

DIVISION 11
SECTION 11194 - MANUFACTURED STEEL DETENTION CELLS

PART 1 - GENERAL

1.1 SCOPE

This specification covers the requirements, including labor, materials, services and equipment for the manufacturing, delivering and installing of pre-engineered, prefabricated Steel Detention Cells.

1.2 RELATED DOCUMENTS

Drawings and general provisions of the contract, including general and supplementary conditions and Division 1 specification sections, apply to the work of this section.

Other divisions specified by related include: *(as applicable)*

- a. Division 3 - Concrete: Slab Quality
- b. Division 4 - Masonry: Brick Ties
- c. Division 10 - Toilet Accessories
- d. Division 11 - Security Hardware
Security Accessories
Security Hollow Metal
Security – Detention Electronics Systems
- e. Division 15 - Plumbing
Sprinklers
HVAC
- f. Division 16 - Electrical

1.3 REFERENCES

The publications listed in this section form a part of this specification to the extent referenced. The publications are referenced herein by basis designation only.

ASTM A366/A366M - Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality

ASTM A569/A569M - Specification for Steel, Carbon (0.15 Maximum), Hot-Rolled Sheet and Strip Commercial Quality

ASTM A666 - Specification for Austenitic Stainless Steel Sheet, Strip, Plate and Flat Bar

ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Testing Apparatus

ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation

ASTM D3359 - Test Methods for Measuring Adhesion by Tape Test

ASTM D2240 - Test Method for Film Hardness by Shor D

ASTM F1450 - Test Methods for Hollow Metal Swinging Door Assemblies for Detention Facilities

ANSI/AWS D1.1 - Structural Welding Code-Steel

ANSI/AWS D1.3 - Structural Welding Code - Sheet Steel

AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings

AISC Load and Resistance Factor Design Specification for Structural Steel Buildings

AISI ASD/LRFD Design Specification for Cold-Formed Steel Structural Members

SSPC-SP1 - Solvent Cleaning

SSPC-SP6 - Commercial Blast Cleaning

SSPC-SP7 - Brush-off Blast Cleaning

1.4 SUMMARY

The Steel Detention Cell Manufacturer (DCM) shall provide the following and as indicated in PART 5 - DIVISION OF RESPONSIBILITY. (*per design requirements*)

1. *Security Doors and Frames*
2. *Chase Doors and Frames*
3. *Electrical and Lighting*
4. *Intercommunication Station*
5. *Video Surveillance Camera*
4. *Plumbing Fixtures*
5. *HVAC Grilles*
6. *Furnishings*
7. *Installation*

1.5 APPROVED MANUFACTURERS

1. Only PREQUALIFIED manufacturers are allowed to bid this section. The substitution of other manufacturers will not be acceptable. Manufacturers who have met the minimum pre-qualification requirements are:
 - A. Maximum Security Systems 719-784-2151
 - B. Qualifications of other manufacturers by pre-approved alternate only:

Firms wishing to be pre-qualified must submit in writing, no later than twenty (20) business days before the bid, the pre-qualification package must include the following:

 - a. A notarized statement from the Owner or the company's President, listing those products that will be used. No exceptions to this bill of materials shall be accepted after the awarding of the contract. Multiple selections are not acceptable. State in writing, your intent to "comply fully with the requirements of this specification and to hold harmless the Architect, Engineer, and the Owner from omissions of a casual nature that would be considered to be an implied requirement for a fully operational modular cell system." Provide a list of compliance to and non-compliance for each section of this specification. Compliance/Non-compliance must be a formal listing of each section and subsection of this specification and an explanation of compliance/non-compliance for each section and subsection.
 - b. A list of all outstanding or past judgements or lawsuits against the company Owners, under their current name, or any previous name or business entity.
 - c. Design Engineering Capability:
 1. The modular steel cell producer must have current design engineering capability to provide the final engineered structural design for modular steel cells and associated items and their integration into the building construction.
 2. Submit a list of the engineering design staff, listing the name, title, discipline, degree, registration, licenses, and years of experience designing detention structures.
 3. Submit a list of technical support personnel collaborating with the design engineers.
 4. Submit samples of design engineering systems (or samples of previous projects) in either AutoCAD or DXF format.
 - d. In-House production engineering capability:
 1. The modular steel cell producer must have current, in-house production management, with at least three (3) years of cell experience, capable of understanding design engineering documentation and managing the fabrication and

- erection process to produce the modular steel cells as engineered.
2. Submit a list of key in-house production management staff giving name, credentials, number of years experience, years with company, and title.
- e. Production Capacity:
1. The modular steel cell manufacturer must have the production capacity required to produce a minimum of three (3) cells per day or fifteen (15) cells per work week with sufficient manpower and financial resources to produce the required number of cells within the time period specified in the contract construction schedule.
 2. Submit name, location and historic production rate and annual production capacity of the plant, crew and equipment proposed.
 3. Submit the estimated quantity of work under contract and either scheduled or anticipated for the production facilities proposed for the time period of this project. List the projects and estimated production dates.
- f. Upon receipt of the pre-qualification package, the Architect/Engineer will review the package for compliance/non-compliance with the specified requirements. Compliance with all of the pre-qualification requirements will be strictly enforced. Approval of all pre-approved alternates will be issued in an addendum prior to the bid date. The determination of acceptance and non-acceptance is the sole discretion of the Architect/Engineer. All decisions are final.

1.6 SUBMITTALS

1. General:
Submit the following according to conditions of Contract and Division 1 Specifications Sections.
2. Product data and instructions for manufactured materials and products. Include manufacturer's certifications and laboratory test reports as required.
3. Shop drawings prepared by or under supervision of a qualified licensed professional, showing complete information for fabrication and installation of Steel Detention Cell units. Indicate member dimensions and cross-section; location, size and type of reinforcement, including special reinforcement; and lifting devices necessary for handling and erection. Coordinate shop drawings with other trades to ensure compatibility of required service connections.
4. Provide catalog data with full performance criteria and dimension for components purchased from outside sources.
5. Submit color samples for review and selection by the Owner. Submit samples of the cell finish, color, and texture.
6. Submit drawings of recommended bearing pads and/or special anchoring devices.
7. Provide shipping, lifting and handling diagrams indicating point loads and net and gross loads.

PART 2 - PRODUCTS

2.1 ENGINEERING AND DESIGN

The DCM shall provide Professional certification for the design of the manufactured Steel Detention Cells to support superimposed dead loads and live loads as indicated on the contract drawings. The DCM shall

certify the design for compliance with applicable governing Code requirements.

The design shall include integration of Steel Detention Cells into the physical floor plan, sections, elevations, and structural design of the facility and shall assure that all systems specified in the contract documents are interfaced completely with Steel Detention Cells for a fully installed, fully working facility.

2.2 WORKMANSHIP

1. All units shall be tightly fitted and securely fastened with no through seams or cracks. Minimum of 3/16" thick (A-36) Carbon Steel Plate with continuous welded seams.
2. All panels and assemblies shall be inspected for correct dimensions, joint configuration, straightness, fairness and squareness.
3. All exposed edges shall be chamfered or bent for finger contact.
4. Out-to-out length, width and height dimensions of individual cell units shall be a tolerance of +/- 1/4 in. (6.4mm). The cumulative tolerance in any direction shall not exceed the available horizontal or vertical dimension for the entire assembly of cell units.
5. All ceiling joints and cell corner joints shall be continuous welded.
6. Joints to be welded shall be cleaned and prepared as necessary to assure quality welds.
7. Welding shall be controlled and sequenced to reduce warpage and distortion.
8. All welds shall be free of deleterious porosity, pinholes, and cracks.
9. Finished welds shall be smooth, and weld spatter and flux shall be removed.

2.3 STRUCTURAL COMPONENTS

1. Framing, floors, walls, and ceilings, as required, shall be constructed of steel shapes, tubing, stiffened plates, cold-formed sections, and/or sheets stiffened with formed sections from steels conforming to design requirements to provide adequate structural strength including the ability to support loading as specified.
2. Structural steel shall be designed to AISC - Specification for the Design, Fabrication and Erection of Structural Steel for Buildings or AISC - Load and Resistance Factor Design Specification for Structural Steel Buildings. Cold-formed steel shall be designed to AISI - Specification for the Design of Cold-Formed Steel Structural Members.
3. Welding shall be in conformance with ANSI/AWS D1.1, Structural Welding Code - Steel and/or ANSI/AWS D1.3, Structural Welding Code - Sheet Steel, as applicable.
4. Tamper resistant fasteners shall be used for all exposed fasteners where required for accessories.
5. Mounting and bearing pads, anchorages, spacers, and alignment devices, except those shown to be field installed, shall be furnished and attached.

2.4 DOORS, WINDOWS, AND FRAMES

1. All door, window, and frame construction shall be of an equivalent security level to the wall framing in which they are to be mounted.
2. Materials
 - a. Interior security and cell doors: Face sheets shall be 0.067 in. (1.7mm) minimum thickness conforming to ASTM [A366/A366M] [A569/A569M] steel.

For interior areas subject to corrosive conditions, specify ASTM A653/A653W (A60, G60 / Z180, ZF180).
 - b. Exterior doors: Face sheets shall be 0.083 in. (2.3mm) minimum thickness conforming to ASTM A653/A653M (A60, G60 / Z180, ZF180) steel.
 - c. Door and window frames shall be 0.093 in. (2.3mm) minimum thickness. Doors Windows, and Frames shall be those equal in design and quality of those manufactured by approved door manufacturer.
3. Glass and Glazing
 - a. All glass utilized in the modular steel cell windows shall be as scheduled in the door and window schedule.

2.5 ELECTRICAL

1. The DCM shall provide the light fixture, intercom station and video camera in the pre-finished modular steel cell.
2. Light Fixture:
The light fixture shall contain two (2) cool white 32 watt fluorescent lamps each and one (1) 9 watt fluorescent night light and shall be surface type equal to Morlite model FH14, or equal. The housing shall be 14 gauge steel. the frame shall be 14 gauge with .250 polycarbonate and .125 prismatic acrylic overlay. The ballasts to operate the lamps shall be 120 volt with electronic start. The finish shall be baked-on white enamel. All fixtures will provide a minimum of 20-foot candles of light at the desk and the mirror per ACA standards.
3. Intercommunication and Video Surveillance devices specified in the Detention Electronic Systems specification section.
4. The division 1600 contractor shall terminate all lighting, communications and controls permanent connections in the cell's service chase.

2.6 PLUMBING

1. The DCM shall provide and install the plumbing fixtures for the pre-finished modular steel cells. The DCM shall supply the flush valve for the combination toilets separate and uninstalled. The flush valves shall be installed by the division 15000 contractor.
2. Plumbing Fixtures:
Lavatory/Toilet Combination Unit: Unit shall be a Acorn 1415-series, or equal, wall mounted unit equipped with a penal filler, self-closing metering hot and cold valve; mechanical flush

valve, integral seat, extended combined waste with no-hub connector, and recessed tissue holder.

Handicap Lavatory/Toilet Combination Unit: Unit shall be a Acorn 1435 or equal, wall mounted unit equipped with a deck spout, self-closing metering hot and cold valve; mechanical flush valve, integral seat, extended combined waste with no-hub connector, and recessed tissue holder.

3. The flush valves and water manifolds for the plumbing fixtures shall be provided separately and installed by the division 15000 contractor.

2.7 HVAC

1. Each Steel Detention Cell shall be designed, manufactured and equipped to receive the required HVAC fixtures specified in other divisions of this specification.
2. The DCM shall provide the HVAC grilles. The grilles shall be pre-punched perforated panel in compliance with the specified CFM requirement. A flange suitable for the attachment of the HVAC duct shall also be provided.

2.8 THERMAL AND ACOUSTICAL INSULATION

1. Insulation Material: Materials shall be approved by the applicable codes of NFPA and governing authorities to provide a fire resistance classification as required.
2. Thermal Insulation: Walls, floors, and ceilings shall be insulated to R-values as indicated on the contract drawings.
3. Acoustical Insulation: The walls between cells and adjacent rooms shall have a Sound Transmission Classification of 39 (STC-39).
4. As manufactured by Roxul, 551 Harrop Drive, Ontario L9T 3H3 800-265-6878, or approved equal..

2.9 FURNISHINGS, AND ACCESSORIES

1. Steel Cell Furniture: Where shown on the contract drawings as cell furniture to be so provided, the DCM shall provide and install wall mounted bunks, tables and stools. Bunks, tables, and stools shall fabricated out of 3/16" thick (A36) Carbon Steel Plate minimum thickness and of the sizes shown. DCM shall include drawings which detail materials, construction, and attachment. These drawings shall be a part of the submittals as outlined in Section 1.5 herein. Fabrication of these items shall not begin prior to the Architect's approval.
2. Fixtures, Furnishings and Accessories Load Test: Reinforce walls, stiffen furnishings, and provide connections as required to support dead loads plus single point (concentrated) static live loads as indicated, at maximum distance on each from wall and from supports for each of the following:
 - a. Wall mounted desk and seats - 600 lbf
 - b. Wall mounted locker - 600 lbf
 - c. Grab bars - 600 lbf
 - d. Wall mounted lavatory - 1000 lbf

2.10 AUTOMATIC FIRE PROTECTION SYSTEMS *(as applicable)*

1. The DCM shall provide a prepared location for the installation of the sprinkler head by the fire protection contractor.
2. The DCM and fire protection contractor shall coordinate to confirm the type and location of the sprinkler head to ensure the proper interface of work.

2.11 FINISH

1. All exposed painted surfaces shall be cleaned and finished in accordance with SSPC-SP1, SSPC-SP6 or SSPC-SP7 as specified by the paint manufacturer.
2. Painting: All steel wall and ceiling assemblies shall be coated with a rust inhibitor on all steel surfaces and top-coated with a finish coat on all exposed surfaces. The coatings shall meet this criterion as a minimum:
 - a. Corrosion Resistance: Meets ASTM B117, for 1000 hours.
 - b. Impact Resistance: Meets ASTM D2794, impact force of 160 in-lb.
 - c. Abrasion Resistance: Meets ASTM D4060, for 75 mg loss.
 - d. Adhesion Resistance: Meets ASTM D4541, for 2000psi.
 - e. Hardness: Meets ASTM: Meets ASTM D2240, for 5H.
3. Cells shall be of a single color as selected by the Owner from samples submitted by the manufacturer. As an additive option, doors furnished with cells may be a second color as selected by the Owner. Available colors shall be included with cell product data submittals. *(additive option shall be noted on the contract drawings)*
4. The exterior of the cell fronts and cell door along with the cover plates shall be prime painted only. The finish paint of these items shall be completed by others.

2.12 MEZZANINES, RAILINGS, AND STAIRS

1. Mezzanine walkways, hand-railings, and stairs shall be primed painted only and shipped to site and installed by others, (Optional).
2. DCM and Fabricator shall coordinate in order to ensure proper interface of work.

PART 3 - DELIVERY AND INSTALLATION

3.1 DELIVERY SEQUENCING AND SCHEDULING

1. Manufacturer shall coordinate with the scheduling of delivery to the project site. A mutually approved schedule shall be determined by the project scheduler and DCM at the pre-construction meeting. The sequencing of the cell units shall conform to this schedule to properly interface the delivery and installation of cells at the proper time during the construction period.
2. DCM shall deliver cell units, to a designated project site, properly protected from

shipping damage. The General Contractor shall provide suitable protective coverings, devices or such methods and procedures to protect the cells from damage from the weather or vandalism. Protective measures shall remain throughout the construction period. Unloading and handling of the cell units shall be the responsibility of the installer.

3.2 SITE INSPECTION

The installer of the structural steel cell units shall examine areas and conditions under which the structural steel cells are to be installed. The installer is to notify the contractor in writing of conditions detrimental to proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.3 INSTALLATION

1. The General Contractor or DCM under a separate contract, shall install or provide a qualified installer to install the steel cells. The DCM shall provide a qualified on-site representative for initial cell installation to verify proper cell offloading and installation procedures.
2. The General Contractor shall provide adequate access for the DCM's tractor-trailer transport trucks. This access shall be suitable enough so that the trucks will have the needed room to maneuver under their own power.
3. Steel cell units shall be set in place by the installer and shall be checked for correct alignment and level. Shims shall be installed as necessary and securely fastened to the foundation. Complete all connections, trim and touch up, meeting the acceptable industry standards and manufacturer's recommendations.
4. The General Contractor shall provide for the protection of the cells from the weather and vandalism once the cells are delivered and installed.
5. Filling voids between the bottom of the cells walls and the floor with security caulk shall be provided by the General Contractor

PART 4 - WARRANTIES

Provide special project warranty signed by the DCM, Installer, and Contractor agreeing to repair defective materials and workmanship of the steel cell, installation, and related work. The cell warranty shall be conditional upon normal use of the cells. Abuse and misuse or damage during a riot is not considered normal use. The Warranty shall be for a period of one (1) year from the date of acceptance by the Architect and/or Owner's representative.

PART 5 - DIVISION OF RESPONSIBILITY

1. INSTALLATION ITEMS EXCLUDED BY DCM

1. Security Caulking
2. On-Site Mechanical, Plumbing, and Electrical Connections to the Cell.
3. Interim Job-site Weather Protection.
4. Installation of Detention Hardware (Optional Installation by MFG).

2. INSTALLATION ITEMS FURNISHED BY DCM

1. Shim Packs for Leveling Cells to Foundations or Floor Slabs.
2. Lifting Eyes on Cells.

3. FURNISHINGS PROVIDED BY DCM

1. Cell Door Glazing
2. Cell Electrical Back Boxes and Conduit
3. Cell Light fixtures
4. Cell Intercom Station
5. Cell Video Surveillance
6. Cell Plumbing fixture
7. Cell Bunks, Tables and Stools
8. Cell Weld-In Accessories

Final coordination of responsibility should be made by GC, DEC, and DCM prior to bidding to ensure no exceptions or qualifications exist in proposal relationship.

Division of Responsibility

			DCM		OTHERS	
			Materials	Labor	Materials	Labor
1.0		Manufacture of # Steel Detention Cells, Room Numbers <u>See Attached Exhibit A</u>				

			DCM		OTHERS	
			Materials	Labor	Materials	Labor
2.0		Cell Security Doors				
	2.1	Door Frames				
	2.2	Doors				
	2.3	Hinges				
	2.4	Locks				
	2.5	Door Position Switch				
	2.6	Door Closure				
	2.7	Pulls				
	2.8	Window Frame				
	2.9	Window Glazing				
	2.10	Food Pass				
	2.11	Food Pass Lock				
	2.12	Food Pass Hinge				
3.0		Cell Chase Doors				
	3.1	Doors and Frames				
	3.2	Hinges				
	3.3	Smoke Seal on Chase				
	3.4	Locks				
4.0		Cell Windows				
	4.1	Window Frames				
	4.2	Window Glazing				
5.0		Cell Insulation				
6.0		Cell Interior Finish Coatings				
7.0		Cell Furnishings				
	7.1	Bunks				
	7.2	Desks and Seats				
	7.3	Mirrors				

			DCM		OTHERS	
			Materials	Labor	Materials	Labor
	7.4	Clothes Hooks				
	7.5	DE - Intercom Station & Wiring				
	7.6	Surveillance Camera and Wiring				
	7.7	Intercom Station Glazing				
	7.8	Surveillance Cameras Glazing				
	7.9	Cell Padding				
	7.10	Exterior 3/16" Plate Steel in Exposed Area				
8.0		Plumbing Equipment and Fixtures				
	8.1	Combination Toilet/Lavatory Units				
	8.2	Handicap Toilets and Lavatories				
	8.3	Drain				
	8.4	Pressure Piping				
	8.5	Flush Valves				
	8.6	Metering Valves				
	8.7	Cell Shower Heads and Valves, Receptor Pans				
	8.8	Sprinkler System Heads				
	8.9	Sprinkler System Piping				
9.0		Electrical and Lighting				
	9.1	Surface Mounted Light Fixtures				
	9.2	Fluorescent Tubes				
	9.3	Electrical Conduit Terminated in Junction Boxes in Access Chase				
	9.4	Electrical Wiring from Fixtures to Junction Boxes				
	9.5	Communication System Intercommunication Station and Video Surveillance Junction and Back Boxes				
10.0		HVAC				
	10.1	Supply and Return Security Grilles				

			DCM		OTHERS	
			Materials	Labor	Materials	Labor
	10.2	Sleeve at Cell Grilles for Duct Connection				
	10.3	Sleeve at Cell Roof for Duct Connection				
	10.4	HVAC Duct				
11.0		Cell Installation				
	11.1	Foundation Bearing Pad Installation				
	11.2	Shim Packs for Cell Setting/Leveling				
	11.3	Weld Connect Cells to Foundation Bearing Pads				
	11.4	Mezzanine Walkways, Hand-railings, and Stairs. Fabrication, Finish Painting, and Installation				
	11.5	Floor Sealer at Concrete Cell Floors				
	11.6	Security Sealant/Caulking Cell to Cell Joints				
	11.7	Provision of Suitable Site Surface Preparation for Access of Cell Transportation Trucks & Cranes				
	11.8	Deliver Cells				
	11.9	Off-load Cells				
	11.10	Crane to Off-Load Cells				
	11.11	Rigging to Off-Load Cells				
	11.12	Storage and Protection of Cells				
	11.13	Erect Cells				
	11.14	Masonry Reinforcement Brackets				
12.0		Taxes and Bond				
	12.1	Taxes				
	12.2	Bond				