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| **Section Cover Page** |
| **Section 03 15 19**  **2019-06-05 Underslab Vapour Barriers** |
| Refer to “Green Building Notes” page for additional guidance for projects following a sustainable rating system.  Revise Green Building requirements if the Province has determined that the work of this Contract is not to attain a sustainable rating system certification. |

This Master Specification Section contains:

.1 This Cover Sheet

.2 Green Building Notes

.3 Specification Section Text:

**1. General**

1.1 Summary

1.2 Related Work Specified in Other Sections

1.3 Reference Documents

1.4 Administrative Requirements

1.5 Submittals

1.6 Delivery, Storage and Handling

**2. Products**

2.1 Materials

**3. Execution**

3.1 Examination

3.2 Installation

**Green Building Notes:**

If the project is **not** designated to use a sustainable rating system it is still be prudent to leave in relevant green building requirements as part of an effort towards sustainability.

**Review and incorporate requirements from the following documents into the project:**

Section 1.0 “Sustainability” and “Appendix G – Green Building Standards” of the “Technical Design Requirements for Alberta Infrastructure Facilities”

<http://www.infrastructure.alberta.ca/doctype486/TechDesignRequirements.pdf>

**LEED Specific Documents (if required):**

LEED Project Delivery Process Manual

<http://www.infrastructure.alberta.ca/Content/docType486/Production/LEED_PD_Manual.pdf>

LEED Project Delivery Process Manual – Appendices

<http://www.infrastructure.alberta.ca/Content/docType486/Production/LEED_PD_Appendices.pdf>

All documents can be found on Infrastructure’s Technical Resource Centre, Guidelines and Standards page: <http://www.infrastructure.alberta.ca/992.htm>

1. General

* 1. summary

.1 This Section includes requirements for supply and installation of low permeance, high puncture resistant plastic vapour barriers specifically manufactured for contact with ground under concrete slabs‑on‑grade, including installation accessories required for a complete installation.

1.2 related work specified in other sections

.1 Concrete Reinforcement Section 03 20 00

.2 Cast-in-Place Concrete Section 03 30 00

.3 Radon Mitigation Rough-In System Section 31 21 13

1.3 reference documents

*spec note: Latest versions of the following standards should be used*

.1 American Concrete Institute (ACI):

|  |  |  |
| --- | --- | --- |
| .1 | ACI 302.2R-06 | Guide for Concrete Slabs that Receive Moisture‑Sensitive Flooring Materials. |

.2 American Society for Testing and Materials (ASTM):

|  |  |  |
| --- | --- | --- |
| .1 | ASTM E1643-18a | Standard Practice for Selection, Design, Installation, and Inspection of Water Vapour Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs. |
| .2 | ASTM E1745-17 | Standard Specification for Plastic Water Vapour Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs. |

.3 Canadian Standards Association (CSA):

|  |  |  |
| --- | --- | --- |
| .1 | CSA A23.1-14 / A23.2-14 | Concrete Materials and Methods of Concrete Construction / Test Methods and Standard Practices for Concrete. |
| .2 | CSA S478-95 (R2007) | Guideline on Durability in Buildings. |

1.4 administrative requirements

.1 Coordination: Coordinate delivery of materials specified in this section to coincide with placement of underslab granular materials and reinforcing steel.

1.5 submittals

.1 Provide required information in accordance with Section 01 33 00 – Submittal Procedures.

.2 Product Data: Submit copies of manufacturer’s product literature indicating specified materials, including listing of accessary materials required for complete installation and manufacturer’s written installation instructions.

.3 Samples: Submit two (2) 200 mm x 300 mm sheets of vapour barrier material proposed for use on project for verification of specification requirements.

.4 Sustainable Design Submittals:

.1 LEED Submittals: submit LEED submittal forms for Credit RP 1 in accordance with Section 01 35 18 LEED Requirements and the following:

.1 Submit manufacturer’s information indicating Predicted Service Life for specified materials, or submit a manufacturer’s statement indicating service life expended during warranty period as an actuarial representation of Predicted Service Life in accordance with the methods listed in CSA S478.

1.6 delivery, storage and handling

.1 Delivery and Acceptance Requirements: Deliver materials to site in manufacturer’s original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

.2 Storage and Handling Requirements: Store materials in a clean, dry area in accordance with the manufacturer’s instructions; protect materials during handling and application to prevent damage or contamination.

2 Products

2.1 materials

.1 Plastic Sheet Moisture Suppression Membrane: High density, puncture resistance plastic sheet membrane meeting requirements of ASTM E1745, and as follows:

.1 Vapour Permeance: Nominal ≤ 0.01 Perm (as determined by ASTM E96/E96M).

.2 Tensile Strength and Puncture Resistance: ASTM E1745 Class A or Class B (minimum).

.3 Thickness: Minimum [10 mil (0.25 mm)] [15 mil (0.38 mm)] [Spec Note: ACI 302.1R‑04 recommends a minimum 10 mil (0.25 mm) thickness when the vapour barrier is protected with granular fill. When the vapour barrier is not protected by a fill, a 15 mil thickness is prudent].

.2 Accessory Materials: Provide manufacturer’s required seam tape, pipe boots and vapour proofing mastic forming and a complete system in accordance with CSA A23.1 and ASTM E1643.

3 Execution

3.1 examination

.1 Verify that base materials are placed level and compacted, and have been accepted by the Consultant before starting installation of products specified in this Section.

.1 Installation of products specified in this Section will denote acceptance of site conditions.

3.2 installation

.1 Install vapour barrier in accordance with manufacturer’s written instructions and ASTM E1643, and generally as follows:

.1 Unroll vapour barrier with the longest dimension parallel to direction of concrete placement.

.2 The lap or seams for the vapour barrier should be lapped minimum 150 mm or as instructed by the manufacturer. Seal laps with manufacturer’s recommended tape.

.3 At the perimeter, the vapour barrier should be turned up and sealed onto face of grade beam or foundation wall.

.4 Seal penetrations including pipe and conduit risers in accordance with manufacturer’s instructions.

.5 Make no additional penetrations except as required for placing of reinforcing steel and permanent utilities.

.2 Repair damaged areas by cutting patches of vapour barrier membrane; sized to overlap damaged area a minimum of 150 mm to each side of puncture; and tape all sides using manufacturer’s required tape.

END OF SECTION