SECTION 08220
FIBERGLASS REINFORCED PLASTIC (FRP) DOORS AND FIBERGLASS RESIN TRANSFER MOLDED DOOR FRAMES

MODEL CP2 DOUBLE DOOR
FIRE RATED SERIES MEETING UL 10(C)
POSITIVE PRESSURE AND UL 10(B) NEGATIVE PRESSURE
MANUFACTURED IN THE UNITED STATES OF AMERICA

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes The Following:

1. Fire Rated Fiberglass reinforced Plastic (FRP) Doors certified by Intertek Testing Services for Warnock- Hersey in 20, 45, 60 and 90-minute ratings, meeting all specifications of UL 10(B) and (C) fire door test standards. Category A and B.
   a) Category A doors are labeled for compliance with UBC 7-2-1997 (Positive Pressure) and do not require the application of an additional edge sealing system.
   b) Category B doors are labeled to require the installation of a listed edge sealing system to meet the requirements of UBC 7-2-1997 (Positive Pressure). This seal must be installed per the manufacturers instructions and may be factory or field applied.
   c) Category B constructed doors, if requested and with certain restrictions, may be provided with an UL 10 (B) label (Negative Pressure) and at a later date can be upgraded to a UL 10 (C) category B label (Positive Pressure) with the application of a listed seal system. Changing labels on installed doors will only apply to UL 10 (B) doors with Chem-Pruf door register number 57677 and higher, and will require an on-site visit by either Chem-Pruf® or Warnock-Hersey to change out the labels.

2. Fire Rated Fiberglass Resin Transfer Molded Door Frames certified by Intertek Testing Services for Warnock- Hersey in 20, 45, 60 and 90-minute ratings, meeting all specifications of UL 10(C) fire door test standards, Category C.

3. Fire Rated Fiberglass reinforced Plastic (FRP) Doors and Fiberglass Resin Transfer Molded Door Frames certified by Intertek Testing Services for Warnock- Hersey in 20, 45, 60 and 90 minute ratings, meeting all specifications of UL 10(B) fire door test standards.

1.2 RELATED SECTIONS

A. Related Sections Include The Following:
   1. Division 0 - Bidding and Contract Requirements
   2. Division 1 - General Requirements
   3. Division 8 - Finish Hardware
   4. Division 8 - Glazing

1.3 QUALITY ASSURANCE

Test certification by independent and accredited laboratories. Reports available upon request.

A. Referenced Standards

1 Door and Frame Assembly Properties

a) ASTM E 152 UL 10(b) NFPA 252 and UBC 43-2
e) SFBC 3603.2 Forced entry test
f) ASTM C 518 Standard test method for steady for state thermal transmission properties by means of the heat flow meter apparatus.
g) ASTM D 1761 Mechanical Fasteners

2. Laminate Properties

a) ASTM D 638 Tensile Strength
b) ASTM D 790 Flexural Strength
c) ASTM D 2583 Barcol Hardness
d) ASTM D 256 Impact Resistance
e) ASTM D 792 Density/Specific Gravity Of Laminate
f) ASTM D 1761 Mechanical Fasteners
g) ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position
h) ASTM E 84 - Standard Test Method for a Surface Burning Characteristics of Building Materials.

3. Core Properties

a) ASTM C 177 Thermal Properties
b) ASTM D 1622 Density/Specific Gravity
c) ASTM E 84 Surface Burning Characteristics
d) WDMA TM-10 and TM-5 ASTM E 152 U.L. 10(b)
e) ASTM C-36 Type X ±
f) Federal Specification SS-6-30D Type III, Gladex
g) Firestop ASTM E 152 UL 10(b)
h) ASTM E90-04 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
i) ASTM E413-04 – Classification for Rating Sound Insulation
j) ASTM E1332-90 – Standard Classification for Determination of Outdoor-Indoor Transmission Class
k) ASTM E2235-04 – Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Methods

B. Qualifications

1. Manufacturer Qualifications: A company specialized in the manufacture of fiberglass reinforced plastic (FRP) doors and frames as specified herein with a minimum of **30 years documented experience** and with a record of successful in-service performance for the applications as required for this project.
2. Installer Qualifications: An experienced installer who has completed fire rated fiberglass door and frame installations similar in material, design, and extent to those indicated and whose work has resulted in construction with a record of successful in-service performance.
3. Source Limitations**: Obtain fiberglass reinforced plastic doors and resin transfer molded fiberglass frames through one source fabricated from a single manufacturer. This ensures complete uniformity of physical properties and consistency in the resin chemistry tailored for this application.**

4. Source Limitations: Hardware and accessories for all FRP doors as specified in Section 08710 shall be provided and installed by the fiberglass door and frame manufacturer. **Certified hardware installer must be qualified in accordance with UL10(b), UL10(c) and FBC.**
5. Source Limitations: Glass for windows in doors shall be furnished and installed by door and frame manufacturer in accordance with related section, Division 8, Glazing.

1.4 SUBMITTALS

A. Product Technical Data Including:
1. Acknowledgment that products submitted meets requirements of standards referenced
2. Manufacturer shall provide certificate of compliance with current local and federal regulations as it applies to the manufacturing process.
3. Manufacturer's installation instructions.
4. **Schedule of doors** and frames indicating the specific reference numbers as used on the **owner's project documents**, noting **door type, frame type**, **size**, **handing** and applicable **hardware.**
5. Details of core and edge construction. Include factory-construction specifications.
6. Certification of manufacturer's qualifications.

B. Submittal Drawings For Customer Approval Shall Be Submitted Prior To Manufacture And Will Include The Following Information And Formatting.

1. Summary door schedule indicating the specific reference numbers as used on owner's drawings, with columns noting door type, frame type, size, handing, accessories and hardware.
2. A drawing depicting front and rear door elevations showing hardware with bill of material for each door.
3. Drawing showing dimensional location of each hardware item and size of each door.
4. Individual part drawing and specifications for each hardware item and FRP part or product.
5. Construction and mounting detail for each frame type.

C. Samples:

1. **Provide one complete manufactured door sample which represents all aspects of the typical manufacturing process, including molded-in gelcoat color and plate construction. One edge should expose the interior of the door, depicting the stile and rail, hardware reinforcement and core material.**

D. Operation and Maintenance Manuals:

1. Include recommended methods and frequency for maintaining optimum condition of fiberglass doors and frames under anticipated traffic and use conditions.
2. Include one set of final as built drawings with the same requirements as mentioned in Section B above.
3. Include certificate of warranty for door and frame listing specific door registration numbers.
4. Include hardware data sheets and hardware manufacturer's warranties.

1.5 DELIVERY, STORAGE AND HANDLING

A. Each door and frame shall be delivered **individually crated** for protection from damage in cardboard containers, **clearly marked** with project information, door location, specific reference number as shown on drawings, and shipping information. **Each crate shall contain all fasteners necessary for installation as well as complete installation instructions.**
B. Doors shall be stored in the original container on edge out of inclement weather for protection against the elements.
C. Handle doors pursuant to the manufacturer's recommendations as posted on outside of crate.

1.6 WARRANTY

A. All fiberglass doors and frames have a lifetime guarantee against failure due to corrosion. Additionally, fiberglass doors and fiberglass frames are guaranteed for ten years against failure due to materials and workmanship, including warp, separation or delamination, and expansion of the core.
B. On Site Assistance Available.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
A. **Chem-Pruf Door Co., Ltd., P.O. Box 4560, Brownsville, Texas 78523**
Phone: 1-800-444-6924, Fax: 956-544-7943, Website: www.chem-pruf.com
B. Substitutions may be considered, provided manufacturer can comply with the specifications as written herein. Requests for substitution must be submitted in writing no less than 10 days prior to bid date. **Substitution request to include a physical sample and written documentation that product will meet the specific manufacturing methods as highlighted below.**

2.2 FRP DOORS

A. Fire Rated Fiberglass reinforced Plastic (FRP) **Doors certified by Intertek Testing Services for Warnock-Hersey in 20, 45, 60 and 90 minute ratings** meeting all specifications of UL 10(c) and UL 10(b) fire door test standards.
B. Doors shall be made of **fiberglass reinforced plastic** (FRP) using chemically proven fire retardant resins resistant to contaminants typically found in the environment for which these specifications are written. Doors shall be 1 3/4 inch thick and of flush construction, **having no seams or cracks.** Doors shall have equal diagonal measurements.
C. Door Plates shall be molded in one continuous piece, starting with a **25-mil gelcoat of the color specified, integrally molded** with at least two layers of 1.5 ounce per square foot fiberglass mat.
D. Stiles and Rails Core shall be banded by a matrix of fire resistant mineral and glass fiber material.
E. Core material shall be fire resistant **mineral core** placed within band structure allowing no voids within.
F. Finish of door and frame shall be identical in color and finish. At time of manufacture**, 25 mil of resin-rich gelcoat must be integrally molded into both the door and frame**. To achieve optimum surface characteristics, the gelcoat shall be cured within a temperature range of 120 F to 170F creating an **impermeable outer surface**, **uniform color throughout**, and a **permanent homogeneous bond** with the resin/fiberglass substrate beneath. Only the highest quality gelcoat will be used to ensure enduring color and physical properties. Paint and/or post application of gelcoat result in poor mechanical fusion and will be deemed unacceptable for this application. The finish of the door and frame **must be field repairable** without compromising the integrity of the original uniform composite structure, function or physical strength.
G. Window openings shall be provided for at time of manufacture and shall be completely sealed so that the

interior of the door is not exposed to the environment. Window kits shall be fire rated per U.L. for rating of opening and function of same.

H. FBC Option. Where specifically indicated on drawings, fire rated fiberglass doors up to 3' x 7' with corresponding fiberglass frames shall meet the requirements of **High Velocity Hurricane Zones up to 175 mph winds**. Fire rated fiberglass doors up to 4' x 8' and corresponding fiberglass frames shall meet the requirements of High **Velocity Hurricane Zones up to 128 mph winds**.

2.3 FRAMES

A. Frames shall be **fiberglass** manufactured using the **resin transfer method creating one solid piece** with complete uniformity in color and size. Frames shall have a minimum of two layers continuous strand fiberglass mat saturated with fire retardant resin. Frames will be of one-piece construction with molded stop. The mineral core and reinforcement material shall be completely encapsulated. Pultruded frames or frames of dissimilar materials, such as metal will not be accepted.

B. Finish **of frame shall be identical to the door with a minimum 25-mil resin rich gelcoat of the specified color integrally molded in** at time of manufacture. To achieve optimum surface characteristics, the gelcoat shall be cured within a temperature range of 120 F to 170F creating an **impermeable outer surface**, **uniform color throughout**, and a **permanent homogeneous bond** with the resin/fiberglass substrate beneath. Only the highest quality gelcoat will be used to ensure enduring color and physical properties. Paint and/or post application of gelcoat result in poor mechanical fusion and will be deemed unacceptable for this application. The finish of the door and frame **must be field repairable** without compromising the integrity of the original uniform composite structure, function or physical strength.

C. Jamb/Header connection shall be mitered for tight fit.

D. Internal Reinforcement shall be inorganic in nature and continuous within the structure to allow for mounting of specified hardware. This material shall have a minimum screw holding value of 1000 lbs per screw.

E. Mortises for hardware shall be accurately machined **by CNC to hold dimensions in all three axis**.

F. Hinge pockets shall be **accurately machined by CNC** to facilitate heavy-duty hinges at all hinge locations, using spacers when standard weight hinges are used.

2.4 HARDWARE

A. See Section 08710

B. Due to the special nature of the material in this section, all **related hardware as specified must be furnished and installed by the door and frame manufacturer to ensure sufficient reinforcement, proper sealing, precision tooling and that all hardware complies with the regulations of the manufacturer's testing agencies.**

PART 3 - EXECUTION

3.1 INSTALLATION CONDITIONS

A. Verification of Conditions
   1. Verify openings are correctly prepared to receive doors and frames.
   2. Verify openings are correct size and depth in accordance with shop drawings or submittals.

B. Installer's Examination
   1. Have the installer examine conditions under which construction activities of this section are to be performed and submit a written report if conditions are unacceptable.
   2. General Contractor shall submit two copies of the installer's report to the architect within 24 hours of receipt.
   3. Begin construction activities of this section only after unacceptable conditions have been corrected.

3.2 INSTALLATION

A. Door shall be delivered to job site **individually crated**. Each crate to be clearly marked with the specific opening information for quick and easy identification.
B. All single doors to be shipped **completely assembled in the frame with hardware installed**. Double doors to **be prehung at the factory to ensure a proper fit** and that hardware functions properly, then disassembled for shipping purposes. **If unitization is not provided by manufacturer, installation of door and frame systems should be made by a professional hardware installer, certified by a nationally recognized door hardware entity**.
C. Install door opening assemblies in accordance with shop drawings and manufacturer's printed installation instructions, using installation methods and materials specified in installation instructions.
D. Field alteration of doors or frames to accommodate field conditions is strictly prohibited.
E. Site tolerances: Maintain plumb and level tolerance specified in manufacturer's printed installation instructions.
F. Fire labeled doors and frames must be installed in strict accordance with manufacturer's instructions and the latest version of NFPA 80.

3.3 ADJUSTING

A. Adjust doors in accordance with door manufacturer's maintenance instructions to swing open and shut without binding and to remain in place at any angle without being moved by gravitational influence.
B. Adjust door hardware to operate correctly in accordance with hardware manufacturer's maintenance instructions.

3.4 CLEANING

A. Clean surfaces of door opening assemblies and exposed door hardware in accordance with respective manufacturer's maintenance instructions.

3.5 PROTECTION OF INSTALLED PRODUCTS

A. Protect door opening assemblies and door hardware from damage by subsequent construction activities until final inspection.

END OF SECTION