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## Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, contained in the *CSI Manual of Practice*.

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all "Specifier Notes" when editing this section.

Section numbers are from *MasterFormat 2004 Edition*.

## SECTION 08 54 13

### FIBERGLASS CASEMENT WINDOWS

Specifier Notes: This section covers Comfort Line, Ltd.® 2100 Series® fiberglass casement windows. Frame, sash, and glazing bead are manufactured from pultruded fiberglass material made exclusively by Comfort Line, Ltd.®. Consult your local Comfort Line representative for assistance in editing this section for the specific application.

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Fiberglass casement windows.

##### 1.2 RELATED SECTIONS

- A. Section 07 27 00 - Air Barriers: Water-resistant barrier.
- B. Section 07 92 00 - Joint Sealants: Sealants and caulking.

##### 1.3 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
  - 1. AAMA 502 - Voluntary Specification for Field Testing of Windows and Sliding Doors.
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM C 1036 - Flat Glass.
  - 2. ASTM C 1048 - Heat-Treated Flat Glass – Kind HS, Kind FT Coated and Uncoated Glass.
  - 3. ASTM C 1363 – Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus.

4. ASTM D 3656 - Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns.
5. ASTM E 283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference Across the Specimen.
6. ASTM E 330 - Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.
7. ASTM E 547 - Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential.

C. Screen Manufacturers Association (SMA):

1. SMA 1201 - Specifications for Insect Screens for Windows, Sliding Doors and Swinging Doors.

D. Window and Door Manufacturers Association (WDMA):

1. ANSI/AAMA/NWDA 101/I.S.2 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.
2. ANSI/AAMA/NWDA 101/I.S.2/NAFS-02 - Voluntary Performance Specification for Windows, Skylights and Glass Doors.
3. AAMA/WDMA/CSA 101/I.S.2/A440-05 – Standard/Specification for Windows, Doors, and Unit Skylights.

E. National Fenestration Rating Council (NFRC):

1. NFRC 100 – Procedure for Determining Fenestration Product u-Factors.
2. NFRC 200 – Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Nominal Incidence.

## 1.4 PERFORMANCE REQUIREMENTS

Specifier Notes: Performance ratings for Comfort Line, Ltd.® windows vary by product and size. Consult your local Comfort Line representative for more information and current product performance.

A. Windows shall meet rating:

1. C – C50 40.0” x 68.0” in. (Type: Casement, Performance Class: Commercial, Performance Grade: DP50, Maximum Size Tested: 40.0” x 68.0”) specification in accordance with AAMA/WDMA/CSA 101/I.S.2./A440-05
2. C – C55 40.0” x 68.0” in. (Type: Casement, Performance Class: Commercial, Performance Grade: DP55, Maximum Size Tested: 40.0” x 68.0”) specification in accordance with AAMA/WDMA/CSA 101/I.S.2./A440-05
3. C – C60 36.0” x 60.0” in. (Type: Casement, Performance Class: Commercial, Performance Grade: DP60, Maximum Size Tested: 36.0” x 60.0”) specification in accordance with AAMA/WDMA/CSA 101/I.S.2./A440-05
4. C – C75 36.0” x 60.0” in. (Type: Casement, Performance Class: Commercial, Performance Grade: DP75, Maximum Size Tested: 36.0” x 60.0”) specification in accordance with AAMA/WDMA/CSA 101/I.S.2./A440-05

B. Window Air Leakage, ASTM E 283: Window air leakage when tested at 6.24 psf (50 mph) shall be 0.01 scfm per square foot of frame or less.

C. Window Water Penetration, ASTM E 547: No water penetration through window when under minimum static pressure of 9.75 psf (161 mph) after 4 cycles of 5 minutes each, with water being applied at a rate of 5 gallons per hour per square foot.

D. Thermal Performance, NFRC 100, NFRC 200, and ASTM 1363:

- a. 1” Insulated 272 Low-E/Argon units – U Value .28, SHGC .28
- b. 1” Insulated 366 Low-E/Argon units – U Value .27, SHGC .19
- c. 1” Triple Insulated 272 Low-E/Argon units – U Value .21, SHGC .23
- d. 1” Triple Insulated 366 Low-E/Argon units – U Value .21, SHGC .15

## 1.5 SUBMITTALS

- A. Submit in accordance with Division 1 requirements.
- B. Product Data: Submit manufacturer's product data, including installation instructions.
- C. Shop Drawings: Submit manufacturer's shop drawings, indicating dimensions, construction, component connections and locations, anchorage methods and locations, hardware locations, and installation details.
- D. Samples: Submit full-size or partial full-size sample of window illustrating glazing system, quality of construction, and color of finish.

Specifier Notes: In accordance with the manufacturer's limited warranty, stainable interior wood laminate windows must be finished upon receipt and before installation. Variations in wood grain, color, texture, and natural characteristics are not covered under the limited warranty.

- E. Warranty: Submit manufacturer's standard warranty.

## 1.6 QUALITY ASSURANCE

- A. Mockup:
  - 1. Provide sample installation for field testing window performance requirements and to determine acceptability of window installation methods.
  - 2. Approved mockup shall represent minimum quality required for the Work.
  - 3. Approved mockup shall remain in place within the Work.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site undamaged in manufacturers or sales branch's original, unopened containers and packaging, with labels clearly identifying manufacturer and product name. Include installation instructions.
- B. Storage:
  - a. Store materials in accordance with manufacturer's instructions.
  - b. Store materials in an upright position, off ground, and under cover.
  - c. Protect materials from weather, direct sunlight, and construction activities.
- C. Handling: Protect materials and finish during handling and installation to prevent damage.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. Comfort Line, Ltd., 5500 Enterprise Blvd., Toledo, Ohio 43612. Toll Free (800) 522-4999. Phone (419) 729-8520. <http://commercial.fiberframe.com/>.

### 2.2 FIBERGLASS CASEMENT WINDOWS

- A. Fiberglass Casement Windows: Series 2100 factory-assembled fiberglass windows with outward-opening sash installed in frame.
- B. Frame:
  - 1. Pultruded Fiberglass
  - 2. Exterior Finish: Painted

3. Interior Finish: Painted or wood laminate.
4. Overall Frame Depth: 3-1/4 inches (83 mm).
5. Nominal Wall Thickness or Fiberglass Members: 0.080 to 0.090 inch.
6. Frame Corners:
  - a. Mitered
  - b. Joined and sealed with PBT corner key, screws, and silicone.

C. Sash:

1. Pultruded Fiberglass
2. Exterior Finish: Painted
3. Interior Finish: Painted or wood laminate.
4. Corners:
  - a. Mitered
  - b. Joined and sealed with PBT corner keys, screws, and silicone.

D. Weather Stripping:

1. Single foam filled weather stripping on sash.
2. Dual foam filled weather stripping on frame.

## 2.3 GLAZING

A. Glazing:

1. Float Glass: ASTM C 1036, Quality 1.
2. Type: Silicone-glazed 1-inch dual-seal glass insulated Low-E coated with Argon or triple insulated Low-E coated with Argon.

## 2.4 OPTIONS

A. Muntin Bars:

1. Insulating Glass: Aluminum muntin bars installed between 2 panes of glass.
2. Factory-finished. Match window frame.

B. Insect Screens: Standard.

1. Compliance: ASTM D 3656 and SMA 1201.
2. Screen Cloth: Vinyl-coated fiberglass, 18/16 mesh.
3. Set in aluminum frame fitted to inside of window.
4. Complete with necessary hardware.
5. Screen Frame Finish: Baked enamel.
  - a. Color: Match window interior.

## 2.5 HARDWARE

A. Operator:

1. Steel single / dual arm operator with hardened gears.
2. Operator Base: Zinc die cast with painted E-Gard finish.
3. Operator Linkage, Hinge Slide, and Hinge Arms: Zinc die cast with E-Gard finish.
4. Exposed Fasteners: Stainless steel.
5. Hardware Salt Spray Exposure, ASTM B 117: Exceed 1,000 hours.

B. Crank Handle Finish

1. Integrated Folding Crank: Baked enamel.

C. Locking System: Multi-Point Locking System.

1. Single-handle locking system.
2. Operate positive-acting arms that pull sash into locked position starting at bottom.
3. Three locking points.

4. Lock Handle Finish: Baked enamel.

## **2.6 TOLERANCES**

- A. Windows shall accommodate the following opening tolerances:
  1. Vertical Dimensions Between High and Low Points: Plus 1/4 inch, minus 0 inch.
  2. Width Dimensions: Plus 1/4 inch, minus 0 inch.
  3. Building Columns or Masonry Openings: Plus or minus 1/4 inch from plumb.

## **2.6 FINISH**

- A. Exterior and Interior: Factory-applied two part urethane paint, complies with AAMA 623.

## **2.7 INSTALLATION ACCESSORIES**

- A. Flashing/Sealant Tape:
  1. Aluminum-foil-backed butyl window and door flashing tape.
  2. Maximum Total Thickness: 0.013 inch.
  3. UV resistant.
  4. Verify sealant compatibility with sealant manufacturer.
- B. Insulating-Foam Sealant: Dow Window & Door.
  1. Low-pressure, polyurethane window and door insulating-foam sealant.

## **2.8 SOURCE QUALITY CONTROL**

- A. Factory Testing: Factory test individual standard operable windows for air infiltration in accordance with ASTM E 283, to ensure compliance with this specification.

# **PART 3 EXECUTION**

## **3.1 EXAMINATION**

- A. Examine areas to receive windows. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

## **3.2 INSTALLATION**

- A. Install windows in accordance with manufacturer's instructions and approved shop drawings.
- B. Install windows to be weather-tight and freely operating.
- C. Maintain alignment with adjacent work.
- D. Secure assembly to framed openings, plumb and square, without distortion.
- E. Integrate window system installation with exterior water-resistant barrier using flashing/sealant tape. Apply and integrate flashing/sealant tape with water-resistant barrier using watershed principles in accordance with window manufacturer's instructions.
- F. Place interior seal around window perimeter to maintain continuity of building thermal and air barrier using insulating-foam sealant.

- G. Seal window to exterior wall cladding with sealant and related backing materials at perimeter of assembly.
- H. Leave windows closed and locked.

### **3.3 FIELD QUALITY CONTROL**

- A. Field Testing: Field-test windows in accordance with AAMA 502, Test Method A. Manufacturer's representative shall be present.

### **3.4 CLEANING**

- A. Clean window frames and glass in accordance with Division 1 requirements.
- B. Do not use harsh cleaning materials or methods that would damage finish.
- C. Remove labels and visible markings.

### **3.5 PROTECTION**

- A. Protect installed windows to ensure that, except for normal weathering, windows will be without damage or deterioration at time of substantial completion.

**END OF SECTION**