

MASTER SPECIFICATIONS

AQUADRAIN® PREFABRICATED DRAINAGE COMPOSITE

GUIDELINE SPECIFICATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including General and Supplementary Conditions, and Division 1 General requirements, apply to the work of this section.

1.02 WORK SUMMARY

- A. The work of this section includes, but is not limited to the furnishing and installing the following materials, per project specifications and drawings, or as directed by prefabricated drainage composite manufacturer.

1.03 RELATED SECTIONS

- A. Other specification Sections which directly relate to the work of this section include, but are not limited to, the following:
 1. Earthwork and Landscaping: Refer to Division 2
 2. Cast-In-Place Concrete, Structural Precast and Waterstops: Refer to Division 3
 3. Masonry: Refer to Division 4
 4. Insulation: Refer to Division 7
 5. Waterproofing: Refer to Division 7
 6. Floor Drains and other Mechanical: Refer to Division 15
 7. Conduit and other Electrical: Refer to Division 16

1.04 SUBMITTALS

- A. General: Prepare and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections.
- B. Product Data: Submit manufacturer's product data, with complete general and specific installation instructions, recommendations, and limitations.
- C. Product Samples: Submit samples of each type of Aquadrain Prefabricated drainage composite required for this project.
- D. Material Certificates: Submit certificate(s) signed by manufacturer certifying materials comply with specified performance characteristics and physical requirements.

1.05 QUALITY ASSURANCE

- A. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field installation to establish procedures to maintain required working conditions and to coordinate this work with related and adjacent work. Verify that final details comply with manufacturer's current installation requirements and recommendations.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery and Handling: Deliver materials in factory sealed and labeled packaging. Sequence deliveries to avoid delays, while minimizing on-site storage. Handle and store following manufacturer's instructions, recommendations and material safety data sheets. Protect from construction operation related damage, as well as, damage from weather, excessive temperatures

and prolonged sunlight. Remove damaged material from site and dispose of in accordance with applicable regulations.

1.07 PROJECT CONDITIONS

- A. Substrate Condition: Proceed with work only when substrate construction and preparation work is complete and in condition to receive prefabricated drainage system.
- B. Where used in conjunction with a waterproofing membrane, the drainage system shall be installed to the waterproofing by methods approved by the waterproofing material manufacturer.

PART 2 – PRODUCTS

2.01 MANUFACTURER

- A. Provide Aquadrain Prefabricated Drainage with applicable accessories as manufactured by Colloid Environmental Technologies Company (CETCO), 1350 West Shure Drive, Arlington Heights, Illinois 60004-1440, USA. Phone: (847)392-5800; Fax: (847)506-6195; Web-site: <http://www.cetco.com>.

2.02 MATERIALS

- A. Prefabricated Drainage Composite: Aquadrain drainage composite by CETCO shall be used where specified to promote positive drainage. Drainage core shall consist of three-dimensional, high impact resist plastic with a filter fabric uniformly bonded with an adhesive to top surface of the plastic core raised cones. Fabric shall extend several inches beyond the edge of the plastic core. Use and install specific products as recommended by manufacturer.

Physical Properties of Aquadrain products:

AQUADRAIN PRODUCTS					
PROPERTY	10X	15X	15XP	20H	30H
Compressive Strength – psf (kPa) (ASTM D 1621 (mod))	10,800 (517)	15,000 (718)	15,000 (718)	21,000 (1,005)	30,000 (1,436)
Water Flow Rate – gpm/ft width (ASTM D 4716) (liter/min/width)	9 (113)	16 (201)	16 (201)	18 (226)	9 (113)
Thickness – inch (mm) (ASTM D 1777)	0.25 (6.4)	0.43 (11.1)	0.43 (11.1)	0.43 (11.1)	0.25 (6.4)

PART 3 – EXECUTION

- A. Comply with manufacturer's product data, including product application and installation instructions, as well as, manufacturer's shipping and storage recommendations.

3.01 INSPECTION

- A. The installer shall examine conditions of substrates and other conditions under which this section 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 and are acceptable.

3.02 SURFACE PREPARATION

- A. Concrete Substrates: Horizontal deck or roof concrete surfaces should be sloped for proper drainage. Remove fins, ridges, and other protrusions leveled and smoothly finished to match monolithic substrate surface.

3.03 GENERAL INSTALLATION GUIDELINES

A. COMPLETED STRUCTURAL WALLS

1. Starting at the base of the wall, place drainage sheet horizontally oriented with the filter fabric toward the soil. The flanged core edge should be up. Apply over waterproofing membrane, or over protection board applied over waterproofing membrane, using methods approved by the waterproofing material manufacturer. Typical attachment methods include construction adhesive, two-sided tape or washer-headed fasteners.
 - a. At the bottom of the wall, extend the drainage composite behind and under the drainage discharge pipe. Additional geotextile should be wrapped around the gravel surrounding the discharge pipe to prevent soil intrusion into the pipe.
 - b. Do not use drainage board as protection board over waterproofing membrane unless approved by waterproofing membrane manufacturer.
2. Connect adjacent panels pulling the filter fabric back to expose two rows of core dimples and then interlocking the core dimples with the installed panel. With the next course, the flangeless panel edge should be placed over the top flange edge of the panel below and butted dimple to dimple. All connections should be completed in shingle fashion so that water will flow with the overlap and not against it. Overlap fabric in direction of water flow and secure with construction adhesive or duct tape. Wrap all panel termination edges with the filter fabric flap by tucking fabric behind the core.
3. For inside and outside corners, abut adjoining drainage composite at the corner. Cover open core with extra filter fabric to prevent intrusion of soil into core.
4. Around protrusions, cut drainage composite to fit and wrap extra filter fabric around open edge of core to prevent soil intrusion into core.
5. Secure drainage sheet to wall at grade with termination bar mechanically fastened 12" (300 mm) on center with the fabric wrapped behind the exposed core to prevent intrusion of soil into the core.

B. PROPERTY LINE RETAINING WALLS

1. Starting at the base of the wall, place drainage sheet horizontally oriented with the filter fabric toward the retaining wall. The flanged core edge should be up. Typical attachment methods include construction adhesive, two-sided tape or washer-headed fasteners. Cut 1" (2.5 cm) diameter holes in plastic core at weep hole locations; do not cut filter fabric. Tuck extra fabric under bottom of core and around upstream end of core.
2. Connect adjacent panels pulling the filter fabric back to expose two rows of core dimples and then interlocking the core dimples with the installed panel. With the next course, the flangeless panel edge should be placed over the top flange edge of the panel below and butted dimple to dimple. All connections should be completed in shingle fashion so that water will flow with the overlap inside the drain. Install duct tape as required over core overlap joint to prevent wet concrete intrusion into the drain core from the backside during concrete pour. Overlap fabric in direction of water flow and secure with construction adhesive or duct tape. Wrap all panel termination edges with the filter fabric flap by tucking fabric behind the core.
3. For inside and outside corners, cut plastic core of drainage composite at the corner; do not cut filter fabric. Cover open core with duct tape to prevent intrusion of wet concrete into core during concrete pour.

4. Around protrusions, cut drainage composite to fit and wrap extra filter fabric around open edge of core to prevent soil intrusion into core.
5. Secure drainage sheet to wall at grade with termination bar mechanically fastened 12" (300 mm) on center with the fabric wrapped behind the exposed core to prevent intrusion of soil into the core.

C. HORIZONTAL DECKS

1. Starting at the lowest deck area (around drains), place drainage sheet horizontally oriented with the filter fabric facing up. The flanged core edge should be facing away from the drain. Apply over waterproofing membrane, or over protection board applied over waterproofing membrane, using methods approved by the waterproofing material manufacturer. Typical attachment methods include construction adhesive and two-sided tape.
 - a. Do not use drainage board as protection board over waterproofing membrane unless approved by waterproofing membrane manufacturer.
- D. Connect adjacent panels by pulling the filter fabric back to expose two rows of core dimples and then interlocking the core dimples with the installed panel. With the next course, the flangeless panel edge should be placed over the top flange edge of the panel below and butted dimple to dimple. All connections should be completed in shingle fashion so that water will flow with the overlap toward the deck drain or discharge pipe. Install duct tape as required over core overlap joint to prevent wet concrete or soil intrusion into the drain core. Overlap fabric in direction of water flow and secure with construction adhesive or duct tape. Wrap all panel termination edges with the filter fabric flap by tucking fabric behind the core.
- E. For inside and outside corners, cut plastic core of drainage composite at the corner; do not cut filter fabric.
- F. Around protrusions, cut drainage composite to fit and wrap extra filter fabric around open edge of core to prevent soil intrusion into core.
- G. Wrap all panel termination edges with the filter fabric flap by tucking fabric behind the core.

3.04 BACKFILL

- A. Closely coordinate drainage composite installation with Backfill conducted under Division 2 work. Care should be used during backfill operation to avoid damage to the drainage system. Follow generally accepted practices for backfilling and compaction. Backfill should be added in 6" (15 cm) to 12" (30 cm) lifts and compacted to a minimum 85% Modified Proctor density.

Disclaimer: The information provided herein will not apply to every installation and is subject to change without notice. The information is based on data and knowledge considered to be true and accurate. Applicability of products will vary as a result of site conditions and installation procedures. Final determination of the suitability of the information or material for use contemplated, of its manner of use, and whether the use infringes any patents, is the sole responsibility of the user.