

STANDARD SPECIFICATION
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DIVISION 5

SECTION 5A MISCELLANEOUS AND ORNAMENTAL METALS

5A.01 GENERAL: Comply with all of the Contract Documents.

5A.02 SCOPE OF WORK: Refer to "Division Scope of Work"

5A.03 WORK NOT INCLUDED

- A. The following items are excluded from the work of this Section:
1. Concrete work (Section 3A).
 2. Installation of loose lintels (Section 4A).
 3. Masonry work Section 4A.
 4. Finish Painting - Section 9F. 5. Metal Stairs - Section 5B. 6. Chain Link Fence - Section 2B.

5A.04 MATERIALS

- A. All materials shall be new and unused. Materials shall conform to the latest edition of the ASTM Standards as listed below:
1. Steel ASTM A36
 2. Steel plate:
 - a. Except for plates to be bent or cold formed - ASTM A36.
 - b. For plates to be bent or cold formed - ASTM A283, grade C.
 3. Steel bars and bar size shapes:
 - a. For hot rolled carbon steel bars and bar size shapes ASTM A576 in grade as selected by the fabricator.
 - b. For other steel bars and bar size shapes - ASTM A663 or ASTM A36.
 4. Machine Bolts ASTM A307
 5. Light Gauge Steel Members ASTM A611-85
 6. Bolts and Nuts ASTM A307

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7. Machine Screws Federal Specification FF-S-92A (1)
8. Fire Escapes (Comply with M.D.L. 53)
9. Steel Lintel Size
 - a. For detail of lintels for various openings in masonry walls refer to lintel schedule in structural drawings.
 - b. 3 1/2" leg should always be horizontal.
 - c. Angles should have min 6" bearing on masonry or 1 inch per foot of span, whichever is greater.
10. Galvanizing - When noted or specified to be galvanized, hot- rolled steel members shall be hot-dipped galvanized, add cold- rolled and bent-up or formed shapes shall be electro-plated galvanized. All galvanizing shall be done after fabrication, in so far as practicable, and shall conform with the requirements of A.S.T.M. A123 or A386. Where size of assemble is too large for galvanizing, only these assemblies will be galvanized prior to fabrication.
11. Cast aluminum house numbers shall be as manufactured by Andco Industries Corporation or approved equal by Architect/Engineer. Numbers shall be 6" high, 7/16" stroke, 1 1/2" depth and shall be style "Deep Ribbon." Numbers shall have baked on enamel finish, color shall be white.

5A.05 INSTALLATION AND WORKMANSHIP

A. CONNECTIONS

1. Shop connections shall be riveted, welded, or bolted, except where welded connections are called for specifically. 2. Field connections shall be bolted with machine bolts, except where field welding is called for specifically. 3. Fabrication - Conform to the best accepted standards of practice in modern shops and as per AISC and NYC Building Codes.

B. ERECTION

1. All work shall be plumb, square and true to the lines and levels as required by drawings.
2. Install and maintain, temporary bracing and scaffolding as may be required. Remove when no longer needed.

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3. No part of structure shall be overloaded with materials or equipment during construction.
4. All exterior and interior lintels furnished under this Section will be set by the mason under Section 4A, Masonry.

C. PAINTING

1. All steel work, shall be shop painted and touched up in the field.
 - a. Clean all surfaces to be painted of all rust, scale, dirt and all other foreign substances.
 - b. Shop Coat - One coat zinc chromate, work well into joints and open spaces.
 - c. Field Paint - One coat of Red Oxide after erection. No painting shall be done when metal is wet.

5A.06 STEEL PIPE HANDRAILS

- A. Provide new steel handrails called for on drawings and as follows:
1. Steel handrails shall be constructed of pipe or extrusions, unless otherwise noted, and shall be of the design and section indicated on the drawings, as noted and detailed. Rail ends shall have closer plates, welded and ground to a neat, smooth finish. Rails shall be 1 1/2" (outside dimension) steel pipe unless otherwise indicated. Wall brackets shall be provided where required 3" clearance. Railings shall be flush welded and of sleeved joint construction and shall be provided complete with all sleeves, brackets, bolts, and all fastening devices as required for a complete installation.
 2. Stair railing shall be returned to wall.
 3. Where welds are exposed, welding shall be done by the insert gas shielded arc welding process. All welding shall be neat and ground smooth.
 4. All steel railings not galvanized to receive shop coat of prime paint.

5A.07 STEEL PIPE RAILINGS

- A. Railings shall be fabricated of 1 1/2" (outside dimension) steel pipe, galvanized for exterior use, including fittings, brackets, fasteners and other ferrous metal components.
- B. Railings shall be 2'-10" in height with an intermediate railing of same pipe size located 1'-6" from top rail.

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- C. Railings shall be provided with 1 1/2" (outside dimension) steel pipe posts located maximum 4'-0" on center. Posts shall be set in metal pipe sleeves 12" long to be installed in concrete. Provide steel plate secured to bottom of pipe sleeve.
- D. Posts shall be inserted into pipe sleeves and space filled solid with non-shrink, nonferrous grout.

5A.08 BREECHING FRAMES AND THIMBLES

- A. Furnish for building into chimney structure, breaching frames and thimbles consisting of 2" x 2" x 1/4" angle frame with suitable anchors for building into masonry, to which shall be securely welded or riveted a No.10 gauge sheet iron collar projecting not less than 6" from face of chimney for attachment of boiler breeching. Frames shall be approximately of sizes indicated on drawings, except dimensions shall be obtained from the Heating and Ventilation Contractor. Furnish angles, lintels and accessories required to complete the installation.
- B. Entire assemble shall be gas tight.
- C. Breeching frames and thimbles shall be furnished by this section for installation by Section 4A, Masonry.

5A.09 FIRE PASSAGE GATES

- A. Provide wrought iron picket gate, 6 feet high by width to suit width of fire passage.
- B. Pickets shall be 3/4" square solid wrought iron 5" o.c. Posts shall be 2 1/2" square, tubular, 14 gauge welded steel tubing. Stringers and stiles shall be 1 9/16" extruded or formed wrought iron channels. Stringers shall be pierced to receive and allow pickets to pass through. Pickets shall be welded to stringers.
- C. Gate shall be provided with an enclosed vandal-proof housing Panic Bar mortise lock, butts and guard plate.
- D. All members of gates shall be provided with shop coat of rust inhibitive paint.

5A.10 FIRE ESCAPES

- A. Repair defective parts of fire escapes with materials equivalent to original part.
- B. Anchorage: fire escapes and platforms shall be securely anchored with through wall steel straps and steel plates and in accordance with N.Y.C. Code and M.D.L. 53.
- C. The Contractor shall provide and install a gooseneck ladder to roof if required by Code.

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- D. Drop ladder:
1. The Contractor shall provide new drop ladders as necessary.
 2. Unless otherwise detailed, drop ladders shall be 20" wide with flat stringers 1 1/2" x 3/8" with 5/8" diameter rungs spaced not more than 12" on centers headed into stringers with ends upset. Drop ladders shall be supported in accordance with N.Y.C. Code and M.D.L. 53.
 3. Guides shall consist of 1 1/2" x 1 1/2" x 1/4" angles constructed in accordance with N.Y.C. Building Code and M.D.L. 53.
- E. No field welding is permitted in the repair of fire escapes. All repairs must be bolted or shop welded.

5A.11 SECURITY GATES

- A. New security gates at fire escape windows shall be "Sentry Barrier Gate" manufactured by Kaufman Iron works, Inc. (Certificate of Approval # 4921 by Fire Department City of New York) or equal, approved by the Fire Department City of New York.
- B. All installations and uses of fire escape window gates shall comply with the applicable New York City Building Code, Fire Prevention Code, Consumer Affairs Rules and the New York State Multiple Dwelling Law.
- C. The Sentry Barrier Gate shall consist of a fixed angle frame with a swinging grate hinged within a formed angle sub-frame. The fixed frame has a bent mounting angle on both sides. The top and bottom of the frame have spaces based on design. The frame is attached to the window return jambs. A steel plate and protective ring is mounted around the locking mechanism. The grate is mounted on one side to the frame, using hinges.
1. Window gates shall be attached to window return jambs only with standard wood or sheet metal screws. No other fastening devices shall be used.
 2. Fire escape window gates shall be installed so that there is a 1/4" continuous space with a depth of at least 3/4" between the gate and window frame for the entire height of the gate. The depth of the actual screw anchorage shall be no more than 1".
 3. Gates shall be installed so as to be readily open-able from inside the dwelling without the use of a tool, key, or special knowledge or effort and with no more than one releasing operation.

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4. Gates shall be installed so that they will not reduce the required dimensions of the window opening. In no case shall the opening be less than 24 inches wide and 30 inches high. The bottom of the window gate opening shall not be higher than the window sill height and in no case higher than 36 inches.
5. The window gate shall be permanently tagged, labeled or inscribed with the name, address, telephone number of Manufacturer, the Certificate of Approval number and the statement informing the user that Manufacturer will rectify any manufacturing defects in the gate upon notification.
6. The Fire Department's conditions of approval shall be enumerated in the installation manuals and sales brochures that will be provided to installers and users. The instructions shall specify how to install and initially test the fire escape window gate, how to operate the fire escape window gate to allow for an escape in the event of an emergency, and what periodic testing and maintenance is required.
7. A permanent label shall be affixed on visible facing flat surface. Said label (written in English and Spanish), shall read: **WARNING! OBSTRUCTION OF FIRE ESCAPE GATE SWING OPERATION BY ANY TYPE OF FURNITURE, WINDOW COVERING, PLANTS, ETC., IS DANGEROUS AND ILLEGAL.**

5A.12 ENTRANCE COURT GATE AND FENCE

- A. Provide gate and fence as shown on the drawings complete with all fittings, fastenings, erection accessories and hardware.
 1. Posts shall be 2 1/2" square, tubular, 14 gauge steel, galvanized. Posts shall be pierced to accept stringers of the grille.
 2. Stringers shall be 1 9/16" extruded or formed wrought iron channels. Stringers shall be pierced to receive and allow pickets to pass through. Pickets shall be welded to stringers. All welding ground smooth.
 3. Pickets shall be 3/4" square, solid wrought iron and spaced evenly and pass through pierced holes in stringers and welded to stringers.
 4. Provide gate consistent in materials and design with adjacent fence. Gate shall be provided with mortise latch.
 5. Posts and pickets shall be installed truly, vertical and all rails parallel to finished grade. Posts shall be set in footings or sleeves. All components shall be shop primed with rust inhibitive paint.

5A.13 BURGLAR BAR WINDOW GRILLES

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- A. Burglar bar grilles shall have 3/4" square tubing placed horizontally at top and bottom, fastened within the window opening with steel pins welded to horizontal member.
- B. Pickets shall be 1/2" square solid wrought iron, 5" on center welded to horizontal tubing top and bottom.
- C. Two (2) ornate castings, 8" x 17 1/2", shall be furnished with each burglar bar grille.
- D. Burglar bar grilles shall be of size to fit masonry opening. Grilles shall be fabricated to provide for enclosure of air conditioning unit projection where air conditioners are required.
- E. Grilles shall be prime painted at factory and finish painted in field.
- F. Burglar bar grilles shall be "Exterior Burglar Bars" as manufactured by Kaufman Iron Works, Inc. N.Y. or approved equal as determined by Architect/Engineer.

5A.14 CHILD WINDOW GUARDS

- A. Guards shall be constructed of square 6063 - T6 aluminum alloy tube and side channel stiles, free of sharp projections, edges, or rough surfaces.
- B. Guards shall be so constructed as to reject passage of a solid 5-inch sphere at every space and between the bottom of the guard and the window sill.
- C. Guard shall bear a one hundred and fifty pound (150 lb.) load at its center span for its maximum width without significant structural damage. A test with guard attached in accordance with manufacturer's specifications must be performed and results certified by a Professional Engineer.
- D. The channel stiles shall each have at least two (2) holes for permanent window mounting.
- E. Screws or other mounting devices used to attach window guards shall be provided by manufacturer, have non-slotted heads and shall be a minimum of #10 - 1" long or long enough so that they project 1" beyond leading edge of "U" channel of vertical stile.
- F. The window child guard shall cover lower sash entire opening. Number of the bars shall be determined based on size of the window and height of the opening. 4 1/2" space or less shall be between window sill and bottom rail of the guard. Lower sash must be stopped from being raised more than 4 1/2" above the top bar of the guard. Approved by Department of Health window Stops shall be used to create that dimension.
- G. Finish of guards to be painted with baked-on acrylic enamel. Paint coating shall comply with all federal laws and regulations concerning lead content for any finishes furnishing for aluminum extrusions. Color will be determined by Architect/Engineer.

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- H. Instructions for safe installation shall be provided with guards by the manufacturer.
 - 1. Instructions shall specify that guards be installed so that the bottom horizontal members are mounted a maximum of 4 ½" above the window sill and 4 ½" of open space remains between the top horizontal member of the guard and the bottom sash when fully open.
- I. Coded manufacturer's identification symbol and date of fabrication symbols (month and year) shall be imprinted on each window guard. Each manufacturer shall register identification and dating code with the Department of Health Window Guard Acceptance Board.
- J. Child window guards shall be "Extruded Aluminum Window Security Guards" as manufactured: Series – 1500 by Aluma-Trim Inc., Series – 8000 by Metro Window Manufacturing Corp. Brooklyn, N.Y. or approved equal as determined by Architect/Engineer.

5A.15 PUBLIC HALL WINDOW GUARDS

- A. New window guards shall be provided at inside of all public hall windows.
- B. Each guard shall consist of horizontal tubular telescoping steel bars, 1 ¼" square, 16 gauge, welded to a flat steel vertical stile bar as manufactured by Kaufman Iron Works Inc. or approved equal as determined by Architect/Engineer. The top bar shall be 4 ½" below the bottom of upper sash. Additional bars shall be placed 5" o.c. between the top bar and window sill. When the guard is extended to the maximum allowable width, there shall be a minimum overlap of five (5) inches or 1/3 of the length of the bar, whichever is greater.
- C. Securely fasten window guard to the window frame or wall after new windows have been installed and all other public hall finish work has been completed at all locations.
- D. Screws or other mounting devices used to attach window guards shall be provided by manufacturer, have non-slotted heads and shall be a minimum of #10 - 1" long or long enough so that they project 1" beyond leading edge of vertical stile.
- E. Coating of guards shall be unleaded. Statement from guard manufacturer required.

5A.16 BLOCK VENTS

- A. Block vents shall be 7 13/16"H x 15 5/8"W x 7 5/8" thick, model #811 as manufactured by Construction Specialties Inc., or approved equal as determined by Architect/Engineer.

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- B. Block vents to be fabricated from extruded aluminum sections 6063-T52 alloy, minimum .125 thick with structural ribs. A die-formed 7 x 7 mesh .028 diameter wire aluminum insert screen is to be mechanically secured on interior face of vent. All units to have medium bronze Durandodic 300 finish.

5A.17 AREAWAY GRATINGS

- A. Frames: Areaway grating frames shall be furnished and delivered by this section for building in under another section. Frames shall consist of 1 1/2 inch by 1 1/2 inch by 1/4 inch continuous steel angle. Anchor shall be welded to back of angle frame and spaced not over two feet on centers.
- B. Grating: For spans up to and including four feet, the bearing bars shall be 1 1/4 inches by 3/16 inch spaced 1 3/16 inches on center. Unless otherwise specified, gratings shall be steel rectangular mesh, optional pressure locked or welded.
- C. Anchorage: Gratings shall be secured to angle frames with one (1) inch by one (1) inch by 1/4 inch flat clip welded to gratings and top screwed to frames using tamperproof machine bolts.

5A.18 ACCESS PANELS

- A. Access panel frame shall be 2 1/2" x 2 1/2" x 5/16" steel angle, welded and mitered at all corners.
- B. Door shall be 3/8" thick steel plate with two (2) butts welded to steel plate and steel angle frame.
- C. Provide hasp, staple, and padlock.

5A.19 PIT FRAMES AND COVERS

- A. Furnish and install pit frames and covers where noted on the drawings.
- B. Frames shall consist of steel angles, having a minimum size of 2" x 2" x 1/4", welded together on steel strap anchors.
- C. Covers shall be 1/4" thick-checkered plate to fit frames, and finish flush with adjacent floor surface, complete with flush lifting rings.
- D. Frames shall be installed at required locations, in cooperation with other trades. Covers shall be secured to frames using a minimum of four (4) flush, screw type, approved fasteners.

5A.20 SHOP DRAWINGS AND SAMPLES

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- A. Submit detailed shop drawings for approval of all fabricated items of work indicating gauges of metal, hardware, fittings, finishes, connections to adjacent work and other necessary and required details.

Contractor to supply shop drawings and samples for Architect's/Engineer's approval before the commencement of the work.

5A.21 GUARANTEES

- A. Guarantee all items of work furnished and installed under this Section for (1) one year, in addition to manufacturer's standard warranties. All guarantees to be from the date, when **Final Certificate of Occupancy** is issued from Department of Buildings.

END OF SECTION