



*Fiberglass Fabricators, Incorporated*

## **Standard Specification for Slide Gates, Stop Gates, and Guides**

### **1 Scope**

- 1.1 This specification shall govern all work necessary to finish fiberglass slide gates, stop gates, and guides, including all anchorage hardware which is required for proper installation of the system components.

### **2 General** (*Reference Drawings G-001 and G-002 attached*)

- 2.1 The contractor shall furnish all slide/stop gates in the sizes and locations shown, including bracing, frames, mountings and guides as specified herein, in accordance with the requirements of the contract and AWWA standards.
- 2.2 Slide gates shall be fiberglass reinforced plastic with a rigid sandwich core. The reinforcement shall be such that full hydraulic head to the top of the gate shall not deflect the gate more than 1/360 of the horizontal width of the gate. Gates shall be equipped with hand holes, extended T-handles or lift mechanisms as shown on the plans.
- 2.3 Slide gate guide frames shall be furnished in the sizes and types as shown on the plans. Guide frames shall have mitered corners securely bonded and reinforced by the manufacturer. Mounting hardware shall be of the size and type as recommended by the manufacturer and shall be furnished as part of the guide frame.
- 2.4 Lift mechanisms, if required, shall consist of type 316 stainless steel stems with stainless steel connecting plates for fastening to the gates. The stem shall have Acme threads of a size and pitch appropriate for the stem diameter. The length of thread shall be such that the gate may be fully opened. The lift mechanism shall be designed to operate the gate with a maximum of 40 pounds pull on the hand wheel. It shall consist of a cast iron bench stand containing a threaded bronze lift nut, stop collars and suitable hand wheel.
- 2.5 Head frames supporting the lift mechanism shall be fabricated and designed to take the maximum stem load as recommended by the manufacturer. Maximum deflection of the head frame of yoke shall not exceed ¼ inch under full load.

### 3 Materials

- 3.1 All materials shall be new and shall be specially designed or selected for the function and service specified. No material may be used in the project that has not been approved by the engineer.
- 3.2 Resin shall be corrosion resistant general purpose polyester, containing no bulk extenders or fillers except for viscosity control. Ultraviolet-light inhibitors shall be added to the laminate.

#### 3.3 Laminate Requirements

- a. Exterior surface shall be a resin-rich coat with ultraviolet protection. A paraffinated wax additive shall be used in the top coat to eliminate the air inhibition (14-18) mils thick). Color shall be as selected by the engineer.
- b. Cut edges or drilled holes must be deburred and resin sealed.

#### 3.4 Laminate Minimum Physical Properties

Minimum physical properties for the product shall conform to those presented in Table 1 below:

**Table 1. Laminate Minimum Physical Properties**

Property @ 70 <sup>0</sup> F	Value	Test Method
Tensile Strength (10 <sup>3</sup> psi)	12.6	ASTM D638
Tensile Modulus (10 <sup>6</sup> psi)	1.27	ASTM D638
Flexural Strength (10 <sup>3</sup> psi)	21.3	ASTM D790
Flexural Modulus (10 <sup>6</sup> psi)	0.9	ASTM D790
Barcol Hardness	35	ASTM D2583
Shear Strength (10 <sup>3</sup> psi)	13.0	ASTM D732
Glass Content	30% by weight	

### 4 Submittals

- 4.1 Final approval for incorporation into the project will be made only after the review of shop drawings, specifications, and data as follows:
  - a. Shop drawings complete with all dimensions, details of connecting piping, and the size and location of any required openings.
  - b. Specifications for all components.
  - c. Details of the major fabricated components showing the arrangement of components and labeled with member sizes and materials of construction.
  - d. Structural calculations for all components.

- e. Manufacturer's recommended procedures for jobsite storage of equipment, handling, and erection.

## **4.2 Design Calculations**

- 4.2.1 As part of the shop drawings for all components, the fabricator must supply any and all analyses pertinent to the composite design. The calculations must include standard strength of materials approaches and computerized finite element analyses of sections where conventional methods do not apply. Furthermore, for the calculated loads, a complete laminate analysis will be submitted identifying the various factors of safety for each laminate used in the proposed laminate schedule. Factors of safety will be evaluated using criteria such as Tsai-Hill or equivalent theories.
- 4.2.2 The calculations shall be accompanied by a written narrative that clearly states all of the basic design assumptions and parameters that were used in the computerized calculations.
- 4.2.3 Approval by the engineer shall not relieve the manufacturer of responsibility for providing materials and design conforming to the intent of these specifications.

## **5 Quality Assurance**

### **5.1 Qualifications**

Contractor shall have a minimum of five (5) years of history of successful installations of similar design. Past job list with customer contact information will be supplied if required.

### **5.2 Manufacturer's Quality Control**

All fabrication shall be carefully inspected at the factory by inspectors who shall use whatever means necessary to assure the proper fit of all field connections and compliance with all material and fabrication requirements of the specifications.

### **5.3 Warranty**

Manufacturer shall warrant the Density Current Baffle to be free of defects in materials and workmanship for a minimum of one (1) year after installation with a maximum of eighteen (18) months from date of shipment.

- 5.4 The contractor shall be responsible for verifying all field dimensions to develop and approve shop drawings.

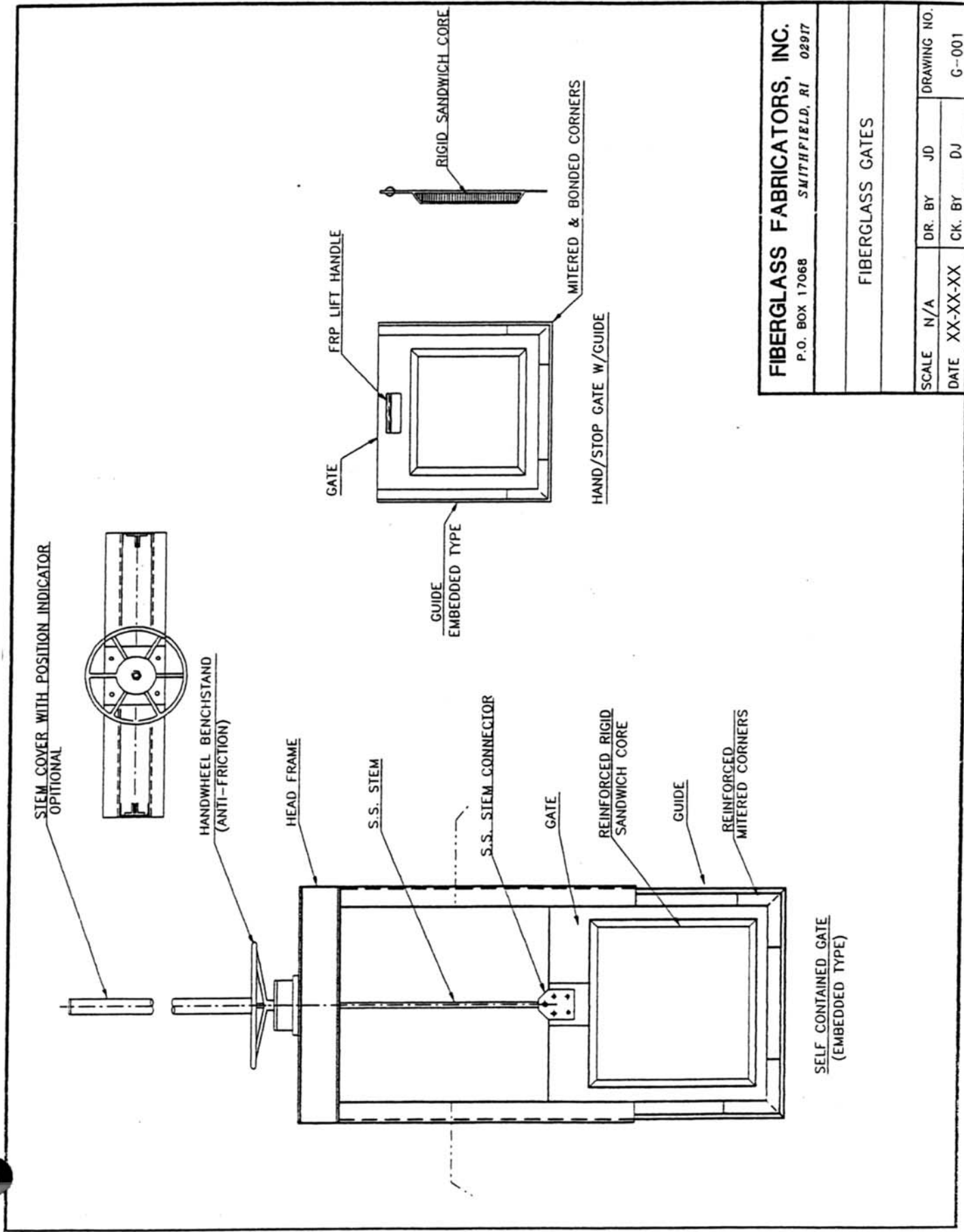
## **6 Manufacture**

- 6.1 Materials, equipment, and components in this section shall be the products of:

Fiberglass Fabricators, Incorporated  
P.O. Box 17068  
964 Douglas Pike  
Smithfield, RI 02917

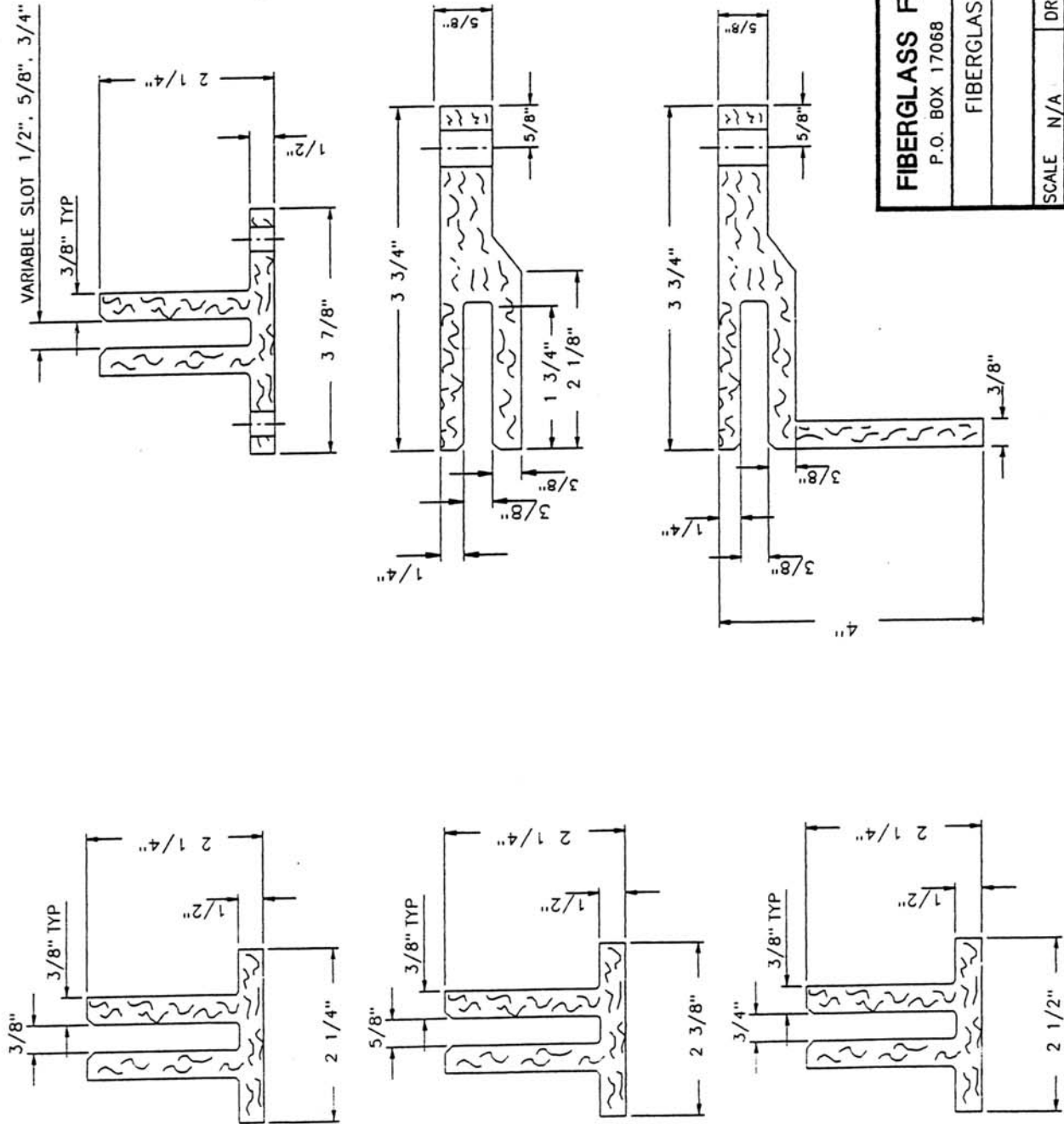
## **7 Installation, Storage, Handling, and Maintenance**

- 7.1 The manufacturer shall provide detailed written instructions for the installation, long term storage, handling, and maintenance for the products provided.



<b>FIBERGLASS FABRICATORS, INC.</b>	
P.O. BOX 17068	SMITHFIELD, RI 02917
FIBERGLASS GATES	
SCALE N/A	DR. BY JD
DATE XX-XX-XX	CK. BY DJ
DRAWING NO. G-001	

Figure 1. Drawing G-001



**FIBERGLASS FABRICATORS, INC.**  
 P.O. BOX 17068 SMITHFIELD, RI 02917

FIBERGLASS GATE GUIDES

SCALE	N/A	DR. BY	JD	DRAWING NO.
DATE	7-15-94	CK. BY	DJ	G-002

Figure 1. Drawing G-002