SECTION 13120 - PRE-ENGINEERED BUILDING SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Work of this Section includes all materials and labor required in the placement and erection of the Sierra IV+ building and the SplitLok™ concrete utility building. Generally, Work will include site preparation and grading; excavations for structures; structural backfill; foundation and pad construction; buildings and building construction; and water, sewer and electrical connections.

B. Related Sections include the following:

1. Division 3 Section "Cast-in-Place Concrete" for concrete footings.

1.3 CODE COMPLIANCE AND STANDARDS

A. All Work and materials shall comply with the latest industry building codes and regulations, including but not limited to the following:

1. BOCA Electrical Code: Latest edition.
2. BOCA Accessibility Standards (BOCA).
3. BOCA Plumbing Code.
4. Uniform Federal Accessibility Standards (UFAS): Latest edition.
5. Uniform Building Code (UBC): Latest edition.

1.4 PERMITS, LICENSES, FEES AND INSPECTION

A. Obtain, pay for, and maintain all required permits, licenses and certificates of inspection. A State plumbing and electrical permit and inspection will be required for this construction.

1.5 QUALITY ASSURANCE

A. Structure and mechanical systems are to be pre-engineered and certified by a registered Professional Engineer. The Sierra IV+ building shall be installed by a representative of the manufacturer or by individuals who can exhibit experience installing this building type.

1.6 DESIGN CRITERIA

A. Members to withstand dead load and design loads due to pressure and suction of wind gravity calculated in accordance with latest version of the BOCA Building Code.

1. Snow Load: 100 psf.
2. Roof Dead Load: 15 psf.
3. Wall Dead Load: 100 psf.
4. Seismic Zone: 4.
5. Wind Speed: 120 mph.
6. Wind Exposure: D.
7. Soil Bearing: 1,000 psf.

B. Design shall meet the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

1.7 SUBMITTALS

A. Submit the following for approval:

1. Shop Drawings: Provide complete plans and elevations for structure type, including size and dimension of building components; material types and finishes; hardware; details and methods of assembling construction; joints and connections; details and layout of mechanical and electrical systems.
2. Product Data: Manufacturer's standard literature for facility and system components specified. Standard literature and technical data for system components manufactured by companies other than building manufacturer, such as light fixtures, heating system, hardware and roofing system.

1.8 WARRANTY

A. The Sierra IV+ building and all associated components shall be warrantied against defects in materials and workmanship for a period of not less than one year from date of Final Acceptance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Approved Manufacturers:

1. This Specification is based on the Sierra IV+ building as manufactured by Romtec, Inc., 18240 N. Bank Road, Roseburg, OR 97470, phone (541) 496-3541.

B. Products:

1. Rest Room/Concession Building Description:

a. Summary: The pre-engineered multi-user rest room building is erected on a concrete slab. The building is constructed of interlocking 8" W x 16" L x 8" H split concrete block, which is then grouted solid. The building has six doors, six Lexan® windows and eight steel roof panels. Foundations should meet or exceed all state and local codes. These are all defined in Section 2. This building is designed to be in accordance with the latest version of the BOCA Building Code.

b. The size of the Sierra IV+ rest room is 28' W x 31'-2" L, with a 5'-4" L private entryway in front of each rest room door.

c. The 9'-4" W x 18'-8" L men's rest room layout is as follows upon entering the 3' W x 80" H steel entry door:

1) Two wall-mounted sinks.
2) Mirror mounted above each sink.
3) One handicap accessible urinal.
4) One 3' W x 5'-4" L standard stall with standard toilet.
5) One 5' W x 9'-4" L handicap stall with ADA toilet, and one 36-inch and one 42-inch steel grab bar.
6) The interior side of all exterior walls are to be sealed 3 feet minimum starting at the floor with Tama Seal.
7) All interior walls covered by white fiberglass-reinforced plastic by means of gluing and mechanical fasteners.
8) Two skylights.
9) Four wall vents.
10) One floor drain.
11) Two Lexan® windows.

d. The 9'-4" W x 18'-8" L women's rest room layout is as follows upon entering the 3' W x 80" H steel entry door:

1) Two wall-mounted sinks.
2) Mirror mounted above each sink.
3) Two 3' W x 5'-4" L standard stalls with standard toilets.
4) One 5' W x 9'-4" L handicap stall with ADA toilet, and one 36-inch and one 42-inch steel grab bar.
5) The interior side of all exterior walls are to be sealed 3 feet minimum starting at the floor with Tama Seal.
6) All interior walls covered by white fiberglass-reinforced plastic by means of gluing and mechanical fasteners.
7) Two skylights.
8) One floor drain.
9) Two Lexan® windows.
10) Four wall vents.

e. The 16'-8" W x 12'-0" concession room contains the following items upon entering the 3' W x 80" H steel entry door:

1) One 40" W x 80" W stainless-steel service counter with roll-up window.
2) One wall vent.
3) One skylight.
4) The interior side of all exterior walls are to be sealed 3 feet minimum starting at the floor with Tama Seal.
5) All interior walls covered by white fiberglass-reinforced plastic by means of gluing and mechanical fasteners.
6) One gable and vent.

f. The storage room is 9'-4" W x 12'-0" L, with a 3' W x 80" H steel metal door.

1) One skylight.
2) One wall vent.
3) The interior side of all exterior walls are to be sealed 3 feet minimum starting at the floor with Tama Seal.
4) All interior walls covered by white fiberglass-reinforced plastic by means of gluing and mechanical fasteners.
5) Two Lexan® windows.

g. The 6'-8" W x 31'-2" L mechanical room contains the following items upon entering the 3' W x 80" H steel entry door:

1) One utility sink.
2) One 20-gallon water heater.
3) Rough electrical and electrical panel.

4) Rough plumbing and plumbing for the one hose bib and one drinking fountain which are located on the outside of the building.
5) Four wall vents.
6) One gable end vent.
7) One floor drain.

2. Utility Building Description:

a. Summary: The pre-engineered SplitLok™ Concrete Utility Building is erected on a concrete foundation and slab. The foundation shall meet or exceed all state and local codes. These are all defined in Section 1. The building is constructed of interlocking, dry-stack concrete masonry units. The 8" W x 16" L x 8" H split-face concrete blocks are stacked over a framework of rebar, which is then grouted solid with concrete. Interior wall surfaces are lined with white fiberglass-reinforced panels.

b. Doors, windows and vents are installed in the exterior walls at the time the walls are erected. Available galvanized steel single and double entry doors, roll-up doors and powder-coated steel wall vents are sized to fit within the block layout. Powder-

coated steel-framed Lexan® windows or vents are installed above the walls at the gable ends of the building.

c. Insulated roof panels are prefabricated of galvanized steel members with plywood exterior sheathing and wafer board interior sheathing. Interior fiberglass-reinforced plastic panels are pre-installed. Supplied metal, composition or optional cedar roofing is installed on site.

d. Building Plan Sizes: 6'8" W x 8'-8" L.

e. All walls are 8'-8" H. Roof heights vary, depending on plan width. 6'-8" and 12'-8" wide buildings are 11'-4" high at the peak. 20'-8" wide buildings are 12'-4" at the peak. 28'-0" wide buildings are 13'-4" high at the peak. Custom floor plans and building sizes are available per customer specification.

2.2 REST ROOM/CONCESSION BUILDING

A. General: Furnish and install rest room building in the model described below. Buildings shall be manufactured by Romtec, Inc. Complete installations shall be coordinated with the manufacturer. Provide non-factory-supplied components as specified by the manufacturer to allow for a complete installation. All building models and components shall be in compliance with the Uniform Federal Accessibility Standards (UFAS).

B. Rest Room Building: Romtec, Sierra IV+ model, split-face block construction. The rest room facility shall come complete and shall include the following features:

1. Wall Material: 8" W x 16" L x 8" H dry-stack interlocking split-face concrete blocks. Compressive strength = f'm = 1,500 psi Hydratite® Plus (mixed with mortar for first course).
2. Partition Walls: 6" W x 16" L x 8" H dry-stack interlocking smooth blocks. Compressive Strength = f'm = 1,500 psi.
3. Block Sealer: Tama Seal. For the negative side (interior side) of the exterior walls, apply 3 feet up from the slab.
4. Fiberglass-reinforced Panel: For all interior walls in rest rooms, including partitions, glue and 1/4-inch nylon anchor mechanical fastener.
5. Doors (6): 18-gauge galvanized hollow metal doors with honeycomb core and baked enamel finish.
6. Partition Doors (5): Compartments shall be overhead braced, powder-coated baked with finished thickness of doors and panels at 1 inch and pilasters at 1-1/4 inches. All panels and pilasters shall be fabricated with special roll-formed crown moulding, brazed and ground smooth at corners. Panels, doors and pilasters shall be insulated in vertical honeycomb filler core cemented under pressure to electrogalvanized-bonderized steel sheets not less than 20-gauge for panels and pilasters and 22-gauge for doors.
7. Door Hinges: U.S. 26D spring hinges and U.S. 26D hinges.
8. Door Handles: Stainless-steel Yale safety lock levered handle (dormitory style) with strike plate and hardware.
9. Door Frame: 16-gauge welded, galvanized hollow metal frames, 2-inch frame at jamb, 4 inches at head, 8 inches deep, baked enamel finish.
10. Roof: Preassembled steel roof panels. The Sierra IV+ building has eight panels that are 8' W x 16' L and two panels that are 4' W x 16' L. The joists are 14-gauge, 4 inches deep,

2-inch flanges, heavy-gauge steel framing spaced at 22 inches on center maximum. The roof panels have 3-1/2-inch batt R-11 insulation with vapor barrier. The roofing is prefinished steel.

11. Windows (6): Lexan® fixed windows with powder-coated steel frame, 32" H x 10' L.
12. Skylights (6): Thermolite curb-mounted Acrylic Dome skylights, 2' x 4'.
13. Grab Bars (2 Sets): 36-inch and 42-inch stainless steel.
14. Mirrors (4): Bobrick B-290, 24" W x 30" H.
15. Toilets:

    a. Two Crane Model 3H-701E Handicap Flush VLV Bwl White.
    b. Three Crane Model 3-325E Flush VLV Bwl White.

16. Urinal (1): Crate Model Cromwell 7-187E Urinal Lite White. Olsonite 10CC-CC/SS heavy-duty plastic seat with self-sustaining, concealed check hinge. Sloan III VLV 3010000 Royal Flush.
17. Lavatories (4): Crane Model 1-412V 20" x 18" White Lavatory. Chicago 333-665 Basin Faucet (Cold). P-Trap: 1-1/4-inch, 17-gauge, offset handicap grid strainer.
18. Service Counter (1): 30" W x 80" H stainless-steel service counter with roll-up window.
19. Utility Sink (1): Mustee 17.102/17.25 Laundry Tray and Kit. Moen 4975 cht 2-handle laundry faucet.
20. Drinking Fountain (1): Sunroc SF-3210 ADA drinking fountain.
21. Wall Hydrant (1): Woodford 65-P 3/4" x 8" wall hydrant.
22. Water Heater (1): Rheem, “RUUD,” PEP20-1, 20-gallon, single-element, 120-volt.
23. Light Fixtures (2): CS-Q28, CLI Industries surface ceiling-mount lights.
24. Light Fixtures (2): SW-Q28, CLI Industries surface wall-mount lights.
25. Light Fixtures (4): LITHONIA, general purpose industrial fluorescent light, EJ248H0-120-CW20.
26. Electrical Panel (1): Westinghouse BR2040B200 200-amp 20/40 CKT main breaker panel.
27. Photocell: K4321 Intermatic 1800W Mount Photocell.
28. Contractor (1): C-Hammer C25DND240A 2-phase, 40-amp, 120-volt contractor.
29. Bell Box (1): BWF B5 Bell Box.
30. Junction Box (1): Hoffman 8" x 8" x 4" NEMA screw cover junction box.

C. Materials - Installer-Supplied Items:

1. Labor: All labor and trades.
2. Concrete: Ready-mixed 3,000 pounds for footing and slab, 2,500 pounds for wall and sidewalk construction; use tinted concrete in slab to match surrounding sitework.
3. Concrete Footing: 24" W x 8" D under all exterior walls including privacy wall of building and under all interior windows, 3 No. 5 rebar running continuous, 30" lap.
4. Concrete Stem Walls: Around all exterior and interior walls including privacy wall, 8" W x 42" H with 3 No. 5 horizontal rebar, 30" minimum lap, and No. 5 24" on center verticals with 8" bends alternating in footing and extending out of slab 30", 3,000 pounds of concrete.
5. Concrete Reinforcement: 60-ksi minimum (Grade 60), as specified by building supplier.
6. Concrete Slab: 5 inches D, with one layer of welded wire mesh 6 x 6 10/10 flat sheets over 6-mil vapor barrier, 3,000 pounds of concrete.
7. Structural Fill: 3/4-inch minus crushed rock under slab and backfilled around all footing and stem walls and vaults.

8. Mortar Grout: 2,5000 psi strength at 28 days.
9. Rebar Walls: One No. 5 continuous horizontal every 4 feet with 30 lap; verticals No. 5 every 24 inches.
10. Toilet Paper Dispensers (5): Bobrick B-2746 two-roll dispenser, tumbler lock on spindles, controlled delivery.
11. Rest Room Signs (2): Best Manufacturing Co., WP287RB or WP288RB, 6" x 7-3/4" fiberglass sign, work and picture accessible signage with braille message.
12. Plumbing Rough-In: All necessary piping and fittings for rough-in water and sewer plumbing to meet or exceed local and state codes.
13. Plumbing Top-Out: Install all factory supplied fixtures and plumbing to meet or exceed local and state codes. Any minor variance in piping or fitting due to local code is deemed incidental.
14. Electrical Rough-In: All necessary conduit and wire for rough-in electrical to meet or exceed local and state codes.
15. Electrical Top-Out: Install all factory supplied fixtures and electrical to meet or exceed local and state codes. Any minor variance in wire or conduit due to local code is deemed incidental.
16. Floor Drains: JR Smith 2005 2, round top with primed trap, adjustable stainer head, 2-inch outlet head.
17. Sewer Connection: As detailed by the Drawings and as specified by other Sections of these Specifications.

2.3 UTILITY BUILDING

A. General: Furnish and install utility building in the model described below. Buildings shall be manufactured by Romtec, Inc. Complete installation shall be coordinated with the manufacturer. Provide non-factory-supplied components as specified by the manufacturer to allow for a complete installation.

B. Utility Building: Romtec, SplitLok™ Concrete model, split-face block construction. The utility building shall come complete and shall include the following features:

1. Wall Material: 8" W x 16" L x 8" H dry-stack interlocking split-face concrete block exterior. Compressive strength = f'm = 1,500 psi. Fiberglass-reinforced plastic interior with 1/4-inch nylon anchors.
2. Wall Vent: 1/8-inch steel frame and expanded steel mesh welded to galvanized louvers with fine mesh screen, powder-coated black.
3. Entry Door (1): 18-gauge galvanized hollow metal door with honeycomb core and baked enamel finish. Single door size: 3'-0" x 7'-0".
4. Entry Door Hinges: U.S. 26D spring hinges and U.S. 26D hinges.
5. Entry Door Knobs: Falcon Lock B Series, Grade 2 Cylinder Lockset.
6. Entry Door Frame: 16-gauge knock-down, galvanized hollow metal frames, 2-inch frame width at jamb, 4 inches at head, 8 inches deep, baked enamel finish.
7. Roll-up Window: 22-gauge flat-faced galvanized steel curtain slats with galvanized hood, structural steel guides, exterior weatherstripping, manual push-up operation. Roll-up door size: 40" x 80".

8. Roof: Pre-assembled steel roof panels. Members are 14-gauge, 4inches deep, 2-inch flanges, heavy-gauge galvanized steel framing spaced at 22 inches on center maximum. Roof panels have 3-1/2-inch batt R-11 insulation with vapor barrier. Exterior sheathing is 3/4-inch Group I CD ext. plywood. Interior sheathing is 1/2-inch oriented strand board (OSB). The roofing is prefinished metal, composition three-tab shingles or optional cedar shakes.

C. Materials - Installer-Supplied Items:

1. Labor: All labor and trades.
2. Concrete: Ready-mixed 3,000 pounds for footing and slab, 2,500 pounds for wall and sidewalk construction; use tinted concrete in slab to match surrounding sitework.
3. Concrete Footing: 24" W x 8" D under all exterior walls including privacy wall of building and under all interior walls, 3 No. 5 rebar running continuous, 30-inch lap.
4. Concrete Stem Walls: Around all exterior and interior walls including privacy wall, 8" W x 42" H with 3 No. 5 horizontal rebar, 30" minimum lap, and No. 5 24" on center verticals with 8" bends alternating in footing and extending out of slab 30", 3,000 pounds of concrete.
5. Concrete Reinforcement: 60 ksi minimum (Grade 60), as specified by building supplier.
6. Concrete Slab: 5-inch D with one layer of welded wire mesh 6 x 6 10/10 flat sheets over 6-mil vapor barrier, 3,000 pounds of concrete.
7. Structural Fill: 3/4-inch minus crushed rock under slab and backfilled around all footing, stem walls and vaults.
8. Mortar Grout: 2,500 psi strength in 28 days.
9. Rebar Walls: One No. 5 continuous horizontal every 4 feet with 30-inch lap, verticals No. 5 every 24 inches.

PART 3 - EXECUTION

3.1 GENERAL

A. Prefabricated Sierra IV+ buildings are to be installed in strict accordance with the manufacturer’s instructions. The Contractor shall coordinate with the manufacturer to determine responsibilities for total project requirements. Installer shall be thoroughly acquainted with installation requirements prior to beginning construction. Work shall be coordinated with sitework and utility construction as a port of, or adjacent to, building installations.

B. In preparation for installing the facility, verify final layout and building elevations. Clear only the essential area of construction of trees and vegetation.

C. Excavate for building foundation in accordance with the manufacturer’s requirements. Provide plumbing and electrical rough-ins to building pad. Construct building pad and foundation. Erect prefabricated structure. Install fixtures and accessories. Complete interior plumbing. Test, flush and sanitize water lines. Complete electrical installation. Use approved conduit or equivalent to house all surface-run wiring to electrical fixtures. Complete adjacent sitework as detailed on Drawings. Grade site to obtain positive drainage away from all structures. Topsoil, fine grade and

seed all areas of construction disturbance in accordance with other sections of these Specifications. Thoroughly clean all surfaces, interior and exterior, making facility ready for public use.

END OF SECTION 13120