



SUGGESTED MASTER SPECIFICATION

SECTION 07 13 00 PRE-APPLIED SHEET MEMBRANE WATERPROOF

PART 1 GENERAL

1.01 SECTION INCLUDES:

- .1 The Work of this Section includes, but is not limited to, blindside pre-applied sheet membrane waterproofing that forms a mechanical bond and adhesive bond to poured concrete for the following applications:
 - .1 Horizontal Applications: Membrane applied on prepared subbase prior to placement of concrete slabs.
 - .2 Vertical Applications: Membrane applied against formwork, or soil retention system prior to placement of concrete foundation walls.
 - .3 Waterstops for sealing concrete construction joints, pipe penetrations, and knockouts. ASTM C173 - Standard Test Method for Air Content for Freshly Mixed Concrete – Volumetric Method (typically for Lightweight Concrete)

1.02 RELATED SECTIONS

- .1 Section 03 10 00 - Concrete Forming and Accessories
- .2 Section 03 15 13 - Waterstops
- .3 Section 03 20 00 - Concrete Reinforcing
- .4 Section 03 30 00 - Cast-In-Place Concrete
- .5 Section 31 20 00 - Earth Moving
- .6 Section 31 62 00 - Driven Piles
- .7 Section 31 64 00 - Caissons

1.03 REFERENCES

American Society for Testing and Materials International (ASTM)

- .1 ASTM C836 Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course
- .2 ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension
- .3 ASTM D570 Standard Test Method for Water Absorption of Plastics
- .4 ASTM D903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
- .5 ASTM D1876 Standard Test Method for Peel Resistance of Adhesives (T-Peel Test)
- .6 ASTM D1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- .7 ASTM D3767 Standard Practice for Rubber - Measurement of Dimensions
- .8 ASTM D5385 Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes
- .9 ASTM E96 Standard Test Method for Water Vapor Transmission of Materials
- .10 ASTM E154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover



1.04 SUBMITTALS

- .1 Manufacturer's Product Data, installation instructions for waterproofing membrane system, and representative membrane samples for approval.
- .2 LEED Submittals – Provide LEED submittal information as required.
- .3 Detail Drawings: Manufacturer to provide typical details drawings of the entire sub-grade waterproofing system showing locations and extent of all waterproofing materials, waterstops, and accessories including details of substrate joints, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, integration with air barrier system, and other termination conditions.
- .4 Mock-up Panels: Mock-up panels as specified herein shall be constructed by the Contractor at locations selected by the Architect, to test all products specified in this Section and arrive at acceptable methods of installation.

1.05 QUALITY ASSURANCE

- .1 Manufacturer's Qualifications: Sheet membrane waterproofing system manufacturer shall be ISO 9001 certified and demonstrate a minimum of fifteen (15) years continuous, successful experience in production of waterproofing membranes.
- .2 Installer Qualifications: Sheet membrane waterproofing system installation shall be performed by one Contractor, approved by the waterproofing manufacturer, and shall have at least three (3) years experience in work of the type required by this Section.
- .3 Manufacturer Technical Representatives: Membrane manufacturer shall provide trained direct company personnel to attend necessary job meetings and perform periodic site visits as necessary.
- .4 Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions, to coordinate this work with related and adjacent work, and to review special details.
- .5 Give a minimum of five (5) days notice to the Owner and manufacturer prior to commencing any work and notify both parties daily of any change in work schedule.
- .6 Contractor shall attend necessary job meetings and furnish competent and full-time supervision, experienced mechanics, all materials, tools, and equipment necessary to complete, in an acceptable manner, the membrane installation in accordance with this specification.
- .7 Materials: Obtain primary sheet membrane waterproofing and all joint sealing and waterstop materials of each type required from a single manufacturer.
- .8 Backup Preparation: The Contractor shall prepare the backup surfaces to accept the approved waterproofing system in the manner necessary to comply with all requirements of the membrane manufacturer and architect. Backup preparation shall be guided by the following:
- .9 Mock-up areas shall be used to determine required methods and tools to obtain degree of backup preparation required by the membrane manufacturer. Prepare and clean a three (3) foot by three (3) foot areas of each substrate material type.
- .10 Schedule Coordination: Schedule work such that the membrane will not be left exposed to jobsite conditions for longer than that recommended by the manufacturer.



1.06 DELIVERY, STORAGE AND HANDLING

- .1 Deliver materials in manufacturer's original and unopened labeled packages. Store and handle in strict compliance with manufacturer's instructions. Protect from damage from weather, excessive temperature, and construction operations. Remove and dispose of damaged material in accordance with applicable regulations.

1.07 CODE REQUIREMENTS

- .1 Work shall be performed in accordance with the more stringent requirements of these specifications, the Local Building Code, workplace health & safety regulations, or other governmental authorities including Federal, Provincial, and Local, having jurisdiction.

1.08 FIELD CONDITIONS

- .1 Perform work only when weather conditions as well as ambient and substrate temperatures are within the limits established by the manufacturer of the sheet membrane waterproofing system. Do not apply waterproofing in snow, rain, or mist.
- .2 Proceed with installation only when the substrate construction and preparation work is complete and is suitable to support sheet membrane waterproofing.

PART 2 PART

2.01 MANUFACTURER

- .1 Sika Canada Inc., 601 - Delmar Avenue · Pointe-Claire · Quebec · H9R 4A9 · Canada
- .2 Source Limitations for Waterproofing System: Obtain primary sheet membrane waterproofing and all joint sealing and waterstop materials of each type required from a single manufacturer

2.02 MATERIALS

- .1 Pre-applied Integrally Bonded Sheet Waterproofing Membrane: **SikaProof® A+** by **Sika**, a flexible sheet membrane consisting of a flexible polyolefin membrane and a hybrid bonding layer with a cement-modified polymer. The membrane shall form a continuous and permanent dual bond (mechanical and adhesive) to poured concrete to prevent lateral water migration between the membrane and structural concrete.
 - .1 Horizontal Applications: SikaProof® A+12
 - .2 Vertical Applications: SikaProof® A+12



.2 Provide membrane with the following physical properties:

Property	Test Method	Result
Colour		Yellow
Thickness (nominal)	ASTM D3767	1.70 mm (0.07 in)
Lateral Water Migration Resistance	ASTM D5385 modified	Pass at 71 m (231 ft) of hydrostatic head pressure head pressure
Resistance to Hydrostatic Head	ASTM D5385 modified	71 m (231 ft) min.
Low Temperature Flexibility	ASTM D1970	Pass at -29 °C (-20 °F)
Tensile Strength ¹	ASTM D412	830 psi (5.7 MPa) min.
Elongation ¹	ASTM D412	1400 % min.
Crack Cycling	ASTM 836	Pass at -26 °C (-15 °F)
Peel Adhesion to Concrete	ASTM D903	20 lb/in. min.
Lap Peel Adhesion	ASTM D1876	30 lb/in. min.
Permeance	ASTM E96 Method B	3.45 ng/Pa x s x m ² (0.06 perms)
Puncture Resistance	ASTM E154	198 lb (882 N) min.
Radon Permeability (SPA-12)	Certificate E-214/2011	(5.3 +/- 0.7) x 10 ⁻¹² m ² /s

2.03 ACCESSORIES

- .1 Tapes for detailing:
 1. SikaProof® Tape A+: Self-adhesive tape for internal jointing.
 2. SikaProof® Sandwich Tape: Optional Self-adhesive tape for internal jointing and waterstop fixation.
- .2 Waterstop: Sika Greenstreak waterstops as required by Section 03 15 13.
- .3 Waterstop: Sika Greenstreak waterstops as required by Section 03 15 13.
- .3 Reinjectable Injection Hose System: SikaFuko VT injection hose system used in conjunction with Sika® Injection-307 or SikaInjection 310 as required by Section 03 1513.
- .4 Sikaplan® W Felts or Geotextile >500 g/m²: Separation layer comprised of a high-quality geotextile fabric of non-woven polypropylene used as a leveling layer to absorb the inconsistencies of the substrate. (As required)
- .5 Sika® Drainage Mat 420: Consists of a polypropylene dimpled drainage core bonded with a non-woven geocomposite fabric on the top side, and a membrane protective film bonded to the bottom side.
- .6 SikaProof® FixTape-50: Self-adhesive tape for adhering waterstop and detailing.
- .7 SikaProof® Patch-200: External membrane patching tape for sealing any external penetrations or local membrane damage.
- .8 Miscellaneous Accessories: Accessories specified or acceptable to manufacturer of pre-applied waterproofing membrane system.



PART 3 EXECUTION

2.01 GENERAL

- .1 The Installer shall examine conditions of substrates and other conditions under which this work is to be performed and notify the Contractor, in writing, of circumstances detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected.
- .2 Membrane Placement: Thickness of the sub-grade membrane shall be determined by the following factors and approved by the membrane manufacturer's technical representative and the architect.
 - .1 SikaProof® A+12: Use on all horizontal surfaces and where rebar cages are placed next to vertical surfaces. Run SikaProof® A+12 up vertical wall to a height above the rebar concentration and marry to the SikaProof® A+12 membrane.
 - .2 SikaProof® A+12: Use on all vertical surfaces where membrane will be pre-applied.

2.02 SUBSTRATE PREPARATION

- .1 The substrate shall be of sufficient stability to prevent movement during the concrete placement. Substrates must be regular and smooth with no gaps or voids larger than 13 mm (0.5 in). Acceptable substrates include: concrete, permanent or removable formwork, plywood, fleece, rigid protection board, or drainage composite.
 - .1 Horizontal Surfaces: The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over crushed stone or earth, ensure substrate is well compacted to prevent displacement of the substrate due to traffic or concrete placement. Substrate may be damp but standing water must be removed.
 - .2 Vertical Surfaces: Use a suitable substrate such as permanent or temporary formwork, plywood, rigid protection board, or drainage composite to provide membrane support.

2.03 INSTALLATION

- .1 General: Strictly comply with installation instructions in manufacturer's published literature, including but not limited to the following:
 - .1 Horizontal Applications:
 - .2 Install a separation/protection or leveling layer based on existing jobsite conditions.
 - .3 Form the corners with the same SikaProof® A+12 sheet adhering internally with SikaProof® Tape-A+.
 - .4 Install the SikaProof® A+ membrane grey side up, adhering the joints with the SikaProof® Tape A+ or the SikaProof® Sandwich Tape.
 - .5 Accurately position succeeding sheets to overlap the previous sheet by a minimum of 50 mm (2 in).
 - .6 Apply SikaProof® Tape A+ or SikaProof® Sandwich Tape at overlap of sheets. Roll with a hard hand roller to ensure a continuous bond is achieved.
 - .7 Install detail areas, such as pipe penetrations, pits, connections, expansion joints, and any other special details using the appropriate accessory products and in strict accordance with the manufacturer's installation instructions.



- .2 Vertical Applications:
 - .1 Install leveling layer based on existing jobsite conditions.
 - .2 Mechanically fasten the membrane using fasteners or alternate adhesive tapes appropriate to the substrate with the grey side facing towards the concrete placement. The membrane may be installed in either horizontal or vertical orientation in any convenient length.
 - .3 Accurately position succeeding sheets to overlap by a minimum of 50 mm (2 in).
 - .4 Apply SikaProof® Tape A+ or SikaProof® Sandwich Tape at overlap of sheets. Roll with hard hand roller to ensure a continuous bond is achieved.

- .3 Dual Vertical Formwork Applications:
 - .1 Mechanically fasten the membrane using fasteners appropriate to the substrate with the grey side facing towards the concrete placement. The membrane may be installed in either horizontal or vertical orientation in any convenient length.
 - .2 Accurately position succeeding sheets to overlap by a minimum of 50 mm (2 in). Ensure the underside of the succeeding sheet is clean, dry, and free from contamination before removing the protective release liner.
 - .3 Apply SikaProof® Sandwich Tape between overlapping sheets and roll with hard hand roller to ensure a continuous bond is achieved.
 - .4 After removing the formwork penetrations, such as form ties, any membrane damage and construction joints can be sealed on the external side of the membrane with SikaProof® Patch-200 or the Sika Dilatec system.
 - .5 Protect membrane in accordance with the manufacturer's published literature prior to backfilling operations.

2.04 FORM LINER ACCESSORY INSTALLATION

- .1 Protect membrane in accordance with the manufacturer's recommendations until placement of concrete. Inspect membrane for damage just prior to concrete placement and make repairs in accordance with manufacturer's recommendations.

END OF SECTION

The Information, and in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions, within their shelf life. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request or can be accessed in the Internet under www.sika.ca.

USE OF THESE GUIDE SPECIFICATIONS. The specifier, architect, engineer or design professional or contractor for a particular project bears the sole responsibility for the preparation and approval of the specifications and determining their suitability for a particular project or application.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Product Data Sheet, product label and Safety Data Sheet which are available at www.sika.ca or by calling 1-800- 933-SIKA. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instructions for each Sika product as set forth in the current Product Data Sheet, product label and Safety Data Sheet prior to product use.