SECTION 10 5113 - METAL LOCKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes, but not limited to the following:
   1. Corridor metal lockers (L1 and L2).
   2. Classroom metal cubbies (L3).

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal locker and bench.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

   1. Show base, sloping tops, filler panels, recess trim and other accessories.
   2. Include locker numbering system.

      a. Review and coordinate with Owner and Architect to interface numbering with existing locker numbering, if applicable.

C. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.

D. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative of metal locker manufacturer for installation and maintenance of units required for this Project.

B. Source Limitations: Obtain all metal lockers and accessories through one source from a single manufacturer.

C. Product Options: Drawings indicate size, profiles, and dimensional requirements of metal lockers and are based on the specific system and design indicated.

D. Regulatory Requirements: Where metal lockers are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's

"Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)" and governing agencies having jurisdiction.

1. Lockers shall comply with all features to suit barrier-free accessibility. Provide a "decal" with the international symbol of accessibility to the face of locker doors and other required Barrier Free features.
2. Provide Barrier Free accessible locker in quantities of not less than 5% of total units, but not less than one (1) of each type.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver metal lockers until spaces to receive them are clean, dry, and ready for metal locker installation.

B. Deliver master and control keys, master, penalty, and control keys, combination control charts to Owner.

1. Provide at least ten (10) keys of each unit type to the Owner.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify the following by field measurements before fabrication and indicate measurements on Shop Drawings:

1. Concealed framing, blocking, and reinforcements that support metal lockers before they are enclosed.
2. Recessed openings.
3. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish recessed opening dimensions and proceed with fabricating metal lockers without field measurements. Coordinate wall and floor construction to ensure that actual recessed opening dimensions correspond to established dimensions.

1.7 COORDINATION

A. Coordinate size and location of concrete, concrete masonry, wood bases for metal lockers.

B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that metal lockers can be supported and installed.

C. Coordinate miscellaneous steel supports for cantilevered benches projecting from walls.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship.

1. Warranty Period for Metal Lockers: Ten (10) years from date of Substantial Completion.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below, before construction begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Full-size units of the following metal locker hardware items equal to ten (10) percent of amount installed for each type and finish installed, but no fewer than five (5) units:

a. Locks and latch assembly.
b. Hooks.
c. Hinges.
d. Interior shelves.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturer's Product Basis-of-Design: The design for each metal locker specified is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS) Type B, suitable for exposed applications.

B. Expanded Metal: ASTM F 1267, Type II (flattened), Class I, 3/4-inch (19-mm) steel mesh, with at least 70 percent open area.

C. Stainless-Steel Sheet: ASTM A 666, Type 304.

D. Extruded Aluminum: ASTM B 221 (ASTM B 221M), alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated.

E. Plastic Laminate: NEMA LD 3, Grade HGP.

F. Fasteners: Zinc- or nickel-plated steel, slotless-type exposed bolt heads, and self-locking nuts or lock washers for nuts on moving parts.

G. Anchors: Select material, type, size, and finish required for secure anchorage to each substrate.

1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls **and elsewhere as required** for corrosion resistance.
2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.3 CORRIDOR LOCKERS (L1 and L2)

A. Manufacturer's Product Basis-of-Design: Art Metal Products, Div. of Fort Knox Storage Co. Lockers.

1. AMP Heavy-Duty Corridor Lockers
   a. Refer to drawings for sizes and quantities.
   b. Doors: 14 gauge louvered sheet steel with recessed handle, and multi-point gravity lift - type latching
   c. Sides: 24 gauge solid sheet steel.
   d. Tops, Shelves: 24 gauge solid sheet steel
   e. Bottoms: 16 gauge Stainless steel
   f. Backs: 24 gauge solid sheet steel

B. Manufacturers:
1. DeBourgh Mfg. Co.; Worley Lockers.
2. General Storage Systems, Div. of North American Steel.
3. Penco Products, Inc., Subsidiary of Vesper Corporation Lockers.
4. Republic Storage Systems Company Lockers.
5. Lyon Workspace
6. ASI Storage Solutions

2.4 FABRICATION

A. MATERIALS:
1. Steel Sheet: All sheet steel used in fabrication shall be prime grade free from scale and imperfections and capable of taking a heavy coat of custom blend powder coat.
2. Fasteners: Cadmium, zinc or nickel plated steel; bolt heads, slotless type; self locking nuts or lock washers.
3. Hardware: Hooks and hang rods of cadmium plated or zinc plated steel or cast aluminum.
4. Handle: Seamless drawn 304 stainless steel recessed handle.
5. Number Plates: To be polished aluminum with not less that 3/8" high etched numbers attached to door with two aluminum rivets.

B. CONSTRUCTION: Lockers shall be "AMP HEAVY-DUTY CORRIDOR (HDC) Lockers" as manufactured by Art Metal Products or approved equal. Fabricate lockers square, rigid and without warp, with metal faces flat and free from dents or distortion. Make all exposed metal edges safe to touch. Weld frame members together to form a rigid, one-piece structure. Weld, bolt or rivet other joints and connections as is standard with manufacturer. Grind exposed welds flush. Do not expose bolts or rivet heads on front of locker doors or frames except for fastening of number plates and recessed handle
1. All lockers shall be built on a unit principle with common intermediate uprights separating units.
2. FRAME: Fabricate of 16 gauge (minimum) channels, with integral continuous door stop/strike formed on both latch and hinge side vertical members. Cross frame members of 16 gauge channel shapes, including intermediate cross frame members on double and triple tier (frames with doors over 18" high) lockers shall be securely welded to the vertical framing members to ensure rigidity. Rubber bumpers shall be provided to cushion door closing.
3. HAT SHELVES, INTERMEDIATE SHELVES AND BOTTOMS: Shall be formed with 24 gauge (minimum) solid sheet steel with single return bends at all sides. Bolt top and bottom

as well as horizontal tier dividers of wardrobe openings to front horizontal frame members at not less than one place in addition to side panels. Form hat shelves at 60” and 72” high single tier lockers of 16 gauge (minimum) sheet steel with single bends at sides and back and a double bend at front.

4. TOPS. SIDES, BACKS: Shall be 24 gauge (minimum) cold rolled sheet steel with double flanged connections extending full height. Bolt spacing shall not exceed 9” o.c.
5. BOTTOMS: Shall be 16 gauge minimum stainless steel.
6. HDC Wardrobe Doors: Doors 20” high and higher shall be fabricated from single sheet prime 14 gauge with single bends at top and bottom and double bends at the sides. The channel formed by the double bend at the latch side is designed to fully conceal the lock bar. Doors to be louvered
7. LATCHING: shall be finger lift control type constructed of 14 gauge (minimum) steel with a nylon cover that has a generous finger pull. Spring activated nylon slide latches shall be completely enclosed in the lock channel allowing doors to close with the lock in the locked position. Locking device shall be designed for use with either built-in combination locks or padlocks. Provide three latch hooks for doors 48" and over and two for doors under 48".
8. HANDLE: doors shall have a seamless drawn 304 stainless steel recessed handle shaped to receive a padlock or built-in combination lock. The recess pan shall be deep enough to have the lock be completely flush with the outer door face. A finger lift/padlock hasp shall protrude through the top of the handle for easy opening of the locker door.
9. DOOR HINGES: All doors shall include a 16 gauge continuous piano hinge welded to the door and riveted to the frame. All doors to be right hand, side hinged.

2.5 LOCKER ACCESSORIES:

A. Locks: none.

B. Equipment: Furnish each locker with the following items, unless otherwise shown.
1. Single tier lockers: Openings 60” and 72” shall include one hat shelf, one double prong ceiling hook and a minimum of three single prong wall hooks.
2. Double tier lockers: Openings 30” thru 36” high shall include one double prong ceiling hook and a minimum of three single prong wall hooks.
3. Triple tier lockers: Openings 20” thru 24” high shall include one double prong ceiling hook.
4. Finished End Panels (If required): Shall be "Boxed" type formed from 16 gauge cold rolled steel with 1" O.D. double bends on sides and a single bend at top and bottom with no exposed holes orbolts. If lockers have slope tops, end panels must be formed with slope at top to cover the ends of the slope tops. Finished to match lockers. Provide at all exposed ends.
5. Continuous Slope Tops: Not less than 18 gauge sheet steel approximately 18 degrees pitch, in lengths as long as practical but not less than four lockers. To be installed in addition to the locker flat top with end closures for support. Finished to match lockers. Provide vertical end closures and mitered corners.
6. Flat Locker Tops: To be finished to match outside of locker.
7. Fillers (if required): Provide where indicated, of not less than 16 gauge sheet steel, factory fabricated and finished to match lockers.
8. Continuous ‘Z’ Base: Fabricated from cold-rolled steel sheet, manufacturer's standard thickness, but not less than 0.0528 inch (1.35 mm) thick.
9. Recess Trim: Fabricated from 0.0428-inch- (1.1-mm-) thick, cold-rolled steel sheet.
10. Filler Panels: Fabricated from cold-rolled steel sheet, manufacturer's standard thickness, but not less than 0.0329 inch (0.85 mm) thick.
11. Boxed End Panels: Fabricated from 0.0528-inch- (1.35-mm-) thick, cold-rolled steel sheet.

12. Finished End Panels: Fabricated from 0.0209-inch- (0.55-mm-) thick, cold-rolled steel sheet.
13. Center Dividers: Fabricated from 0.0209-inch- (0.55-mm-) thick, cold-rolled steel sheet.

C. FINISHING: All locker parts to be cleaned and coated after fabrication with a seven stage hot-spray washing process and coated with a zirconium-based nanotechnology providing a green alternative to traditional iron phosphate followed by a coat of high grade custom blend powder electrostatically sprayed and baked at 350 degrees Fahrenheit for a minimum of 20 minutes to provide a tough durable finish. Color to be selected from manufacturer's standard list of colors. Body components shall be manufacturer's standard interior neutral color.
1. Two-Tone Color Combination: Shall be at no additional cost with the locker frame and trim chosen from one color and the doors may be one of any other color chosen from manufacturers standard selection.

2.6 FABRICATION

A. General: Fabricate metal lockers square, rigid, and without warp; with metal faces flat and free of dents or distortion. Make exposed metal edges free of sharp edges and burrs, and safe to touch.

1. Form body panels, doors, shelves, and accessories from one-piece steel sheet, unless otherwise indicated.
2. Provide fasteners, filler plates, supports, clips, and closures as required for a complete installation.

B. Unit Principle: Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments.

C. Knocked-Down Construction: Fabricate metal lockers for nominal assembly at Project site using nuts, bolts, screws, or rivets. Factory weld frame members together to form a rigid, one-piece assembly.

D. All-Welded Construction: Factory preassemble metal lockers by welding all joints, seams, and connections, with no bolts, nuts, screws, or rivets used in assembly of main locker groups. Factory weld main locker groups into one-piece structures. Grind exposed welds flush.

E. Hooks: Manufacturer's standard ball-pointed type, aluminum or steel; zinc plated.

F. Coat Rods: Fabricated from 3/4-inch- (19-mm-) diameter steel; nickel plated.

G. Identification Plates: Manufacturer's standard etched, embossed, or stamped aluminum or plastic plates; with numbers and letters at least 3/8 inch (9 mm) high.

H. Continuous Base: Formed into channel or Z profile for stiffness, and fabricated in lengths as long as practicable to enclose base and base ends of metal lockers; finished to match lockers.

I. Continuous Sloping Tops: Fabricated in lengths as long as practicable, without visible fasteners at splice locations; finished to match lockers.

1. Sloped top corner fillers, mitered.

J. Recess Trim: Fabricated with minimum 2-1/2-inch (64-mm) face width and in lengths as long as practicable; finished to match lockers.

K. Filler Panels: Fabricated in an unequal leg angle shape; finished to match lockers. Provide slip joint filler angle formed to receive filler panel.

L. Boxed End Panels: Fabricated with 1-inch- (25-mm-) wide edge dimension, and designed for concealing fasteners and holes at exposed ends of nonrecessed metal lockers; finished to match lockers.

1. Provide one-piece panels for double-row (back-to-back) locker ends.

M. Finished End Panels: Designed for concealing unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.

1. Provide one-piece panels for double-row (back-to-back) locker ends.

N. Center Dividers: Full-depth, vertical partitions between bottom and shelf; finished to match lockers.

2.7 STEEL SHEET FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Factory finish steel surfaces and accessories except stainless-steel and chrome-plated surfaces.

C. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond. Use manufacturer's standard methods.

D. Baked-Enamel Finish: Immediately after cleaning, pretreating, and phosphatizing, apply manufacturer's standard thermosetting baked-enamel finish. Comply with paint manufacturer's written instructions for application, baking, and minimum dry film thickness.

E. Powder-Coat Finish: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard baked-polymer thermosetting powder finish. Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.

2.8 CLASSROOM METAL CUBBIES (L3)

A. Manufacturer’s Product Basis-of-Design: Art Metal Products, Div. of Fort Knox Storage Co. Lockers.

1. AMP Heavy-Duty Unibody All-Welded School Cubbies with hemmed and beaded edges – Primary II
   a. Refer to drawings for sizes and quantities.
      1) Each cubbie to include:
         a) (1) full width shelf at top
         b) (4) coat hooks
         c) (1) center divider
         d) (1) full width shelf 12” at bottom

e) (2) number plates on bottom centered on each opening near the front

b. **Finishing:** All cubbie parts to be cleaned and coated after fabrication with a seven stage zinc/iron phosphate solution to inhibit corrosion, followed by a coat of high grade custom blend powder electrostatically sprayed and baked at 350 degrees Fahrenheit for a minimum of 20 minutes to provide a tough durable finish. Color to be selected from manufacturer's standard list of colors.

c. **Unit Vertical Side Panels:** Shall be of integral frame and side wall construction manufactured from solid 16 gauge sheet steel. The one-piece side/frame shall be formed to provide a vertical channel frame member framing the left and right side of the cubbie unit. The integral side/frame shall be MIG welded to the continuous top and bottom producing a rigid torque-free welded cubbie unit. The frame shall include a tab which engages a slot in the base locking the side panel and frame into position.

d. **Intermediate Vertical Side Panels:** Shall be of 16 gauge cold rolled sheet steel securely welded to the continuous top and bottom forming a vertical partition between cubbie compartments. The front of the partition is to be rolled tight to conceal the edge of the sheet steel and insure rigidity.

e. **Integral Frame Cubbie Base:** 16 gauge formed sheet steel with double return flanges at the front and rear. A full depth horizontal channel shall be MIG welded to the underside from front-to-back at the left and right side of each welded cubbie unit as well as beneath each vertical side panel for maximum rigidity.

f. **Flat Tops:** Shall be formed of one piece of 16 gauge cold rolled sheet steel and shall be an integral part MIG welded to each vertical side panel frame member and be continuous to cover the full width of a multiple cubbie unit. Tops to be painted to match entire cubbie.

g. **Shelves:** Shall be 16 gauge sheet steel, have a beaded (rolled tight) front profile to conceal the edge of the sheet steel and insure rigidity with single bends at sides and rear. Shelves are to be MIG welded to the sides. Primary II cubbies to include (1) full-width upper shelf and (1) full-width lower shelf.

h. **Backs**: Shall be 18 gauge cold rolled sheet steel, be continuous to cover a multiple twin-framed unit and be welded to each vertical side panel as well as to the top and bottom.

i. **Bottom (inside top portion)**: Shall be 16 gauge stainless steel for boot storage.

j. **Equipment:** Furnish each cubbie wardrobe opening with two single prong wall hooks. The bottom is to include a number plate centered on each opening located near the front.

k. **Lifetime Warranty:** AMP Unibody All-Welded Cubbies are covered against all defects in materials and workmanship excluding finish, damage resulting from deliberate destruction and vandalism under this section for the lifetime of the facility.

B. Other Acceptable Manufacturers:
1. DeBourgh Mfg. Co.; Worley Lockers.
2. General Storage Systems, Div. of North American Steel.
3. Penco Products, Inc., Subsidiary of Vesper Corporation Lockers.

4. Republic Storage Systems Company Lockers.
5. Lyon Workspace
6. ASI Storage Solutions

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls, floors, and support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install level, plumb, and true; shim as required, using concealed shims.

1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches (910 mm) o.c. Install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion, using concealed fasteners.
2. Anchor single rows of metal lockers to walls near top of lockers and to floor.
3. Anchor back-to-back metal lockers to floor.

B. Knocked-Down Metal Lockers: Assemble knocked-down metal lockers with standard fasteners, with no exposed fasteners on door faces or face frames.

C. All-Welded Metal Lockers: Connect groups of all-welded metal lockers together with standard fasteners, with no exposed fasteners on face frames.

D. Equipment and Accessories: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.

1. Attach hooks with at least two fasteners.
2. Attach door locks on doors using security-type fasteners.
3. Identification Plates: Identify metal lockers with identification indicated on Drawings.
    a. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
    b. Attach plates to upper shelf of each open-front metal locker, centered, with a least two aluminum rivets.
4. Attach recess trim to recessed metal lockers with concealed clips. Provide flush, hairline joints against adjacent surfaces.
5. Attach filler panels with concealed fasteners. Locate fillers panels where indicated on Drawings.
6. Attach sloping top units to metal lockers, with closures at exposed ends.

7. Attach boxed end panels with concealed fasteners to conceal exposed ends of nonrecessed metal lockers.
8. Attach finished end panels with fasteners only at perimeter to conceal exposed ends of nonrecessed metal lockers.

3.3 ADJUSTING, CLEANING, AND PROTECTION

A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding. Verify that integral locking devices operate properly.

B. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit metal locker use during construction.

C. Touch up marred finishes, or replace metal lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by metal locker manufacturer.

END OF SECTION 10 5113