



**SPECIAL PROVISIONS  
FOR  
BENTONITE WATERPROOFING**

**Woodbury County  
IM-NHS-029-6(257)147--03-97**

**Effective Date  
March 18, 2014**

**THE STANDARD SPECIFICATIONS, SERIES 2012, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.**

**120140.01 DESCRIPTION.**

**A. Summary.**

Bentonite clay waterproofing panels and accessories for exterior walls of siphon structures.

**B. References.**

NRCA ML104 - The NRCA Roofing and Waterproofing Manual; National Roofing Contractors Association.

**120140.02 MATERIALS.**

**A. Manufacturers.**

1. Spec based on CETCO Products; Product Volclay Panels, Ultraseal SP.
2. Carlisle – Miraclay Panel
3. Tremco - Paraseal
4. Approved equal.

**B. Materials.**

1. Bentonite: Granulated pure, dry, bentonite clay comprised of 90% minimum sodium montmorillonite; 90% minimum passing No. 20 mesh sieve and 10% maximum passing No. 200 mesh sieve.
2. Three-Ply Panels: Triple corrugated core, smooth faced Kraft paper panels, center core filled with self expanding bentonite clay granules, outer layers placed at right angles to core layer.
  - a. Nominal Panel Size: 48 inches by 48 inches by 5/8 inch.

- b. Minimum Bentonite Fill: 1 psf
  - c. Minimum Panel Weight: 24 pounds
3. Joint Packing: Water soluble plastic filled with bentonite clay granules; 2 inch diameter by 24 inches long.
  4. Joint Seal: Moist and hydrated bentonite clay gel using water and glycol for below-freezing application.

**C. Accessories.**

1. Fasteners: Galvanized nails.
2. Adhesive: Manufacturer's recommended type.
3. Polyethylene Sheet: 4 mil thick.
4. Protection Board: 1/8 inch thick biodegradable hardboard.

**120140.03 CONSTRUCTION.**

**A. Submittals.**

1. Product Data: Provide product criteria, characteristics, accessories, jointing and seaming methods, and termination conditions.
2. Shop Drawings: Indicate required flashings, sealing at openings.
3. Manufacturer's Installation Instructions: Indicate special preparation of substrate, panel attachment methods, and perimeter conditions requiring special attention.

**B. Mock-Up.**

1. Construct mock-up of 100 square feet of horizontal waterproofing, representing finished work including internal and external corners.
2. Locate where directed.
3. Mockup may remain as part of the work.

**C. Delivery, Storage, and Handling.**

Maintain bentonite products dry. Protect with waterproof cover.

**D. Field Conditions.**

Maintain ambient temperatures above 40°F for 24 hours before and during application.

**E. Examination.**

1. Verify existing conditions before starting work.
2. Verify substrate surfaces are smooth and durable; free of matter detrimental to application of waterproofing system.
3. Verify that items that penetrate surfaces to receive waterproofing are securely installed.

**F. Preparation.**

1. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions.
2. Remove concrete fins, projections, and form ties.
3. Fill holes, cracks, honeycombs, and voids with bentonite gel seal, minimum 1/8 inch thick, extending minimum 3 inches beyond defect.

**G. Application – General.**

1. Install panels in accordance with manufacturer's instructions.
2. Cut panels parallel to corrugations to prevent bentonite loss.
3. Install protection board between panels and backfill.
4. Seal construction joints with joint seal.

**H. Application – Below Slabs Under Hydrostatic Conditions.**

1. Place polyethylene sheet over subgrade; lap joints 4 inches.
2. Lay three-ply panels in slab form. Align panels with edge of slab. Do not lay panels over pile caps or footings supporting slab edges. Stagger joints of adjoining panel rows.
3. Lap joints 1 1/2 inches. Secure laps to prevent displacement.
4. Install joint seal in 1 inch high beads around penetrations through panels and 1/2 inch high beads around chair legs not placed on pads. Cover beads with polyethylene sheet collars, cut to size.
5. Lay joint seal continuously along and around protrusions, penetrations, and at abutting walls. Secure to prevent movement.

**I. Protection.**

1. Do not permit traffic over unprotected or uncovered waterproofing.
2. Cover installed waterproofing with temporary polyethylene sheeting. Remove sheeting just before backfilling begins.

**120140.04 METHOD OF MEASUREMENT.**

Bentonite waterproofing will not be measured for payment.

**120140.05 BASIS OF PAYMENT.**

Bentonite waterproofing is incidental to Siphon Structures and will not be paid for separately.