

SECTION 08161 - NARROW STYLE FRP DOORS.

PART 1 GENERAL

1.01 DESCRIPTION

- A. WORK INCLUDED - The fiberglass doors and aluminum frames required for this work are indicated on the drawings and include, but is not necessarily limited to:
1. Openings as shown in the schedule, bound into these specifications.
 2. The removal of existing doors, frames, glass, etc as noted
 3. The installation of new opening systems that include aluminum frames, fiberglass doors, fiberglass panels, door hardware and glass.
 4. NARROW STYLE.

1.02 QUALITY ASSURANCE

A. MANUFACTURER'S CERTIFICATION

Manufacturer is to have a minimum of 5 years experience in the production of pre-hardwared and pre-assembled door systems, using the type of materials specified for this project.

B. INSTALLER'S QUALIFICATIONS

For the installation of the entrance systems, use only mechanics who are thoroughly trained and experienced in the skills required and who are completely familiar with the manufacturer's recommended methods of installation plus the requirements of this work.

C. WARRANTIES

1. Wide Style FRP doors will carry a 25 year limited warranty on doors structural integrity, main frame, and the lamination between face sheets and core.
2. THE ENTIRE SYSTEM will be guaranteed for 10 years.
3. System Manufacturer will guarantee THE INSTALLATION of its products. Proper installation of frames, doors and hardware will be supervised and guaranteed by the System Manufacturer to be installed per manufacturer's standards. Acceptance of this warrant condition must be provided by System Manufacturer to the owner/architect before materials can be accepted.
4. Warrantees are to be in WRITING from the System - Door manufacturer, and MUST be submitted before invoices for payment will be reviewed.

D. TEST REPORTS AND PERFORMANCE REQUIREMENTS FOR (NARROW STYLE DOORS)

Entrance systems must comply with requirements for system performance characteristics as determined by the testing methods that follow:

Two copies of current test reports covering the test procedures as listed are to be included with the submittals.

1. COMPLETE SYSTEM REQUIREMENT TESTS - Complete system units that include door, frame and hardware are to meet the following criteria:
 - a. THERMAL TRANSMITTANCE TESTS:
 1. U-factors expressed
in Btu/ hr-ft (2)-F - AAMA 1503-98 - 0.58
 2. R-value expressed
in hr-ft (2)-F/Btu - ASTM 1503-98 - 1.73
 - b. STRUCTURAL PERFORMANCE TESTS:
 1. Air Infiltration -
ASTM E283 @ 1.56 psf (25 mph) - 0.41 cfm/ft (2)
ASTM E283 @ 6.24 psf (50 mph) – 1.06 cfm/ft (2)
 2. Water Penetration -
ASTM E331 - 15 Min Cycle - NO ENTRY
 3. Uniform Load - ASTM E330 - (+) - 75.0 psf
 - c. STRUCTURAL INTEGRITY TESTS:
 1. Exit Bar Pull Off Test - 1300 lbs. minimum load resistance before exit bar disengages from door.
 2. Closer Pull Off - 1638 lbs. minimum load resistance before closer disengages from door.
 - d. WINDBORNE DEBRIS RESISTANCE TESTS:
 1. Missile Impact Test - PA 201 - 94 - PASSED
 2. Cyclic Wind Pressure Test - PA 203 - 94 - 60PSF
 3. Forced Entry Test - SFBC 3603.2 - 300 lbs. - PASSED
2. DOOR LEAF REQUIREMENT TESTS - Door leaf without frame or hardware and with a minimum lite cut out of 12" x 24" is to meet the following criteria:
 - a. CONCENTRATED LOAD BOW TEST - 3400 lbs. minimum load before door leaf fails.
 - b. TORISON TWIST TEST - @300 lbs. minimum load with a permanent set no greater than 0.188".
3. FACE SHEET REQUIREMENT TESTS - FRP material and FRP face sheets with core material are to meet the following criteria:
 - a. CENTER DOOR SECTION (face sheet/core/face sheet)
Gardner Impact Test - ASTM D5420 – 411.84 in-lb.
 - b. FRP MATERIAL (MR85)
 1. Flexural Strength Test -

ASTM D790 - 22,600 psi (inward)
24,400 psi (outward)

2. Izod Impact Strength Test -
ASTM D256 - 15.36 ft-lb./in thickness
3. Barcol Hardness -
ASTM D2583 – 50

E. TEST REPORTS AND PERFORMANCE REQUIREMENTS FOR (HEAVY DUTY WIDE STYLE DOORS)

Entrance systems must comply with requirements for system performance characteristics as determined by the testing methods that follow:

Two copies of current test reports covering the test procedures as listed are to be included with the submittals.

1. COMPLETE SYSTEM REQUIREMENT TESTS - Complete system units that include door, frame and hardware are to meet the following criteria:

a. THERMAL TRANSMITTANCE TESTS:

1. U-factors expressed
in Btu/ hr-ft (2)-F - AAMA 1503-98 - 0.70
2. R-value expressed
in hr-ft (2)-F/Btu - ASTM 1503-98 - 1.43

b. STRUCTURAL PERFORMANCE TESTS:

1. Air Infiltration -
ASTM E283 @ 1.56 psf (25 mph) - 0.31 cfm/ft (2)
ASTM E283 @ 6.24 psf (50 mph) - 0.97 cfm/ft (2)
2. Water Penetration -
ASTM E331 - 15 Min Cycle - NO ENTRY
3. Uniform Load - ASTM E330 - (+) - 82.5 psf

c. STRUCTURAL INTEGRITY TESTS:

1. Exit Bar Pull Off Test - 2400 lbs. minimum load resistance before exit bar disengages from door.
2. Closer Pull Off - 7300 lbs. minimum load resistance before closer disengages from door.

d. WINDBORNE DEBRIS RESISTANCE TESTS:

1. Missile Impact Test - PA 201 - 94 - PASSED
2. Forced Entry Test - SFBC 3603.2 - 300 lbs. - PASSED

2. DOOR LEAF REQUIREMENT TESTS - Door leaf without frame or hardware and with a minimum lite cut out of 12" x 24" is to meet the following criteria:

- a. CONCENTRATED LOAD BOW TEST - 4200 lbs. minimum load with no permanent deflection to door leaf.
 - b. TORSION TWIST TEST - @300 lbs. minimum load with *no permanent* set to door leaf.
3. FACE SHEET REQUIREMENT TESTS - FRP material and FRP face sheets with core material are to meet the following criteria:
- a. CENTER DOOR SECTION (face sheet/core/face sheet)
 1. Gardner Impact Test - ASTM D5420 – 411.84 in-lb.
 - b. FRP MATERIAL (MR85)
 1. Flexural Strength Test -
ASTM D790 - 22,680 psi (inward)
24,400 psi (outward)
 2. Izod Impact Strength Test -
ASTM D256 - 15.36 ft-lb./in thickness
 3. Barcol Hardness - ASTM D2583 - 50

1.03 PRODUCTS AND APPROVAL METHOD

A. ACCEPTABLE MANUFACTURERS

The products outlined in this specification are not the exclusive property of any one manufacture. This is a PERFORMANCE SPECIFICATION. There are no Patents, Contractual Agreements, or any other type of restrictions that limit competition with the products described in this Performance Specification. However, it should be noted that the manufacturers, listed in this specification, would have to make some modifications to their standard products, and new dies and designs may be required to adhere to the demands of this specification.

B. APPROVED EQUAL PRODUCTS

Equal products by manufacturers not listed in this specification will be considered only if those products are in strict compliance with the demands of this performance specification. Any modifications needed to a standard product must be included in the samples that are submitted with the approval request.

C. APPROVAL PROCEDURE

1. Submit manufacturer's technical data for each type (STYLE CLASSIFICATION) of door. Include all frame & door sections, elevations and details.
2. Two copies of current test reports are to be included with the submittals.
3. Submit two samples of each door STYLE CLASSIFICATION that shows rails, styles, core, joint construction, and edge trim.

D. SHOP DRAWINGS

1. Submit SIX sets of shop drawings for the fabrication and installation of the Doors and Frames, and associated components of the work. Include wall elevations and detail sections of every typical

composite member. Show frame anchoring, frame repairs to existing frames, glazing details, interior and exterior wall repairs and any other component or accessory required to complete each door opening.

2. Include details of main frame corner joint construction on doors, Style and Rail size, Core material, Vision lite moldings, Louvers and Factory Finishing Specifications.
3. Details of HARDWARE REINFORCING Material, Size & Thickness, Locations on both door(s) and frame, and Method of attachment.

1.04 *PRODUCT DELIVERY, STORAGE AND HANDLING*

A. IDENTIFICATION

Each door and frame will be tagged with a mark or number, which correlates with designation system used for shop drawings.

B. PROTECTION

All materials will be protected during transit and storage from soiling and deterioration.

PART 2 DOORS, FRAMES AND PANELS

2.01 *DOOR SYSTEMS CLASSIFICATIONS:*

Door systems for this project are based on one or more of the following STYLE classifications. All manufacturers listed below currently offer products that can be modified to meet the demands of this performance specification for the DOOR CLASS they are listed in. Manufacturers listed below, or any other manufacturer not listed are free to produce a product that meets any or all of the DOOR STYLE CLASSIFICATIONS given and detailed in this performance specification.

- | | |
|-------------------------------|--|
| 1. NARROW STYLE DOOR SYSTEMS: | CDS-F200
SPECIAL LITE-SL17
EXTRUDART "V"
VISTA WALL - "VISION*LITE" |
|-------------------------------|--|

2.02 *MATERIALS*

A. ALUMINUM MEMBERS

1. Doors, frames, miscellaneous components and entrance systems accessories are to be from the same manufacturer. Splitting the source for these items will not be permitted.
2. Provide alloy and temper as recommended for resistance to corrosion and color control. Aluminum member references are ASTM B 221 for extrusions and ASTM B 209 for sheets.

2.03 *ALUMINUM FRAMES:*

- A. STANDARD CLOSED BACK FRAMES shall be of extruded aluminum 6063-T5 alloy and a wall thickness of .125".

1. VERTICAL MEMBERS - All vertical frame jambs and mullions will be full height of opening.

2. SECTIONS - Tube sections will be 2" x 6" with joints connected by use of reinforcing clips and machine screws.
3. CLOSED BACK FRAMES are: CDS Model 2600 (or equal)

B. INSERT CAP FRAMES shall be of extruded aluminum 6063-T6 alloy and a wall thickness of .250". Insert Cap Frames will cover the entire exterior face of sub or existing frame and the new door rabbit area.

1. SECTIONS - Insert Cap Frame sections will be "Z" shaped.
Dimensions are 15/16" x 2 1/8" x 2 1/4". Joints are mitered.

TWO PIECE DETAILS THAT REQUIRE A CAULK BEAD WILL NOT BE ACCEPTED.

2. INSERT CAP FRAMES are: CDS Model 225 (or equal)

2.04 FIBERGLASS (FRP) PANELS

A. ALUMINUM EDGED FIBERGLASS (FRP) PANELS

1. CONSTRUCTION - Panels will be constructed of two sheets of .120 fiberglass sheets bonded to 3/4" core material. Panel thickness will be 1". An aluminum frame surrounds the perimeter of the panel, and measures 1" x 1" x 1" with 1/8" wall thickness.

WOOD EDGED PANELS WILL NOT BE ACCEPTED.

2. CORE material will be 25psi density polystyrene with a *FLAME SPREAD* rating of no more than 25.

CORE MATERIAL MUST HAVE A PROVEN RECORD FOR USE IN PANEL FABRICATION - *WITHOUT DELAMINATING*.

*****URETHANE CORES that have a *FLAME SPREAD* rating greater than 25 will require an ALUMINUM liner between the FRP face sheet and the urethane core material.

*****URETHANE CORE PANELS will require a letter from the manufacturer offering special guarantee that the FRP face sheets will not delaminate (bubble) for a period of 10 years, AND that the manufacturer will cover ALL replacement costs if delamination does occur.

3. FRP face sheets will be .120 minimum thickness with a pebble like surface.
4. Color will be selected from manufacturers full range of colors
5. PANELS are by one of the following: (or equal)

COMMERCIAL DOOR SYSTEMS, Model AP75, modified as follows -
Polystyrene core.

SPECIAL LITE, Model SL-37, modified as follows -

1. Aluminum liner between FRP material and urethane core.
2. Aluminum channel perimeter frame. (wood frame not acceptable).

2.05 FIBERGLASS NARROW STYLE (FRP) DOORS

- A. STRUCTURAL MAIN FRAME - Doors have an aluminum main frame constructed from extruded aluminum 6063 - T5 alloy. Doors are 1 3/4" thick. Main-frame tube is to be a single extruded unit measuring 1 1/2" x 2 1/2" (O.D.) on Sides and Bottom rail with a 6" (O.D.) tube on Top rail.

NARROW STYLE FRP DOORS.

B. MAIN FRAME STYLE WALL THICKNESS':

- | | | | |
|----------------|---------|-------|------------------------|
| 1. Side Styles | Minimum | 1/8" | thick hinge edge wall. |
| 2. Side Styles | Minimum | 1/16" | thick face walls. |
| 3. Bottom Rail | Minimum | 1/16" | thick face walls. |
| 4. Top Rail | Minimum | 1/8" | thick all walls. |

C. MAIN FRAME JOINERY - Assembly for the meeting joints of the Rails and Styles on the main-frame are to be one of the following types:

1. Tie rods inserted into top and bottom rails.
2. MORTISE & TENON with four-point connect fasteners (per joint).

****WELDED JOINTS WILL NOT BE ACCEPTED****

D. FACE SHEETS - Face sheets will be fiberglass reinforced polyester, .120" thick, and have a pebble-like embossed finish. Face sheet color will be selected from CDS color chart.

FRP face sheets are MR85 HIGH IMPACT FRP MATERIAL that has been tested by ASTM S5420 Gardner Impact Test with "Mean Failure Energy" rating no lower than 411.84 in-lb. (or equal).

E. CORE MATERIAL - Core material will be 3-lb. density polystyrene with a flame spread rating of no more than 25.

*****URETHANE CORES** that have a *FLAME SPREAD* rating greater than 25 will require an ALUMINUM liner between the FRP face sheet and the urethane core material.

*****URETHANE CORE DOORS** will require a letter from the manufacturer offering a special guarantee that the FRP face sheets will not delaminate (bubble) for a period of 25 years, AND that the manufacturer will cover ALL replacement costs if delamination does occur.

F. EDGE TRIM - Style Edge Trim is an INTEGRAL part of the main frame and interlocks with the panel. Top and bottom edge trim is removable.

SNAP-ON EDGE TRIM WILL NOT BE ACCEPTED.

G. WEATHERSTRIPPING - Center styles of pairs will have pile weather-stripping .500 backing width, .5" pile height.

H. HARDWARE REINFORCING - CLOSER reinforcing to be 1/8" minimum aluminum plate or channel. Surface Applied Exit Device reinforcing to be 1/8" aluminum channel.

SEX OR THRU BOLTS WILL NOT BE ACCEPTED.

I. NARROW STYLE (FRP) DOORS are by one of the following: (or equal)

COMMERCIAL DOOR SYSTEMS, Model CDS-F200, modified as follows -

1. Polystyrene core that carries a 25 year warranty.
2. UPDATED TEST RESULTS.

SPECIAL LITE, Model SL-17, modified as follows -

1. Aluminum or Steel Urethane CORE LINER for urethane core material that has a FLAME SPREAD higher than 25.
2. Extended 25 year warranty for this project.
3. 1/8" Aluminum channel closer & exit bar reinforcing.
4. UPDATED TEST RESULTS.

EXTRUDART, Model "V", modified as follows -

1. Aluminum or Steel Urethane CORE LINER for urethane core material that has a

- FLAME SPREAD higher than 25.
2. Extended 25 year warranty for this project.
 3. UPDATED TEST RESULTS.

VISTA WALL, Model "VISION*LITE", modified as follows -

1. Aluminum or Steel Urethane CORE LINER for urethane core material that has a FLAME SPREAD higher than 25.
2. Extended 25-year warranty for this project.
3. 1/8" Aluminum channel closer & exit bar reinforcing.
4. UPDATED TEST RESULTS.

2.07 VISION LITES

- A. FABRICATION - Vision lite trim moldings will be aluminum extrusion - 6063 - T5 alloy and removable from the inside only.
- B. Door Vision Lites will be FACTORY glazed for 1/4" or 1" thick glass as listed on the door schedule.
- C. DOOR VISION LITE KITS are by THE DOOR MANUFACTURER ONLY.

2.08 RECESSED FLUSH PULLS

- A. FABRICATION - Recessed pull handle, 6" x 8 1/2" x 1-9/16", manufactured from all extruded aluminum 6063-T6 alloy. Unit is welded together. Pull will be finished to match door edge trim or as specified.
- B. SAFETY FEATURE - Pull is to be secured to main frame of door WITHOUT any of the fastening devices EXPOSED to the FINGERS when hand is inserted into pull to open door.
- C. Pull is to be supplied and installed at factory by door manufacturer. All necessary reinforcements and modifications to door for receiving the recessed flush pull is to be done at the factory. Pull is also guaranteed for 10 years.
- D. RECESSED FLUSH PULLS are by THE DOOR MANUFACTURER ONLY.

2.09 RECESSED HANDICAP (ADA) PULLS

- A. FABRICATION - Recessed pull handle, 6" x 8 1/2" x 1-9/16", manufactured from all extruded aluminum 6063-T6 alloy. Unit is welded together. Pull will be finished to match door edge trim or as specified.
- B. ADA COMPLIANCE - Pull has a FULL 2 3/4" hand clearance. The pull must meet all current standards for public access and ADA guidelines.
- C. SAFETY FEATURE - Pull is to be secured to main frame of door WITHOUT any of the fastening devices EXPOSED to the FINGERS when hand is inserted into pull to open door.
- D. Pull is to be supplied and installed at factory by door manufacturer. All necessary reinforcements and modifications to door for receiving the recessed flush pull are to be done at the factory. Pull is also guaranteed for 10 years.
- E. RECESSED HANDICAP (ADA) PULLS are by THE DOOR MANUFACTURER ONLY.