

ARCHITECTURE

SECTION 07100

DAMP-PROOFING AND WATERPROOFING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Commercial grade Sheet Membrane Waterproofing – where shown, including the elevator pits.
- B. Bentonite waterproofing system for placing new foundations against existing battered concrete retaining wall.

1.2 QUALITY ASSURANCE

- A. General: Provide waterproofing that prevents the passage of liquid water under hydrostatic pressure and complies with requirements as demonstrated by testing performed by an independent testing agency of manufacturer's current sheet membrane.
- B. Pre-installation conference is to be convened prior to commencing installation of waterproofing systems. Review all details and non-standard locations for creating a complete waterproofing system. Waterproofing manufacturers representative is expected to attend.
- C. Product Literature and Samples: Submit manufacturers product literature and standard details for all waterproofing systems. Provide representative samples of the following for approval:
 - 1. Sheet membrane waterproofing
 - 2. Prefabricated drainage composite

PART 2 – PRODUCTS

2.1. SHEET MEMBRANE WATERPROOFING: Foundations.

- A. Manufacturers:
 - 1. "Blueskin"; Henry Company (800-486-1278).
 - 2. "Bituthene 4000"; Grace Construction Products (800-444-6459).
 - 3. "CCW-701"; Carlisle Coatings and Waterproofing, Inc. (800-338-8701)
 - 4. "650 Waterproofing Membrane"; Polyguard Products, Inc. (800-541-4994).Substitutions: None accepted
- B. Miscellaneous Materials:
 - 1. Primer/Filler/Sealer: As recommended by waterproofing manufacturer.
- C. Protection Course:
 - 1. Board as approved by system manufacturer, pre-molded, 1/8 inch (3 mm) thick, semi-rigid board consisting of mineral-stabilized asphalt core sandwiched between layers of asphalt-saturated felt, surface-coated with asphalt and sealed to core under heat and pressure, and provided with polyethylene film facings.
 - 2. Manufacturers
 - "Ram-Tough Protection Board"; The Barrett Co. (800-647-0100)
 - "PC-2 Protection Course"; W.R. Meadows, Inc. (800-342-5976)
 - "Protection Sheet"; Pecora Corporation (800-523-6688)
 - "Protection Course II"; Sonneborn Building Products (800-496-6067)
 - "Tremboard"; Tremco, Inc. (800-562-2728).
- D. Rigid Insulation:
 - 1. Refer to section 07210.

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- 2.2. RAIN_SCREEN CAVITY WALL LIQUID APPLIED WATERPROOFING: Exterior above grade walls. Product must be U.V. Resistant as exterior panels are installed as a rain screen system with open joints that will allow sunlight to penetrate to the waterproofing.
- A. Manufacturers:
1. "Air Bloc 33" Thick System Air Barrier; Henry Company (800-486-1278).
 2. Substitutions: as approved by the Architect and meeting project requirements.
- B. Miscellaneous Materials: Peel and stick membrane for use as transition and flashing.
1. "Blueskin Breather"; Henry Company.
 2. "Aquatac Primer", Henry Company
 3. Substitutions: as approved by the Architect and meeting project requirements.
- 2.3. BENTONITE PANEL WATERPROOFING SYSTEM: Provide at locations shown on drawings.
1. Panels consist of 1 lb. (0.45 kg) per square foot of specially treated high swelling granular sodium bentonite contained inside a bio- degradable, corrugated kraft board measuring 48" x 48" x 3/16" thick.
 2. Bentonite waterproofing and prefabricated drainage composite system to prevent the passage of liquid water under hydrostatic pressure and install without defects, damage or failure. Waterproofing shall consist of biodegradable corrugated kraft board containing a minimum one pound (0.45 kg) per square foot (0.1 sq m) of dry, granular sodium bentonite.
 - a. Volclay Panels manufactured by Colloid Environmental Technologies Co (CETCO)
 - b. Architect approved equal
 - c. SODIUM BENTONITE: Specially selected granular bentonite containing approximately 90% montmorillonite with 10% maximum unaltered volcanic ash and other native sediments. Free Swell Rating: 2 grams sifted into deionized water swells to occupy a minimum volume of 16 cc. Grading: Granular bentonite passes 90% through a 20 mesh sieve and less than 10% through a 200 mesh sieve.
 3. Accessory products: All accessory waterproofing materials shall be provided by bentonite waterproofing manufacturer or shall have manufacturer's written approval for substitution.
 - a) Prefabricated Drainage Composite: Solid molded polystyrene core with a geotextile filter fabric adhered to one side.
 - b) Trowel grade sodium bentonite compound used as detailing mastic around penetrations, corner transitions and grade terminations.
 - c) Rolls of flexible bentonite/butyl rubber strip waterstop for use in concrete construction joints. Secure with adhesive.
 - d) Protection mat: High-strength geotextile protection course material.

PART 3 - INSTALLATION

3.1. PERFORMANCE CRITERIA

- A. Comply with manufacturers written installation recommendations, including preparation of substrate surfaces, detail coatings of joints and planar changes in substrate, and priming of substrates. Perform work only when conditions are acceptable to the manufacturer of the materials being used.
- B. Provide separation between waterproofing membrane and non-compatible substrates and materials in accordance with manufacturers published instructions.
- C. New concrete should be cured for a minimum of 21 days and must be dry before waterproofing systems are applied.

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3.2 INSTALLATION

- A. Clean, prepare, and treat substrate. Remove grease, oil, form-release agents, and other contaminants. Provide clean, dust-free, and dry substrate for waterproofing application.
- B. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids. Rout and fill joints and cracks in substrate.
 - 1. Install glass fabric reinforcement over joints and cracks exceeding a width of **1/16 inch (1.6 mm)** and at all corners and changes in plane.
- C. Prepare, prime, and treat inside and outside corners, terminations, penetrations, drains, and protrusions.
- D. Prime substrate and allow to dry.
- E. Install one or more layers of insulation to achieve required thickness over waterproofed surfaces. Cut and fit to within **3/4 inch (19 mm)** of projections and penetrations.
- F. Protect waterproofing from damage and wear during construction.
- G. Install bentonite waterproofing system in strict accordance with manufacturer's instructions as applicable to Project conditions and as indicated by authorized manufacturer's representative.
 - 1. Protect adjacent work areas and finish surfaces from damage or contamination from waterproofing products during installation operations.
 - 2. Soil Substrates: Site conditions allowing, bentonite panel applications do not require a mud working slab. Grade substrates should consist of well levelled soils without voids and debris, and compacted to a minimum of 85% Modified Proctor density for uniform support and containment of waterproofing sheets. If substrate consists of gravel or crushed stone, place a high-strength geotextile layer over the aggregate and then provide several inches of compacted soil or sand for uniform support and containment of waterproofing sheets.
 - 3. Concrete Substrates: Concrete to receive waterproofing shall be of sound structural grade with a smooth finish, free of debris, oil, grease, laitance, dirt, dust, or other foreign matter which will impair the performance of the waterproofing and drainage system and which do not comply with manufacturer's warranty requirements.
 - 4. All expansion joints should be cleaned, primed, fitted with a proper compression seal product and caulked with polyurethane sealant or applicable expansion joint assembly product manufactured by others. Expansion joint material manufacturer is responsible for water tightness of the expansion joint material.
 - 5. Manufacturer compatible waterstop shall be installed per mfr's guidelines, in all applicable vertical & horizontal concrete construction, cold joints & around applicable penetrations.
 - 6. Prevent bentonite waterproofing products from hydrating before material is contained with overburden or backfill. When threat of rain is imminent, installed bentonite products not already contained by overburden or backfill shall be covered with polyethylene sheeting to decrease the chance of hydration. Remove polyethylene prior to backfill operations.

3.3 DRAINAGE COURSE AND BACKFILLING

- A. Prefabricated drainage system shall be installed to the exterior side of the waterproofing with plastic solid core facing panels. Do not use drainage products with an open core construction (no solid plastic core). Install prefabricated drainage system to manufacturer's specifications.
- B. Do not place gravel or stone drainage in direct contact with waterproofing. Provide compactable backfill, free of debris or gravel larger than 1-1/2" (3.75 cm). Backfill should consist of soils compacted to 85% Modified Proctor density. Gravel or crushed stone are not acceptable as backfill material. Place backfill and compact immediately after waterproofing installation.

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3.4 CAVITY WALL WATERPROOFING

- A. Apply primers for self-adhering membranes, at rate recommended by manufacturer, to all areas to receive transition sheets and/or through-wall flashing membranes.
- B. Apply self-adhering transition sheet and through-wall flashing membranes with a minimum of 2" of overlap to previous work, and ensure that membranes above overlap those below to allow for uninterrupted water flow downward.
- C. Apply Primary waterproofing barrier by trowel or spray application over entire surface as indicated, to a wet film thickness as recommended by the manufacturer. Spray or trowel around all projections ensuring a complete and continuous air and moisture seal.
- D. Protect finished waterproofing system against physical damage while it is left uncovered prior to installation of wall panel system. Repair damage prior to being covered by wall panels.

END OF SECTION