Detail	For BID	December 2025
8)	Drain Detail	For BID	December 2025
9)	Masonry Wall Detail	For BID	December 2025

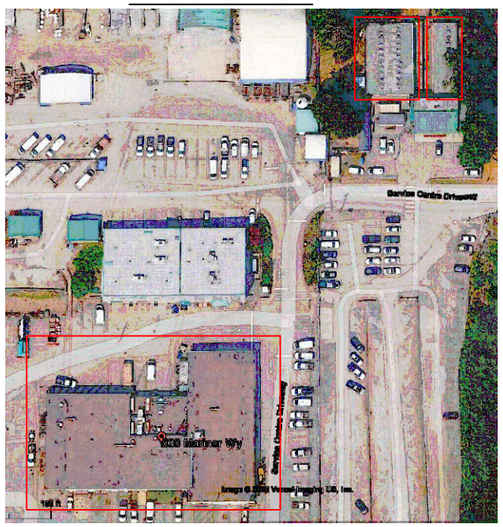
END OF LIST OF PLANS AND DETAILS



2026 ROOF REPLACEMENT PROJECT

BUILDING 1 RA 100 & 200
BUILDING 2 RA 300
BUILDING 3 RA 400
AND
BUILDING 1 RA 200:
- AIR/VAPOUR BARRIER & METAL WALL PANELS
- REPLACE ALL BARREL SKYLIGHTS

SITE OVERVIEW



TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
TEL (905) 503-1300 - FAX (905) 503-2002

CLIENT
CITY OF COQUITLAM

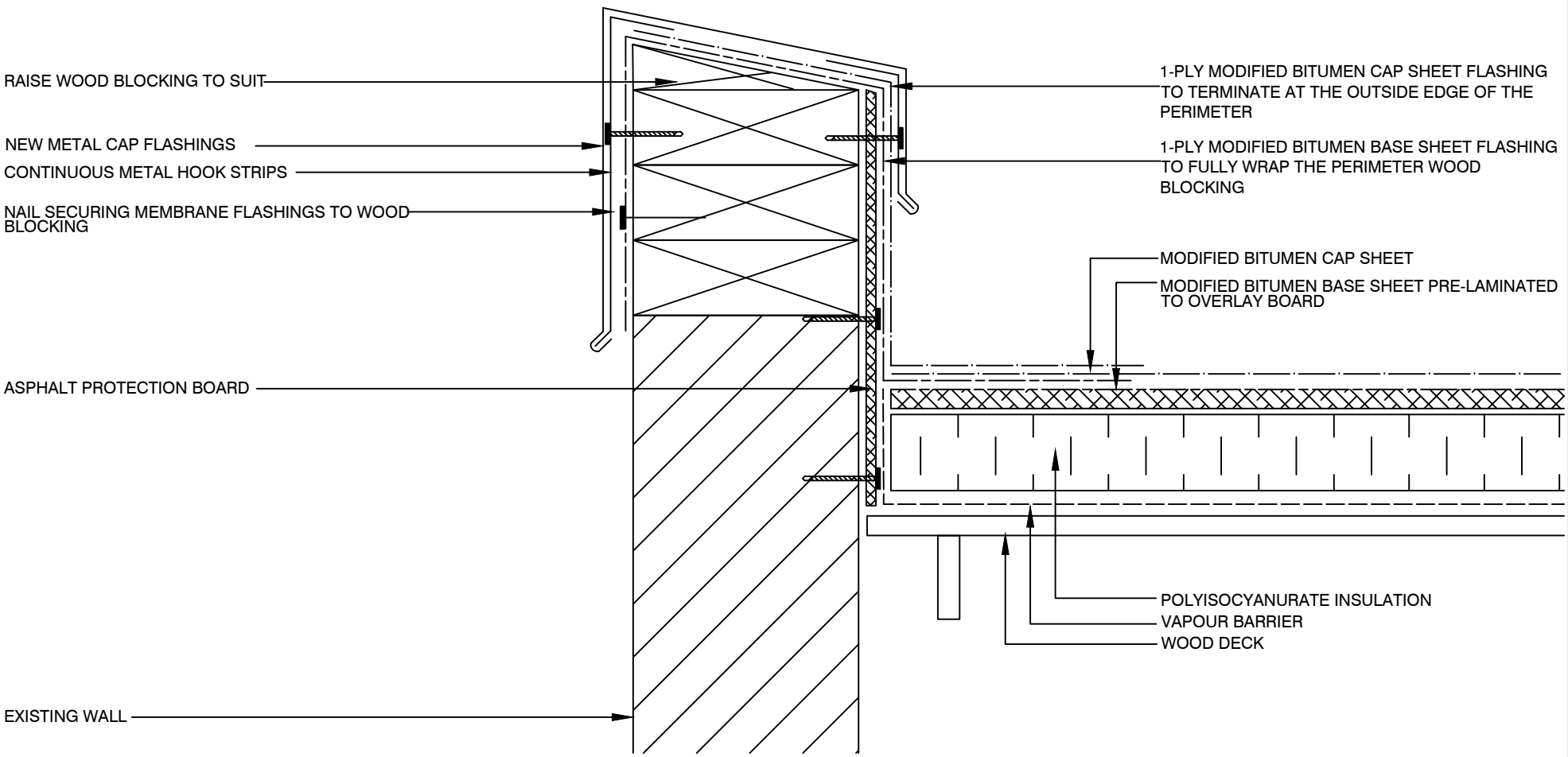
PROJECT ADDRESS/NAME
500 MARINER WAY,
COQUITLAM, BC

DRAWING TITLE
ROOF PLAN

FILE NO.	SCALE	DRAWING NUMBER
25-1233	N.T.S.	1

DATE
DECEMBER 2025

NOTE: ADD TAPERED INSULATION/CRICKETS, REMOVE VAPOUR BARRIER, REMOVE INSULATION TO SUIT NEW ROOF ASSEMBLY

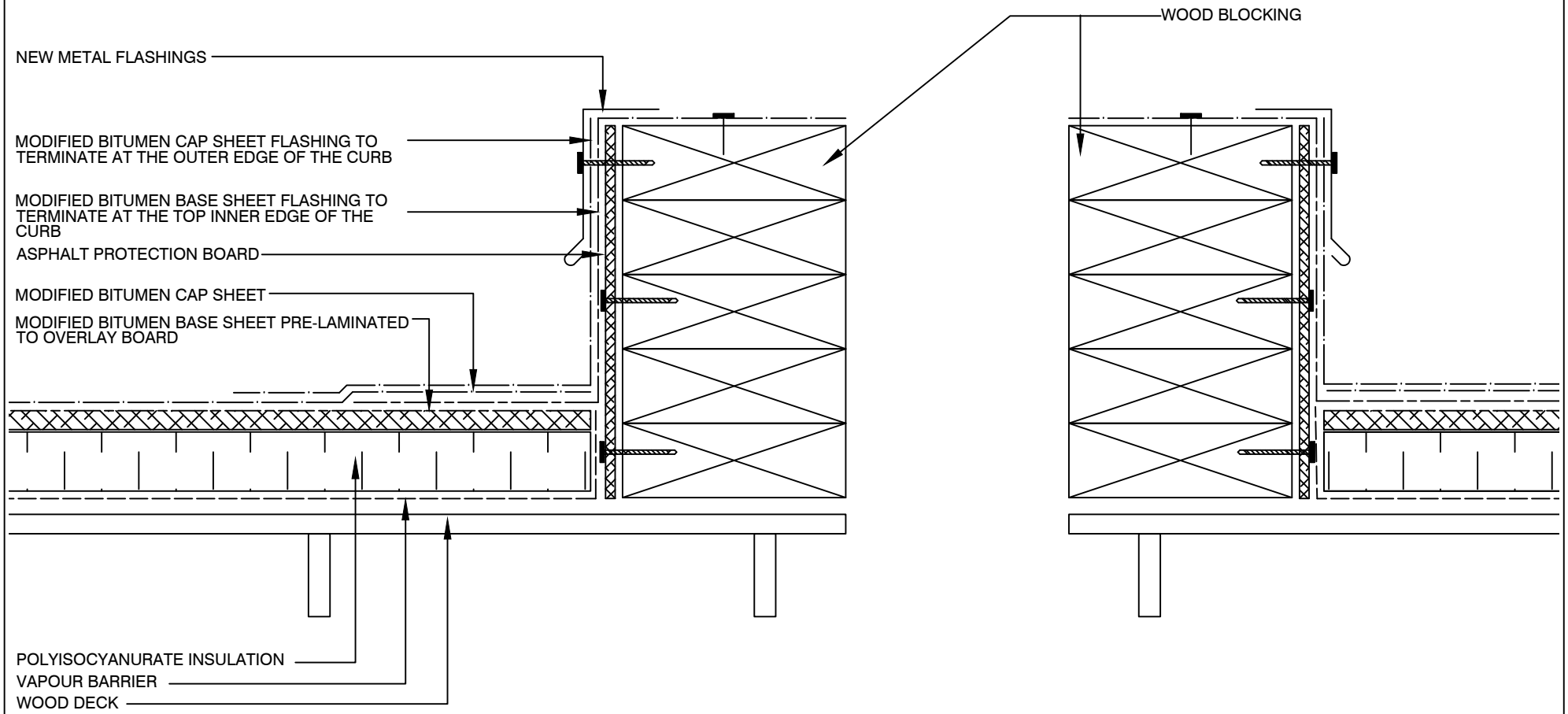


TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
TEL (905) 503-1300 - FAX (905) 503-2002

CLIENT: CITY OF COQUITLAM	FILE NO.: 25-1233	SCALE: N.T.S.	DRAWING NUMBER: 2
PROJECT ADDRESS: 500 MARINER WAY, COQUITLAM, BC	DATE: DECEMBER 2025		
DRAWING TITLE: PERIMETER DETAIL			

NOTE: ADD TAPERED INSULATION/CRICKETS, REMOVE VAPOUR BARRIER, REMOVE INSULATION TO SUIT NEW ROOF ASSEMBLY



TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
TEL (905) 503-1300 - FAX (905) 503-2002

CLIENT
CITY OF COQUITLAM

FILE NO.
25-1233

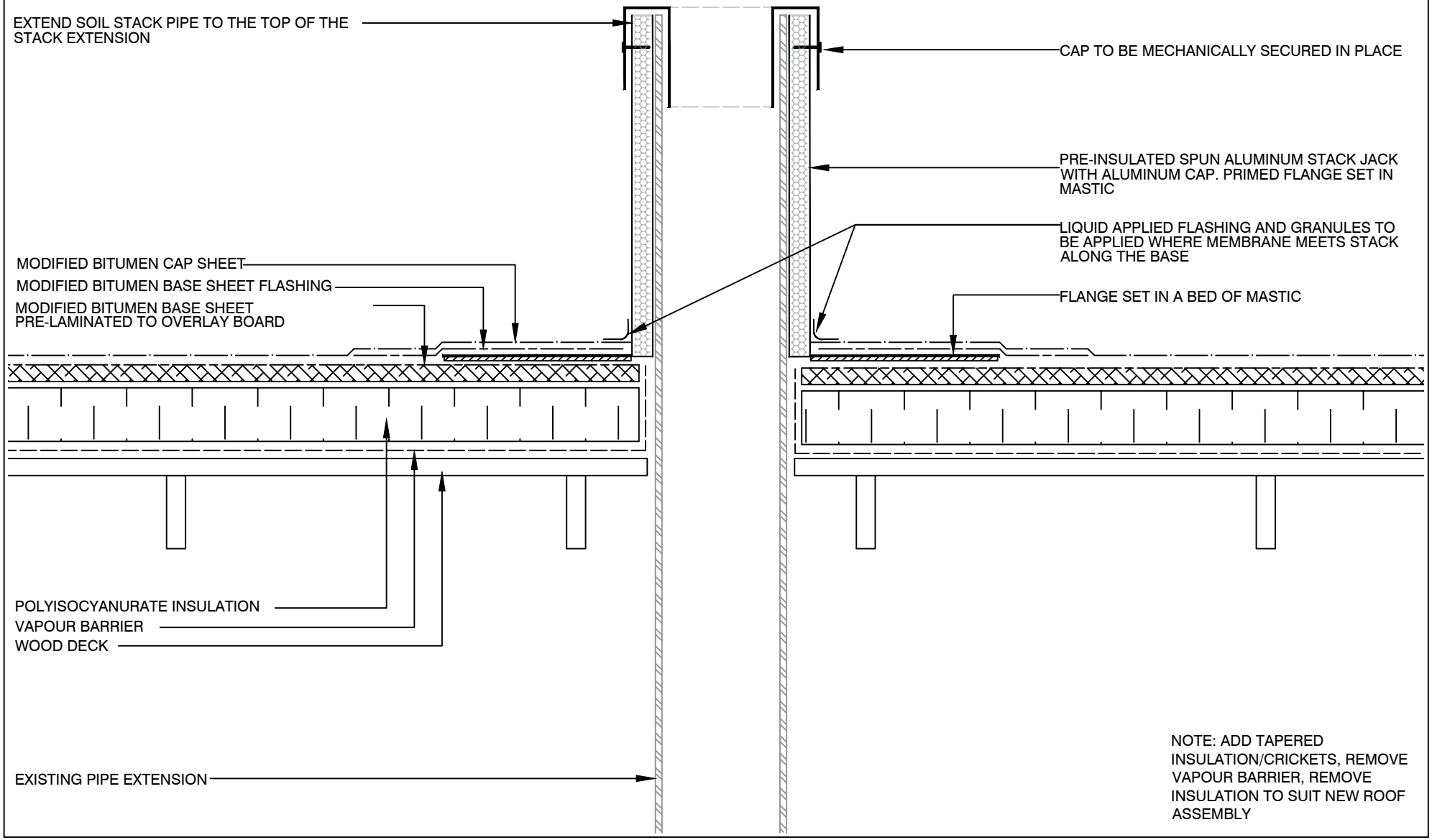
SCALE
N.T.S.

DRAWING NUMBER
3

PROJECT ADDRESS
500 MARINER WAY,
COQUITLAM, BC

DATE
DECEMBER 2025

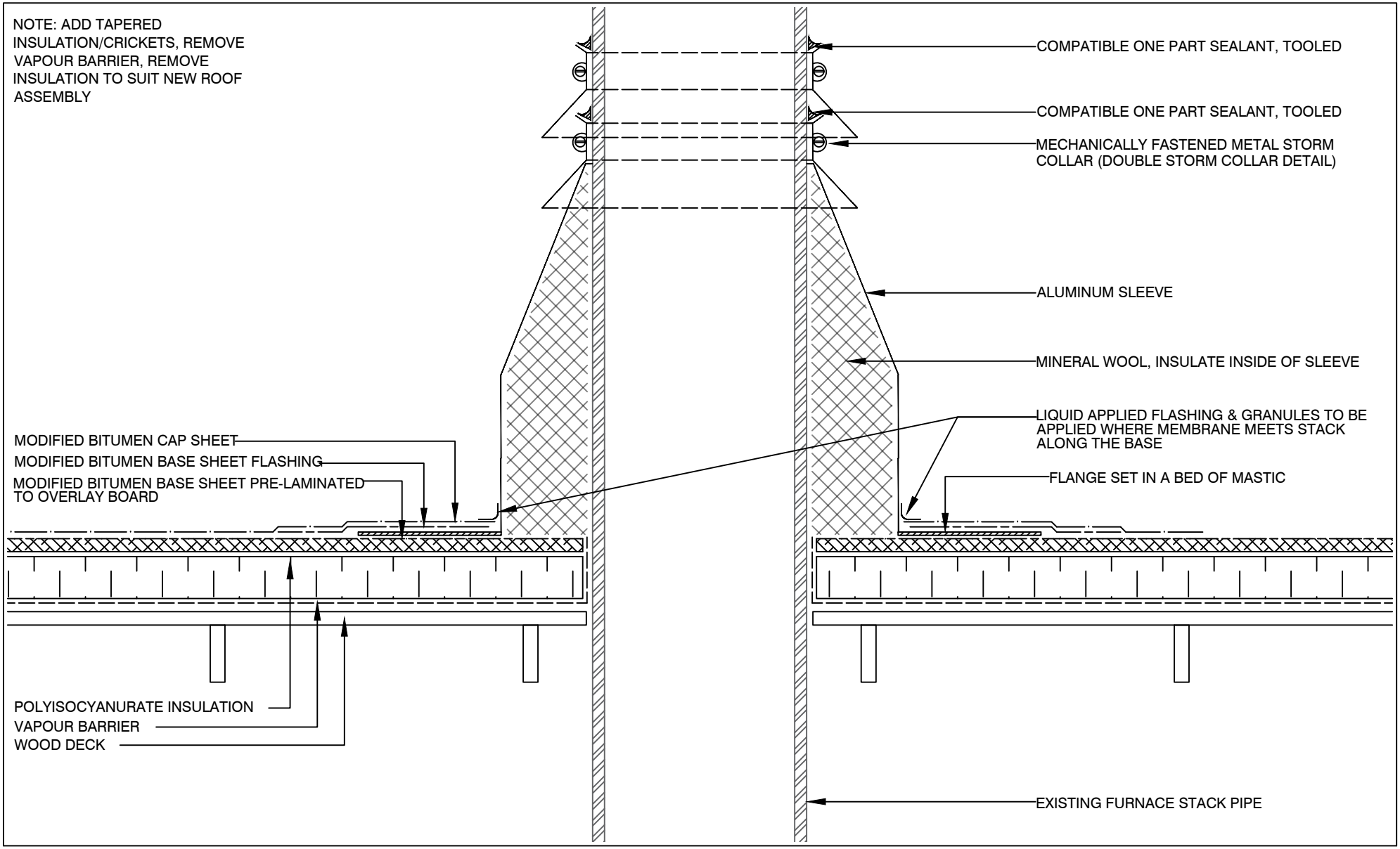
DRAWING TITLE
WOOD CURB DETAIL



TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS
73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
TEL (905) 503-1300 - FAX (905) 503-2002

CLIENT: CITY OF COQUITLAM	FILE NO.: 25-1233	SCALE: N.T.S.	DRAWING NUMBER: 4
PROJECT ADDRESS: 500 MARINER WAY, COQUITLAM, BC	DATE: DECEMBER 2025		
DRAWING TITLE: SOIL STACK DETAIL			

NOTE: ADD TAPERED INSULATION/CRICKETS, REMOVE VAPOUR BARRIER, REMOVE INSULATION TO SUIT NEW ROOF ASSEMBLY



TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
TEL (905) 503-1300 - FAX (905) 503-2002

CLIENT: CITY OF COQUITLAM

PROJECT ADDRESS: 500 MARINER WAY, COQUITLAM, BC

DRAWING TITLE: FURNACE STACK DETAIL

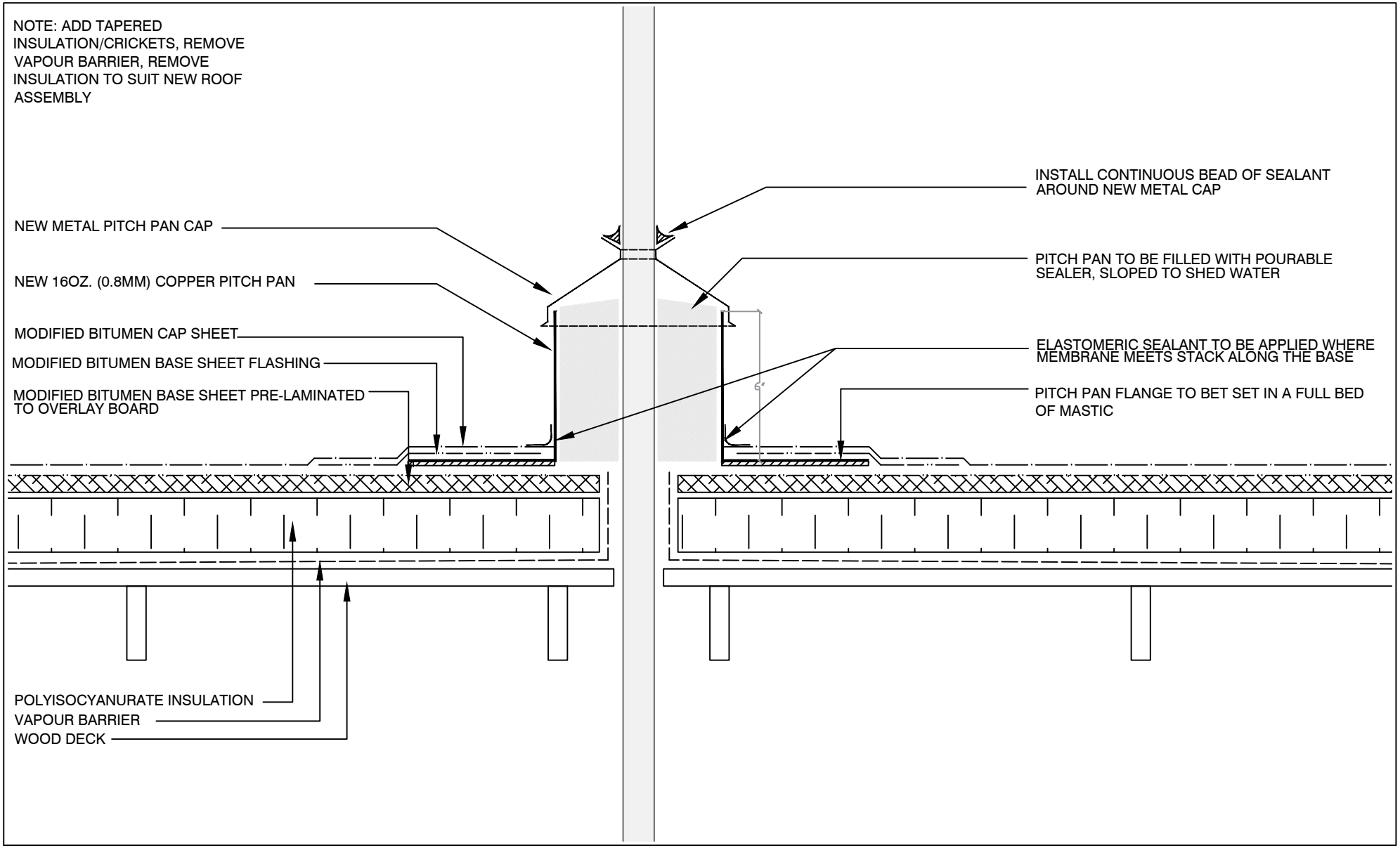
FILE NO.: 25-1233

SCALE: N.T.S.

DRAWING NUMBER: 5

DATE: DECEMBER 2025

NOTE: ADD TAPERED INSULATION/CRICKETS, REMOVE VAPOUR BARRIER, REMOVE INSULATION TO SUIT NEW ROOF ASSEMBLY

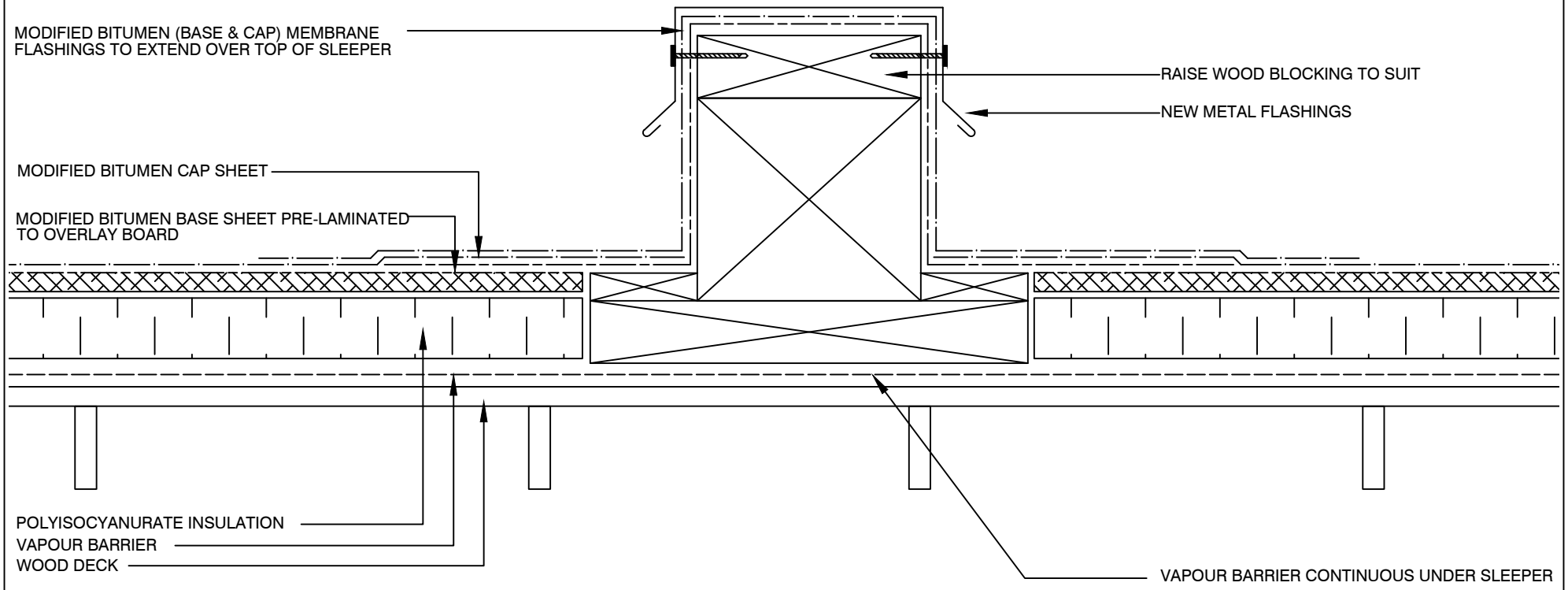


TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
TEL (905) 503-1300 - FAX (905) 503-2002

CLIENT: CITY OF COQUITLAM	FILE NO.: 25-1233	SCALE: N.T.S.	DRAWING NUMBER: 6
PROJECT ADDRESS: 500 MARINER WAY, COQUITLAM, BC	DATE: DECEMBER 2025		
DRAWING TITLE: PITCH PAN DETAIL			

NOTE: ADD TAPERED INSULATION/CRICKETS, REMOVE VAPOUR BARRIER, REMOVE INSULATION TO SUIT NEW ROOF ASSEMBLY

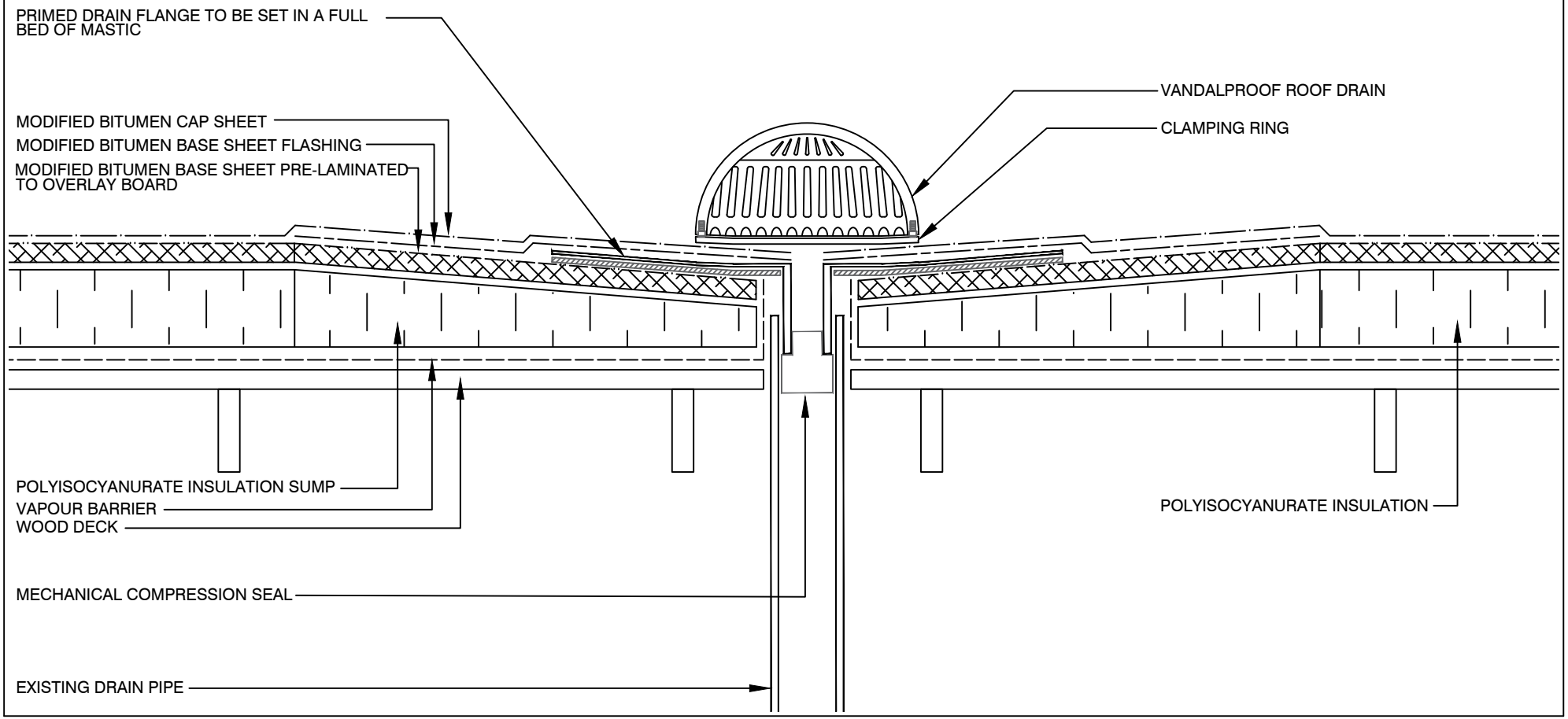


TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
TEL (905) 503-1300 - FAX (905) 503-2002

CLIENT: CITY OF COQUITLAM	FILE NO.: 25-1233	SCALE: N.T.S.	DRAWING NUMBER: 7
PROJECT ADDRESS: 500 MARINER WAY, COQUITLAM, BC	DATE: DECEMBER 2025		
DRAWING TITLE: SLEEPER/SEPARATION CURB DETAIL			

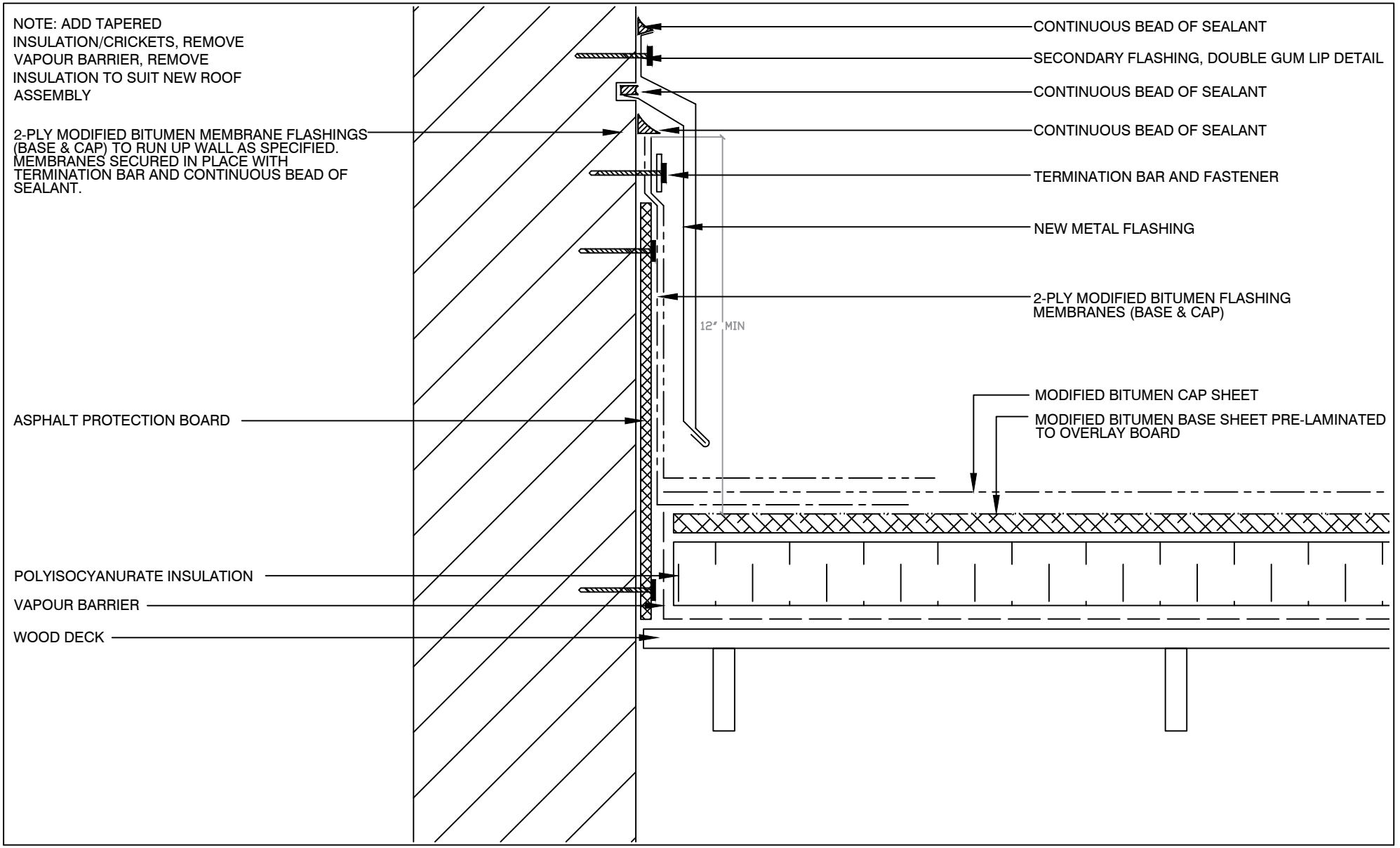
NOTE: ADD TAPERED INSULATION/CRICKETS, REMOVE VAPOUR BARRIER, REMOVE INSULATION TO SUIT NEW ROOF ASSEMBLY



TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
TEL (905) 503-1300 - FAX (905) 503-2002

CLIENT: CITY OF COQUITLAM	FILE NO.: 25-1233	SCALE: N.T.S.	DRAWING NUMBER: 8
PROJECT ADDRESS: 500 MARINER WAY, COQUITLAM, BC	DATE: DECEMBER 2025		
DRAWING TITLE: DRAIN DETAIL			



TRI-TECH PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
TEL (905) 503-1300 - FAX (905) 503-2002

CLIENT
CITY OF COQUITLAM

PROJECT ADDRESS
500 MARINER WAY,
COQUITLAM, BC

DRAWING TITLE
MASONRY WALL DETAIL

FILE NO.
25-1233

SCALE
N.T.S.

DRAWING NUMBER
9

DATE
DECEMBER 2025