Part 1 General

1.1 REFERENCES

.1 ASTM International Inc.

.1 ASTM D4637-14E1, Standard Specification for EPDM Sheet Used In Single-Ply Roof Membrane.

.2 Canadian Roofing Contractors' Association (CRCA)

.1 CRCA Roofing Specification Manual 2011.

.3 Canadian Standards Association (CSA International)

.1 CSA A123.21-14, Standard Test Method for the Dynamic Wind Uplift Resistance of Mechanically Attached Membrane-Roofing Systems.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.5 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S704-11, Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with the Specifications.

.2 Product Data:

.1 Provide manufacturer's printed product literature, specifications and datasheets for membranes insulation and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Provide two (2) copies of WHMIS MSDS.

.3 Provide Shop Drawings:

.1 Provide drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba, Canada.

.2 Indicate flashing, control joints, insulation, penetrations, field fabricated seams and details.

.4 Test and Evaluation Reports: submit laboratory test reports certifying compliance of roofing membrane with specification requirements.

.1 Compatibility of materials: submit written declaration to Contract Administrator as described in PART 2, PERFORMANCE CRITERIA.

.5 Manufacturer's Installation Instructions: indicate special precautions required for seaming the membrane.

1.3 QUALITY ASSURANCE

.1 Installer qualifications: company or person specializing in application of EPDM roofing systems approved by manufacturer with five (5) years documented experience.

.2 Roofing work is to be performed in accordance with Canadian Roofing Contractors Association (CRCA) Roofing Specifications Manual, unless specified otherwise.

.3 Roofing work is to be performed in accordance with EPDM Manufacturer's printed application instructions unless specified otherwise.

.2 Mock-ups:

.1 Mock-up(s) will be required for Stage 1 and Stage 2 of the Works.

.2 Construct mock-up(s) (15 m^2 minimum size) showing typical lap joint, one inside corner one (1) outside corner, typical expansion joint, intersection with walls and insulation over joints.

.3 Construct mock-up(s) where directed by the Contract Administrator.

.4 Mock-up(s) will be used:

.1 To judge workmanship, substrate preparation, operation of equipment and material application.

.2 For testing by a laboratory designated by the Contract Administrator to determine compliance with performance requirements.

.5 Allow twenty-four (24) hours for inspection of mock-up(s) by Contract Administrator before proceeding with roofing work.

.6 Arrange and pay for membrane Manufacturer's representative to be on-site during mock-up(s) and periodically during progress of the Work in Stage 1 and Stage 2 to ensure installation is in accordance with Manufacturer's instructions and requirements

.7 When accepted, mock-up(s) will demonstrate minimum standard of quality required for this work.

.8 Approved mock-up(s) may remain as part of the finished Work.

.9 All costs associated with the mock-up(s), including testing by the Contract Administrator, will be solely borne by the Contractor.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Storage and Handling Requirements:

.1 Provide and maintain dry, off-ground weatherproof storage.

.2 Store materials on supports to prevent deformation.

.3 Remove only in quantities required for same day use.

.4 Store uncured flashing and jointing materials to prevent premature curing and freezing.

.5 Store roofing materials in accordance with manufacturer's written instructions, to prevent damage or loss of performance.

1.5 SITE CONDITIONS

.1 Ambient Conditions:

.1 Apply EPDM membrane only when surfaces and ambient temperatures are within manufacturers' prescribed limits.

.2 Do not install EPDM membrane when air and substrate temperature remains below 5 degrees C and in accordance with manufacturer's recommendations or when wind chill gives equivalent cooling effect.

.3 Install EPDM membrane on dry substrate, free of snow and ice. Use only dry materials and apply only during weather that will not introduce moisture into system.

1.6 GUARANTEES

.1 The membrane Manufacturer shall provide a pro-rated written guarantee against manufacturing defects in the membrane materials for a period of twenty (20) years from the date of Total Performance. The Manufacturer shall complete and sign the enclosed Form W1: Manufacture Guarantee Agreement upon Award of Contract. The Manufacturer shall indicate his written approval in Form W1 of the selected Applicator for the installation of the membrane system.

.2 The approved Applicator shall provide a written guarantee stating that the membrane system will provide leak-free service for a period of five (5) years from the date of Total Performance. The Applicator shall complete and sign the enclosed Form W2: Application Guarantee Agreement upon Award of Contract.

Part 2 Products

2.1 MATERIALS

.1 EPDM membrane:

.1 EPDM membrane shall be felt-backed EPDM synthetic rubber waterproofing membrane applied with hot Type III asphalt for the roof and rubberized asphalt for the walls. Membrane shall be Lexcan Design D, 1.5 millimetre thick felt-backed membrane or accepted alternate.

.2 Splice cleaner, adhesive, tape, and sealant shall conform to the membrane Manufacturer’s recommendations.

.3 Asphalt for roof application shall conform to CSA A123.4, Type III.

.4 Asphalt for wall application shall conform to CAN/CGSB-37.5-M89, 7106 Foundation Mastic by Insulmastic Building Products or accepted alternate.

.2 Transition membrane

.1 Membrane to be compatible with epdm membrane and wall membrane.

.2 Transition membrane to approved data sheets.

2.2 PERFORMANCE CRITERIA

.1 Compatibility between components of system and adjacent materials is essential.

.1 Provide a written declaration to Contract Administrator stating that all materials and components, as assembled in system, meet this requirement.

.2 Roofing system: to CSA A123.21 for wind uplift resistance.

2.3 SEALERS

.1 Sealants: asbestos-free sealant, compatible with systems materials, recommended by system manufacturer and in accordance with Section 07 92 00.

2.4 ADHESIVES, TAPES AND PRIMERS

.1 Adhesive, tapes and primers, in accordance with manufacturer's recommendations.

2.5 FLASHING, PENATRATION SEALS

.1 Cured or uncured EPDM membrane flashings in accordance with Manufacturer’s recommendations.

2.6 INSULATION

.1 To Section 07 21 13

2.7 SOURCE QUALITY CONTROL

.1 Provide laboratory test reports certifying compliance of roofing materials with specification requirements as described in PART 1, SUBMITTALS/QUALITY CONTROL.

Part 3 Execution

3.1 QUALITY OF WORK

.1 Compliance: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

.2 Do examination, preparation and roofing Work in accordance with Roofing Manufacturer's Specification Manual, CRCA Roofing Specification Manual, Provincial Roofing Association Manual, except where specified otherwise.

3.2 SUBSTRATE EXAMINATION

.1 Verification of Conditions: examine substrates and immediately inform Contract Administrator in writing of defects.

.2 Evaluation and Assessment: prior to beginning work ensure:

.1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris.

3.3 PROTECTION OF IN-PLACE CONDITIONS

.1 Cover walls, walks and adjacent work where materials hoisted or used.

.2 Use warning signs and barriers:

.1 Maintain in good order until completion of Work.

.3 Dispose of rain water away from face of building until drains or hoppers installed and connected.

.4 Protect from traffic and damage:

.1 Comply with precautions deemed necessary by Contract Administrator.

.5 Place plywood runways over work to enable movement of material and other traffic.

.6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.

.7 Seal edges.

.8 If metal connectors used, treat connectors and decking with rust proofing or galvanization.

3.4 MEMBRANE APPLICATION

.1 General:

.1 Do not install EPDM membrane when air and substrate temperature remains below 5°C in accordance with Manufacturer’s recommendations or when wind chill gives equivalent cooling effect.

.2 Install EPDM membrane on dry substrate, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into the system.

.3 Ensure that temperature of substrate and its moisture content conforms to Manufacturer’s minimum requirements, before proceeding with Work.

.2 Positioning membrane sheets:

.1 Ensure substrate is clean, flat, and free from dirt or debris that might be detrimental to the performance of the membrane

.2 Unroll membrane sheets and position according to accepted Shop Drawings, ensuring a tight butt-edge with adjacent sheets. Do not over-lap sheets.

.3 Bonding to Substrate:

.1 Fold one half of membrane sheet back lengthwise so underside of sheet is exposed. Apply a thin mopping of asphalt to felt over factory seams to keep felt flaps in place.

.2 Apply a full mopping of Type III roofing asphalt at the rate of 1.0 to 1.2 kilograms per square metre onto the substrate immediately ahead of the membrane fold. Apply asphalt to a small area at a time extending the width of the membrane and approximately 60 centimetres out from the membrane fold. While the asphalt is still at an equiviscous temperature, roll the membrane into asphalt, avoiding air bubbles or wrinkles. Brush down on the membrane with a push broom to achieve maximum contact. Continue this procedure until one-half of sheet is fully bonded.

.3 Fold back unbonded half of sheet and repeat the bonding procedure. Apply remaining membrane sheets in a similar manner.

.4 Splicing membrane sheets

.1 Clean a 20 centimetre wide strip of EPDM membrane with Seam Cleaner. Ensure any asphalt spills are scraped off. Apply a 20-centimetre wide strip of splice adhesive to the membrane, centred over the seam. Apply with a paint brush using straight painting strokes (not a circular motion). Allow adhesive to dry until it is tacky, but does not stick to a dry finger touch.

.2 Remove paper backing and apply Overlay Seam Tape to the membrane, centred lengthwise over the seam. Overlap tape ends and "T" junctions a minimum of 10 centimetres. Roll tape heavily with a steel roller.

.3 Apply 30 centimetres square overlay patches of flashing centred over all seam "T" junctures, seam overlays, and roof to wall junctures. Apply with Splice Adhesive according to adhesive Manufacturer's application directions.

.4 Caulk both edges of Overlay Seam Tape all exposed membrane of flashing edges with Lap Sealant. Feather sealant with tool provided.

.5 Transition Membrane

.1 Install to manufacture's written instructions.

.6 Flashing application:

.3 Install cured or uncured EPDM membrane flashings in accordance with manufacturer's written instructions.

.4 Install metal flashings in accordance with Section 07

3.5 FIELD QUALITY CONTROL

.1 Inspection:

.1 Inspection and testing of EPDM membrane application will be carried out by testing laboratory designated by Contract Administrator.

.2 Costs of tests will be borne by the Contractor.

3.6 CLEANING

.1 Clean to Contract Administrator's approval, soiled surfaces, spatters, and damage caused by Work of this Section.

Form W1: Manufacturer's Warranty Agreement
Sheet 1 of 2

BONDED EPDM

WARRANTY TO THE CITY OF WINNIPEG

FOR PROJECT:

WILKES RESERVOIR NORTH CELL REHABILITATION

BID OPPORTUNITY NO. 930-2015

Manufacturer's Name and Address

does hereby provide, in accordance with the Specifications of the Contract, the following Warranty for the herein identified Bonded EPDM System.

The Bonded EPDM system is warrantied against the following defects attributable to defective material for a period of twenty (20) years from the date of issue of the Certificate of Total Performance of the project:

1. Premature deterioration in forms of cracking, brittleness, loss of elongation characteristics, tearing resistance, water absorption qualities to the point of failure under the effects of historical climatic conditions.

2. The Bonded EPDM system shall be defined as membrane, roofing asphalt, flashing, tapes, adhesives, sealant, and joint reinforcement membrane strips and any other products required for use in the Bonded EPDM system.

3. Material failure shall be defined as any defects that results in the loss of leak free performance during the warranty period.

Remedial works covered by this warranty shall include the repair or replacement of the defective membrane area. The cost of removal and replacement of material above or adjacent to the membrane is not included in this warranty.

All remedial works shall carry a minimum twenty (20) year warranty as stipulated above.

Form W1: Manufacturer's Warranty Agreement
Sheet 2 of 2

MANUFACTURER'S APPROVAL OF SELECTED APPLICATOR

We, the Manufacturer, approve the selection of _____
as the Applicator of our Bonded EPDM system.

MANUFACTURER

_____
Name of Corporate Officer

_____
Corporate Position

_____
Signature

_____
Date

WITNESS

_____
Name

_____
Signature

_____
Date

Form W2: Applicator's Warranty Agreement
Sheet 1 of 2

BONDED EPDM

WARRANTY TO THE CITY OF WINNIPEG

FOR PROJECT:

WILKES RESERVOIR NORTH CELL REHABILITATION

BID OPPORTUNITY NO. 930-2015

Applicator's Name and Address

does hereby provide, in accordance with the Specifications of the Contract, the following warranty for the herein identified Bonded EPDM System.

The Bonded EPDM system material is warrantied against the following defects attributable to faulty installation for a period of five (5) years from the date of issue of the Certificate of Total Performance of the project:

1. Leak free performance of the Bonded EPDM system. The Bonded EPDM system shall be defined as membrane, roofing asphalt, flashing, tapes, adhesives, sealant, and joint reinforcement membrane strips and any other products recommended by the Manufacturer for use in the Bonded EPDM system.

2. Debonding of the performed EPDM sheet membrane material from the Reservoir roof and side wall construction.

3. Debonding and leak free performance of the roof and wall jointing system as shown in the Drawings with respect to the Bonded EPDM system.

Remedial works covered by this warranty shall include the repair or replacement of the defective membrane area. The cost of removal and replacement of material above or adjacent to the membrane is not included in this warranty.

All remedial works shall carry a minimum five (5) year warranty as stipulated above.

Form W2: Applicator's Warranty Agreement
Sheet 2 of 2

APPLICATOR	**WITNESS**
_____	_____
Name of Corporate Officer	Name
_____	_____
Corporate Position	Signature
_____	_____
Signature	Date
_____	
Date	

END OF SECTION