SPECIFICATION SECTION 07 52 00

Partial Roof Replacement at:

Community Centre (Section 1)
193 Gordon Ave., Smooth Rock Falls, ON

RFT 2021-322

SECTION 07 52 00 - MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section includes required modified bituminous roofing system of all roof sections identified with the drawings with the following scope of work:

IMPORTANT NOTE: All required sub-trades required to facilitate the prescribed work will be the responsibility of the contractor.

Remove existing metal counter flashing and roofing down to Polyisocyanurate insulation and dispose to authorized dumpsite.

A. Check existing insulation for damage/wet conditions and report to owner's representative.
B. Remove existing perimeter wood blocking to receive a new drip edge detail.
C. Replace damaged/wet insulation and damaged wood blocking to match existing as authorized.
D. Install new wood blocking at the entire perimeter detail to ensure that the perimeter finished detail will accommodate the new finished roofing assembly.
E. Mechanically fasten an additional layer of 1.5" polyisocyanurate insulation to achieve a minimum 1-90 wind uplift.
F. Install ¼" torch grade recovery board (4'x4' boards) in insulation adhesive. Step all boards into place immediately after placement to ensure full adhesion. Tightly brace all seams to allow no gaps in insulation. All joints must be staggered and offset between layers of insulation.
G. Install one layer of SBS Torch Base Sheet to a properly prepared substrate. Over the SBS Torch Base Sheet underlayment(s), lay out the roll in the course to be followed and unroll six (6) feet. Seams for the top layer of modified membrane will be staggered over the SBS Torch Base Sheet seams. Shingle in proper direction to shed water on each area of roofing, ensuring to extend to the top of the cant, lay out the roll in the course to be followed and unroll six (6) feet. Using a roofing torch, heat the surface of the coiled portion until the burn-off backer melts away. At this point, the material is hot enough to lay into the substrate. Progressively unroll the sheet while heating and press down with your foot to insure a proper bond. Repeat this operation with subsequent rolls with side laps of four (4) inches (101mm) and end laps of eight inches. Give each lap a finishing touch by passing the torch along the joint and spreading the melted bitumen evenly with a rounded trowel to insure a smooth, tight seal.
H. Install base flashing ply to all perimeter and projections details.
I. Install SBS Torch modified mineral surfaced membrane (as described above for the base sheet)
J. New drip edge perimeter to receive 6" prefabricated eavestrough (colour BD)
K. Install new spun aluminum cones if required.
L. Install new spun aluminum stack flashings and insulate if required.
M. Install new tall cones and insulate if required.
N. Where pitch pockets are required, solder all seams.
O. Install new 24 gauge series 8000 prepainted (colour tbd) metal counter flashings on roof curbs, sleepers, caps, and perimeter parapet walls and cap. Perimeter metal details will require a continuous starter strip secured 18" O.C. Metal is to have s-locks and is to be secured by use of screws in the s-locks. There are not to be any fasteners through the metal into the cant. Do not fasten metal through face of flashing.
P. All roof flashings are to be secured with the installation of a termination bar, fastened a minimum of 8" O.C. prior to application of new sheet metal.

Q. Install new wood blocking or paver stone on 2" extruded polystyrene insulation pad under any equipment sitting on roof membrane.

R. Fill all pitch pockets with high quality flexible elastomeric asphaltic caulk, and caulk all open metal seams.
S. All gas lines to received new pre-manufactured gas blocks with foam base.
T. Clean entire project of debris and remove all equipment.
U. Issue membrane manufacturer's 20 years warranty, non-prorated with no charge annual follow-up inspections.

1.3 SYSTEM DESCRIPTION

A. It is the intent of this specification to install a long-term, quality modified bitumen roof system that meets or exceeds all current NRCA guidelines as stated in the most recent edition of the NRCA Roofing and Waterproofing Manual. Please discuss any concerns with the client's Representative and Roofing System Manufacturer.

1.4 GENERAL STANDARDS SPECIFICATION REFERENCES

ASTM D-41	Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing
ASTM D-312	Specification for Asphalt Used in Roofing
ASTM D-451	Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products
ASTM D-1079	Terminology Relating to Roofing, Waterproofing and Bituminous Materials
ASTM D-1227	Specification for Emulsified Asphalt Used as a Protective Coating for Roofing
ASTM D-1863	Specification for Mineral Aggregate Used as a Protective Coating for Roofing
ASTM D-2178	Specification for Asphalt Glass Felt Used as a Protective Coating for Roofing
ASTM D-2822	Specification for Asphalt Roof Cement
ASTM D-2824	Specification for Aluminum-Pigmented Asphalt Roof Coating
ASTM D-4601	Specification for Asphalt Coated Glass Fiber Base Sheet Used in Roofing
ASTM D-5147	1991 Test Method for Sampling and Testing Modified Bituminous Sheet Materials
ASTM D-6162	Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements
ASTM D-6163	Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
ASTM E-108	Test Methods for Fire Test of Roof Coverings
FM	Factory Mutual
NRCA	National Roofing Contractors Association
CRCA	Canadian Roofing Contractors Association
UL	Underwriters Laboratories
WH	Warnock Hersey
CSA A123.3-M1979 (R1992).	Asphalt or Tar Saturated Roofing Felt.
CSA A123.4-M1979 (R1992)	Bitumen for Use in Construction of Built-Up Roof Coverings and damp proofing and Waterproofing Systems.
CSA A231.1-1972.	Precast Concrete Paving Slabs.
CAN/CSA-A247-M86.	Insulating Fibreboard.
CAN/CGSB-51.26-M86	Polyisocyanurate
CSA 0151-M1978.	Canadian Softwood Plywood.
CAN/CGSB-37.5-M89.	Cutback Asphalt Plastic Cement.
CGSB 37-GP-9Ma-83.	Primer, Asphalt, Unfilled, for Asphalt Roofing, Damp proofing and Waterproofing.
CGSB 37-GP-15M-76(R1984).	Application of Asphalt Primer for Asphalt Roofing, Damp proofing and Waterproofing.
CAN/CGSB-37.29-M89.	Rubber-Asphalt Sealing Compound.
CGSB 37-GP-56M-80.	Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
CAN/CGSB-51.33-M89.	Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.
CAN/CSA-A82.27-M91	Gypsum Board products

Canadian Roofing Contractors Association (CRCA). Roofing Specification Manual.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.

B. Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to ensure no possibility of significant moisture exposure. Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end. Cover roll goods with a canvas tarpaulin or other breathable material (not polyethylene).

C. Do not leave unused materials on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.

D. It is the responsibility of the contractor to secure all material and equipment on the job site. If any material or equipment is stored on the roof, the contractor must make sure that the integrity of the deck is not compromised at any time. Damage to the deck caused by the contractor will be the sole responsibility of the contractor and will be repaired or replaced at his expense.

1.6 MANUFACTURER'S INSPECTIONS

A. When the project is in progress, the Roofing System Manufacturer will provide the following at the contractor's own expense:

1. Keep the client's representative informed as to the progress and quality of the work as observed.
2. Provide job site inspections a minimum of three (3) days a week by a qualified full-time employee of the manufacturer.
3. Report to the client's representative in writing any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.
4. Confirm after completion of the project and based on manufacturer's observation and tests that manufacturer has observed no applications procedures in conflict with the specifications other than those that may have been previously reported and corrected.

1.7 PROJECT CONDITIONS

A. Weather Condition Limitations: Do not apply roofing membrane during inclement weather or when a 40% chance of precipitation is expected.

B. Do not apply roofing insulation or membrane to damp deck surface.

C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

D. Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.

E. All slopes of greater than 1-1/2:12 do require back-nailing to prevent slippage of the ply sheets. Ring or spiral shank 1" cap nails, or screws and plates should be utilized at a rate of one fastener per ply (including the modified) at each insulation stop. Insulation stops should be placed 16' o.c. for slopes less than 3:12 and 4' o.c. for slopes greater than 3:12. On non-insulated systems, nail

each ply directly into the deck at the rate specified above. When slope exceeds 1:12, strapping the plies is recommended to help prevent slippage. Four additional fasteners should be installed at the upper edge of modified bitumen sheet when strapping the plies.

1.8 SEQUENCING AND SCHEDULING

A. Sequence installation of modified bituminous sheet roofing with related units of work specified in other sections to ensure that roof assemblies including roof accessories, flashing, trim and joint sealers are protected against damage from effects of weather, corrosion and adjacent construction activity.

B. All work must be fully completed on each day. Phased construction will not be accepted.

1.9 WARRANTY

A. Upon completion of installation, and acceptance by the Owner , the manufacturer will supply to the Owner a twenty (20) years labour and material warranty, non-prorated.

B. Contractor will submit a minimum of a two (2) years warranty to the membrane manufacturer with a copy directly to Owner.

C. Membrane manufacturer will provide an annual inspection for the life of the warranty.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MATERIALS

A. When a particular performance standard is specified it shall be indicative of the minimum standard required. No alternates to the performance standards provided will the accepted.

2.2 DESCRIPTION

A. Modified bituminous roofing work including but not limited to:

1. One ply of SBS Torch Grade Base Sheet fully adhered to approved torchable insulation with roofer's torches.

2. Base Flashing Ply: One (1) ply of SBS Torch Grade Base sheet covered by an additional layer of SBS Torch Modified Membrane.

3. Modified Membrane: 195 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing membrane with a dual fiberglass scrim. This membrane is designed for torch applications and has a burn-off backer that indicates when the material is hot enough to be installed.

2.3 BITUMINOUS MATERIALS

A. Asphalt Primer: V.O.C. compliant, ASTM D-41.

B. Asphalt Roofing Mastic: V.O.C. compliant, ASTM D-2822, Type II.

2.4 SHEET MATERIALS

A. Base Field and Flashing Ply

1. Torcheable base sheet with 110 mil minimum thickness.

B. Modified Field and Flashing Ply

195 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing membrane with a dual fiberglass scrim.

1. ASTM D 6162 Type III

Tensile Strength (ASTM D-5147) 2 in/min. @ 73.4 □ 3.6°F 50 mm/min. @ 23 □ 3°C	>MD 250 lbf/in	CMD 250 lbf/in
Tear Strength (ASTM D-5147) 2 in/min. @ 73.4 □ 3.6°F 50 mm/min. @ 23 □ 3°C	>MD 400 lbf	CMD 400 lbf
Elongation (ASTM D-5147) 2 in/min. @ 73.4 □ 3.6°F 50 mm/min. @ 23 □ 3°C	>MD 6.0%	CMD 6.0%
Low Temperature Flexibility (ASTM D-5147)		Passes -30°F
SRI		>78

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that deck surfaces and project conditions are ready to receive work of this section.

B. Verify that deck is supported and secured to structural members.

C. Verify that deck is clean and smooth, free of depressions, projections or ripples, and is properly sloped to drains.

D. Verify that adjacent roof substrate components do not vary more than 1/4 inch in height.

E. Verify that deck surfaces are dry and free of snow or ice.

F. Confirm that moisture content does not exceed twelve (12) percent by moisture meter tests.

G. Verify that openings, curbs, pipes, conduit, sleeves, ducts, and other items which penetrate the roof are set solidly, and that wood cant strips, wood nailing strips, and reglets are set in place.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.

B. Insurance/Code Compliance: Where required, install and test the roofing system to comply with governing regulation and specified insurance requirements.

C. Protect other work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore other work damaged by installation of the modified bituminous roofing system work.

D. Coordinate installing roofing system components so that insulation and roofing plies are not exposed to precipitation or left exposed overnight. Provide cut-offs at end of each day's work to cover exposed ply sheets and insulation. Remove cut-offs immediately before resuming work.

F. Substrate Joint Penetrations: Prevent bitumen from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

H. Apply roofing materials as specified herein unless recommended otherwise by manufacturer's instructions. Keep roofing materials dry before and during application. Do not permit phased construction. Complete application of roofing plies, modified sheet and flashing in a continuous operation. Remove, begin, and apply only as much roofing in one day as can be completed that same day.

I. Cut-Offs: At end of each day's roofing installation, protect exposed edge of incomplete work, including ply sheets and insulation. Provide temporary covering of one ply of base sheet.

3.3 SPECIFIC

E. The gas lines (if applicable) are to receive two coats of an epoxy fortified rust coating (yellow). All gas line supports are to receive new pre-manufactured plastic gas line supports with pre-laminated extruded polystyrene below them.
F. All metal roof penetration accessories (vents, hatches, etc…) are to receive two coats of an epoxy fortified rust coating (silver).
G. All mechanical unit condensate drains are to receive a concrete splash pad with minimum of 1" extruded polystyrene installed below them.

3.4 CLEANING

A. Remove drippage of bitumen adhesive and any and all dirt from all walls, windows, floors, ladders and finished surfaces.

B. In areas where finished surfaces are soiled by asphalt or any other sources of soiling caused by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their instructions.

3.5 FINAL INSPECTION

A. At completion of roofing installation and associated work, meet with Installer, installer of associated work, client's representative, roofing system manufacturer's representative, and other representatives directly concerned with performance of roofing system.

B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each parting attending.

C. The Roofing System Manufacturer reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the Roofing Contractor at a negotiated price.

D. If core cuts verify the presence of damp or wet materials, the Roofing Contractor shall be required to replace the damaged areas at his own expense.

E. Repair or replace (as required) deteriorated or defective work found at time above inspection to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

F. The Contractor is to notify the Owner upon completion of corrections.

G. Following the final inspection, acceptance will be made in writing.

END OF DOCUMENT