SECTION 08510
STEEL WINDOWS
UL Labeled Fire-Rated Heavy Single Hung (H925)

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**** NOTE TO SPECIFIER ****

spec H925.doc 5/25/2010

This sections is based on the products of D.V. Fyre-Tec, Inc which is located at:
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Wayne, NE 68787
Tel: (800)377-3261
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PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fire Rated Steel Windows (Heavy Single Hung) – 45-Minute UL Labeled

1.2 RELATED SECTIONS

A. Section 08800 – Glass, Glazing, and Glazing Materials

1.3 REFERENCES

A. ASTM A 569-(1991a; R 1993) Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality

B. ASTM A 653-(1994) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

C. ASTM B 633-(1985; R 1994) Electrodeposited Coatings of Zinc on Iron and Steel

D. ASTM B 766-(1986; R 1993) Electrodeposited Coatings of Cadmium

E. ASTM E 163-Fire Tests of Window Assemblies

F. ASTM E 283-(1991) Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors Under Specific Pressure Differences Across the Specimen

G. ASTM E 330-(1990) Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

H. ASTM E 547-(1993) Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential

I. ASME B18.6.3- (1972; R 1991) Machine Screws and Machine Screw Nuts

J. ASME B18.6.4- (1981; R 1991) Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws (Inch Series)

K. NFPA 80-(2007) Fire Doors and Windows

L. NFPA 101-(2006) Safety to Life from Fire in Buildings and Structures

M. UL9-Fire Tests of Window Assemblies

N. File No. R13157-D.V. Fyre-Tec Classification

1.4 PERFORMANCE REQUIREMENTS

A. Single Hung steel windows shall conform to the H-HC40 voluntary specifications in AAMA/NWWDA 101/I.S.2-97 and be designed to meet the following performance requirements. Fire-rated windows shall bear the Underwriters Laboratories, Inc. label including the manufacturer's file number for the indicated rating.

1. Structural Performance: Structural test pressures on window units shall be for positive load (inward) and negative load (outward) in accordance with ASTM E 330 at a static pressure of 60 PSF. After testing, there shall be no glass breakage, permanent damage to fasteners, hardware parts, support arms or actuating mechanisms or any other damage which could cause window to be inoperable. There shall be no permanent deformation of any main frame, sash or ventilator member in excess of the requirements established by AAMA/NWWDA 101/I.S.2-97 for the window types specified in this section.

2. Air Infiltration: Air infiltration shall not exceed .06 SCFM per square foot of window area at a static air pressure difference of 1.57 PSF as established by AAMA/NWWDA 101/I.S.2-97 when tested in accordance with ASTM E 283.

3. Water Resistance: When tested in accordance with ASTM E 547, there shall be no water leakage at a static air pressure difference of 6 PSF.

B. Fire Resistance: Fire resistance shall meet requirements established by ASTM E 163 and as tested and classified by Underwriters Laboratories Inc, in accordance with UL-9. Products shall meet the requirements of Underwriters Laboratories Inc. The Listing Mark of UL on the product will be accepted as evidence of compliance.

C. Life Safety Criteria: Windows shall conform to NFPA 101 Life Safety Code when rescue and/or second means of escape are indicated.

1.5 SUBMITALS

A. Manufacturer's descriptive data and catalog cut sheets.

B. Drawings indicating elevations of windows, rough-opening dimensions for each type and size of windows, section details, fastenings, methods of installation and anchorage, connections with other work, type of wall construction, method of glazing, types and locations of operating hardware, mullion details, weather-stripping details, screen details, and window schedules showing locations of each window type and indicting compliance with fire safety code, where required.

C. Manufacturer's preprinted installation instructions and cleaning instructions.

D. Manufacturer's standard color samples of painted finishes.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

B. Manufacturer's Qualifications: A firm with not less than 10 years experience in manufacture of similar type steel windows.

1.7 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Manufacturer's original, unopened, undamaged containers, identification labels intact. Inspect for damage upon delivery.

2. Handle and store products according to manufacturer's recommendations.

B. Storage and Protection:

1. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended be manufacturer

2. Store windows to prevent damage or marring of finish. Store in shipping containers under cover on building site.

1.8 PROJECT CONDITIONS

A. Verify actual openings by field measurements before fabrication, show recorded measurements on shop drawings.

B. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.9 WARRANTY

A. Manufacturer's standard warranty to be 3 years from the date of substantial completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Series H925 Heavy Single Hung Windows as manufactured by D.V. Fyre-Tec, Inc.; 701 Centennial Road; Wayne, NE 68787; Tel: 1-800-377-3261; Fax; 1-402-375-4261; Web: www.fyre-tec.com; Email; fyretec@inebraska.com.

B. Architect approved equal.

2.2 STEEL WINDOW TYPES

A. Single hung steel windows shall be designed for inside field glazing, and for glass types scheduled on drawings or otherwise specified. Units shall be complete with glass and glazing provisions to meet requirements of paragraph WINDOW PERFORMANCE. Glazing material shall be compatible with steel, and shall not require painting.

B. Fire-rated windows shall conform to UL-9 and shall be labeled with a 3/4 - hour fire-test rating as specified in the window schedule. Units shall be designed and fabricated to meet glass sizes, window sizes, and opening dimensions established by NFPA 80. Hardware shall conform to NFPA 80 requirements. All operable fire-rated windows are to be self-closing and latching by means of a heat activated fusible link operator.

2.3 MATERIALS

A. Steel Frames and Inserts

1. Steel frames and inserts shall be fabricated from roll-formed galvanized lock-forming quality steel per ASTM A 653.

2. Frame and insert corners shall mitered and welded. Integral muntins where required shall be galvanized roll-formed material fitted and welded.

3. Operable insert/sash shall be supported on two adjustable heavy-duty spiral wound balances.

B. Installation Kits

1. Provide subframe installation kits for all windows.

C. Weather Stripping

1. Weather-stripping for the inserts shall be designed to meet water penetration and air infiltration requirements specified under paragraph WINDOW PERFORMANCE, and shall be manufactured of material compatible with steel and resistant to weather. Weather-strips shall be factory applied and easily replaced in the field.

**** NOTE ** Delete the following paragraph if screens are not required.**

D. Screens

1. Insect screens shall be steel window manufacturer's standard design, and shall be provided where scheduled on drawings. Insect screens shall be fabricated of roll formed galvanized steel frames and (18x16) plastic coated glass conforming fiber mesh screening conforming to ASTM D 3656 or roll formed galvanized steel frames and (18x14) corrosion resistant aluminum mesh screening conforming to FS RR-W-365.

E. Formed Component Parts

1. Formed component parts shall be hot-rolled sheet steel conforming to ASTM A 569, commercial quality with a minimum of 0.15 percent carbon.

2. Sheet steel shall be zinc coated (galvanized) by the hot-dip process in accordance with ASTM A 653 or ASTM A 924.

F. Screws and Bolts

1. Screws and bolts shall conform to ASTM B 766, ASME B18.6.3 and ASME B18.6.4.

G. Fasteners

1. Fastening devices shall be window manufacturer's design made from non-magnetic stainless steel, cadmium-plated steel, zinc-plated steel, nickel/chrome-plated steel or magnetic stainless steel.

H. Window Anchors

1. Anchors for installing windows shall be stainless steel or hot-dip zinc coated steel conforming to ASTM A 123.

**** NOTE ** Delete all but one or two of the following paragraphs.**

I. Glass and Glazing

1. As specified in Section 08800.

2. Traditional wire glass – Misco or Baroque (3/4 hour rated)

3. Safety laminated wire glass – CPSC16CFR1201 Cat I (3/4 hour rated)

4. Standard clear ceramic glass

5. Premium clear ceramic glass

6. Safety laminated premium clear ceramic glass CPSC16CFR1201 Cat I & II

7. Insulated glass units.

2.4 FABRICATION

A. Fabricate windows in accordance with approved shop drawings.

B. Frame sections shall be one piece sections with corners mitered, welded and dressed smooth.

C. Required muntins shall be securely welded to the frame members and at all intersections.

D. All windows shall be designed for inside glazing.

E. All windows shall be factory glazed with UL labeled glass meeting or exceeding the hourly rating required for the frame label. Individual lites shall display a UL label permanently affixed and in accordance with the requirements of the International Building Code and NFPA 80.

2.5 FINISHES

**** NOTE ** Delete two of the following three paragraphs.**

A. Prime Coat

1. Steel windows, fins, mullions, cover plates and associated parts shall be cleaned, pre-treated with iron phosphate and factory painted manufacturer's standard primer coat in a dry film thickness of not less than 0.025 mm (1.0 mil).

B. Finish Coat – Manufacturer's Standard Color

1. Steel windows, fins, mullions, cover plates and associated parts shall be cleaned, pre-treated with iron phosphate and factory powder coated and cured with a manufacturer's standard color in a dry film thickness of not less than 0.050 mm (2.0 mil).

C. Finish Coat – Specified Color Match

1. Steel windows, fins, mullions, cover plates and associated parts shall be cleaned, pre-treated with iron phosphate and factory coated with baked alkyd enamel with a manufacturer's standard color in a dry film thickness of not less than 0.050 mm (2.0 mil).

PART 3 EXECUTION

3.1 EXAMINATION

A. Window openings shall conform to details and dimensions shown on the approved shop drawings.

B. Notify the Architect immediately of conditions that may adversely affect the window installation. Correct conditions prior to installing windows

3.2 INSTALLATION

A. Steel windows shall be installed in accordance with approved shop drawings and manufacturer's approved recommendations.

B. Fire-rated windows shall be installed in compliance with NFPA 80 and NFPA 101.

C. Steel surfaces in close proximity with masonry, concrete, wood, and dissimilar metals other than stainless steel, zinc, cadmium, or small areas of white bronze shall be protected from direct contact.

D. Verify that weep features at the bottom of the sills are opened at least 1/8" x 1". Failure to do so may lead to premature finish failures.

E. The completed window installation shall be watertight.

3.3 ADJUSTING AND CLEANING

A. Steel window finish and glass shall be cleaned on interior and exterior sides in accordance with window manufacturer's recommendation. Alkaline, abrasive or brick wash agents shall not be used.

B. Operable sash shall be adjusted per manufacturer's instruction to provide minimal operating force.

3.4 PROTECTION

A. Protect installed products and finished surfaces from damage during construction.

B. Touch-up any abraded surface of the window finish with air dry paint furnished by the window manufacturer.

-- END OF SECTION --