

# SECTION 07 11 13

## SELF-ADHERING SHEET WATERPROOFING

SPEC NOTE: This specification includes materials and methods for the application of Henry Blueskin® WP 200, a sheet applied self-adhering waterproofing membrane. Typical applications include below grade tunnels, foundations, plaza decks, planters and parking structures preventing the penetration of water under hydrostatic pressure. This specification should be adapted to suit the requirements of individual projects. It is prepared in CSI-NMS three part format and should be included as a separate section under Division 7 - Thermal and Moisture Protection.

### **PART 1: GENERAL**

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#### 1.01 GENERAL REQUIREMENTS

- A. The General Conditions, the Supplementary Conditions, the Instructions to Bidders and Division One General Requirements shall be read in conjunction with and govern this section.
- B. The Specification shall be read as a whole by all parties concerned. Sectioning of the Specification is for convenience. Each Section may contain more or less than the complete work of any trade. The Contractor is solely responsible to make clear to the Subcontractors the extent of their work.

#### 1.02 DESCRIPTION

- A. Supply labor, materials, plant, tools and equipment to complete the Work as shown on the Drawings and as specified herein including, but not limited to the following:
  - 1. Foundation Walls (by others),
  - 2. Primer & Self-Adhered SBS Modified Asphalt Waterproofing Membrane,
  - 3. Drain Board/Protection Board,
  - 4. Specified Backfill.

#### 1.03 RELATED WORK

- A. Division 2 Site Work
- B. Division 3 Concrete
- C. Division 4 Masonry
- D. Division 5 Structural Steel
- E. Division 6 Rough Carpentry
- F. Division 7 Sealants & Flashings
- G. Division 15 Mechanical

#### 1.04 REFERNECES

- A. CAN/CGSB-37.9M: Primer, Asphalt, Unfilled for Asphalt Roofing, Dampproofing and Waterproofing.

#### 1.05 SUBMITALS

- A. Prior to commencing the Work, submit copies of manufacturers current certification to ISO. Membrane, primers, sealants, adhesives and associated auxiliary materials shall be included.
- B. Prior to commencing the Work, submit references clearly indicating that the materials proposed have been installed for not less than fifteen years on projects of similar scope and nature. Submit references for a minimum of ten projects.
- C. Prior to commencing the Work submit manufacturers complete set of standard details for waterproofing systems.

#### 1.06 Quality Assurance

- A. Perform Work in accordance with the printed requirements of the membrane manufacturer and this specification. Advise designer of any discrepancies prior to commencement of the Work.
- B. Maintain one copy of manufacturers literature on site throughout the execution of the Work.
- C. At the beginning of the Work and at all times during the execution of the Work, allow access to site by the waterproofing membrane manufacturers representative.
- D. Materials used in this Section, including, primers, mastics and membranes, asphaltic protection boards, composite drainage boards and expansion joint membranes shall be fully compatible and shall be sourced and or produced by one manufacturer.
- E. Submit copies of the membrane manufacturers current ISO certification including the manufacturing of the membrane, primer, mastics, adhesives and protection board.

#### 1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer and product.
- B. Cold applied elastomeric membrane should be stored in closed containers outdoors.
- C. Store membrane at temperature of 40 degrees F and above to facilitate handling.
- D. Membrane contains petroleum solvents and are flammable. Do not use near open flame.

- E. Store role materials horizontally in original packaging.
- F. Store adhesives and primers at temperatures of 40 degrees F and above to facilitate handling.
- G. Keep solvents away from open flame or excessive heat.

1.08 CO-ORDINATION

- A. Ensure continuity of the waterproofing membrane throughout the scope of this section.
- B. Work shall be so scheduled as to provide a watertight seal at the end of each working day on the areas worked upon during the day.

1.09 SITE CONDITONS

- A. Environmental Requirements
  - 1. No installation work shall be performed during rainy or inclement weather and on frost or wet covered surfaces.
- B. Protection
  - 1. Provide adequate protection of materials and work of this section from damage by weather backfilling operations and other causes.
  - 2. Protect work of other trades from damage resulting from work of this section. Make good such damage at own expense to satisfaction of the consultant.
  - 3. Apply protection board as soon as possible after installation of membrane.

1.10 ALTERNATES

- A. Submit requests for alternates in accordance with Section [XXXXX] - [XXXXX].
- B. Alternate submission format to include:
  - 1. Submit evidence that alternate materials meet or exceed performance characteristics of Product requirements and documentation from an approved independent testing laboratory certifying that the performance of the waterproofing membrane system including drain boards and transition sheets, exceed the requirements of the National Building Code.
  - 2. Submit copies of manufacturers' current ISO certification.
  - 3. Submit references clearly indicating that the membrane manufacturer has successfully completed projects on a annual basis of similar scope and nature for a minimum of fifteen years.
  - 4. Submit manufacturers' complete set of standard details for the waterproofing membrane systems showing a continuous plane of water tightness throughout the building envelope.
- C. Submit requests for alternate to this specification a minimum of fifteen (10) working days prior to tender closing for evaluation. Include a list of 25 projects executed over the past fifteen years.
- D. Acceptable alternates will be confirmed by addendum. Substitute materials not approved in writing prior to tender closing shall not be permitted for use on this project.

SPEC NOTE: This Guide Specification includes a standard contractor's 2 year warranty and manufacturer's 5 year material warranty. An extended 10 year material warranty is available provided a Henry Drain Board system is installed over the waterproofing membrane in accordance with the manufacturer's written instructions.

1.11 Warranty

- .1 For the Work of this Section, the 12 months warranty period prescribed in subsection GC 32.1 of General Conditions "C" is extended to [24 months] [60 months].
- .2 Contractor hereby warrants the waterproofing membrane leak coverage in [accordance with GC24], but for two years.
- .3 Waterproofing membrane manufacturer hereby warrants that the waterproofing membrane for leak coverage as a result of faulty materials for a period of ten years [five years for single ply without Henry DB Drain Board). Scope of warranty shall include materials required to return the membrane to a watertight condition.

**PART 2: PRODUCTS**

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2.01 MATERIALS

- A. Waterproofing membrane components and accessories must be obtained as a single-source from the membrane manufacturer to ensure total system compatibility and integrity.

- 1. Acceptable Manufacturer: Henry Company.  
909 N Sepulveda Blvd, Suite 650  
El Segundo, CA 90245  
(800) 598 7663

2.02 WATERPROOFING MEMBRANE (Basis-of-Design)

- A. Primary sheet applied self-adhered waterproofing membrane shall be Blueskin® WP200 manufactured by Henry, 1.5mm (60 mils) SBS modified bitumen, self-adhering sheet membrane with a cross-laminated polyethylene film, and having the following physical properties:
1. Thickness: 1.5 mm (60 mils) min.,
  2. Flexibility: Pass @ -40 degrees C to ASTM D1970,
  3. Vapour permeance: 2.8 ng/Pa.s.m<sup>2</sup> ( 0.05 perms) to ASTM E96,
  4. Tensile strength (membrane): 2.24 MPa to ASTM D412,
  5. Tensile strength (film): 34.5 MPa to ASTM D882,
  6. Elongation: 300% to ASTM D412,
  7. Puncture resistance: 222 N min. to ASTM E154.

2.03 PRIMER

- A. Primer for self-adhering membranes at temperatures above 25 degrees F shall be Aquatac™ Primer manufactured by Henry, a polymer emulsion based adhesive, quick setting, having the following physical properties:
1. Colour: Aqua;
  2. Weight: 8.7 lbs/gal;
  3. Solids by weight: 53%;
  4. Water based, no solvent odours
  5. Drying time (initial set): 30 minutes at 50% RH and 70 degrees F;

2.04 LIQUID MEMBRANE & TERMINATION SEALANT

- A. Termination Sealant shall be HE925 BES Sealant manufactured by Henry; a moisture cure, medium modulus polymer modified sealing compound having the following physical properties:
1. Compatible with sheet air barrier, roofing and waterproofing membranes and substrate,
  2. Complies with Fed. Spec. TT-S-00230C, Type II, Class A
  3. Complies with ASTM C 920, Type S, Grade NS, Class 25
  4. Elongation: 450 – 550%
  5. Remains flexible with aging
  6. Seals construction joints up to 1 inch wide

2.05 PREFABRICATED DRAIN BOARDS: Two part prefabricated geocomposite drain board consisting of a formed polystyrene or PVC core covered on one side with a woven or non-woven polypropylene filter fabric:

- A. Henry DB 200: For vertical and horizontal installations, shallower depths.  
B. Henry DB 500: For vertical installations requiring high compressive strength and high flow capacity.  
C. Henry DB 650: For horizontal applications requiring high compressive strength, high flow capacity & woven geotextile. Suitable for use under topping slab in split slab applications.

2.06 PREFABRICATED DRAIN BOARD ACCESSORIES

- A. Securement Bars: Continuous 1/4 inch x 3/4 inch HDPE bar for screw attachment.  
B. Moulding Strip: Continuous 3 1/2 inch wide 'Z' flashing strip to fit over exposed top edge of drain board.  
C. Drain Board Plugs & Nails: HDPE pre-moulded washer to fit dimples c/w high strength, corrosion resistant concrete nails, UCAN AFH 37 or equal.

**PART 3: EXECUTION**

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3.01 EXAMINATION

- A. Verify that surfaces and conditions are ready to accept the Work of this section. Commencement of the work or any parts thereof shall mean acceptance of the prepared substrate.

3.02 PREPARATION

- A. All surfaces must be sound, dry, clean and free of oil, grease, dirt, excess mortar, frost or other contaminants. Fill spalled areas in substrate to provide an even plane.  
B. New concrete should be cured for a minimum of 7 days and must be dry before waterproofing membranes are applied. Lightweight structural concrete must be cured a minimum of 14 days.  
C. Use appropriate waterproofing membrane primer as recommended by manufacturer based on air and surface temperature at time of application.

- 3.03 PRIMER
- A. Apply primer for self-adhered membrane by roller or spray at rate recommended by manufacturer.
  - B. Allow minimum 30 minute open time. Primed surfaces not covered by waterproofing membrane during the same working day must be re-primed.
- 3.04 FOOTING/FOUNDATION WALLS, JUNCTURES, CRACKS IN SLAB AND PROTRUSIONS
- A. Coat penetrations, such as brackets, clips, braces, etc. that are set into the concrete with a 90 mil coating of liquid membrane to the height of the wearing course and around projections to ensure a complete seal prior to coating the entire area.
  - B. To all cracks and cold joints less than 1/16 inch, apply a coat of liquid membrane at a minimum thickness of 30 mils extending 3 inches on either side of joint, embed a 6 inch wide strip of primary self-adhered waterproofing membrane over.
  - C. To all cracks greater than 1/8 inch, fill void with non-shrink cementitious patching material and allow to cure dry. Prime area and install self-adhered waterproofing membrane, extend 3 inches on either side of crack. Overlap end joint of sheet a minimum 3 inches.
  - D. At monolithic and non-monolithic wall/slab junctures, prime area, trowel-in fillet bead of liquid membrane to inside corners and install self-adhered waterproofing membrane sheet to the required height on the wall and at least 4 inches on the slab. Lap primary waterproofing membrane over a minimum of 2 inches.
  - E. Horizontal to vertical inside corner transition areas are to be pre-treated with a liquid membrane fillet extending 3/4 inch vertically and horizontally from the corner. Apply a minimum 10 inch strip of self-adhered waterproofing membrane centred at the joint.
  - F. All outside corners are to be pre-treated with a minimum 10 inch strip of waterproofing membrane centred at the joint.
  - G. Where three or more planes come into contact reinforce with cut sections of waterproofing membrane reinforcing sheet as per manufacturer's instructions.
- 3.05 PROJECTIONS
- A. Extend waterproofing membrane tight to projection and seal with liquid membrane extending 3 inches along projection and 3 inches onto waterproofing membrane.
- 3.06 WATERPROOFING MEMBRANE - VERTICAL APPLICATIONS
- A. Apply waterproofing membrane to prepared substrate in lengths of 6 feet or less.
  - B. Provide 3 inch laps at both sides and ends. Position for alignment and remove protective film. Press firmly into place. Promptly roll all laps with a counter top roller to effect seal. If more than one length is required on a vertical surface, apply in a shingle fashion.
  - C. Terminate membrane using termination mastic or termination bar, reglet or counter flashing as indicated. Refer to manufacturers standard details.
  - D. All laps within 12 inches of a 90 degrees change in plane are to be sealed with termination sealant.
- 3.07 WATERPROOFING MEMBRANE - HORIZONTAL APPLICATIONS
- A. Apply 2 plies of waterproofing membrane to prepared substrate in lengths of 6 feet or less.
  - B. Provide 3 inches laps at both sides and ends. Position for alignment and remove protective film. Press firmly into place. Promptly roll all laps with a counter top roller to effect seal. If more than one length is required on a vertical surface, apply in a shingle fashion.
  - C. Terminate membrane using termination mastic or termination bar, reglet or counter flashing as indicated. Refer to manufacturers standard details.
  - D. All laps within 12 inches of a 90 degrees change in plane are to be sealed with termination sealant.
- 3.08 Installation of Protection Board
- A. Protection Boards shall be installed over the waterproofing membrane to prevent damage from materials used in backfilling.
  - B. Apply protection board adhesive in 1 inch wide strips spaced at 16 inches o/c to cure waterproofing membrane. Immediately embed protection board and press into adhesive to ensure full contact.
  - C. Do not backfill until adhesive has cure dried. Do not use excessive levels of adhesive.
- 3.09 Installation of Drainage Board (Vertical)
- A. Align and hang drainage up to foundation wall. Position bottom edge of drainage board to be in moderate contact with weeping tile system.
  - B. Secure drainage board to foundation wall with nails and washers spaced 450 mm o/c horizontally. Install minimum of 2 rows staggered and spaced 6 inches apart and min 6 inches from top edge.
  - C. Align and install termination strip along top edge with nails spaced 12 inches o/c and seal with termination sealant.

- D. Align and install moulding strip over completed top edge detail.
- E. Overlap end laps, pull back loose fabric to expose drain core and position core of second panel over the overlap flange of first panel.
- F. Bend drain board to create inside corners and cut board to create outside corners, provide 4 inches of extra fabric to wrap corner.
- G. Stagger or offset joints of drain board sheets.
- H. Place all subsequent sheets in an overlapping single fashion.
- I. Backfill bottom edge in conjunction with weeping tile system.

3.10 Installation of Drainage Board (Horizontal)

- A. The edge of the core flange shall be at the higher edges of the substrate, away from drains.
- B. Overlap in the direction of water flow. Pull back loose fabric to expose drain core and position core of second panel over the overlap flange of first panel.
- C. Bend drain board to create inside corners and cut board to create outside corners, provide 3 inch of extra fabric to wrap corner.
- D. Stagger or offset joints of drain board sheets.
- E. Place all subsequent sheets in an overlapping single fashion.

3.11 CLEAN-UP

- A. Promptly as the work proceeds and on completion clean up and remove from site all rubbish and surplus materials resulting from the foregoing work.

3.12 PROTECTION

- A. Protect waterproofing membrane and drain board work from other trades during construction.
- B. Backfill with specified materials, protect membrane from damage.

END OF SECTION