



# Specifications for Cold Room Solutions, Inc. Walk-In Freezers

## SECTION I – GENERAL

### 1.01 SECTION INCLUDES

- A Furnish and install walk-in freezers. Include all insulated walls, ceilings, floors, doors, hardware, refrigeration systems, mechanical systems, internal electrical systems, controls, gages, internal lighting, and other ancillary items required for a completely fabricated and operational CER.

### 1.02 RELATED DOCUMENTS

- A Related work specified elsewhere: The following work is not included as part of this Section and is to be performed by the designated trades:
  1. Roofing: Sleepers or curbs for remotely located equipment and all related roofing and flashing work.
  2. Plumbing: Open drain lines to within two feet of each walk-in. Rough-ins for floor sinks, plumbing, drains and water piping for mechanical systems.
  3. Mechanical: Water supply and return lines to each water cooled condenser (if water cooled units are specified), including isolation valves. Proper supply and return air to each air cooled condensing unit (if air cooled units are specified and located inside the building) to maintain ambient conditions of less than 90°F.
  4. Fire Sprinklers: Dry sprinkler suppression system inside each walk-in.
  5. Electrical: Appropriate number of electrical circuits (quantity and size to be confirmed) brought to a pull box located above each freezer and to each condensing unit. A fused disconnect must be provided for each condensing unit.

### 1.03 SYSTEM DESCRIPTION

- A Maintain freezer temperature of  $-20^{\circ}\text{C} +2^{\circ}\text{C}$  (no lower limit).
- B Humidity control is not required.
- C *Indicate if refrigeration redundancy is required. Delete line item "B" if not required.*

### 1.04 SUBMITTALS

- A Submit five (5) copies to be retained and distributed by the Owner, Architect and/or Owners Representative. Submit complete materials list, including catalog data of all materials, equipment and products for Work in this Section. Include refrigeration calculations and electrical calculations.
- B Submit complete shop fabrication and installation drawings, including plans, elevations, sections, and details. Drawings shall be in the form of reproducible or photocopies and not to exceed 11 inches x 17 inches is size.
- C Submit detailed anchorage and attachment drawings and calculations provided by a licensed engineer. Rooms shall be designed and constructed to meet the requirements for the seismic zone appropriate for the area in which construction is taking place.
- D Submit record "As-Built" drawings.
- E Submit complete operating and maintenance manuals that describe proper operating procedures, maintenance and replacement parts.



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## 1.06 QUALITY ASSURANCE

- A Walk-in supplier shall have a minimum of ten (10) years of documented experience and be an established organization and production facility specializing in this type of equipment. Supplier shall have the demonstrated ability to produce the specified equipment of the required quality and the proven capacity to complete an installation of this size and type within the required time limits.
- B Use all means necessary to protect Work of this Section before, during and after installation.

## 1.07 COORDINATION

- A Work in this Section requires close coordination with work in Electrical, Mechanical, Fire Sprinkler and Architectural Sections. Coordinate all work to assure an orderly progress in the project.
- B Walk-in supplier has full responsibility to provide structural backing for all wall mounted shelving, furnishings and equipment as shown.
- D Walk-in supplier has full responsibility for the following:
  - 1. Making openings for service penetrations to and from the walk-in.
  - 2. Properly sealing all service penetrations into the freezer.
  - 3. Field check all dimensions and make any adjustments in the walk-in size for a proper fit.

## 1.08 EXTENDED GUARANTEE

- A Walk-in supplier shall provide a written guarantee of ten (10) years that the insulated structure shall be free of defects in material and workmanship and that it will not deteriorate excessively or otherwise fail to perform.
- B Walk-in supplier shall provide a written guarantee of five (5) years for each compressor.

## SECTION II – PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURERS

- A Cold Room Solutions, Inc. (925) 462-2500  
3942 Valley Ave., Ste. L  
Pleasanton, CA 94566
- B All products specified in this section shall be provided by a single manufacturer.

### 2.02 INSULATED ROOMS

- A Wall and ceiling panels:
  - 1. Insulated panels shall be minimum 4" thick, be of modular construction incorporating wall and ceiling panels and be of "woodless" type construction. Panels shall consist of insulation sandwiched between interior and exterior metal skin. Panel edges to have



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tongues and grooves that cam-lock together assuring an air tight vapor proof joint. Construction shall allow disassembly for possible relocation or expansion at a later date.

2. All panel insulation shall be HCFC Free Class I "foamed-in-place" 2.2 lb. density poly urethane foam insulation expanded with "Ozone Safe" 245 and UL certified as having a flame spread rating of  $\leq 25$  and smoke developed rating  $\leq 450$  in accordance with ASTM E84. Urethane insulation as herein specified shall be foamed in place and cured to a solid rigid state between metal panel skins at an average density of two (2) pounds per cubic foot, with a K factor of .125. Urethane insulation shall be both vermin-proof and odor-proof. This insulation shall have 97% closed cell structure and conform to international standards for ozone depletion contribution. FM 4880 compliant panels available upon request.
3. The sheet metal finish will be:
  - a. Interior surface = 26 GA stucco embossed galvanized steel with a baked polyester white finish.
  - b. Exposed exterior surfaces = 26 GA stucco embossed galvanized steel with a baked polyester white finish.
  - c. Unexposed surfaces = 26 GA stucco embossed mill galvanized steel.
  - d. *Other finishes available upon request. Delete line "d" if above finishes are acceptable.*

## B Door construction:

- 1 Door construction shall match the insulated panels. Each entrance to have a clear minimum opening of 36"W by 78"H. Doors shall be flush mounted, in-fitting and have a replaceable magnetic gasket on three sides and a neoprene adjustable gasket at the sill. The frame is to include an easily replaceable heater wire to prevent condensation and frost formation. Door hardware shall include three (3) Kason #1248 hinges, Kason #1094 door closer and a Kason #K-77C/487 latch/release. In addition, each door shall be equipped with a 14" x 14" heated viewing window.

## C Insulated floors

- 1 Freezers are to include 4" thick insulated floor panels capable of withstanding loads of up to 500 PSF. Wearing surface to be 18 GA type 304 #4 stainless steel over 1/2" non-wood underlayment. An ADA compliant transition ramp to be built into the insulated floor panel at each door.

D If ceiling supports are required to support the insulated ceiling panels, steel support system is to be external to the room with no visible connections from the interior.

E Closure panel trim of the same material and finish as adjacent panels shall be provided to close openings between insulated panels and building walls.

F Seal all joints, openings, piping, electrical and ductwork penetrations (regardless of trade). Seal both sides of penetrations (if possible) and inside electrical conduit once wires have been pulled.

G All construction to be NSF labeled.

## 2.03 CONTROLS

- A Each walk-in is to be provided with a control panel consisting of the following components:
- 1 Painted steel enclosure meeting NEMA 4 & 12 ratings.



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- 2 Allen-Bradley Micrologix series programmable controller including analog temperature input & Ethernet adapter.
- 3 CMore EA7-T8C 8" color touchscreen including room temperature display, temperature setting adjustment, alarm setting adjustment, alarm monitoring, alarm logging & temperature logging to a USB drive.
- 4 Alarm contacts for remote monitoring.
- 5 100Ω RTD temperature sensor(s).
- 6 *Note: To meet the FDA 21 CFR part 11 requirements a remote data logging system is required. Please contact the factory for additional information.*

- B If refrigeration redundancy is called for, include a lead-lag controller capable of automatically switching the refrigeration systems on a daily basis and should an alarm condition occur, the stand-by system should automatically come online to maintain a constant temperature.

## 2.04 LIGHTING

- A Provide 4' 2-tube fluorescent light fixtures suitable for the environment in each cold room. Ballasts to be T5HO with -20°F temperature rating. A minimum light level of 60 Fc as measured 40" AFF is to be provided. Each door section shall include an interior and exterior light switch. The interior light switch to have a constant burning pilot light and the exterior switch to have an indicating pilot light.

## 2.05 REFRIGERATION SYSTEMS

- A General – the refrigeration system shall use refrigerants acceptable to the Authority having jurisdiction. Utilize R-404A refrigerant, or approved equal. No CFC type refrigerants will be acceptable.
- B Defrost cycle: System shall incorporate an automatic defrost system. Defrost system to include heaters to prevent condensate pan or drain line from freezing. A nominal temperature rise will be acceptable during each defrost cycle. Automatic defrost system shall be factory pre-wired to the control panel with all the necessary programming.
- C All refrigeration piping required shall be furnished and installed by the walk-in manufacturer.
- D All refrigeration line joints shall be brazed with Stay-Silv 15 brazing alloy. All piping shall be pressure leak tested and witnessed by the Owner.
- E Condensing units and evaporator coils to be from the same manufacturer and be UL listed.
- F Condensing units must be of adequate capacity to achieve and maintain the individual room operating temperature requirements and must be sized to handle additional loads appropriate for the application. Units to be complete in all respects including high/low pressure control, receiver, sight glass, liquid line drier, expansion valve and all other necessary equipment to achieve the cited performance. Units to be air-cooled and located per the drawings.  
*(Architect to confirm)*
- G All inter-connecting piping between the evaporator coils and condensing units shall be installed under the section. Refrigeration lines shall be insulated to prevent any condensation. Insulation exposed to the weather must have additional protection from the elements. Where piping passes through floor slabs, core drill slab and install pipe sleeves. Provide firestopping at penetrations to achieve the specified fire rating. All hangers to



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support tubing to meet local codes and conditions. Provide seismic bracing if required. Space hangers appropriately for the smallest diameter line.

- H Condensate drain line to be run in copper tubing to nearest floor sink. To prevent condensation, drain line is to be insulated where it exits the insulated panels.
- I Pressurize and leak test the entire refrigeration system.

## 2.06 ELECTRICAL

- A All electrical components utilized within each walk-in shall be UL listed.
- B Work performed under Division 16 shall provide the appropriate circuits to each condensing unit and a pull box located above each walk-in. All interconnecting and control wiring to be by walk-in supplier. A fused disconnect is to be provided at each condensing unit by DIV 16.
- C Exposed conduit inside the freezer shall be kept to a very minimum. Verify placement of all exposed piping and conduit with the Owner's Representative prior to installation.
- D Wiring to be THHN or THWN conductors and EMT conduit.
- E To minimize penetrations, all electrical circuits shall enter the room via a minimum number of conduits, preferably one. The conduit through the wall or roof and all conduit inside the walk-ins shall be PVC. A seal-off fitting Crouse-Hinds type or EZS or equal shall be placed immediately outside the room and properly sealed.
- F Receptacles:
  1. Where receptacles/data outlets are shown on Plans, provide Carlon PVC type junction boxes recessed in the insulated panels with  $\frac{3}{4}$ " PVC conduit stubbed up through the top of the insulated ceiling panels.
  2. Provide wire and connection to GFCI receptacles. Coordinate height of receptacles with Architect.
  3. There shall be no more than four (4) receptacles on any given circuit.
  4. Data receptacles, cabling and wall plates to be provided by others.
  5. Provide a recessed junction box as required for the building fire alarm system.

## 2.07 PLUMBING

- A The cold room supplier shall install a condensate drain line from each evaporator coil to drain located outside the walk-in. Insulate drain lines on exterior side of CER to prevent the formation of condensate. Final connection of condensate drain line to waste system by DIV 15.

## SECTION III – EXECUTION

### 3.01 SITE CONDITIONS

- A Prior to installation of walk-ins, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.



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- B Verify the work can be installed in strict accordance with all pertinent codes and regulations, the original design, approved submittals, and manufacturer's recommendations.
- C In the event of a discrepancy, immediately notify the Architect in writing.

## 3.02 INSTALLATION

- A Install all freezers in accordance with manufacturer's written instructions and reviewed shop drawings.
- B Install sheet metal closure trim that matches insulated panel finish between all building walls and insulated panels.
- C Install interconnecting accessories in accordance with the manufacturer's written recommendations and located for ease of servicing. Provide piping in accordance with good engineering practice.
- D Suction line insulation shall be sized and installed to prevent condensation.
- E Provide individual traps for condensate drains.
- F Walk-in supplier is responsible for the proper sealing of all penetrations of the insulated panels.
- G Test all equipment operation and performance of each freezer. Make all adjustments and repairs as required.
- H Clean all rooms inside and out, including the roof of each freezer. Remove all debris and marks.