

ENGINEERING SPECIFICATION
FIBERGRATE® DENSITY CURRENT BAFFLES

SECTION 11205

FIBERGLASS REINFORCED PLASTIC DENSITY CURRENT BAFFLES

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The CONTRACTOR shall furnish, and install fiberglass reinforced plastic (FRP) Density Current Baffles with all appurtenances, accessories and incidentals necessary to produce a complete, operable and serviceable installation as shown on the Contract Drawings and as specified herein, and in accordance with the requirements of the Contract Documents.

1.2 REFERENCES

- A. The publications listed below (latest revision applicable) form a part of this specification to the extent referenced herein. The publications are referred to within the text by the designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) Test Methods:

ASTM D 638 Tensile Properties of Plastics

ASTM D 790 Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

ASTM D 2583 Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor

ASTM D 256 Pendulum Impact Resistance of Notched Specimens of Plastics

ASTM D 570 Water Absorption of Plastics

1.3 CONTRACTOR SUBMITTALS

- A. The CONTRACTOR shall furnish shop drawings of the density current baffles and accessories in accordance with the provisions of this Section.
- B. The CONTRACTOR shall furnish manufacturer's shop drawings clearly showing material sizes, types, styles, part or catalog numbers, complete details for the fabrication and erection of components including, but not limited to, location, lengths, type and sizes of fasteners, and connection details.
- C. The CONTRACTOR shall submit the manufacturer's published literature, structural properties data, corrosion resistance tables, certificates of compliance, test reports as applicable, concrete anchor systems and their allowable load tables, and design calculations for systems not sized or designed in the contract documents.
- D. The CONTRACTOR may be requested to submit sample pieces of each item specified herein for acceptance by the ENGINEER as to quality and color. Sample pieces shall be manufactured by the method to be used in the WORK.

1.4 QUALITY ASSURANCE

- A. All items to be provided under this Section shall be furnished only by manufacturers having a minimum of ten (10) years experience in the design and manufacture fiberglass reinforced plastic systems.
- B. Manufacturer shall offer a 3 year limited warranty on all FRP products against defects in materials and workmanship.
- C. Manufacturer shall be certified to the ISO 9001-2008 standard.

1.5 PRODUCT DELIVERY AND STORAGE

- A. Delivery of Materials: Manufactured materials shall be delivered in original, unbroken pallets, packages, containers, or bundles bearing the label of the manufacturer.
- B. Storage of Products: All materials shall be carefully handled to prevent them from abrasion, cracking, chipping, twisting, other deformations, and other types of damage. Adhesives, resins and their catalysts are to be stored in dry indoor storage facilities between 70 and 85 degrees Fahrenheit (21 to 29 degrees Celsius) until they are required.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Density Current Baffles shall be Fibergrate[®] as manufactured by

Fibergrate Composite Structures Inc.

5151 Belt Line Road, Suite 1212
Dallas, Texas 75254-7028 USA
(800) 527-4043 Phone (972) 250-1530 Fax

Website: www.fibergrate.com

E-mail: info@fibergrate.com

2.2 GENERAL

- A. All FRP items furnished under this Section shall be composed of fiberglass reinforcement and resin in qualities, quantities, properties, arrangements and dimensions as necessary to meet the design requirements as specified in the Contract Documents.
- B. Fiberglass reinforcement shall consist of alternating layers of chopped strand mat and woven roving in sufficient quantities as needed by the application and/or physical properties required.
- C. A resin rich layer 0.01" – 0.02" in thickness, reinforced with a Type C surface veil shall be included on the outer surface of the density current baffle.
- D. All finished surfaces of FRP items and fabrications shall be smooth, resin-rich, free of voids and without dry spots, cracks, crazes or unreinforced areas. All glass fibers shall be well covered with resin to protect against their exposure due to wear or weathering.

- E. All bolts and concrete anchors shall be manufactured of AISI 316 stainless steel.

2.3 DENSITY CURRENT BAFFLES

- A. Manufacture: Density Current Baffles and their support brackets shall be manufactured using an open molding process. After molding, no dry glass fibers shall be visible on any surface.
- B. Baffle panels should not exceed a maximum of 10'-0" in length.
- C. Baffle panel nominal thickness is to be $\frac{1}{4}'' \pm 1/16''$.
- D. Baffle panels shall include an integrally molded, 6" wide, upper flange to be used for attachment of the Density Current Baffle to the tank walls. This flange will contain factory drilled, $\frac{7}{16}''$ diameter holes at a spacing not to exceed 2'-0" for installation of $\frac{3}{8}''$ diameter anchor bolts.
- E. For venting gasses, factory drilled, 1 inch diameter holes shall be located along the upper perimeter of the sloped portion of the baffle panels at a spacing not to exceed 4'-0" on center.
- F. The baffle panel will slope 45 degrees downward from the tank wall to a width as specified in the contract documents. The baffle panels will include an integrally molded 3" lower flange to insure rigidity of the finished system.
- G. The baffle panels will also be supported by triangular, flanged brackets molded to the same thickness using and the same reinforcement and resin system as the baffle panels. There are to be two brackets per baffle panel installed no more than 2'-6" from each end of the panel. These will be secured to the baffle panel using $\frac{3}{8}''$ diameter 316 stainless steel bolts and to the walls of the tank using $\frac{3}{8}''$ dia. 316 stainless steel anchor bolts.
- H. Side abutments of the baffle panels to be spliced together using a 6" wide splice plate molded to the same thickness and using the same reinforcement and resin system as the baffle panels. These will be secured to the baffle panel using $\frac{3}{8}''$ diameter 316 stainless steel bolts. The splice plates will be factory drilled and the baffle panels are to be match drilled in the field for installation of these bolts.
- I. Color to be blue green.
- J. All cut edges and drilled holes are to be sealed following the manufacturers recommended procedures.
- K. Resin system: The resin system used in the manufacture of the Density Current Baffle shall be a general purpose thermosetting polyester suitable for use in submerged wastewater treatment applications. The resin should also contain UV stabilizers to reduce damage from UV light.
- L. Substitutions: Other products of equal strength, stiffness, corrosion resistance and overall quality may be submitted with the proper supporting data to the engineer for approval.

PART 3 - EXECUTION

3.1 INSPECTION

- A. The contractor shall field verify all existing dimensions and conditions and verify that they are suitable for installation of the Density Current Baffles. Any unsatisfactory site conditions are to be corrected prior to installation of the baffles.
- B. Shop inspection is authorized as required by the Owner and shall be at Owner's expense. If a shop inspection is required, the fabricator shall give ample notice to Contractor prior to the beginning of any fabrication work so that an inspection may be conducted.

3.2 INSTALLATION

- A. Contractor shall install the Density Current Baffles in accordance with manufacturer's drawings that have been released for construction by the owner. Fasten baffle panels securely in place with using fasteners as specified herein.
- B. Install Density Current Baffles level and true without excessive twist or warp and within the tolerances specified by the manufacturer. When required, field cut and drill fiberglass reinforced plastic products with carbide or diamond tipped bits and blades. Seal cut or drilled surfaces in accordance with manufacturer's instructions. Follow manufacturer's instructions when cutting or drilling fiberglass products or using resin products; provide adequate ventilation.