Building Envelope Ltd.

Bid Opportunity No. 642-2017

Provision of Roof Replacement at Transcona Retired Citizens Centre
328 Whittier Ave W. Winnipeg, Mb

BID OPPORTUNITY FOR: 642-2017: Provision of Roof Replacement at Transcona Retired Citizens Centre

328 Whittier Ave W. Winnipeg, Mb

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1. ROOFING SCOPE OF WORK - Section 07310

PART 1 - GENERAL

A. Granule surfaced asphalt shingle roofing.
B. Moisture shedding underlayment, eaves, valley and ridge protection
C. Associated metal flashing

1. RELATED WORK

1. N/A

2. REFRENCES

All references shall be the current version or latest revision at the date of building permit issue:

1. Canadian General Standards Board (CGSB):
1. CAN/CGSB 37.5-M89, Cutback Asphalt Plastic Cement.
2. Canadian Roofing Contractors' Association (CRCA), Roofing Specification Manual.
1. CRCA Roofing Specification Manual - 1997.
3. Canadian Standards Association (CSA International).
1. CAN/CSA-A123.1/A123.5-98, Asphalt Shingles Made from Fibreglass Felt and Surfaced with Mineral Granules/Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
2. CAN/CSA-A123.3-98, Asphalt Saturated Organic Roofing Felt.
3. CAN3-A123.51-M85 (R2001), Asphalt Shingle Application on Roof Slopes 1:3 and Steeper.
4. CSA B111-1974(R1998), Wire Nails, Spikes and Staples
5. CAN3-A123.51 - Asphalt Shingle Application on Roof Slopes 1:6 and Steeper.
6. CAN/CGSB-51.32-M77 - Sheathing, Membrane, Breather Type.
7. CAN/CGSB 51.34-M86 – Vapour Barrier, Polyethylene Sheet for Use in Building Construction
8. CAN/ULC-S107 - Methods of Fire Tests of Roof Coverings.
4. American Society for Testing and Materials (ASTM):
1. ASTM B209M - Aluminum and Aluminum-Alloy Sheet and Plate.
2. ASTM B370 - Copper Sheet and Strip for Building Construction.
3. ASTM D3018/D3018M - Class A Asphalt Shingles Surfaced with Mineral Granules.
4. ASTM D3161/ D3161M - Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
5. ASTM D3462/D3462M - Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
5. Health Canada/Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS)

3. SUBMITTALS
1. Submit product data
2. Submit product data sheets for asphalt shingles. Include:
1. Product characteristics.
2. Performance criteria.
3. Installation instructions.
4. Limitations.
5. Colour and finish.
3. Indicate specially configured accessories, metal flashings, jointing methods and locations, fastening methods and locations, and installation details.
4. Submit WHMIS MSDS Material Safety Data Sheets. WHMIS acceptable to Health Canada for asphalt shingles.

4. SAMPLES
1. Submit samples to Consultant. Samples: Submit two (2)] samples of full size of each fiberglass laminate shingle material of colour and type specified. Colours are to be selected by the Contract Administrator from the manufacturer's standard range

5. DELIVERY, STORAGE & HANDLING
1. Deliver, handle, store and protect materials
2. Provide and maintain dry, off-ground weatherproof storage.

6. PROJECT ENVIRONMENTAL CONDITIONS
1. Anticipate and observe environmental conditions (temperature, humidity and moisture) within limits recommended by manufacturer for optimum results. Do not install products under environment conditions outside manufacturer's limits.
2. Take special care when applying Waterproofing Shingle Underlayment (WSU) and shingles when ambient or wind chill temperature is below 7 degrees C. Tack WSU in place if it does not adhere immediately to the deck.

7. WARRANTY
1. Manufacturer's Warranty: Furnish shingle manufacturer's warranty for the product listed below:
Owens Corning Roofing & Asphalt LLC: Lifetime limited warranty. Manufacturer shall deliver to the Contract Administrator a warranty against defective materials for a period of 40 years
2. Warranty Supplement: Provide manufacturer's supplemental warranty to cover labor and materials in the event of a material defect for the following period after completion of application of shingles:
    1. First Ten Years (Duration Shingles)
2. Where a manufacturer's warranty is requested by the Contract Administrator, the roofing contractor will supply all materials as required by the manufacturer and install such materials to the acceptance of the manufacturer in order to qualify for the specified warranty.
3. Provide standard RCAM roofing association Warranty to the Contract Administrator in writing.
4. The manufacturer/contractor shall certify compliance with the above guarantee requirements by submitting a copy of the guarantee as a submittal item indicating who will respond to warranty requests and how monitoring will be reported. The manufacturer will advise in writing how to maintain the warranty.
5. Manufacturer shall deliver to the Contract Administrator a warranty against defective materials for a period of 40 years.

1. QUALITY ASSURANCE
1. Perform Work in accordance with the CRCA Roofing Specifications Manual. Maintain one (1) copy of document on site.
2. It is the Contractor's responsibility to take his own on-site measurements.
3. The Contractor shall provide within five (5) working days, advance notice to the Contract Administrator, for roof inspection and commencement of roof replacement.
4. All work to be performed in accordance with the manufacturers written instructions and meet or exceed the latest edition of the Manitoba Building Code and industry standard.

2. MOCK-UP
1. Upon request of the Contract Administrator, provide 3000mm x 3000mm (10ft x 10ft) mock-up, including ice dam protection, eave protection, underlayment, shingle installation, and associated flashings.
2. Mockup will be used to judge workmanship, substrate preparation, and operation of equipment and material application.
3. Location to be determined by the Contract Administrator.
4. When accepted, mockup will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of the finished Work

2. PART 2 – SCOPE OF WORK

1. Roof Areas
1. Base Bid: 642-2017_Drawing A1-R0

1. Remove the existing asphalt shingles and underlayment down to existing wood deck and discard to an authorized nuisance ground or recycling facility.

2. Save and reuse the existing flashings, steel siding, gutters and downspouts. {Contract Administrator may decide to upgrade downpipes at south elevation as per 642-2017_DRAWING_A-4-R0. Provide separate pricing per

leader to the Contract Administrator.}

3. Supply and install synthetic underlayment as specified. Underlayment to be mechanically fastened.

4. Supply and install ice and water protector as specified at all penetrations, eaves, valleys and areas denoted on roof plan.

5. Supply and install the new two-piece laminated fibreglass-based asphalt shingle as specified. Shingles to be mechanically fastened with 6 nails per shingle.

6. Re-use existing gutter, and downspouts.

2. Materials

1. Underlayment.

1. Underlayment: Owens Corning: Deck Defense, ASTM D 226 and ASTM D 4869 synthetic polymer-based scrim reinforced underlayment designed for use on roof decks as a water-resistant layer beneath asphalt shingles, wood shingles, and shakes, metal shingles or slate.

2. Waterproofing Underlayment: Owens Corning: WeatherLock G."; ASTM D 1970 sheet barrier of self-adhering rubberized asphalt membrane shingle underlayment having internal reinforcement, and "split" back plastic release film; Use in "low slope' areas (below 4:12, but no less than 2:12 pitch); provide material warranty with equal in duration to that of shingles being applied

1. Owens Corning WeatherLock G.

2. Ice & Water Shield
1. Eaves Protection: Owens Corning WeatherLock G. ASTM D1970 sheet barrier of self-adhering rubberized asphalt membrane shingle underlayment having internal reinforcement and "split" back plastic release film; provide material warranty equal in duration to that of shingles being applied.

1. Owens Corning WeatherLock G.

3. Asphalt Fiberglass Shingles

1. **Owens Corning Duration:** Conforming to ASTM D 3018 Type I – Self-Sealing, UL Certification of ASTM D 3462, ASTM D 3161/UL997 110-mph Wind Resistance and UL Class A Fire Resistance, glass fiber mat base, ceramically colored/UV resistant mineral surface granules across entire face of shingle; algae-resistance; two piece laminate shingle., colour Black/Onyx.

2. Weight: 229 / 240 pounds per square (dependent on manufacturing location) (100 square feet).

3. Fasteners shall be 12 ga galvanized (zinc coated), with ó" diameter heads long enough to penetrate through plywood deck.

4. Roofing Cement
1. Asphalt Modified Roofing Cement meeting the requirements of ASTM D 4586, Type I or II or CAN/CGSB-37.5.
2. Lap Cement meeting the requirements of D 3019, Non-Asbestos-Fibered, Type III or CAN/CGSB-37.4.A
3. ASTM D2822, Standard Specification for Asphalt Roof Cement. During cold weather and severe wind, hand sealing is required using flashing cement meeting ASTM D-4586. CAN/CSA-A 123.5 -M90 requires shingles applied in Canada between September 1 and April 30 is adhered with a field applied adhesive as outlined by manufacturer.

5. Gutters

1. Re-use existing.
2. Conduct maintenance of all gutter sealants. Sealant shall be Inland Coatings RC-2200 Rubber Seam Compound or approved equal.

6. Metal Flashing

1. Base and cap flashing shall be a minimum of 26 gauge in thickness. Metal is to be pre-finished and is to be chosen from stock range of Stelco 8000 series of colours. Color to be approved by the Contract Administrator.

7. Flashing Fabrication

1. Form flashing to profiles indicated on Drawings and to protect roofing materials from physical damage and shed water.
2. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

8. Attic Ventilation
1. Ventilation at minimum must meet or exceed local building code requirements. Owens Corning recommends:
2. Net Free Ventilating Area (NFVA) of 1:150 as a minimum.
3. Balanced approach for most effective ventilation (balance between the lower and upper parts of the roof by providing 50% of NFVA at the soffit and 50% at the ridge).
4. NFVA (Net Free Ventilation Area) at the upper part of the roof should not exceed 50%.
5. Where length of the roof ridge is sufficient provide continuous ridge vents for most effective ventilation approach.

6. PART 3 - EXECUTION

9. Workmanship

1. Do not begin installation until the roof deck has been properly prepared. If roof deck preparation is the responsibility of another installer, notify the Contract Administrator of unsatisfactory preparation before proceeding.
2. The roof deck must be smooth, firm, dry, and securely nailed. Plywood must be exterior grade, conforming to building code requirements. Half-inch plywood is recommended for best deck performance.
3. The installation of asphalt shingles on dimensional lumber (including shiplap/board decks) is <u>not recommended</u> as it may potentially cause buckling problems. Buckling is not covered by our Limited Material Warranty.
4. Roof slope should be 1:3 or steeper. For slopes 1:3 to 1:6, see special underlayment requirements outlined below. Follow the more stringent of the CAN3 A 123.52 Asphalt Shingle Application on Roof Slopes 1:6 to Less than 1:3 instructions or those of the local building code.
5. Never apply asphalt shingles to roof slopes less than 2:12.
6. REROOFING: Split and re-nail curled or buckled shingles, replace any missing shingles, remove loose or protruding nails, and sweep surface clean.

10. Application

1. Follow manufacturer's application instructions and in accordance with local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Install asphalt shingles on roof slopes in accordance with CAN3 A 123.51-M85 and as per manufacture instructions. Follow whichever method is the more stringent.
3. Install ice dam protection underlayment directly on plywood at all eaves and roof edges as well as at all penetrations, abutments, and to vertical walls as instructed. Also apply 1-ply of underlayment over the entire deck surface, except where Ice & Water protector membrane has been installed.
4. Contractor shall support the use of application details as specified by ARMA,NRCA , and CRCA.

11. Installation of Underlayment

1. General:
1. Underlayment are to meet the requirements of one of the following:
    a ASTM D 226 / D 226M - 09
    b ASTM D 4869 / D 4869M - 05(2011)
    c CSA A123.2
    d CSA A 123.3-05 (R2010)
    e CAN/CSA A 123.5-05 (R2010)
    f CAN2 51.32

2. Install using methods recommended by Owens Corning and in accordance with local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Install an ice dam protection underlayment of self-adhesive membrane directly on to the plywood at all eaves and roof edges as well as at all penetrations, abutments, and to vertical walls. Add one ply of un-

derlayment over the entire deck surface, except where Ice & Water protector membrane has been installed.

4. Eaves:

1. Install eave protection using methods recommended by Manufacturer and in accordance with local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Install eaves edge metal flashing tight with fascia boards; lap joints 50 mm (2 inches) and seal with plastic cement; nail at the top of the flange.
3. Base flashing should be in place before shingles are applied. Cap flashings of sheet metal and base flashing of metal or mineral surfaced roofing should be used at chimneys, skylights, vents, walls and other vertical surfaces and sealed with asphalt plastic cement. Flashing shall conform to the requirements of applicable building codes and good roofing practice.
4. Overhang eaves with underlayment by a nominal 6 mm (1/4 inch) minimum and extending up the roof at least 600 mm (24 inches) beyond the interior wall line.
5. In colder climates where required by codes, and on all roofs with slopes between 2:12 and 4:12 (low slopes), install eaves protection using an Manufacturers membrane product, up the slope from eaves edge a full 900 mm (36 inches) or to at least 600 mm (24 inches) beyond the interior “warm wall”. Lap ends 150 mm (6 inches) and bond. – see Limited Warranty for full details.
6. For areas where the roof slope is 150 mm per 300 mm down to 100 mm per 300 mm (6 inches per foot down to 4 inches per foot), it is strongly recommended to cover the remainder of the deck with one ply asphalt saturated felt (or equivalent) laid parallel to the eaves, with 50 mm (2 inches) horizontal laps and 100 mm (4 inches) end laps. Apply metal drip edges on top of any underlay along rake edges and directly to the deck along eaves.

5. Valleys:

1. Install Owens Corning eaves protection at least 900 mm (36 inches) wide and centered on the valley. Lap ends 150 mm (6 inches) and seal.
2. Where valleys are indicated to be "open valleys", install metal flashing over Ice & Water protector membrane before roof deck underlayment is installed; DO NOT nail through the flashing. Secure the flashing by nailing at 450 mm (18 inches) on center just beyond edge of flashing so that nail heads hold down the edge of the flashing.
3. Instructions on additional details for valley installations can be found in the ARMA’s Residential Asphalt Roofing Manual and/or NRCA’s Roofing and Waterproofing Manual.

6. Roof Deck:

1. Install one layer of roof deck underlayment over the entire area not protected by Ice & Water protector membrane. Install sheets horizontally so water sheds.
2. On roofs sloped at more 4:12, lap horizontal edges at least 50 mm (2 inches) and at least 50 mm (2 inches) over eaves protection membrane.
3. On roofs sloped between 2:12 and 4:12, lap horizontal edges at least 480 mm (19 inches) and at least 480 mm (19 inches) over eaves protection membrane.
4. Lap ends at least 100 mm (4 inches). Stagger end laps of each layer at least 900 mm (36 inches).
5. Lap underlayment over valley protection at least 150 mm (6 inches).

7. Penetrations:

1. Vent pipes: Install a 600 mm (24 inches) square piece of Ice & Water protector membrane lapping over roof deck underlayment; seal tightly to pipe.
2. Vertical walls: Install Ice & Water protector membrane for eaves protection extending at least 150 mm (6 inches) up the wall and 300 mm (12 inches) on to the roof surface. Lap the Ice & Water protector membrane over the roof deck underlayment. Sheet metal flashing along the slopes of roof shall be stepped with a minimum of 75 mm (3 inches) head lap in both lower flashing and counter flashing. Where roof slopes downward from wall, flashing shall extend over shingles. Where a roof slopes upward from

the wall, flashing shall extend up the slope under the shingles to a point equal in height of 400 mm (15 ¾ inches) to the flashing on masonry. Counter flashing shall be embedded approximately 25 mm (1 inch) into the wall with turn back water stop
3. Skylights and roof hatches: Install Ice & Water protector membrane from under the built-in counterflashing and 300 mm (12 inches) on to the roof surface, lapping over roof deck underlayment.
4. Chimneys: Intersection of shingle roofs and masonry walls or chimneys shall be protected using 24 gauge (or better) galvanized sheet metal to extend not less than 150 mm (6 inches) up the wall and 300 mm (12 inches) on to the roof surface. Lap the Ice & Water protector membrane over the roof deck underlayment.
5. Rake Edges: Install metal edge flashing over the Ice & Water protector membrane and roof deck underlayment; set tight to rake boards; lap joints at least 50 mm (2 inches) and seal with plastic cement; secure with nails.
6. Instructions on additional details for sealing Penetrations can be found in the ARMA's Residential Asphalt Roofing Manual and/or NRCA's Roofing and Waterproofing Manual.

8. Installation of Shingles

2. General:
1. Install in accordance with Manufacturer's instructions and local building codes
2. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
3. Minimize breakage of shingles in cold weather (below 4°C or 40°F) by avoiding dropping bundles on edge or by "breaking bundles" over the roof ridge or other bundles. Separating shingles carefully, taking extra precautions in colder temperatures.
4. Handle shingles carefully in hot weather to avoid scuffing the surfacing or damaging the shingle edges.
5. Install the asphalt shingles on roof slopes in accordance with CAN3 A 123.51-M85

9. Placement and Nailing
1. Use galvanized (zinc coated) roofing nails, 11 or 12 gauge, with at least 10 mm (3/8 inches) diameter heads, long enough to penetrate through plywood or 20 mm (¾ inches) into boards.
2. Use 4, 5, or 6 nails per shingle placed in the nail line per Manufacturer's instructions and local codes. Placement of nails varies based on the type of shingle specified, roof slope, and other environmental considerations. Consult the manufacturer's application instructions for the specified shingle for details.
3. Drive nails straight so that nail head is flush with, but not cutting into shingle surface. Do not overdrive or under drive the nails.
4. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.

10. Protection
1. Use warning signs and barriers. Maintain in good order until completion of work.
2. Restore any areas damaged during construction to original condition.
3. At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed work and materials. Protect areas of incomplete work.
4. Protect any areas inside the building when stoppage occurs on roof due to inclement weather.
5. Do not leave any areas of roof exposed to inclement weather.

11. Field Quality Control

1.
1. Employment of independent inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
2. If defects are revealed during inspection and/or testing, the Contract Administrator can request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by the Contract Administrator at no extra cost. Contractor will cover costs for retesting and re-inspection.

END OF SECTION

APPENDIX: Site Conditions

Fig.1: Coordinate 'boxing-in ' of overhang with Low-Slope Roofing.

Fig. 2: Co-ordinate Steep-slope-to-BUR interface as required. Ensure attic venting is as per Code Requirements.

Fig. 3: Disengage curb flashing/sidings to envelope w/ waterproofing membrane. Supply & Install new flashings as required.