

# Bliss Nor-Am Windows & Doors

## "Historic Industrial" Series steel windows

### PART 1 - GENERAL

#### 1.01 Description

- A. Work Included: Furnish all labor and materials to complete the fabrication of windows as shown on architect's drawings and as specified herein. All windows covered by this specification shall be fabricated by Bliss Nor-Am Steel Windows & Doors. Other bidders must be approved by the architect at least ten days prior to the bid date, through submission of samples and evidence showing that the bidder has been fabricating window products of this type and quality for at least five years. All work shall include, but not be limited to, the following:
1. Steel sash with projected, horizontal pivoted, casement ventilators, or fixed windows.
  2. Mullions, covers and trim.
  3. Insect screens (optional) for all operating ventilators (except horizontal pivot)
  4. Factory applied finishes (optional).
- B. Related work specified elsewhere:
1. Glass, glazing and glazing materials, Section \_\_\_\_\_
  2. Perimeter caulking, Section \_\_\_\_\_
  3. Miscellaneous structural items, Section \_\_\_\_\_

#### 1.02 Quality Assurance

- A. Manufacturer shall have not less than five years experience in fabrication of historic industrial steel windows.
- B. Installation of windows shall be done by experienced installers.
- C. Allowable tolerances: Size dimensions  $\pm 1/16$ th inch.
- D. Source quality control:
1. Air infiltration test
    - a. ASTM E283-84
    - b. Maximum air infiltration .05 CFM/Ft. of crack length for windows with operable ventilators.
  2. Water penetration test
    - a. ASTM E547-86
    - b. No water penetration using successively higher pressure differentials to determine the level attainable without leakage. Each completed test period consisting of four cycles each having 5 minutes with pressure applied and 1 minute with the pressure released, during which the water spray is maintained.
  3. Structural performance test
    - a. ASTM E330-02
    - b. Sustained no apparent damage when tested in accordance with test procedures at pressures  $\pm 75$  PSF
  4. CSA A440-00 (Canadian)
  5. Upon request, the window manufacturer shall provide a test report from a qualified independent testing laboratory regularly engaged in testing windows to verify that products conform to these test requirements.

#### 1.03 Submittals

- A. Samples (as requested by architect):
1. Typical sash corner.
  2. Typical muntin section.
  3. Color sample of finish.
  4. Hardware.
- B. Shop drawings and manufacturers literature:
1. Submit for approval shop drawings showing sash and installation details, including anchorage, fastening and sealing methods.
  2. The manufacturer shall not commence any work until shop drawings have been approved and sizes guaranteed
  3. Color charts of standard finishes.

#### 1.04 Product Storage and Handling

- A. The General Contractor shall be responsible for the protection and storage of windows after delivery to site.
- B. Store in designated areas as close as possible to point of installation.

#### 1.05 Guarantee

- A. Guarantee all materials and workmanship furnished and installed to be free from defects for a period of 12 months from the date of final acceptance or from date of substantial completion, whichever may be earlier. Repair or replace, at manufacturers option and expense, any materials or workmanship found to be defective under conditions of normal use during this period.

### PART 2 - PRODUCT

#### 2.01 Materials

- A. Historic Industrial steel sections manufactured from solid hot rolled carbon steel shapes.
1. Sections made from new billet steel with flanges rolled integral at the mill except applied weathering sections which are cold formed.
  2. Perimeter frames and ventilator sections shall have glazing rebates providing an unobstructed glazing surface of at least 11/32" in height.
  3. Sections to have a minimum thickness of 1/8" and a depth of 1 3/8".
- B. Muntins
1. Steel Tee Muntins
    - a. Muntins shall be solid hot rolled from new billet steel with glazing rebates providing an unobstructed glazing surface of at least 11/32" in height.
- C. Mullions
1. Vertical mullions shall be adjustable type channel and flat bar for windows over 5'-5" in height, and bar mullions for windows 5'-5" and under.
  2. Standard anchors, clips, mullions and bolts shall be furnished with the windows.
- D. Hardware shall be as follows (standard US25D finish or optional US10B finish if available):
1. Casement ventilators
    - a. Side hung open-out casements.
      - i. Locking Handle
      - ii. Hinges
      - iii. Roto-Operator
    - b. Side hung open-in casements.
      - i. Locking Handle
      - ii. Hinges
      - iii. Friction and/or Limit Device
  2. Projected-in Ventilators
    - i. Cam Handle (optional Pole Catch)
    - ii. Balance Arms
  3. Projected-out Ventilators
    - i. Spring Catch or Cam Handle (Optional Pushbar)
    - ii. Balance Arms
  4. Horizontal Pivot Ventilators
    - i. Spring Catch
    - ii. Pulley
    - iii. Pivot
    - iv. Chain Cleat
    - v. Chain
- E. Insect Screens: (Optional)
1. Frames shall be extruded aluminum.
  2. Screens shall be .011 diameter wire, woven to 14x18 mesh count. Mesh to be fiberglass (optional aluminum, specify bright or dark).

## 2.02 Fabrication

- A. Fabricate steel windows in accordance with approved shop drawings.
- B. Corners of frame and ventilators shall be solidly welded.
- C. Steel tee muntins shall extend continuous from head to sill and from jamb to jamb and shall be welded securely at intersections.
- D. Glazing
  - 1. All sash shall be designed for interior (or optional exterior) putty glazing. Glass, putty and glazing clips to be furnished by others.
  - 2. Optional; provide continuous steel snap-on, screw-on or aluminum sloped snap-on glazing beads to suit 1/8" to 1/4" glass as specified.
- E. Operable Hardware: (specify)
  - 1. Casement Ventilators
    - a. Side hung open-out casements
      - i. Casement ventilator shall be hung on ball bearing type hinges.
      - ii. Provide three hinges when vent height exceeds 66".
      - iii. Provide duplex locking handles when vent height exceeds 48".
      - iv. Provide roto-operator
      - v. Locking handles and roto operators shall be shipped loose for field installation.
    - b. Side hung open-in casements
      - i. Casement ventilator shall be hung on ball bearing type hinges.
      - ii. Provide three hinges when vent height exceeds 66".
      - iii. Provide duplex locking handles when vent height exceeds 48".
      - iv. Friction/Limit device shall be applied at the head of the ventilator.
      - v. Locking handles and friction/limit device shall be shipped loose for field installation.
  - 2. Projected Ventilators
    - a. Project-in
      - i. Heavy duty steel balance arms connected at both end with 1/4" steel rivets. Brass or nylon friction shoes shall be provided and shall be held on proper frictional contact by springs.
      - ii. Provide two spring catches per ventilator where sash width exceeds 56".
      - iii. Spring catches shall be shipped loose for field installation.
    - b. Project-out
      - i. Heavy duty steel balance arms connected at both ends with 1/4" steel rivets. Brass or nylon friction shoes shall be provided and shall be held on proper frictional contact by springs.
      - ii. Steel cam handle
      - iii. Provide two cam handles or spring catches per ventilator where sash width exceeds 56".
      - iv. Cam handles shall be shipped loose for field installation.
- F. Insect Screens: (Optional)
  - 1. Screen frames shall be finished to match the sash, mill finish if the sash is primed.
  - 2. Screens shall be rewirable to allow for mesh replacement.
  - 3. Screen clips shall permit easy attachment and removal.

## 2.03 Factory Finishing

- A. After fabrication, steel windows, mullions, covers and trim shall receive a grey primer finish or equal.
- B. (Optional) After fabrication, steel windows, mullions, covers and trim shall receive one or both of the following finishes:
  - 1. Hot-Dipped Galvanizing
  - 2. Duracron or Duranar (Kynar) baked on enamel. Color shall be as selected by the architect from manufacturers standard colors (Custom colors are also available, consult Bliss Nor-Am.)

## 2.04 Accessories

- A. Pole Hook with 3/4" diameter unfinished wood or aluminum pole (specify length).
- B. Wicket Screen: Aluminum frame finished to match flyscreen. Used with can handle hardware on projected-out ventilators.

# PART 3 - EXECUTION

## 3.01 Inspection

- A. Window openings shall conform with details, dimensions and tolerances shown on the window manufacturers approved shop drawings.
- B. Conditions which may adversely affect the window installation must be corrected before installation commences.

## 3.02 Installation

- A. Windows specified under this section shall be installed by experienced personnel.
- B. Install windows in openings in strict accordance with approved shop drawings.
  - 1. Set units plumb, level and true to line, without warp or rack of frames.
  - 2. Anchor units securely to surrounding construction with approved fasteners.
  - 3. The exterior joints between the sash, trim and mullions shall be properly sealed watertight with an approved sealant and neatly pointed.
- C. Attach ventilator hardware, as required, and adjust ventilators to operate smoothly free from twist and to be weather tight when closed.
- D. Repair any abraded areas of the factory finish with supplied touch-up paint.

## 3.03 Cleaning

- A. Window installer shall leave window surfaces clean after installation and ready to receive glass and glazing. The window installer will not be responsible for final cleaning.