

**SPECIFICATIONS - DETAILED PROVISIONS**  
**Section 13122 - Prefabricated Steel Building**

**C O N T E N T S**

<b>PART 1 - GENERAL.....</b>	<b>1</b>
1.01 DESCRIPTION.....	1
1.02 QUALITY ASSURANCE.....	1
1.03 SUBMITTALS.....	2
1.04 PRODUCT DELIVERY .....	3
1.05 GUARANTEE .....	3
<b>PART 2 - PRODUCTS AND MATERIALS.....</b>	<b>3</b>
2.01 STRUCTURAL FRAMING .....	3
2.02 ROOF AND WALL COVERING.....	4
2.03 SKYLIGHTS .....	5
2.04 HOLLOW METAL DOORS.....	5
2.05 ROLL-UP DOORS.....	6
2.06 DOOR HARDWARE .....	7
2.07 SHOP COATINGS.....	9
<b>PART 3 - EXECUTION .....</b>	<b>10</b>
3.01 INSPECTION.....	10
3.02 PREPARATION .....	10
3.03 INSTALLATION .....	10



**SECTION 13122**  
**PREFABRICATED STEEL BUILDING**

**PART 1 - GENERAL**

1.01 DESCRIPTION

- A. Requirement. Contractor shall furnish all labor, materials and equipment, and perform all operations necessary to fabricate, erect and construct a prefabricated steel building including: all primary and secondary structural framing members, connection bolts, roof, louvers, roll-up and swinging doors, flashing, fasteners, closures, sealer, and other miscellaneous items as specified, or required by the contract drawings.
- B. Building Details. The building width and length shall be measured from outside to outside face of the wall girts. The building eave height shall be measured from the bottom of the base channel to the intersection of lines representing the inside of the wall covering and the inside of the roof covering. The roof slope shall be four (4) inches of rise for each twelve (12) inches of horizontal run, unless shown or specified otherwise.
- C. Type of Building. Building manufacturer must comply with requirements of the M.B.M.A. (Metal Building Manufacturer's Association) and an I.C.B.O. (International Conference of Building Officials) approved fabricator.

1.02 QUALITY ASSURANCE

- A. Design
  - 1. All structural steel sections and welded plate members shall be designed in accordance with the latest edition of the AISC, "Specification for the Design, Fabrication, and Erection of Steel for Buildings," and the UNIFORM BUILDING CODE, latest edition.
  - 2. All light gauge cold-formed, structural members, and exterior covering shall be designed in accordance with the latest edition of the AISI, "Specification for the Design of Light Gauge Cold-Formed Steel Structural Members."
  - 3. Fabrication drawings and calculations for building shall be certified by a civil/structural engineer registered in the State of California. Fabrication drawings and calculations shall be approved by the District.

B. Design Loads

1. Live Loads. Live loads shall be applied to the horizontal roof projection and shall be twenty (20) psf (non-reducible).
2. Wind Loads
  - a) In the design of primary framing members, wind pressure shall be applied as prescribed by AISC publication "Plastic Design in Steel."  
  
The design wind pressure shall be 100 MPH - exposure "C".
  - b) In the design of wall components, including girts and wall panels, the wind pressure shall be considered to act either inward or outward and shall be 100 MPH - exposure "C".
3. Seismic Loading. Seismic loading shall be applied as prescribed in the UNIFORM BUILDING CODE, latest edition.
4. Design Load Combinations

The design loading combination shall be as follows:

- a) Dead load + live load
- b) Dead load + seismic load
- c) Dead load + wind load

1.03 SUBMITTALS

- A. Shop Drawings. The Contractor shall submit fabrication drawings and calculations for the building and accessories, for approval prior to the construction of prefabricated steel building. Said drawings shall show the dimensions, arrangements of material, and all relevant details required for furnishing and construction of said building.

Complete sets of instructions for field procedures for erection and adjustment shall be provided prior to construction of the prefabricated steel building and installation of appurtenances.

- B. Building Materials. The Contractor shall order building material at the earliest possible time to allow time for the preparation, submittal, and acceptance of the shop drawings.

1.04 PRODUCT DELIVERY

- A. Arrangements. Contractor shall arrange and be responsible for delivery and storage of material, and for its safekeeping.
- B. Packaging. Each package shall be clearly marked on the outside to show the contents and specific location in the work.

1.05 GUARANTEE

All work and material shall be guaranteed for a period of two (2) years after date of acceptance of the work. Defects in materials and workmanship occurring during the guarantee period shall be corrected to the complete satisfaction of the District at the Contractor's own expense.

**PART 2 - PRODUCTS AND MATERIALS**

2.01 STRUCTURAL FRAMING

A. General

1. All framing members shall be shop fabricated for bolted field assembly.
2. Framing members include base channels, eave plates, girts, diagonal ties, struts, chords, tie straps, ridge ties, and ridge assembly, all being galvanized shapes as required by manufacturer.
3. All hot-rolled steel sheet, plate, and strip one-eighth (1/8) inch thick and thicker shall conform to the requirements of ASTM Specification A-36 (latest), except that the minimum yield point shall be 42,000 psi. All hot-rolled sheet and strip less than one-eighth (1/8) inch thick shall conform to the requirements of ASTM Specification A-245 (latest), Grade "D". In addition, 12-gauge, 14-gauge, and 16-gauge strip for the manufacture of structural sections shall have a minimum yield point of 50,000 psi and a minimum strength of 62,500 psi. Galvanized sheet and strip for structural framing members shall conform to ASTM Specification A-446 (latest), Grade "A", 1.25-oz. coating class.
4. Light gauge cold-formed sections shall be manufactured by precision roll or brake forming. All dimensions shall be true, and the formed member shall be free of fluting, buckling, or waviness.

## Prefabricated Steel Building

### Section 13122 – 4

5. All shop connections shall be by welding in accordance with the AWS "Standard Code for Welding in Building Construction." Welders and welding operators shall have been previously qualified as provided in this code. All flange-to-web welds shall be continuous submerged arc fillet welds. Other welds shall be by either the submerged or the shielded arc process. Butt welds in flange and web plates shall be full penetration.
6. All field connections shall be bolted. Bolts shall be machine bolts conforming to ASTM Specification A-307 (latest), or ASTM Specification A-325 (latest), as specified.

A-325 bolts shall be tightened by the turn of the nut method. Where required, connections in secondary members shall be made with special one-half (1/2) inch oval head, high strength bolts with hex nuts.

7. All framing members shall carry an easily visible identifying mark, either stamped, stenciled, or painted, to facilitate erection.
- B. Base Support. A continuous member shall be provided to which the base of the wall covering may be attached. This member shall be a galvanized base channel secured to the concrete floor with hooked anchor bolts. The base channel shall be chemically treated for paint adherence.
- C. Framed Openings. Structural framing members for all openings shall be adequate for the specified design loads. Framing members which are exposed to the weather shall be galvanized steel. All framed openings shall be fully trimmed and flashed.

## 2.02 ROOF AND WALL COVERING

- A. General. Roof covering and wall covering shall be 26-gauge (minimum) galvanized ribbed panels. Exposed surfaces shall be factory color coated with a separate, written twenty (20) year guarantee furnished to District.
- B. Fasteners. All bolts, nuts, and sheet metal screws shall be zinc-plated steel with a zinc chromate finish except anchor bolts and exposed sheet metal screws. Anchor bolts shall be black steel. Exposed sheet metal screws shall be stainless steel.
- C. Installation of Roof and Wall Panels
  1. Roof panels shall be continuous from ridge to eave.
  2. Sidewall panels shall be continuous from the eave line to the base flashing.

3. Endwall panels shall be continuous from the roof line to the base flashing. All endlaps for endwall panels shall be a minimum of four (4) inches and shall occur at a wall girt.
4. All work shall be done per published recommendations of the building manufacturer.

D. Flashing, Closures, and Trim.

1. Flashing and/or trim shall be furnished at the rake, corners, eaves, framed openings, and wherever necessary to provide weather tightness and a finished appearance.
2. Galvanized steel for flashing, metal closures, trim, and other miscellaneous uses shall conform to ASTM Specification A-361 (latest), 1.25-oz. coating class.
3. A 26-gauge (minimum) galvanized steel ridge cap, factory color coated, shall be provided along the building ridge.

### 2.03 SKYLIGHTS

Curb-mounted skylight domes shall be No. 4896 AL SF (self flashing), dome rise ten (10) inches as manufactured by Bristol, Fiberlite Industries, or equal. The fiberglass or acrylic one-piece dome shall be designed to be installed on a one and one-half (1 1/2) inch wide curb.

The fiberglass dome shall be a molded one-piece unit with integral counterflashing skirt to eliminate any dependence on gaskets, sealants, or flow-through designs.

The acrylic dome shall be fused to its own counterflashing fiberglass skirt through a process to eliminate any dependence on gaskets, sealants or flow-through designs at the edge of the acrylic dome.

Each skylight shall be ready for mounting on curbs installed in the roof hatches. All units shall be guaranteed against defective workmanship and material.

Contractor shall submit skylight shop drawings for acceptance by the District prior to delivery of skylights to jobsite.

### 2.04 HOLLOW METAL DOORS

- A. Materials. Doors shall be flush type, of sizes and thickness shown, with not more than three thirty-second (3/32) inch clearance from frames. Where indicated, provide louver panels of sizes shown. Doors shall be fabricated from two (2) formed steel cover sheets of not less than 20-gauge thickness, rigidly locked together and internally reinforced with 20-gauge steel channel stiffeners

extended vertically through full door length at approximate six (6) inch spacing. Stiffeners shall be spot-welded to cover sheets at not-to-exceed four (4) inch spacing. Top and bottom edges of doors shall be closed and reinforced with steel channel members extended full door width and welded full width. Jamb edges of doors shall be joined and reinforced with 10-gauge continuous steel strips extended full door length, offset at hinge locations and welded full length. Doors shall be filled with suitable material to insulate and reduce metallic sound.

- B. Installation. Butts, locks and other mortise hardware, wherever practical, shall be applied at the factory. Hardware that is applied at the building shall first be fitted in the shop. Doors shall be hung with three thirty-second (3/32) inch clearance at jambs and heads. Butts shall be attached to exterior frames and doors in such a manner that butts cannot be removed from the outside. If butts are welded to frame, screwholes shall be filled and all welds shall be ground smooth.
- C. Metal Door Frames. Pressed steel frames shall be of the dimension and profiles as shown on the plans and shall be fabricated from 16-gauge sheet steel. Corners shall be mitered and of unit type all-welded construction. Frames shall be prepared and provided with proper anchorage. Jamb anchors shall not exceed twenty four (24) inch spacing. Floor clips shall be spotwelded to inside of jamb and punched for floor anchorage.
- D. Provisions of Hardware. In accordance with templates of hardware furnished, frames shall be neatly, accurately mortised and properly reinforced for hinges, locks, and other finish hardware; drilling and tapping shall be performed as required. For hinges, reinforcement shall be minimum 10-gauge steel; for other hardware, reinforcement shall be minimum 12-gauge steel. Reinforcing plates shall be spot-welded to interior surface of frames.
- E. Installation. Frames and doors shall be installed in accordance with plans and shop drawings in a rigid, substantial manner and shall be square, plumb, and level.

## 2.05 ROLL-UP DOORS

- A. Materials. For purposes of designating type and quality, roll-up doors shall be as manufactured by Porvane, Inc., Santa Fe Springs, California, or equal, and shall be subject to the District's approval.

Construction of rolling door shall conform to the following requirements:

1. Curtain shall be a continuous sheet of .027-inch (minimum) steel with galvanized coating and prime painted. Curtain shall be equipped with a full length steel angle, securely fastened to the bottom of the curtain for reinforcement and mounting of standard slidebolt locking device.



2. Door guides shall be roll-formed of 13-gauge (minimum) steel with galvanized coating and shall extend above the lintel so as to furnish support for bracket. Guides shall contain provisions to engage safety end locks to prevent the curtain from leaving the door guides. Strips of heavy nap stripping shall be provided to give rattle-free operation and to provide dust and weatherproofing.
3. Steel axle shall be steel pipe of sufficient strength to prevent distortion of the rolled door.
4. Curtain drum shall house all counterbalancing mechanism.
5. Springs shall be oil tempered steel of sufficient size to counterbalance the door in any position.
6. Finish. All parts shall be given a factory applied rust inhibitive prime coat of paint. Any abraded primed surfaces shall be touched up after erection.

B. Operation

1. Manual Operation. Door shall be manually operated with continuous chain on inside of wall.
2. Locking. Door shall be provided with chain holder with attached pin for inside locking.

2.06 DOOR HARDWARE

- A. General. All doors in the entire project shall have locksets that will always open from the inside by the simple turn of a knob without the use of a key or any special knowledge or effort.

Hand of lock shall be as indicated on the drawings. If door hand is changed during construction, Contractor shall make necessary changes in hardware at no additional cost to the District.

- B. Materials. Base metals shall be steel or bronze.

The exposed surfaces of all items of finish hardware, unless otherwise indicated, shall be dull chrome, US-26D finish.

Fastenings of suitable size, quality, and type shall be provided to secure hardware in position. Machine screws and expansion shields shall be provided for securing items of hardware to concrete, tile, or masonry.

Prefabricated Steel Building  
Section 13122 – 8

Butt hinges shall have button tips. Lock trim shall be Schlage-Ply design or equal.

Metal thresholds shall be of the extruded aluminum type.

Strikes for locks shall be the wrought box type with curved lips of proper length to protect trim.

All butts shall have three (3) butts for each leaf. Hollow metal doors exposed to the exterior shall have a set screw pin with bronze ball bearing butts.

- C. Materials Manufacturers. Manufacturers listed below establish a standard of quality. Materials of other manufacturers may be substituted only upon the approval of the District prior to bidding.

Butts	-	Per Specification Section 08711
Locks	-	Per Specification Section 08711
Closer	-	Reading
Misc.	-	Quality Hardware
Threshold	-	Pemko
Door Holder	-	Glenn Johnson

- D. Schedule. The following schedule is intended to represent the type and quality of hardware required; however, it shall not be construed as a complete list and the Contractor shall be required to completely equip the buildings and structures with finish hardware.

1. Single Entrance Doors (each door)

Lockset & strike shall be as required by Section 08711 for nonsewage facilities.

Door closer butts: three and one-half (3 1/2) inch

Door shoe, and

Threshold shall be as required by Section 08711

2. Double Doors

Lockset and strike shall be as required by Section 08711 for nonsewage facilities

Astragal

Door Holder Butts: three and one-half (3 1/2) inch

Door Roll-up (where applicable)

- E. Keying and Master Keying. All locksets, padlocks, and cylinders shall be keyed and masterkeyed as elsewhere specified in the Detailed Provisions or as directed by the District.

2.07 SHOP COATINGS

- A. Galvanized Structural Framing. All structural framing members and all other steel accessories that are galvanized and chemically treated for paint adherence and which are not factory color coated shall first receive one (1) coat of Galvanized Metal Primer conforming to Federal Specification TT-P-641b, Type II, then painted with two (2) coats of Industrial Enamel approved by the District, within forty eight (48) hours after the prime coat is applied.
- B. Structural Framing Not Galvanized. All structural framing members and miscellaneous steel accessories which are not galvanized shall be cleaned to remove all dirt, grease, oil, and loose mill scale, given one (1) shop coat of zinc chromate iron oxide primer conforming to Federal Specification TT-P-636b, and field painted, prior to erection, with two (2) coats of Industrial Enamel approved by the District.
- C. Exposed Galvanized Surfaces. All roof and wall panels, flashing, trim, and other exposed galvanized steel surfaces shall be factory color coated with a twenty (20) year guarantee.
- D. Ventilators, Louvers and Doors. Any required ventilators, louvers, and doors shall first receive one (1) coat of Galvanized Metal Primer, then be factory color coated with two (2) coats of Industrial Enamel as manufactured by Ditzler, DuPont, Pittsburgh Paints, or approved equal, within forty eight (48) hours after the prime coat is applied.
- E. Color and Paint Schedule. All colors for all finish painted surfaces shall be as follows unless otherwise specified.

<b>Recommended Architectural System</b>	<b>Descriptive Color Coding</b>	<b>Recommended Manufacturer's Paint Designation</b>
Plant Buildings:		
General	Tan	Rustoleum #875 (Dunes Tan)
Trim and Doors	Dark Brown	Rustoleum #977 (Chestnut Brown)
Walls (metal)	Yellow-White	Dunn-Edwards #CH-608 (Parchment)

**PART 3 - EXECUTION**

3.01 INSPECTION

It shall be the responsibility of the Contractor that all fabricated materials meet the requirements of the accepted shop drawings and that they are true and straight. All materials shall be adequately protected from damage during delivery, storage, and installation.

3.02 PREPARATION

Each unit of hardware shall be individually packaged, complete with proper fastenings and all appurtenances and, as soon as feasible, submitted to the Engineer for approval.

3.03 INSTALLATION

- A. Installation of Materials. The Contractor shall install all material in strict accordance with the manufacturer's instructions. Care shall be used in assembling to avoid bumping, twisting, dropping, or otherwise damaging the materials. Doors, louvers, and all moving parts shall operate freely without binding or stopping and all edges shall fit closely.
  
- B. Authorized Representative. The Contractor, where required by the contract documents or by the manufacturer, shall provide the services of an authorized representative of the manufacturer to perform the subject work, and all such work shall be in accordance with manufacturer's printed recommendations and approved shop drawings. Service requests shall be answered and acted upon promptly.

**END OF SECTION 13122**