

SECTION 05500

METAL FABRICATIONS

PART 1 GENERAL

1.01 DIVISION OF RESPONSIBILITIES TERMINOLOGY: **NOT USED**

1.02 SUMMARY:

A The Contractor shall provide miscellaneous metal work as shown on the drawings, as specified in this Section, and as needed for a complete and proper installation, such as:

1. Anchor bolts, washers and nuts.
2. Angle frames for rooftop mounted equipment openings, including but not necessarily limited to exhaust fans, roof hatch, and rooftop HVAC units (part of building shell construction).
3. Angle and/or channel jambs at masonry openings (part of building shell construction)
4. Banner Anchors at building exterior (Front Elevation) wall and top of parapet coping.
5. Bearing Plates.
6. Bollards with Chain.
7. Door Lintels and other masonry opening lintels (part of building shell construction).
8. Exterior Metal Stairs (part of building shell construction).
9. **NOT USED**
10. Hitching Rings
11. Ladder to roof hatch.
12. Leveling Plates
13. Loading Dock Leveler and Dock Bumper angle (part of building shell construction)
14. Metal Pipe Railings.
15. Rainwater Conductor Guards (part of building shell construction)
16. Rodent Barrier Hardware Cloth.
17. **NOT USED**
18. Security Bars at all roof openings and all wall openings greater than 12"x12", including but not necessarily limited to wall louvers and exhaust fans
19. Security Bars are furnished as part of the new RTUs/ new roofcurbs package per Section 15500 when new roofcurbs are provided
20. Security Mesh at exterior metal-framed walls, exterior soffits or interior demising partitions.
21. Concealed Tube Steel Structural Columns at aluminum storefront (part of building shell construction).
22. Unistrut and all-thread support rods for suspended plumbing, mechanical and electrical equipment and other assemblies
23. Additional miscellaneous steel items that may not be listed but are required for this project; refer to the drawings

1.03 SUBMITTAL: No submittal is required for the work of this Section.

PART 2 PRODUCTS

2.01 MATERIALS:

A. Comply with following standards, as pertinent

1. Rolled steel plates, shapes, and bars: ASTM A36
2. Cold formed steel plates, etc.: ASTM A283, Grade C.
3. Steel tubing: ASTM A500/A501, Grade B. (Fb = 27,700 psi, E = 24,000,000 psi).
4. Steel bars and bar-size shapes: ASTM A306, Grade 65 or ASTM A36.

5. Cold finished steel bars: ASTM A108.
6. Cold rolled carbon steel sheets: ASTM A336.
7. Galvanized carbon steel sheets: ASTM A526, with ASTM A525, G90 zinc coating.
8. Stainless steel sheets: AISI Type 302 or 304, 24 gauge, with number 4 finish.
9. Gray iron casting: ASTM A47.
10. Malleable iron castings: ASTM A48, Class 10.
11. Steel pipe: ASTM A53, Type E or S, Grade B.
12. Concrete inserts: Threaded or wedge-type galvanized malleable cast iron per ASTM A27. Required bolts, shims and washers, hot-dip galvanized per ASTM A153.

2.02 FASTENERS:

- A. General: For exterior use and where built into exterior walls, provide zinc-coated fasteners; provide fasteners of type, grade, and class required for the particular use.
- B. Comply with the following standards as applicable.
 1. Bolts and nuts: provide hexagon-head regular type, ASTM A307, Grade A
 2. Lag Bolts: provide square head type complying with Fed. Spec. FF-B-561.
 3. Machine Screws: provide cadmium plated steel type, Fed. Spec. FF-S-111.
 4. Washers: Plain Washers to be Fed. Spec. FF-W-92, round, carbon steel; Lock Washers to be Fed. Spec. FF-W-84, helical spring type carbon steel.
 5. Toggle Bolts: provide type, class, and style needed, Fed. Spec. FF-B-588.
 6. Anchorage Devices: provide expansion shield, Fed. Spec. FF-S-325.

2.03 BANNER ANCHORS AT BUILDING EXTERIOR (FRONT ELEVATION):

- A. Coping-Mounted Banner Anchors: The Contractor shall furnish and install banner anchors on the building shell's parapet coping, where shown and as detailed on the drawings, consisting of stainless steel components, by McMaster-Carr Supply Company, Los Angeles CA (562-692-5911; www.mcmaster.com) and supplementary sealant and roofing membrane components, as detailed. Each Coping-Mounted Banner Anchor assembly consists of the following parts:

Part of Assembly	Thread/ Remarks	McMaster-Carr Part No.
Headless Hanger Screw	3/8"-16 Thread, 1 per banner anchor	90915A636 (18-8 Stainless Steel)
Stainless Steel Fender Washer, 1.5" OD	For 3/8" screw size, 1 per banner anchor	90313A115 (18-8 Stainless Steel)
Rubber Washer, 5/8" OD	For 3/8" screw size, 1 per banner anchor	90130A031
Eye Nut, Oval Eye	3/8" - 16 Thread, 1 per banner anchor	3061T25 (316 Stainless Steel)
Roof Membrane Patch and roofing sealant	See Detail	

- B. Wall-Mounted Banner Anchors: The Contractor shall furnish and install recessed banner anchors on the building exterior wall, where shown and as detailed on the drawings. Provide one (1) of either Model #14-501, Model #14-500, or Model #14-530, Cup Anchor with cross bar or eye (varies according to the model ordered), by Recreonics Inc., Louisville KY (800-428-3254; website www.recreonics.com) at each Wall-Mounted Banner Anchor location.
 1. Installation: As detailed on the drawings, permanently install the Cup Anchor in a core-drilled hole in the exterior masonry wall, so that the face of the Cup Anchor is aligned with the face of building shell masonry.

- 2 Grout the void space by using either non-shrink grout colored the same as the masonry, or by using an injection epoxy system equal to HIT HY20 Injection Adhesive Anchoring System for Masonry Construction, by Hilti, Tulsa OK (800-879-8000). Mask the face of the Cup Anchor during grouting work.

2.04 BOLLARDS:

- A Interior Bollards shall be 4-1/2" diameter, 42" height, Schedule 10 steel pipe bollards with powder-coated finish marked with black-and-yellow striped tape, and with 1/4" thick, slotted base plate to receive four mounting anchors, equal to Part No. 57895T47, by McMaster-Carr Supply Company, Los Angeles CA (562-692-5911; www.mcmaster.com)
 - 1 Chain: Provide length of chain adequate to span the distance between interior bollards' chain eye anchors with no more than approximately 4" sag, equal to McMaster-Carr Part No. 3594T49, zinc plated, ungraded steel straight link chain, material diameter 0.25", inside link width 0.45", inside link length 1.55", approximately 7 links per foot
 - 2 Chain Eye Anchor: Provide one Chain Eye, field welded to each side of an Interior Bollard that is shown on the drawings to receive Chain. The Chain Eye Anchor should be located on all Bollards intended to receive chain, at an equal, 38" height above the floor.
 - 3 Connector: Provide two (2) threaded connectors, one at each end of a section of chain, equal to McMaster-Carr Part No. 3711T23 "Oval with Large Opening", zinc plated steel.
 - 4 Mounting Anchors: Secure each Interior Bollard to the concrete floor slab with four (4) epoxy grouted anchor bolts or expansion anchors, sized for 3" minimum anchorage depth.
- B Exterior Imbed Bollards: Provide Galvanized Schedule 40 pipe bollards, filled with concrete and provided with finished concrete cap, and anchored in concrete footings as detailed on the drawings.
- C Exterior Bolt-Down Bollard: **NOT USED**

2.05 FLOOR MOUNTED HITCHING RINGS: **NOT USED**

2.06 HITCHING RINGS (at Pet Grooming Areas):

- A The Contractor shall furnish and install Hitching Rings, where shown on the drawings, consisting of stainless steel components, by McMaster-Carr Supply Company, Los Angeles CA (562-692-5911; www.mcmaster.com). Each Hitching Ring Assembly consists of the following parts:

Part of Assembly	McMaster-Carr Part No.	Remarks
Tie-Down Ring	McMaster Carr Part No. 31665T22 316 Stainless Steel	1 per hitching ring
Screws, No. 6 x 2"	McMaster Carr Part No. 90315A442 18-8 Stainless Steel	4 per hitching ring

- B Description: Base Plate 1-3/8" x 1-9/16"; Base Plate Ring Diameter 3/4"; Large Ring Diameter 1-5/8".
- C Secure each Hitching Ring to concealed wood blocking or sheet metal reinforcing with stainless steel fasteners where shown on the drawings

2.07 METAL LADDER AND RAILINGS:

- A. Fabricate ladder as shown on drawings, in accordance with local applicable construction codes, and in accordance with ANSI 14.3 "Safety Requirements for Fixed Ladders".
- B. Ladder shall support a live load of 100 lb / s.f. with stringer deflection not exceeding L/360 of span; railings and attachments shall resist a lateral force of 300 lbs. at any point.
- C. Prime paint all components. Finish paint ladder, as indicated on the drawings and per Section 09900-Painting

2.08 RODENT BARRIER HARDWARE CLOTH:

- A. Provide 4 x 4 mesh (1/4" x 1/4"), 23 gauge, galvanized steel, welded wire hardware cloth, in 48" rolls, by TWP Inc., Berkeley CA (800-227-1570; www.twpinc.com), Midwest Air Technologies Inc. (800-628-8815; www.midwest-air.com).
 - 1. Alternative Supplier: Wire Cloth Part No. 9217T46 by McMaster-Carr Supply Company, Los Angeles CA (562-692-5911; www.mcmaster.com)
- B. Secure Rodent Barrier Hardware Cloth, concealed behind the subsequently installed gypsum wallboard finish, to the bottom track and face of framing of all Petco Tenant Space perimeter partitions that are common with the inside surface of the tenant space building shell's exterior walls, and secure to the bottom track and face of framing of all tenant separation partitions.

2.09 SECURITY MESH:

- A. Provide carbon steel security mesh equal to ASM #1.0-16F (1.090" SWD x 2.56" LWD center to center of bond), with overall 0.48" thickness, 77% open area, maximum carbon content 0.15%, as manufactured by AMICO, Birmingham AL (800-366-2642). Conventional higher carbon expanded metal mesh, not manufactured specifically for security purposes, is NOT permitted for this use.
 - 1. Provide security mesh sections installed in a continuous, staggered pattern to a minimum height of at least 8 feet above the finish floor, or to an additional height if so specified on the drawings.
 - 2. Install Security Mesh directly to the metal stud demising partition framing on the PETCO side of the partition.
 - 3. In the event that an existing finished demising partition is scheduled to receive a furred or other supplementary finish on the PETCO-side of the partition, then the security mesh shall be installed on the existing partition finish, with anchorage through existing finish (-es) to the wall framing.

2.10 TRASH ENCLOSURE, GATE AND HARDWARE: **NOT USED**

- 2.11 SHOP PAINT: Provide primer meeting Fed. Spec. TT-P-636. Prime paint components, Color Primer Red. For repair of galvanizing, use a high zinc dust content paint complying with MIL-P-21035.
- 2.12 GALVANIZING: Galvanize items to be embedded in concrete slabs and as noted on drawings, in accordance with ASTM A123, minimum 1.25 oz/ sq. ft.
- 2.13 FABRICATION: Fabricate with accurate angles and surfaces that are true to the required lines and levels, grinding exposed welds smooth and flush, forming exposed connections with hairline joints and using concealed fasteners wherever possible. Prior to shop painting or priming, properly clean metal surfaces as required for the applied finish and for the proposed use of the item. On surfaces inaccessible for painting after assembly or erection, apply two primer coats.

PART 3 EXECUTION

- 3.01 SURFACE CONDITIONS: The Contractor shall examine the areas and conditions under which work of this section will be provided, shall correct conditions detrimental to the timely and proper completion of the work, and shall NOT proceed until unsatisfactory conditions are corrected.
- 3.02 INSTALLATION: Set work accurately and anchored firmly into position, plumb and level. Work embedded in concrete shall be treated as specified, and set with concrete patching material as specified in Section 03300-Cast-In-Place Concrete. Where field welding is required, comply with AWS recommended procedures for shielded metal-arc welding for appearance and quality of weld and for methods to be used in correcting welding work. Grind exposed welds smooth, and touch-up shop prime coats. Do not cut, weld, or abrade surfaces which have been hot-dip galvanized after fabrication and which are intended for bolted or screwed field connections. Clean and re-prime field welds, bolted connectors, and abraded areas of shop priming or finish material.

END OF SECTION

