



U.S. Cooler Walk-in Coolers and Freezers

1. Refrigeration

A) Walk-in Refrigerator and Freezer Construction

1) General: Each panel shall consist of inner and outer metal skins, a 4" insulation core, and be equipped with cam-action locking devices. The locking devices shall be operable from inside the walk-in. Cam plug buttons are provided to cover the holes after assembly is complete. Construction shall be as approved by the NSF International and shall bear the NSF® Seal of Approval. All panels shall be connected to one another by placing the tongue of the insulation core of one panel into the groove of the core insulation of the adjacent panel. The resultant tongue and groove joint shall be sealed at both sides by double barreled NSF® approved gaskets. In order to avoid future swelling and mold formation, no wood shall be permitted in the manufacture of the tongue and groove panel profile.

(a) Wall Panels: Panel insulation shall be 4" thick, high quality, extruded polystyrene or foamed-in-place polyurethane, modular panels joined by not less than three (3) cam-lock devices; gasket to seal between panels; R-28 or greater for refrigerators and R-32 or greater for freezers.

(i) Refrigerators:

(a) Extruded Polystyrene: All wall insulation shall be 4" thick, high quality rigid extruded polystyrene, 1.6 lb density. K factor of not more than .139 and an R-factor of not less than 7.2 per inch, initial fresh R-28.8 minimum total wall R factor. Vapor transmission shall be less than 1 perm and foam core material must meet UL 5 flame spread rating with average smoke rating less than 165 (UL 723 test).

(b) Foamed in-place Polyurethane: All wall and ceiling insulation shall be 4" thick, high quality, foamed in-place polyurethane, 2.2 lb density. K factor of not less than .141 and an R-factor of not less than 7.1 per inch, initial fresh R-28.4 minimum total wall R factor. Vapor transmission shall be less than 1 perm and foam core material must meet: UL Foam Core 25 flame spread rating with average smoke rating less than 450. (ASTM E-84)

(ii) Freezers:

(a) Extruded Polystyrene: All wall insulation shall be 4" thick, high quality, rigid, extruded polystyrene, 1.6 lb density. K factor of not more than .125 and an R factor of no less than 8.1 per inch, initial fresh R-32.4 minimum



total wall R factor. Vapor transmission shall be less than 1 perm and foam core material must meet UL 5 flame spread rating with average smoke rating less than 165 (UL 723 test).

- (b) Foamed-in-place Polyurethane: All wall and ceiling insulation shall be 4" thick, high quality foamed in- place polyurethane, 2.2 lb. density. K factor of not more than .125 and an R factor of no less than 8 per inch, initial fresh R-32 minimum total walls R factor. Vapor transmission shall be less than 1 perm and foam core material must meet: UL Foam Core 25 flame spread rating with average smoke rating less than 450. (ASTM E-84)
- (b) Ceiling: Panel insulation shall be 4" thick, high quality, extruded polystyrene or foamed-in-place polyurethane, modular panels joined by not less than three (3) cam-lock devices; gasket to seal between panels; R-28 or greater for refrigerators and R-32 or greater for freezers.
 - (a) Refrigerators:
 - i. Extruded Polystyrene: All ceiling insulation shall be 4" thick, high quality rigid extruded polystyrene, 1.6 lb density. K factor of not more than .139 and an R-factor of not less than 7.2 per inch, initial fresh R-28.8 minimum total wall R factor. Vapor transmission shall be less than 1 perm and foam core material must meet UL 5 flame spread rating with average smoke rating less than 165 (UL 723 test).
 - ii. Foamed in-place Polyurethane: All wall and ceiling insulation shall be 4" thick, high quality, foamed in-place polyurethane, 2.2 lb density. K factor of not less than .141 and an R-factor of not less than 7.1 per inch, initial fresh R-28.4 minimum total wall R factor. Vapor transmission shall be less than 1 perm and foam core material must meet: UL Foam Core 25 flame spread rating with average smoke rating less than 450. (ASTM E-84)
 - (b) Freezers:
 - i. Extruded Polystyrene: All ceiling insulation shall be 4" thick, high quality, rigid, extruded polystyrene, 1.6 lb density. K factor of not more than .125 and an R factor of no less than 8.1 per inch, initial fresh R-32.4 minimum total wall R factor. Vapor transmission shall be less than 1 perm and foam core material must meet UL 5 flame spread rating with average smoke rating less than 165 (UL 723 test).
 - ii. Foamed in-place Polyurethane: All wall and ceiling insulation shall be 4" thick, high quality, foamed in-place polyurethane, 2.2 lb density. K



factor of not less than .141 and an R-factor of not less than 7.1 per inch, initial fresh R-28.4 minimum total wall R factor. Vapor transmission shall be less than 1 perm and foam core material must meet: UL Foam Core 25 flame spread rating with average smoke rating less than 450. (ASTM E-84)

- (c) Rain Roof Package: When specified. For use on walk-ins installed outdoors. Specify whether walk-in is free standing or which wall is butted against the building. A single-ply membrane roof shall be supplied to provide water resistant covering of the ceiling panels. Membrane materials shall be provided in one complete roll designed for the size of the walk-in. No welding of seams shall be required for installation.
 - (d) Sloped Roof Package: When specified. For use on walk-ins installed outdoors. May be required at certain snow loads. In order to form a sloped roof profile, suitable quantities of sloped foam shall be provided. The foam shall be cut in a manner that upon installation, a $\frac{1}{4}$ ":1' slope is obtained. The membrane roof shall be increased in size appropriately, in order to provide the additional material required to properly cover the resultant profile.
 - (e) U.S. Cooler panels are rated to withstand up to 90 mph winds. Load calculations must be performed on individual construction to confirm wind loads. Increased wind loads can be achieved with additional support.
- (c) Finishes:
- (i) Exterior Finishes:
 - (a) 26 gauge stucco embossed galvalume
 - (b) 26 gauge stucco embossed galvanized steel
 - (c) 26 gauge white stucco embossed galvanized steel
 - (d) 26 gauge tan stucco embossed galvanized steel
 - (e) 26 gauge black stucco embossed galvanized steel
 - (f) 24 gauge smooth stainless steel
 - (ii) Interior Finishes
 - (a) Wall Panels:
 - i. 26 gauge stucco embossed galvalume
 - ii. 26 gauge stucco embossed galvanized steel
 - iii. 26 gauge white stucco embossed galvanized steel
 - iv. 26 gauge tan stucco embossed galvanized steel



- v. 26 gauge black stucco embossed galvanized steel
- vi. 24 gauge smooth stainless steel

(b) Ceiling Panels:

- i. 26 gauge stucco embossed galvalume
- ii. 26 gauge bright stucco embossed galvanized steel
- iii. 26 gauge white stucco embossed galvanized steel
- iv. 26 gauge tan stucco embossed galvanized steel
- v. 26 gauge black stucco embossed galvanized steel
- vi. 24 gauge smooth stainless steel.

(c) Floors:

- i. 22 gauge smooth stainless steel
- ii. 20 gauge smooth galvanized steel (used for use with quarry tile application)
- iii. .100 Aluminum (when specified)

2) Partitions: When specified, walk-ins shall be divided into compartments by the use of panels that are constructed in accordance with the specification for all panels.

3) Floor: See item specifications for conditions that apply to this project.

(a) Exposed Prefabricated Floor: Prefabricated refrigerator or freezer floor panels must have R-28 rating or greater; allowable stationary load of 600 pounds per sq. ft. when placed on a continuous concrete slab, reinforced floor panels for larger loads are available; verify that building is transit level prior to installing walk-ins; notify Owner and Architect if sub-floor ventilation or heating is required for walk-in freezers; Dealer or Consultant to verify that sub-floor installation conditions are acceptable prior to installing floor and box.

(b) Floorless:

(i) Floor Screeds: Floor screeds shall be provided for all floorless walk-ins. The screeds shall be vinyl, and have NSF® approved cove both inside and out.

4) Doors: R-25 or greater for refrigerators; R-32 or greater for freezers. Door shall be flush mounted, positioned and hinged; provided with suitable sweep and magnetic gaskets, door closer, one pre-wired vapor proof light fixture, light switch with pilot light, dial thermometer, manual internal lock override, chrome plated cam lift hinges, chrome plated door latches with strike.

(i) Outdoor Units: Doors on outdoor walk-ins shall have weather protected light switch and door drip cap.



- (ii) Freezer Doors: Freezer doors shall be identical to cooler doors, but with the addition of UL approved heater wire on all four sides. Freezer doors shall include a heated pressure relief port in the adjacent panel.
 - (b) Hinges: One cam-lift spring assisted self-closing hinge and one cam-lift hinge.
 - (c) Handle: Kason or Component equivalent with steel reinforced plate inside door panel, pull door handle with cylinder lock, padlock hole and interior safety release; provide common key for all walk-in doors.
 - (d) Door Closer: Kason or spring assisted comparable
 - (e) Vision Panel (If Specified): Not less than 150 square inches; heated; double pane glass for refrigerators and triple pane glass for freezers.
 - (f) Kick plate (If Specified) : 1/8" thick aluminum diamond-tread plate on both sides of door and frame; extend from door bottom to door handle; secure with stainless steel screws; seal perimeter with silicone.
 - (g) Incandescent Light – Single Light Fixture
 - (h) Internal Ramp: 30" deep, various widths, 22 gauge stainless steel, extruded polystyrene; three - 8" non-skid strips, NSF approved
 - (i) External Ramp: 30" deep, varying widths, 1/4" steel diamond tread plate, painted safety yellow.
 - (j) Glass Doors: When specified. Glass door openings shall be provided as necessary for the doors being installed. Sill height shall be per customer specification. Wood framing of the opening shall be required to assist with the installation of the glass doors.
 - (k) Optional Doors: Optional sliding and overhead doors are available; customer to specify.
 - (l) Electrical: Wire surface mounted on door panel to junction box top of door.
 - (m) Thermometer: See item specification for thermometers required for this project: Thermometer installed flush-mount on hinge side of door panel.
 - (n) Digital Thermometer (optional): 3" round digital thermometer with probe, installed flush-mount on hinge side of door panel.
 - (o) Digital Thermometer with Alarm (optional): Specifications available.
- 5) Pressure Relief Port: Provide heated relief port in freezers, non-heated relief port available upon request for refrigerators; located in exposed wall
- 6) Lights:
- (a) Fluorescent: 4' vapor proof; optional per customer specification.
 - (b) Incandescent: Single bulb, vapor proof; installed on door panel.



- (c) LED: Single bulb or 4' vapor proof; optional per customer specification.
- 7) Sprinkler Heads: When required, cut holes for sprinkler heads; provide stainless steel trim cap and seal holes.
- 8) Installation: Dealer to install walk-in units.
 - (a) Drawings and Instructions: Manufacturer shall supply a set of installation instructions and lay-out drawing. All panels shall have panel identification corresponding with the lay-out drawing to facilitate rapid and accurate field erection.
- B) Refrigeration System: Complete operating system consisting of a condensing unit and a evaporator coil.
 - 1) Condensing Unit: See item specification for condensing unit requirement for this project.
 - (a) General: Condenser fan motors of under 1 h.p. must use electronically commutated (EC) motors or permanent split capacitor-type (PSP) motors; splash lubrication system using Mobil EAL Arctic 22 polyester synthetic refrigeration oil; oil sight glass; removable oil drain plug; label indicating oil used; high/low pressure control; suction line filter; suction and discharge service valves and copper/brass vibration isolators; receiver with fusible plug or relief valve; liquid line shut-off valve; sight glass; molecular sieve filter dryer; main power supply fused disconnect switch
 - (b) Air-Cooled: Air-cooled condenser with ball-bearing permanently lubricated fan motor.
 - (c) Outdoor: Weather proof housing; crank case heater and low ambient temperature controls required to insure proper and efficient operation; fan cycling controls where ambient temperatures do not fall below -15°; head master valve and oversized, heated, insulated receiver and lines where ambient temperatures fall below -15°F.
 - 2) Evaporator Coil: Forced convection style; match to condensing unit and suspend with air discharged parallel to the ceiling; lifetime sealed motors with inherent motor protection; evaporator fan motors of under 1 hp and less than 460 volts must use electronically commutated (EC) motors; enclose coil section and fans within aluminum housing
 - (a) Refrigerator: Air defrost
 - (b) Freezer and Low Temperature Refrigerator: Electric heater and controls for positive automatic defrost



401 Delaware, Quincy, IL 62301
800.521.2665 217.228.2421 Fax: 217.228.2424 www.uscooler.com

- (c) Installation: Hang using plastic or nylon fasteners; spread coil weight evenly over ceiling panels; support long span ceiling panels as required.