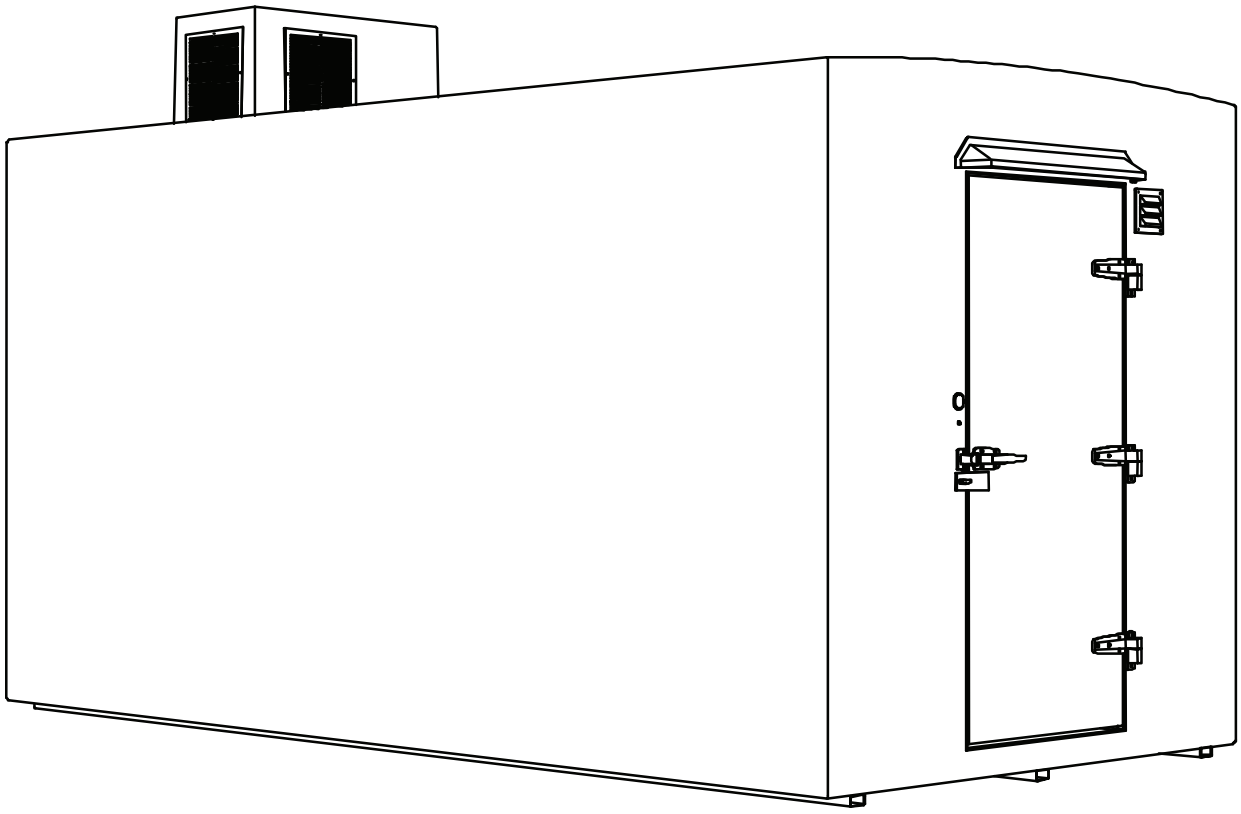
POLAR KING
INTERNATIONAL, INC.

Installation & Service Manual



One Piece Outside Walk-In Coolers - Freezers

Installation & Service Manual

Polar King International, Inc.

SERVICE

4424 New Haven Avenue
Fort Wayne, Indiana 46803
In Indiana – 260-428-2530
Toll Free – 1-800-223-2017
Fax – 260-428-2533

SALES

4424 New Haven Avenue
Fort Wayne, Indiana 46803
In Indiana – 260-428-2530
Toll Free – 1-800-752-7178
Fax – 260-428-2533

POLAR KING
INTERNATIONAL, INC.

To Our Customers:

Thank you for purchasing a Polar King walk-in to fill your refrigerated storage requirements.

Your walk-in has been designed and engineered to provide years of trouble-free service. All Polar King walk-ins are factory constructed using space-age materials and state-of-the art manufacturing techniques. Every unit receives numerous quality inspections and is pre-tested prior to delivery. The finished product is the best and most efficient walk-in available on the market.

However, should you experience a service problem, please contact our customer service department. They will work with you on resolving the problem and insure your continued satisfaction.

Again, thank you for selecting a Polar King. Should you require future refrigerated storage, we would appreciate the opportunity to serve you.

Polar King International, Inc.

4424 New Haven Avenue; Fort Wayne, Indiana 46803 • 800-752-7178 • 260-428-2530 • FAX: 260-428-2533

www.polarking.com

OUTDOOR WALK-IN COOLERS AND FREEZERS

TABLE OF CONTENTS

A General Unit Information Sheet is included with this manual for your convenience. This sheet contains detailed information on your walk-in. Please have this information available when requesting service.

REFRIGERATION BASICS

Modern refrigeration has many applications. The first, and probably the most important, is the preservation of food because most foods kept at room temperature spoil rapidly. However, when kept cold most foods will keep much longer.

Before looking at the operation of mechanical refrigeration, it is important to understand the physical and thermal properties of the mechanisms and substances used to extract heat. Removing heat from the inside of the walk-in is somewhat like removing water from a leaking boat. A sponge may be used to soak up the water and then held over the side, squeezed, and the water released overboard. The operation may be repeated as often as necessary to transfer the water from the boat back into the lake.

In a walk-in, heat instead of water is transferred. Inside the walk-in heat is absorbed by the liquid refrigerant in the evaporator as the refrigerant changes from a liquid to a vapor. After the refrigerant has absorbed heat and turned it into a vapor, it is pumped into the condensing unit located outside the refrigerated space and then compressed. The heat is "squeezed" out by high temperature and then cooled in the condenser. This cycle repeats until the desired temperature is obtained.

Cold is a relative term used to describe low temperature, it is not something that is produced. Rather, the removal of heat results in a condition termed “cold”. A refrigerator produces a condition called "cold" by removing heat from inside the refrigerator and the stored content within it. You have probably felt the heat on the floor as you walked by your refrigerator in your home. The principle of heat removal is the same for your walk-in cooler and/or freezer.

The fact that bacteria are present in most foods calls for it to be preserved in some fashion. Exposing the food to cold or low temperatures slows the growth of these bacteria preventing foods from spoiling as quickly. A cooler temperature slows the activity of all organisms, thus the growth of bacteria on refrigerated food slows dramatically.

The spoiling of food is actually the growth of bacteria. If the bacteria can be kept from increasing, the food will remain edible for a longer period of time. Since most foods contain a considerable amount of water, the food must be kept slightly above freezing temperatures.

If food is frozen slowly, at or near the freezing point of water, large ice crystals will form and break down the food tissues. When such food defrosts, it spoils rapidly and the taste and appearance of the food is greatly compromised. To prevent this problem fast freezing at temperatures between 0° F to -15° F is recommended. By using these low temperatures small crystals form which do not injure the food tissues.

It is always important to keep in mind the difference between refrigerating and freezing. Further, the standard walk-in cooler is designed to maintain the temperature of the product at 35° F, providing the temperature of the product is within 10° F of this temperature. If the product to be maintained is continually at a higher temperature, additional refrigeration system capacity will probably be required. The same parameters hold true for freezers.

To insure you have adequate refrigeration capacity, be sure to provide your sales consultant with as much information as possible about how you intend to use your cooler and/or freezer.

HEAT LOAD

As we mentioned earlier, the refrigeration system on your walk-in does not make things cold. The system instead removes heat from the walk-in structure. Where does the heat come from that must be removed by the refrigeration process? The two most common sources you can control are door openings and product load. Did you know that one 100-watt lamp left on in a walk-in would generate 8,208 BTU in a 24-hour period? Keep door openings and closings to a minimum to conserve energy. When working inside the walk-in, close the door behind you. No need to worry, as there is a door opener inside.

PRODUCT LOAD

The main heat source in your walk-in is the amount of heat that must be removed from the stored product. For example, if you load your walk-in with 1500 pounds of product at 0° F, very little heat will have to be removed to obtain a temperature of –10°F. If the same 1500 pounds of product is delivered from your supplier at +25° F, you must pay to run the refrigeration system to remove this heat from each and every pound of product, until the satisfactory temperature of –10° F is reached. You will have smaller utility bills if you let your supplier remove heat from the product, rather than doing it yourself.

Remember, your unit is designed as either a holding unit (little or no product load) or has been designed to compensate for known product load. It is important to tell your sales consultant how you intend to use your unit. If significant product load occurs in a unit designed for holding, serious temperature problems may occur.

LOADING YOUR WALK-IN

Always move product into your walk-in as soon as you receive it. The longer you wait, the more heat it will absorb and the more you will pay to operate the walk-in. As you load your walk-in, be sure to allow plenty of airflow around the product because good airflow decreases the amount of time needed to remove heat. Be sure to allow adequate room around the evaporator. As well, never have a product closer than 12 to 16 inches to the evaporator. Remember, the evaporator is hot during defrost and can thaw a product that is too close.

BASIC STRUCTURE

The structure of your walk-in is manufactured at our factory in Fort Wayne, Indiana. Four inch, or optional six inch, two pound density urethane (the most efficient insulation available) is used in the walls, floor, and ceiling of the unit. The base of the unit has a built-in steel frame providing tremendous strength and allows for easy movement or total portability should your needs require this flexibility.

The unit is completely encased in fiberglass...one continuous surface... which means no seams, no rivet holes, and no air leaks. Unlike other outdoor units, you will never have to caulk splits or metal tears in your Polar King walk-in. No protective roofs or enclosures are required. You won't pay to "cool the outside" with a Polar King unit. All the cold air stays in the unit where it belongs. This equates to big dollar savings for you.

REFRIGERATION

Copeland Condensing Units and Larkin Evaporators are used to give you one of the finest refrigeration systems available. Every system is engineered to provide maximum operating efficiency and years of trouble-free operation. All units are adjusted to the customer's temperature requirements. Trained technicians test and monitor the performance of each unit for 24 hours prior to it’s leaving our factory.

WALK-THROUGH INSTALLATION

Polar King walk-ins are designed for exterior installation. Units are delivered ready to run as "free standing" units. However, many customers use walk-through installation. This provides the same convenience as an inside installation without taking up valuable and costly interior floor space.

Drawings are provided that detail slab elevations, dimensions for walk-through opening, and the flashing detail.

Should you have any questions on a walk-through installation, please feel free to contact our sales or engineering departments.

INSTALLATION INSTRUCTIONS

Polar King walk-in coolers and / or freezers are delivered to our customers fully assembled and require only a few basic procedures prior to start-up.

DO'S

(1) Provide a level slab as required by your local building code. It is very important that the surface is level for proper drainage and operation. See Section 3 "Technical Information" for walk-through applications where walk-in unit is to be attached to the building.

(2) Condensing unit on the top (or back) of the walk-in should be a minimum of 6 feet from any building intake or exhaust ventilation fans.

(3) Keep an open area of at least 3 feet around condensing unit to assure that sufficient air ventilates across the compressor.

(4) Make sure you have adequate electrical service for your particular unit.

(5) Once walk-in is in place, a qualified electrician in accordance with the NEC and / or local electrical codes may then wire it. A wiring diagram is located on the backside of the electrical box panel on the condensing unit.

(6) Loosen compressor-mounting bolts (if supplied).

(7) Set the correct time of day on the defrost timer. This is necessary in order for the preset defrost to occur at the desired times.

(8) If unit is delivered or sits idle in winter months, an external heat source should be applied to the compressor crankcase for 12 to 24 hours prior to start-up.

(9) The unit is now ready for operation. (See sequence of operation; Section 5 "Operating Instructions")

(10) Units are preset at the factory to automatically include four defrost cycles for a duration of 30 minutes each. Preset defrost cycles may be changed to accommodate different applications.

DON'TS

(1) Do not physically alter any controls, switches, wires, or any device carrying an electrical current, without disconnecting power to the walk-in cooler and/or freezer.

(2) The box temperature is preset at the factory to customer request. Temperature selection should not be adjusted up or down. If a different temperature is required, contact Polar King for proper procedure on changing the preset temperature.

(3) When cleaning the inside of the unit with any liquid substance, turn off electrical power. **IMPORTANT: DO NOT USE BLEACH OR AMMONIA TO CLEAN INSIDE OF UNIT AS IT MAY CAUSE DAMAGE TO COIL SURFACE.**

(4) **IMPORTANT: DO NOT DISCONNECT MAIN POWER SUPPLY WHILE COMPRESSOR IS RUNNING. DAMAGE MAY OCCUR IF COMPRESSOR IS NOT ALLOWED TO PUMP DOWN.**

ROOF FLASHING INSTALLATION

(1) Read instructions thoroughly before starting. Take inventory of necessary materials. Items provided by Polar King includes:

   a. Elastoform flashing (12” wide rubber material) (The front side has a plastic film covering that can be removed after installation and the back side is uncovered.)

   b. 45° cant strip (fillet strip)

   c. Splice adhesive (Firestone SA-1065 or equivalent)

   d. Pre-drilled aluminum termination bar

(2) Additional items needed:

   a. Mechanical fasteners (screws or other type of fastener) for termination bar.

   b. Silicone sealant.

(3) See Flashing Detail CAT-B5 for approximate placement of materials.

(4) Be sure roof of walk-in is free of dust and dirt to a distance of 12” from building.

(5) Place cant strips against building as shown on detail.

(6) Apply a coat of splice adhesive that is approximately 5” wide to the roof of your walk-in and the wall of your building.

(7) Apply a coat of splice adhesive to back side of elastoform flashing. Allow adhesive to set long enough to get tacky.

(8) Place flashing face up onto the coated area of the roof and wall, while keeping it centered on the cant strip.

(9) Apply pressure to the flashing to be sure that there is a good bond against the roof and the wall. At this point the film cover on the front side can be removed.

(10) Install supplied termination bar over top edge of elastoform flashing. Fasten approximately 12” on center. (Fasteners are not included.)

(11) Apply bead of silicone sealant (not provided by Polar King) to top of termination bar to finish installation. The completed flashing assembly can be painted if desired.

SIDEWALL FLASHING INSTALLATION

(1) Read instructions thoroughly before starting. Take inventory of necessary materials. Items provided by Polar King includes:

   a. PVC flashing (1” x 5” ell shape PVC material)

(2) Additional items needed:

   a. Mechanical fasteners (screws or rivets)

   b. Construction adhesive.

   c. Silicone sealant.

(3) Align PVC flashing against building and walk-in and trim for proper fit. Flashing may be applied with short leg sticking out or in.

(4) Flashing can be attached to walk-in using any heavy-duty construction adhesive.

(5) Use sheet metal screws to hold in place until adhesive sets.

(6) Apply bead of silicone sealant to finish installation.

ARCHITECTURAL / ENGINEERING SPECIFICATIONS

The following specifications are designed for use as a guide to Architectural, Engineering, and Food Service Consultant specification writers, on projects utilizing outdoor walk-in refrigeration equipment. Where items appear in brackets **[ ]** a selection of one of the alternatives is required by the specifier. Due to our policy of ongoing product improvement, Polar King International reserves the right to change specifications without notice.

1.0 GENERAL

1.1 The equipment provided shall be factory prefabricated and have unitized design. The equipment will allow installation without assembly and relocation without disassembly. The equipment shall require an on-site contractor, responsible for pouring of concrete pad, connection of electrical power supply to each refrigeration system, and for flashing of unit to building wall (if required). Walk-in shall be Polar King (Polar King International, Inc., Fort Wayne, Indiana) Model No._____.

1.2 The walk-in shall bear the label of the following National Certification Agencies:

A. National Sanitation Foundation (NSF STD #7)

B. Underwriters Laboratory (Major Refrigeration Components)

C. Underwriters Laboratory (Major Electrical Components)

D. Underwriters Laboratory (Class I Urethane)

1.3 The walk-in shall comply with the following model building codes:

A. International Conference of Building Officials (ICSO)

B. Southern Building Code Congress International (SBCCI)

C. Building Officials Congress Association (BOCA)

D. National Electric Code (NEC)

2.0 SIZE AND CAPACITY

2.1 The walk-in shall be built to specified interior and exterior dimensions, as shown on the plans and drawings.

2.2 The walk-in shall have sufficient refrigeration to maintain **[+35° F] [0° F] [-10°F] [-20° F]** temperature inside the **[cooler] [freezer]** compartment when the ambient temperature is 100° F, the average number of door openings is **[1] [2] [3] [4] [10]** per hour, and there is **[no] [____BTUH]** load from warm products entering unit. The refrigeration system shall be wired to run on **[208V/60HZ/1PH] [230V/60HZ/1PH] [208-230V/60HZ/3PH]** power.

3.0 STRUCTURE

3.1 The walk-in structure shall be constructed with a fiberglass interior and exterior and a 4" urethane core. The interior and exterior fiberglass shell shall be completely seamless and will form a one-piece structure. The exterior shall be rust, dent and scratch resistant. The exterior shall be coated with an industrial enamel finish.

3.2 Partition walls shall be constructed in the same manner as the exterior walls with a 4" urethane core.

4.0 FLOOR

4.1 A 4" insulated (R-32) prefabricated floor shall be supplied. The floor shall be reinforced with woven fiberglass matting on top of a 1/2" sub floor bonded to the urethane core forming a watertight seal. A skid resistant surface coating will be applied to the floor surface. The floor shall be constructed for permanent elevation 11/2" above grade. The elevation provides for air circulation under the floor to eliminate corrosion and the need for an insulated and / or ventilated slab. A welded, heavy-duty steel frame shall be encased in fiberglass and permanently bonded to the floor to ensure total portability without damage to the walk-in. The floor shall have the capacity to support 900 lbs. / sq. ft. of evenly distributed load.

5.0 INSULATION

5.1 All insulation shall be minimum 4" thick rigid polyurethane foam chemically bonded to the interior and exterior fiberglass to form a one-piece structure.

5.2 The thermal conductivity (K) shall not exceed .125 (BTU's/in/sq. ft./hr. F). The thermal resistance (R) factor shall not be less than 32.

5.3 The insulation shall be U.L. Class I having a flame spread of not more than 25, fuel contributed of 0, and smoke developed of 170.

6.0 LIGHTING

6.1 Unit shall be complete with **[incandescent] [fluorescent]** light fixtures factory installed and tested for proper operation prior to shipment. A **[100 watt incandescent bulb]** shall be used for each 50 sq. ft. of interior floor space. A **[four foot, two bulb fluorescent fixture]** shall be used for each 100 sq. ft. of interior floor space. Lights shall be contained in a vapor-proof fixture.

7.0 DOORS

7.1 Doors shall be constructed in the same manner as the walls with no less than 4 inches of urethane insulation.

7.2 All doors opening into a controlled temperature room shall be supplied with doorframe heaters, which shall supply sufficient heat to prevent condensation or frost accumulation.

7.3 Doors shall be provided with a magnetic gasket around the perimeter. Flush bottom doors shall be provided with adjustable vinyl sweep gasket. When door is closed, it shall form a positive airtight seal. Door gasket shall be installed in retainer strips for easy replacement in the field.

7.4 Doors shall incorporate a positive snap action latch with adjustable strike. The latch shall be equipped with cylinder lock and OSHA approved inside safety release mechanism to prevent entrapment. The hardware shall be chrome finished and mounted with stainless steel tamper-proof screws.

7.5 Doors shall be equipped with three heavy-duty strap type door hinges. They shall be cam lift type, self-closing, with nylon bearings and door lift-off capability. Hardware shall be chrome finish.

7.6 Doors shall be hinged as shown on the drawings.

7.7 The following doors are required in the location as shown on the plans and drawings.

Standard Entry Doors	Optional Entry Doors	Product Loading Doors	Service Doors
A. [30" x 79"]	A. [48" x 79"]	A. [24" x 24"]	A. [36" x 80"]
B. [36" x 79"]	B. [54" x 79"]	B. [24" x 30"]	B. [36" x 84"]
	C. [60" x 79"]	C. [30" x 30"]	C. [42" x 84"]
			D. [48" x 84"]

7.8 Entry doorjamb shall include a vapor-proof switch and visible pilot light to indicate when lights are in the "ON" position.

8.0 THERMOMETER

8.1 Entry door shall be supplied with 2", flush face dial-type thermometer. Thermometer shall be NSF approved.

9.0 HASP LOCK

9.1 All entry doors not specified as thru-wall or partition type doors shall be equipped with a door hasp lock to prevent unauthorized entry into the walk-in. The hasp lock shall be supplied with an inside safety release mechanism.

10.0 DOOR WEATHER HOOD

10.1 A weather hood shall be supplied on all exterior doors.

10.2 The weather hood shall act to divert rain and ice from gasket area of all exterior doors. It shall match exterior wall finish and shall be factory mounted.

11.0 OPTIONAL ACCESSORIES

11.1 The following optional accessories are to be provided with the walk-in and shall be factory installed.

[11.2 Exterior Door Ramp]

[11.3 18 ga. Stainless Steel Door Kick Plate Set]

[11.4 Door Closer (Hydraulic Arm Type)]

[11.5 Burglar Alarm System]

[11.6 Strip Door Curtain]

[11.7 Framed Wall Opening]

[11.8 Merchandising Doors]

[11.9 Temperature Alarm]

[11.10 Temperature and / or Humidity Recorder]

[11.11 Explosion Proof (Class I) Electrical System]

[11.12 Fluorescent Lighting]

[11.13 Three-Way Light Switches]

[11.14 Pressure Relief Vent]

[11.15 Remote Refrigeration Mounting]

[11.16 Nailer Trim]

[11.17 Refrigeration System Switch]

[11.18 Wire / Solid Shelving]

[11.19 Floor Drain]

[11.20 Steel Service Door]

[11.21 Hurricane Anchors]

[11.22 Exterior Flood Light]

[11.23 Extra Heavy Duty Sealed Floor]

[11.24 Custom Exterior Finishes]

[11.25 Supplementary Compartment Heaters]

[11.26 Full Bar Security Hasp Lock]

[11.27 Through Wall Door Threshold]

12.0 SELF CONTAINED REFRIGERATION SYSTEM(S)

12.1 Packaged refrigeration system(s) shall be manufactured and factory installed by the walk-in unit manufacturer.

12.2 System(s) shall be complete and ready to operate without field assembly, installation, or start-up required.

12.3 Refrigerants shall be non-flammable type R-404a or other acceptable substitute when necessary.

12.4 Electrical controls including system breakers shall be supplied, installed and ready to operate with single point electrical connection by others.

12.5 Refrigeration system(s) shall be complete with the following: roof mount type horizontal discharge air cooled condenser, Copeland hermetic (or equal) and semi-hermetic compressor (or equal) with overload protection and contactors (as required), weather hood finished to match exterior wall finish, fan guards, receiver tank with liquid shut off valve, suction line accumulator (on 3 HP systems and higher only), liquid line filter / drier and sight glass, high / low pressure control, liquid line solenoid valve, crankcase heater, low ambient controls to -20° F, room thermostat and U.L. labeled electrical control panel wired in accordance with N.E.C. standards.

12.6 Evaporator coils shall be furnished with appropriate defrost for operating temperature range.

12.7 Electric defrost shall be included on all refrigeration systems operating at +32° F and below. Electric defrost shall be time initiated and temperature terminated with time override and fan delay to reduce room condensation. All condensate pans shall be piped to copper drain line complete with heat tape exiting the wall nearest to drain pan. Evaporators shall be located as shown on plans and drawings.

12.8 Refrigeration systems operating at +33° F and above shall be off-cycle air defrost. Defrost periods shall be time initiated and time terminated. All condensate pans shall be piped to PVC drain line exiting the wall nearest to drain pan. Evaporators shall be located as shown on plans and drawings.

13.0 PRESSURE RELIEF VENT

13.1 All freezer compartments shall be supplied with a heated pressure relief vent. It shall include interior and exterior covers, 120V/60HZ/1PH antifreeze heater assembly, closable damper assembly to close when not venting and a PVC sleeve to protect urethane foam in wall structure.

OPTIONAL ACCESSORIES SPECIFICATIONS

11.1 The following optional accessories are to be provided with the walk-in and shall be factory installed.

11.2 Exterior Door Ramp: Shall be sized the width of the door x [30"] [36"] [47"] long.

11.3 18 ga. Stainless Steel Door Kick plate Set: Shall not be less than 18" high x width of door and of 18 ga. type 304 stainless steel with corners beveled and deburred. Plates applied to both sides of door.

11.4 Door Closer (Hydraulic Arm Type): Shall be mounted to top center of door and jamb to provide positive closing of door.

11.5 Burglar Alarm System: Shall be Class II rated circuit magnetic type completely installed. System shall have contactor mounted in refrigeration system panel to accommodate electrical supply from the building's alarm system.

11.6 Strip Door Curtain: Shall be NSF approved and labeled and not less than 1/8" thick clear vinyl material. Individual panels of strip curtain shall overlap jamb and each other by not less than 1" and shall touch floor of walk-in.

11.7 Framed Wall Opening: Shall be of the dimensions shown and located as shown on the plans and drawings and shall be finished with same material and in same manner as the doorjamb.

11.8 Merchandising Doors: Shall be of the size and number shown on the plans and drawings. They shall be factory mounted and complete with magnetic gaskets, polished extruded aluminum frames, pull type door handles, self closing hinges, tempered safety glass with heated glass on +32° F and below application, door and frame heaters and fluorescent light. Five-tier shelving shall be included as shown on plans and drawings.

11.9 Temperature Alarm: Shall be provided to activate when compartment temperature rises above the set point. Signal shall consist of warning light and buzzer located above door latch. Power shall be 120V/60HZ/1PH with battery back up in case of power failure.

11.10 Temperature and/or Humidity Recorder: Shall be factory mounted and located as shown on plans and drawings. Recorder shall be electric (120V/60HZ/1PH) 7-day clock, graph type with enclosure suitable for outside installation. Recorder shall be complete with graphs and ink.

11.11 Explosion Proof (Class I) Electrical System: Shall be provided in the interior of the unit [and on the exterior of the unit within __ft. of the door opening]. Wiring and electrical components shall be factory installed in conformance with the National Electric Code.

11.12 Fluorescent Lighting: Shall be factory installed in unit. Fixtures shall be surface mount, 4 ft., two bulbs, -20° F ambient ballast type NSF approved and so labeled.

11.13 Three-Way Light Switches: Shall be flush mounted, vapor proof, and shall allow the lighting system to be turned "ON" or "OFF" at either switch location.

11.14 Pressure Relief Vent (Cooler): Shall include interior and exterior covers, 120V/60HZ/1PH antifreeze heater assembly, closable damper assembly to close when not venting, and a PVC sleeve to protect urethane foam in wall structure. A pressure relief vent standard on freezers.

11.15 Remote Refrigeration Mounting: Shall be supplied for installation at location by others shown on plans and drawings. System shall be complete as specified in section 12.0 "Self Contained Refrigeration System(s)" except for suction line piping and insulation, liquid line piping, and interconnecting wiring and conduit between condensing unit control panel and evaporator electrical panel. Refrigerant lines from evaporator shall be capped and the evaporator charged with dry nitrogen. Refrigerant lines from the condensing unit shall be piped to the exterior of the weather hood, capped with copper caps, and charged with dry nitrogen. Interconnecting wiring from shall be from clearly marked terminals on condensing unit to clearly marked terminals on the evaporator coil. A wiring diagram showing the required interconnecting wiring shall be furnished.

All on-site refrigeration piping, refrigerant charging, and system start-up procedures shall be done according to ASHRAE recommended procedures and in conformance to local mechanical codes.

11.16 Nailer Trim: Shall be provided according to plans and drawings for attachment of siding, stucco, or other decorative material after the unit is set in place.

11.17 Refrigeration System Switch: Shall be factory mounted on the face of the evaporator coil. Switch shall allow refrigeration system to be turned off for short periods of time for personnel comfort. Switch shall be wired so as to shut off evaporator fans and cause system to pump down when switch is turned to "OFF" position.

11.18 Wire/Solid Shelving: Shall be adjustable, sectional type of size and number of tiers shown on the plans and drawings. Shelving shall be NSF approved and so labeled. Shelving system shall be free standing and shall include all necessary posts, shelves, shelf stops, post closures and floor plates required for complete system. Shelving shall be **[stainless steel] [plated] [acrylic coated steel].**

11.19 Floor Drain: A floor drain shall be factory installed in the unit with drainpipe exiting sidewall of walk-in where shown on plans and drawings. Floor drain shall consist of 24" x 24" x 3/4" depressed floor pan catch basin, 1" diameter drain screen, 1" PVC pipe drain with internal trap and a 1" diameter x 2" long male extension beyond sidewall of unit for easy on-site connection.

11.20 Steel Service Door: Shall be factory installed in location shown on plans and drawings. Door to be used to provide exterior access to non-refrigerated compartment. Door shall be constructed of 18 ga. primed steel and equipped with security peephole, panic bar type inside release, ball bearing hinges, key locking latch and felt door sweep. Doorjamb shall be 16 ga. primed steel with foam weather strip and a parallel arm type hydraulic door closer.

11.21 Hurricane Anchors: Shall be factory provided for installation by others. The anchors shall be installed by placing the 1-1/8" x 2" flat steel bar into the 1-1/2" x 3", rectangular steel tubing permanently attached to floor of walk-in and bolting the anchor down to the concrete slab by placement of (1) 5/8" diameter Hilti Kwik Bolt II expansion anchor bolt (or equivalent) for each tie down plate.

11.22 Exterior Flood Light: Shall be mounted where shown on plans and drawings. Fixture shall be 110V/60HZ/1PH with one 150-watt incandescent flood lamp and photoelectric switch.

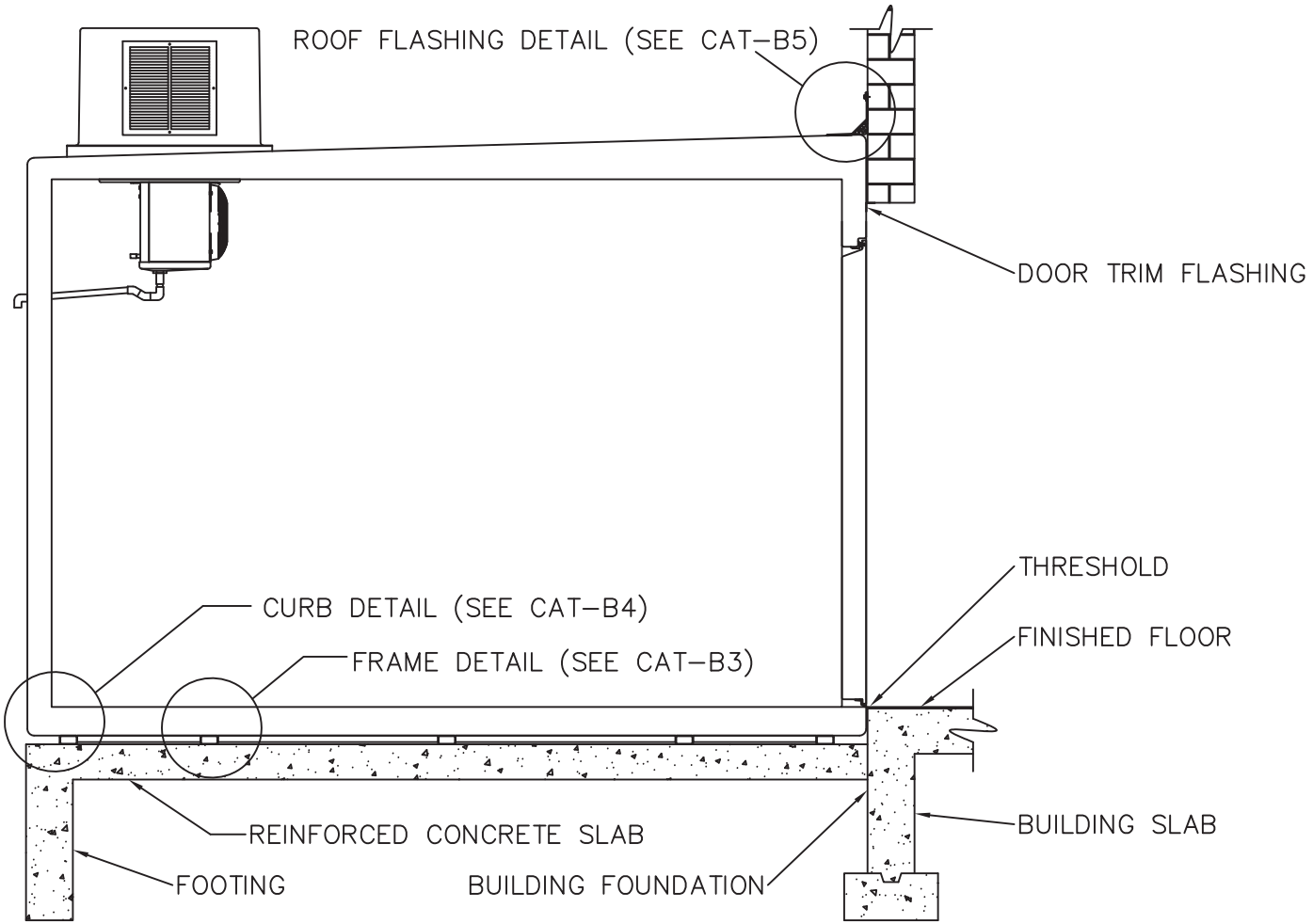
11.23 Extra Heavy Duty Sealed Floor: Shall have 3/4" sub floor permanently bonded to the urethane insulation core. Floor shall have fiberglass matting bonded to sub-floor to form a watertight seal. Floor shall be slip resistant and able to support pallet jack traffic. The floor shall have capacity to support 5000 lbs. / sq. ft. of evenly distributed load.

11.24 Exterior Finishes: Shall be factory installed including but not limited to: stucco, vinyl siding, wood fencing and brick.

11.25 Supplementary Compartment Heaters: Shall be included with the refrigeration system and shall be factory installed and wired. The heater shall be of sufficient capacity to maintain a +35 °F compartment temperature with a -40°F ambient temperature. The supplementary heater shall be complete with all required safety and operating controls.

11.26 Full Bar Security Lock: Shall be constructed of 1/4" case hardened steel and factory installed on doors which provide outdoor access to unit.

11.27 Through Wall Door Threshold: Shall be factory provided for installation by others. Shall be 1/2"H x 5"D x width of door. Threshold shall be aluminum with PVC vinyl frost barrier. Cadmium plated wood screws for anchoring shall be included.

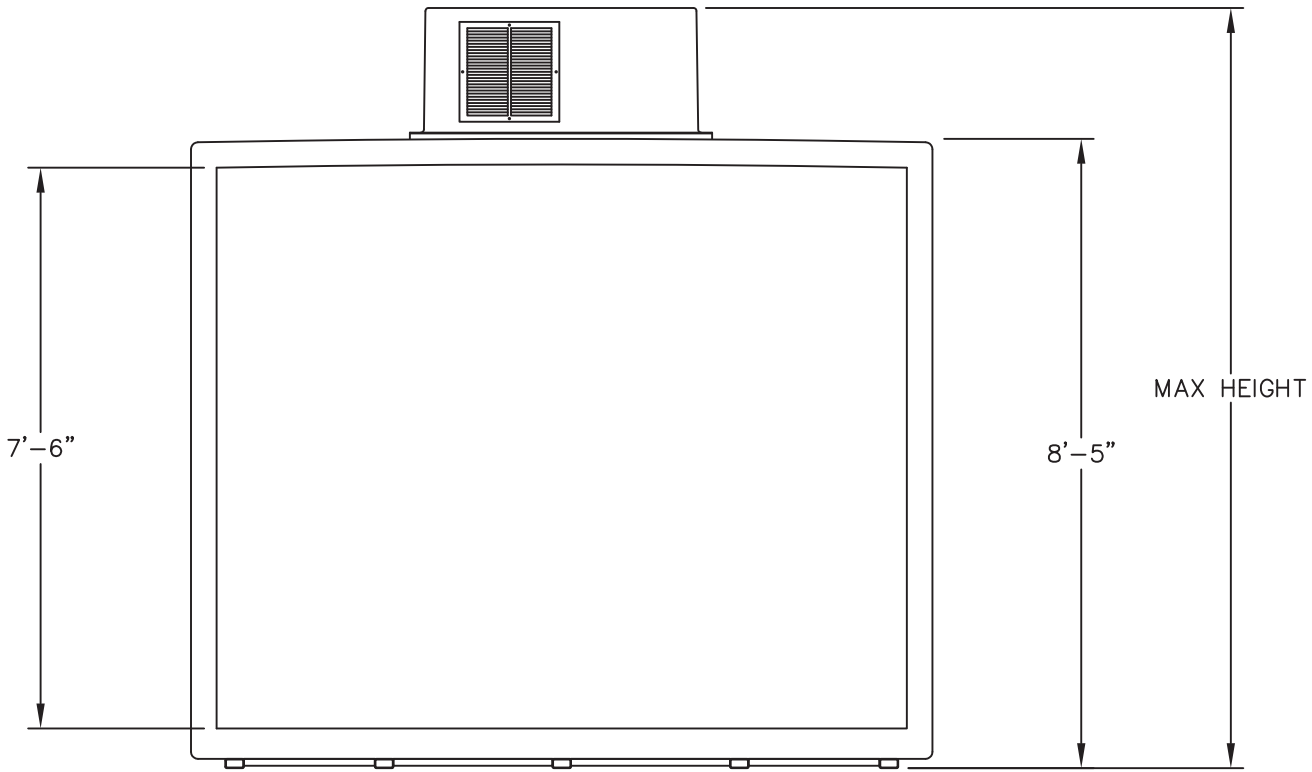


SECTION VIEW

PROVIDE A LEVEL SLAB AS REQUIRED BY YOUR LOCAL BUILDING CODE.
IT IS VERY IMPORTANT THAT THE SURFACE THE WALK–IN WILL SIT ON IS LEVEL AND FLAT FOR PROPER DRAINAGE AND MECHANICAL OPERATION.

Specification Sheet			
Through-Wall Detail			
DRAWN BY: MD Leppek	MODEL NO.: CAT–B1	SCALE:	DATE: 10–17–08
DRAWING NAME: Specification Sheet CAT–B1 Through–Wall Detail			

POLAR KING INTERNATIONAL, INC.
FORT WAYNE, INDIANA 1-800-752-7178



STANDARD HEIGHT FREESTANDING UNIT

COMPRESSOR SIZE	MAX HEIGHT
3/4 & 1 HP	10'–3"
1 1/2 & 2 HP	10'–5"
3 HP & UP	11'–4"

NOTE: THE HEIGHT MAY BE ADJUSTED TO MEET SITE CONDITIONS. THE INTERIOR HEIGHT CAN BE ANY DIMENSION FROM 6'–6" TO 10'–2".

EXTERIOR HEIGHT IS DETERMINED BY ADDING 11" TO THE INTERIOR HEIGHT.

CONTACT POLAR KING FOR APPLICATIONS REQUIRING SLOPED ROOFS.

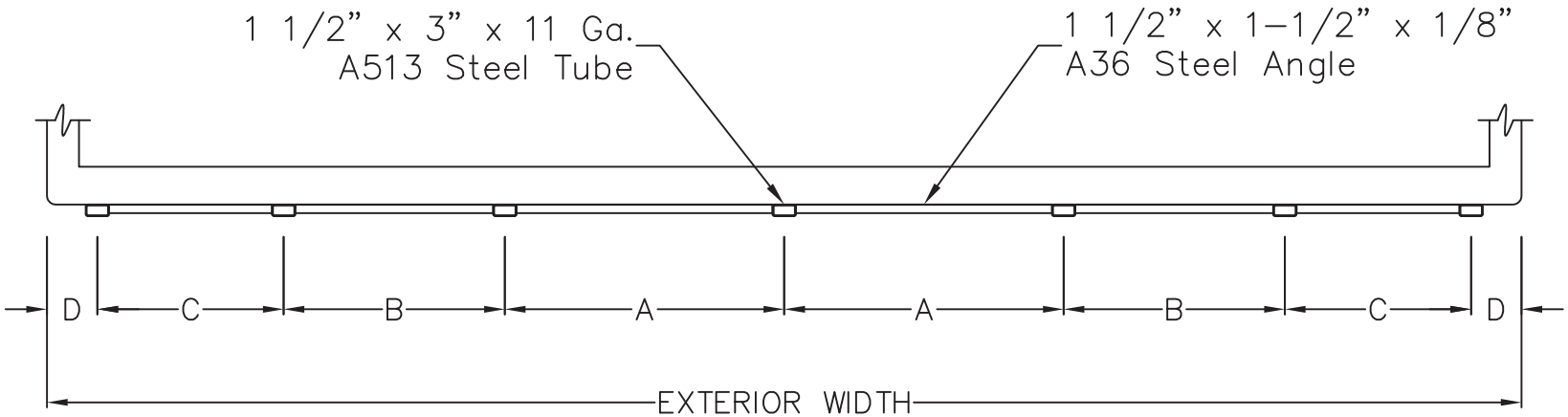
Specification Sheet

Height Details

DRAWN BY:	MODEL NO.:	SCALE:	DATE:
MD Leppek	CAT–B2		10–17–08

DRAWING NAME: Specification Sheet CAT–B2 Height Details

POLAR KING INTERNATIONAL, INC.
FORT WAYNE, INDIANA 1-800-752-7178



END ELEVATION VIEW

Frame Spacing					
Exterior Width	Number of Tubes	A	B	C	D
5'-11"	3	28 1/2"	–	–	7"
6'-11"	3	34 1/2"	–	–	7"
7'-11"	3	40 1/2"	–	–	7"
8'-11"	3	46 1/2"	–	–	7"
9'-11"	5	28 1/2"	24"	–	7"
10'-11"	5	34 1/2"	24"	–	7"
11'-11"	5	40 1/2"	24"	–	7"
12'-11"	5	36"	34 1/2"	–	7"
13'-11"	5	40 1/2"	36"	–	7"
14'-11"	5	46 1/2"	36"	–	7"
15'-10"	7	36"	28 1/2"	24"	6 1/2"

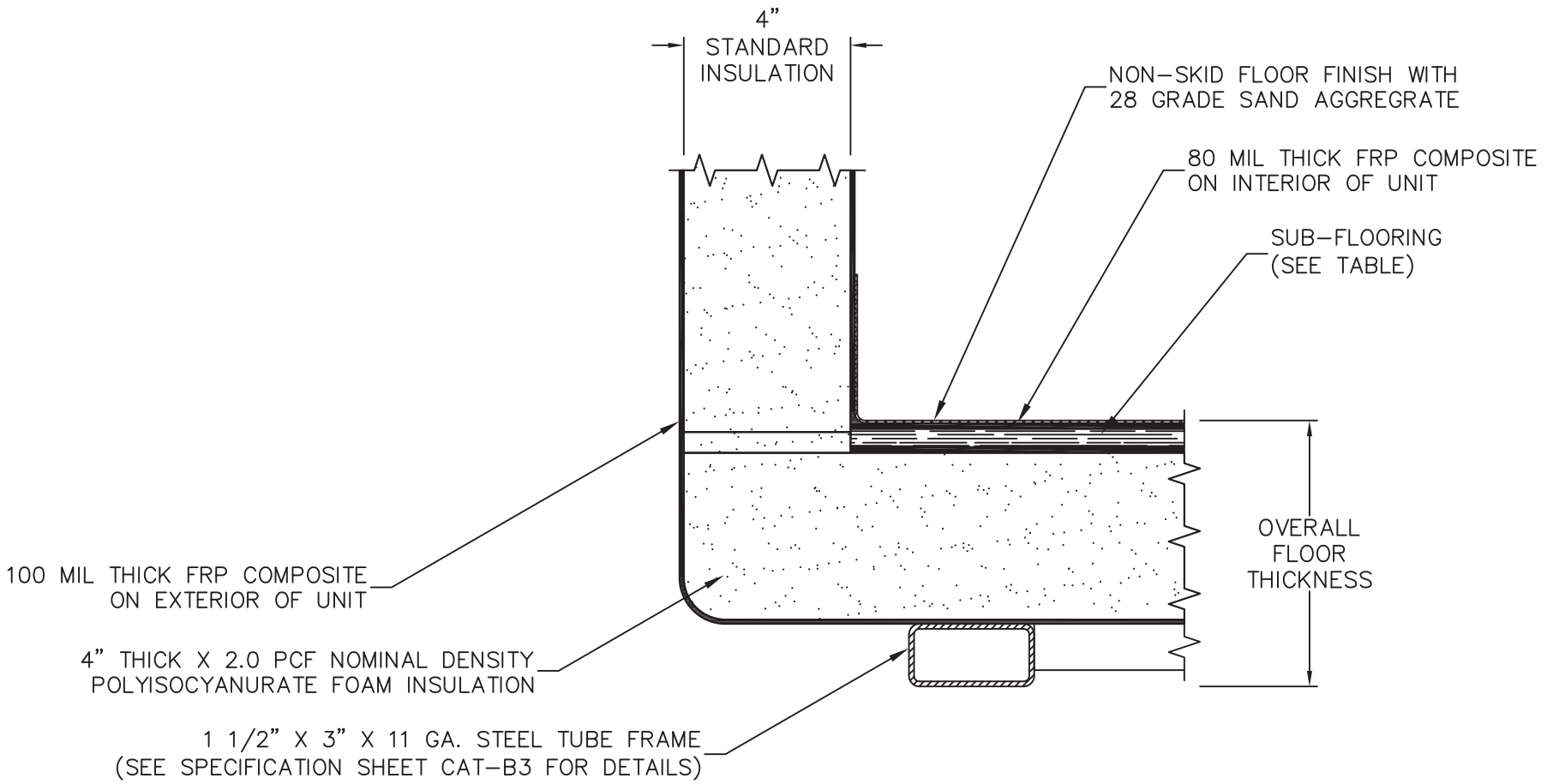
Specification Sheet

Frame Details

DRAWN BY:	MODEL NO.:	SCALE:	DATE:
MD Leppek	CAT-B3	1/2"=1'-0"	10-17-08

DRAWING NAME: Specification Sheet CAT-B3 Frame Details

POLAR KING INTERNATIONAL, INC.
FORT WAYNE, INDIANA 1-800-752-7178



FLOOR THICKNESS		
FLOOR TYPE	OVERALL THICKNESS	SUBFLOOR THICKNESS
HEAVY DUTY	6-3/8"	1/2"
EXTRA HEAVY DUTY	6-5/8"	3/4"
PALLET JACK FLOOR	7-1/8"	1-1/4"

100 MIL EXTERIOR OR 80 MIL INTERIOR REINFORCED FIBERGLASS CONSISTING OF:
FIBERGLASS SPRAY GUN ROVING (207 YARDS PER POUND YIELD) IN GENERAL PURPOSE POLYESTER RESIN AT 33%-34% GLASS CONTENT WITH NO FILLER.

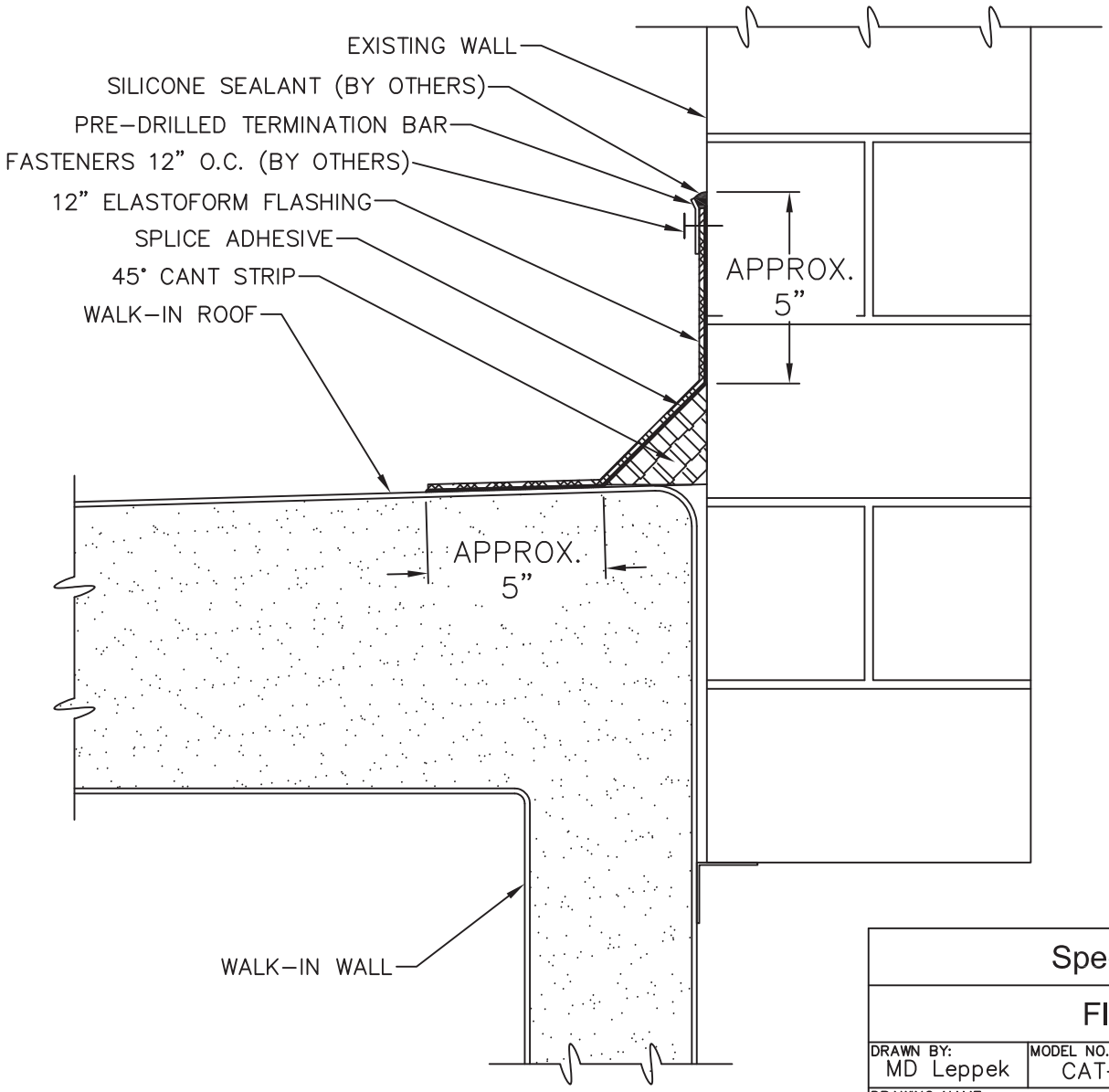
Specification Sheet

Curb Detail

DRAWN BY:	MODEL NO.:	SCALE:	DATE:
MD Leppek	CAT-B4		10-17-08

DRAWING NAME: Specification Sheet CAT-B4 Curb Detail

POLAR KING INTERNATIONAL, INC.
FORT WAYNE, INDIANA 1-800-752-7178



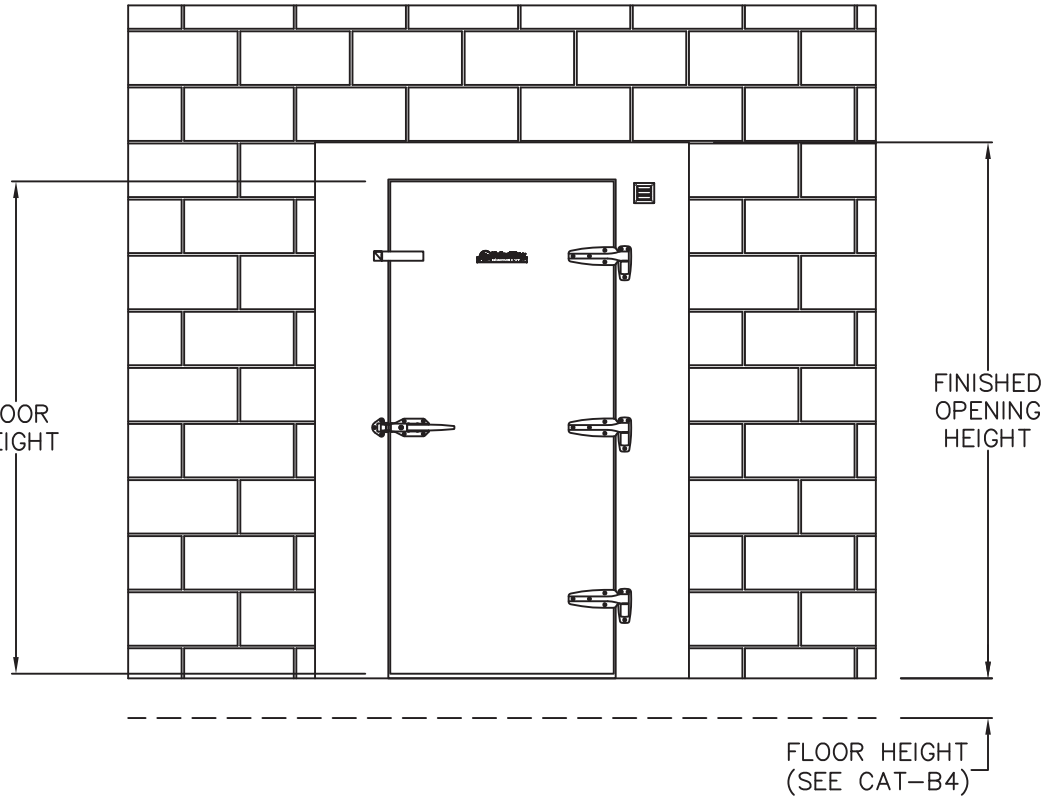
Specification Sheet

Flashing Detail

DRAWN BY:	MODEL NO.:	SCALE:	DATE:
MD Leppek	CAT-B5		10-17-08

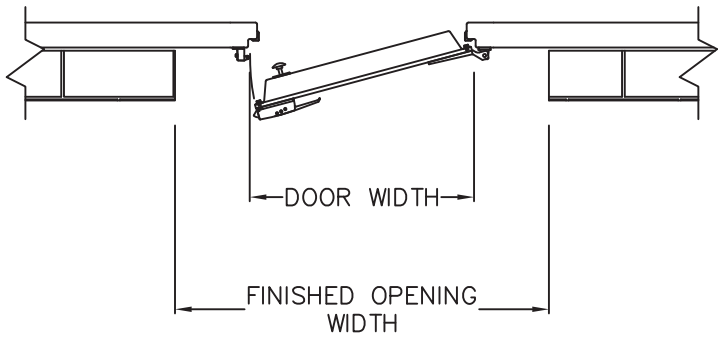
DRAWING NAME: Specification Sheet CAT-B5 Flashing Detail

POLAR KING INTERNATIONAL, INC.
FORT WAYNE, INDIANA 1-800-752-7178



DOOR HEIGHT	FINISHED OPENING HEIGHT
24"	32"
36"	44"
72"	80"
79"	86"

(HEIGHT OF OPENING TO BE APPROXIMATELY
8" GREATER THAN DOOR HEIGHT)



DOOR WIDTH	FINISHED OPENING WIDTH
24"	48"
30"	54"
36"	60"
48"	72"

Specification Sheet

Door Opening Detail

DRAWN BY:	MODEL NO.:	SCALE:	DATE:
MD Leppek	CAT–B6		10–17–08

DRAWING NAME:
Specification Sheet CAT–B6 Door Opening Detail

POLAR KING
INTERNATIONAL, INC.
FORT WAYNE, INDIANA 1-800-752-7178

RECOMMENDED ANNUAL MAINTENANCE

As part of a comprehensive maintenance plan, Polar King recommends that the following service functions be performed at least once a year. (Heavy dust areas may require more frequent attention). It is also recommended that a qualified refrigeration technician perform service.

1. Clean condenser coil.
2. Check unit for proper operation.
3. Check refrigerant charge.
4. Have condensate drain line checked and cleaned.
5. Have evaporator coil checked and cleaned with mild detergent.
6. Oil all electric motors in use.
7. Check cut-in and cutout pressures.
8. Check for proper defrost cycle.
9. Check caulking around drain lines and any other through wall and roof penetrations. Reseal as necessary.

CIRCUIT BREAKERS

All Polar King coolers and freezers are equipped with circuit breakers. Circuit breakers must be in the "ON" position for the unit to operate.

DO NOT USE THE CIRCUIT BREAKERS AS AN ON-OFF SWITCH. Units must go through a "pump down" first or compressor damage may occur at start up.

Interior lights are prewired. No special connections are required; they are activated when system connections are made.

ALLOWABLE VOLTAGES

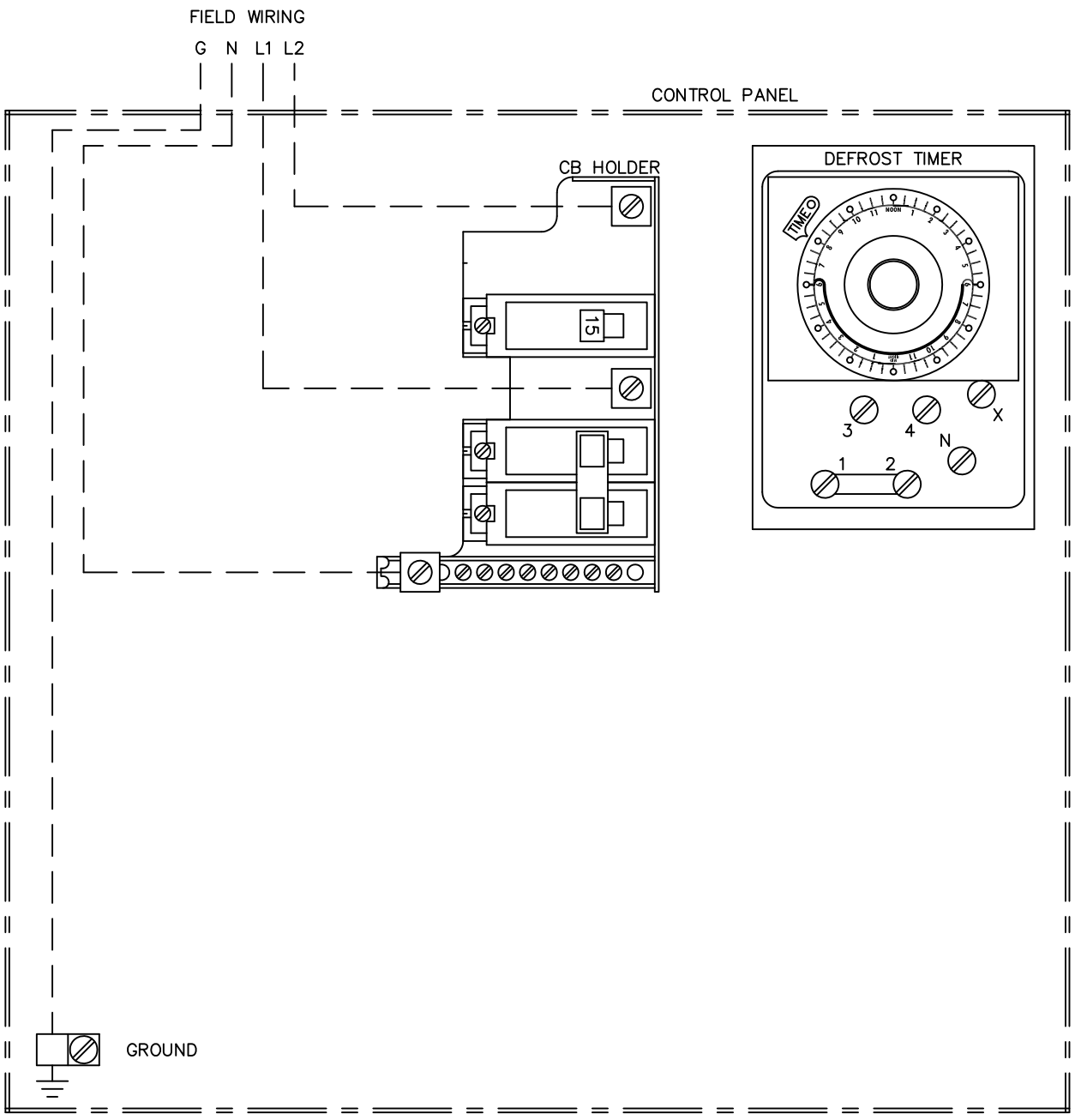
EXTREME ALLOWABLE VOLTAGE AT COMPRESSOR TERMINALS

	Nominal Voltage Range	Extreme Voltage Range
Single Phase – 60 HZ	230	207-253
Three Phase – 60 HZ	208-230	187-253
	460	414-506
	575	517-632

AMP LOAD REQUIREMENTS AND BTUH SYSTEM CAPACITIES

Condensing Unit	Evaporator	HP	Voltage	BTUH	1 PH	3 PH
R-22 Medium Temperature (35° F) Hermetic						
F3AH-A050	LCA6-44	1/2	208-230	3950	9.9	N/A
F3AH-A075	LCA6-72	3/4	208-230	6250	14.7	N/A
F3AH-A101	LCA6-90	1	208-230	8580	14.6	12.5
F3AD-A151	LCA6-135	1 1/2	208-230	12100	23.8	21.8
F3AM-A201	LCA6-160	2	208-230	14700	27.3	21.1
F3AD-A301	LCA6-260	3	208-230	24600	46.6	34.6
F3AD-A401	MMT6-365	4	208-230	36900	58.5	39.8
F3AD-A501	MMT6-450	5	208-230	42700	63.8	44.2
R-404A Medium Temperature (35° F)						
FJAF-A056	LCA6-62	1/2	208-230	5990	11.0	N/A
FJAF-A075	LCA6-90	3/4	208-230	7780	15.5	N/A
FJAM-A125	LCA6-110	1 1/4	208-230	9880	16.4	13.5
FJAM-A150	LCA6-135	1 1/2	208-230	13500	23.9	19.6
FJAM-A200	LCA6-185	2	208-230	17300	25.1	20.9
FJAM-A225	LCA6-215	2 1/4	208-230	19200	27.8	23.7
FJAM-A300	LCA6-260	3	208-230	25400	38.5	31.5
FJAM-A325	MMT6-300	3 1/4	208-230	28900	40.8	31.8
FJAM-A400	MMT6-450	4	208-230	39900	50.1	39.3
FJAM-A500	MMT6-510	5	208-230	46000	63.4	50.9
R-404A Low Temperature (0° F / -10° F) Hermetic						
FJAL-A103	LCE4-57	1	208-230	4950 / 3570	17.3	13.3
DJAL-015Z	LCE6-94	1 1/2	208-230	9730 / 7870	24.6	19.2
DJAL-020Z	LCE6-120	2	208-230	12100 / 9780	30.0	21.6
DJAL-022Z	LCE4-139	2 1/4	208-230	13000 / 10600	31.0	24.4
DJAL-025Z	LCE6-160	2 1/2	208-230	15400 / 12600	36.4	27.5
DJAL-030Z	MLT6-190	3	208-230	18900 / 15300	47.9	33.2
DJAL-040Z	MLT4-220	4	208-230	22560 / 18480	54.1	41.2
DJAL-050Z	MLT6-260	5	208-230	26270 / 21630	N/A	45.2
R-404A Low Temperature (0° F / -10° F) Semi-Hermetic						
EJAL-A075	LCE6-43	3/4	208-230	4600 / 3870	12.3	8.8
EJAL-A100	LCE4-57	1	208-230	5500 / 4670	16.4	11.3
CJAL-0150	LCE6-94	1 1/2	208-230	8600 / 7000	21.1	15.6
CJAL-0200	LCE6-120	2	208-230	11800 / 9700	26.8	16.3
CJAL-0300	MLT6-190	3	230	19400 / 14500	33.9	N/A
CJAL-0300	MLT6-190	3	208-230	19400 / 14500	N/A	26.7
CJDL-0300	MLT6-260	3(D)	208-230	25500 / 19800	46.2	31.8
CJDL-0400	MLT6-310	4	208-230	29800 / 24100	N/A	45.5
CJDL-0600	MLT4-370	6	208-230	35500 / 28300	N/A	50.4
CJDL-0750	MLT4-530	7 1/2	208-230	49900 / 39700	N/A	55.6
LDT-1000L6	ELT4-746	10	208-230	67850 / 54240	N/A	77.9

TYPICAL WIRE CONNECTIONS

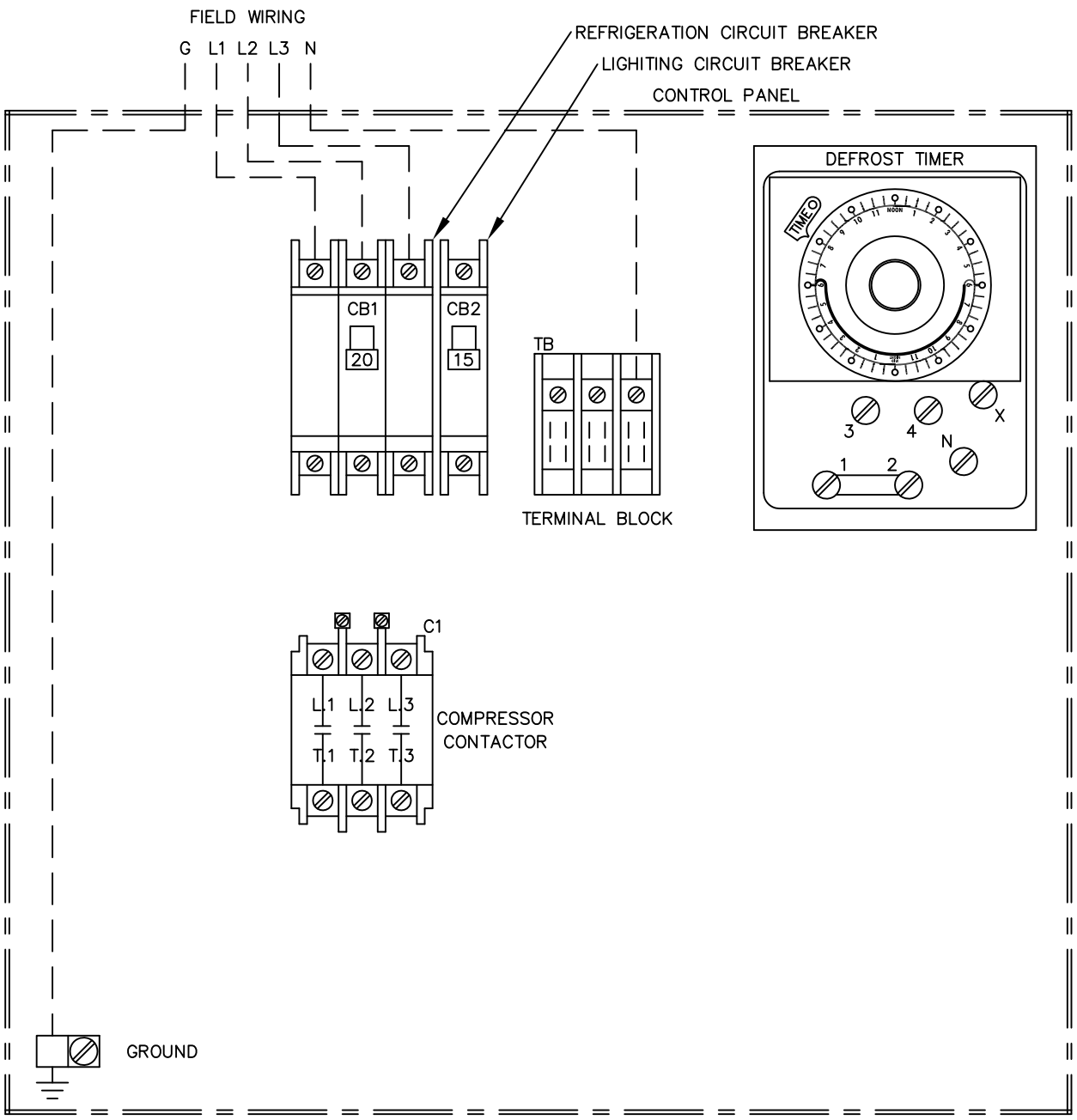


WIRING INSTRUCTIONS

CONTROL PANEL IS LOCATED AT THE CONDENSING UNIT ON TOP OF THE WALK–IN. A HOLE MAY BE DRILLED THRU THE FIBERGLASS CONDENSING UNIT COVER FOR INCOMING POWER. ELECTRICAL HOOK–UP MUST COMPLY WITH THE NATIONAL ELECTRICAL CODE. THE INSTALLED CONTROL PANEL MAY OR MAY NOT HAVE A CIRCUIT BREAKER HOLDER INSTALLED.

WALK–IN TYPE: Cooler or Freezer		COMPRESSOR TYPE:	
VOLTAGE: 208–230	PHASE: Single	CYCLES: 60 hz	HORSEPOWER:
DRAWN BY: MD Leppek	MODEL NO.:	SCALE: None	DATE: 10–17–08
DRAWING NAME: Single Phase Connections			

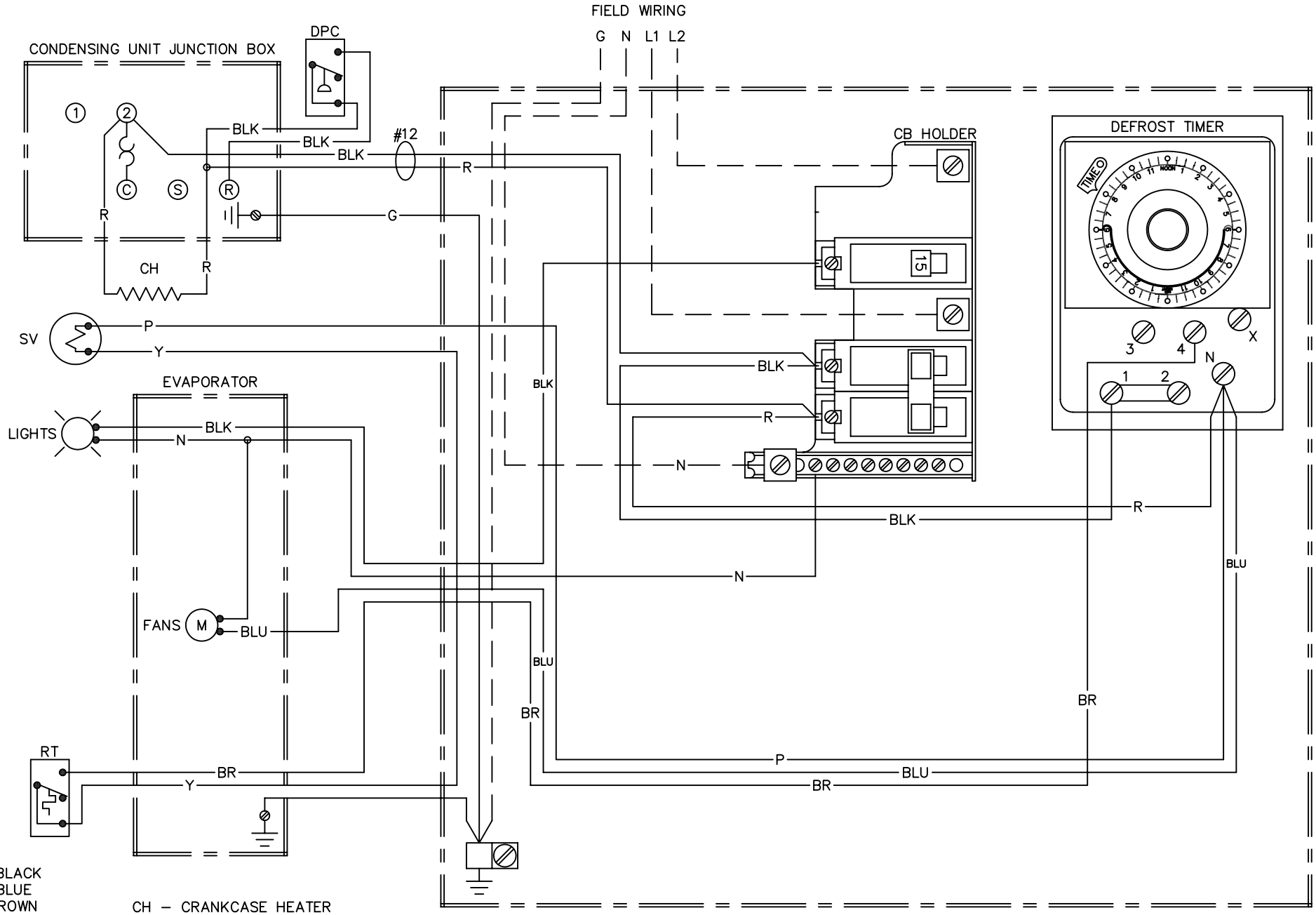
TYPICAL WIRE CONNECTIONS



WIRING INSTRUCTIONS

CONTROL PANEL IS LOCATED AT THE CONDENSING UNIT ON TOP OF THE WALK–IN. A HOLE MAY BE DRILLED THRU THE FIBERGLASS CONDENSING UNIT COVER FOR INCOMING POWER. ELECTRICAL HOOK–UP MUST COMPLY WITH THE NATIONAL ELECTRICAL CODE

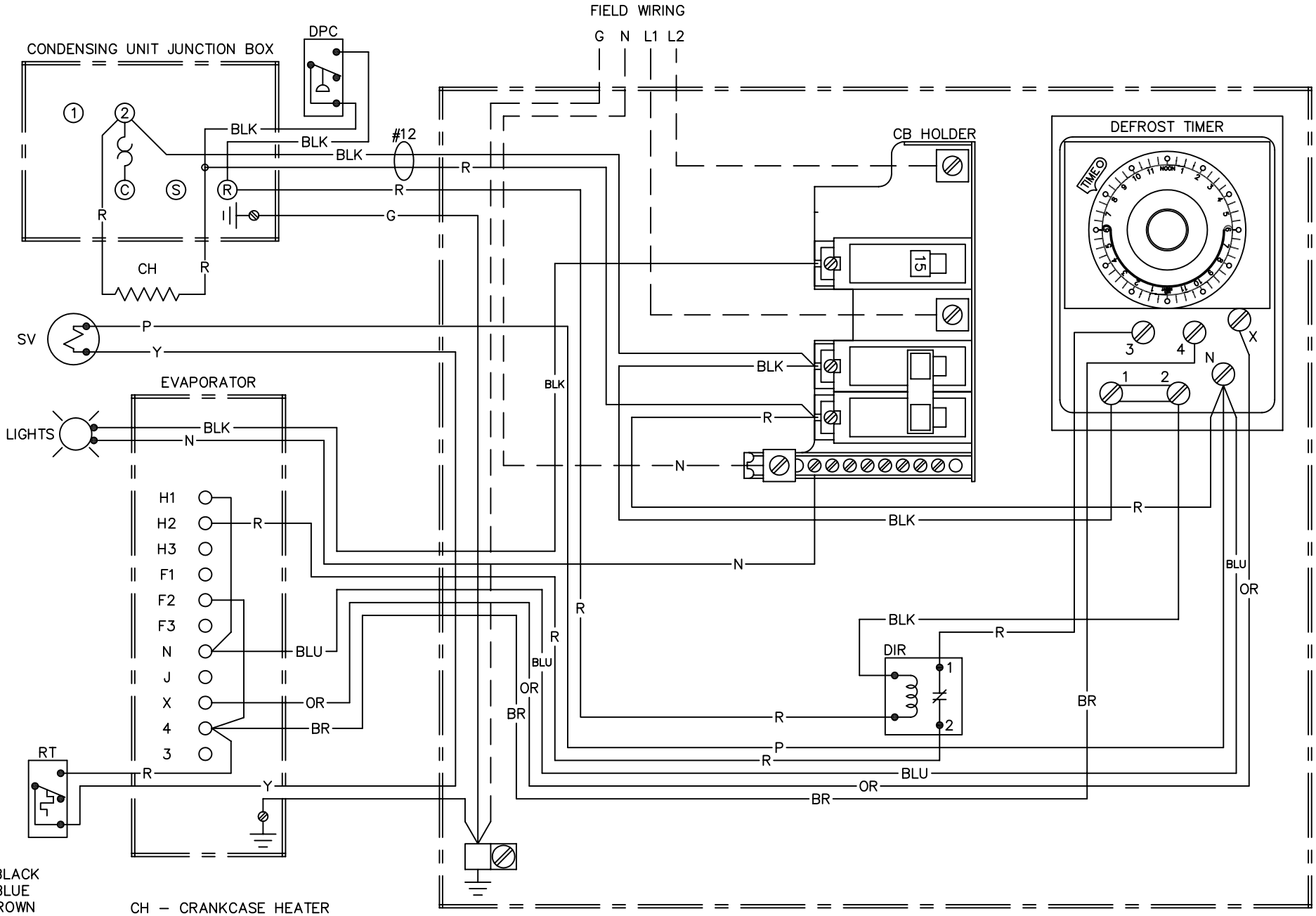
WALK–IN TYPE: Cooler or Freezer		COMPRESSOR TYPE:	
VOLTAGE: 208–230	PHASE: Three	CYCLES: 60 hz	HORSEPOWER:
DRAWN BY: MD Leppek	MODEL NO.:	SCALE: None	DATE: 10–17–08
DRAWING NAME: Three Phase Connections			



BLK – BLACK
BLU – BLUE
BR – BROWN
GR – GREEN
G – GROUND
N – NEUTRAL
OR – ORANGE
P – PURPLE
R – RED
W – WHITE
Y – YELLOW

CH – CRANKCASE HEATER
DPC – DUAL PRESSURE CONTROL
RT – ROOM THERMOSTAT
SV – LIQUID LINE SOLENOID VALVE

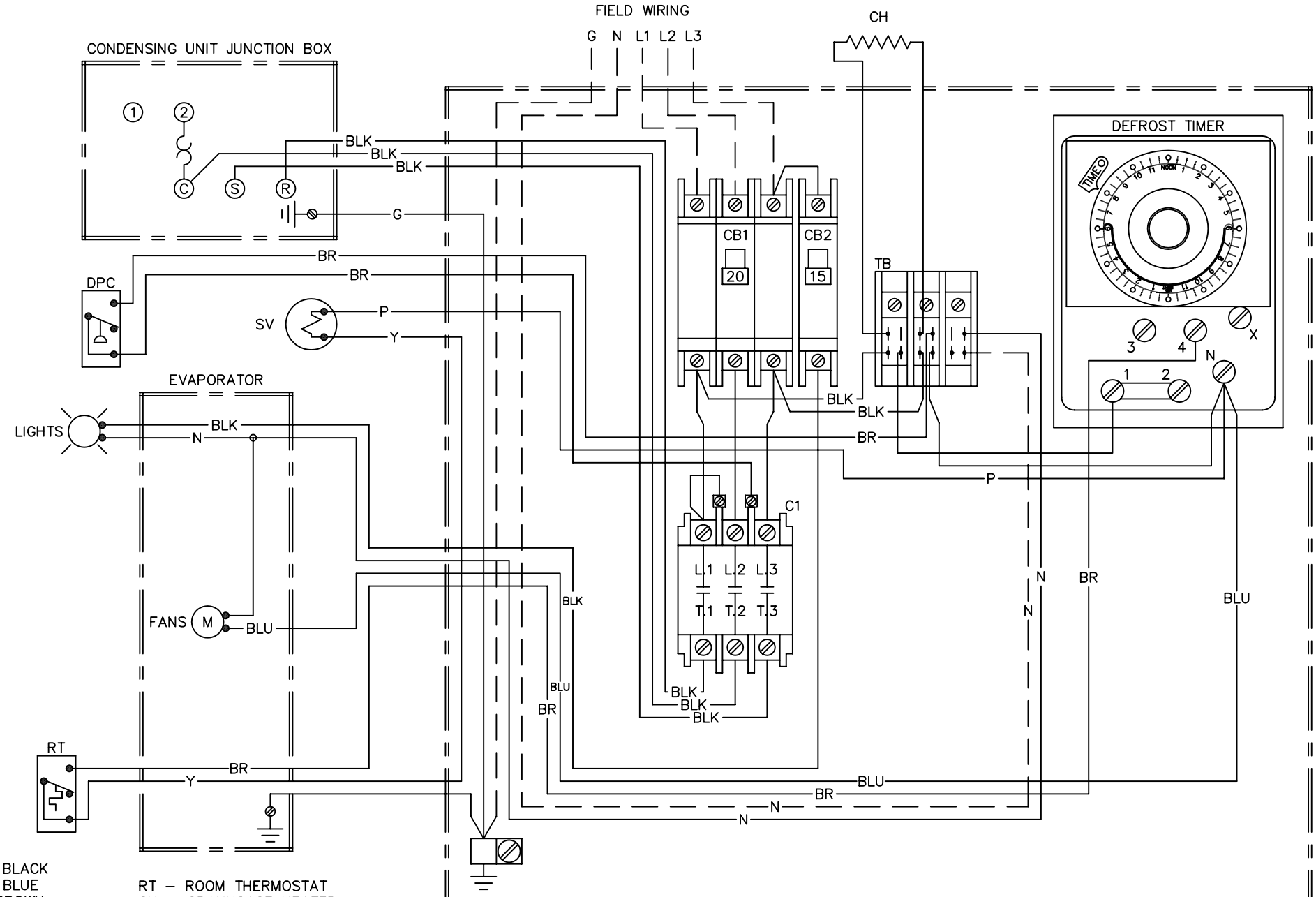
WALK-IN TYPE: Cooler		COMPRESSOR TYPE: Hermetic	
VOLTAGE: 208–230	PHASE: Single	CYCLES: 60 hz	HORSEPOWER: 1/2 to 2
DRAWN BY: MD Leppek	MODEL NO.:	SCALE: None	DATE: 3–13–03
DRAWING NAME: 208230–1–60 0050–0200 Cooler			



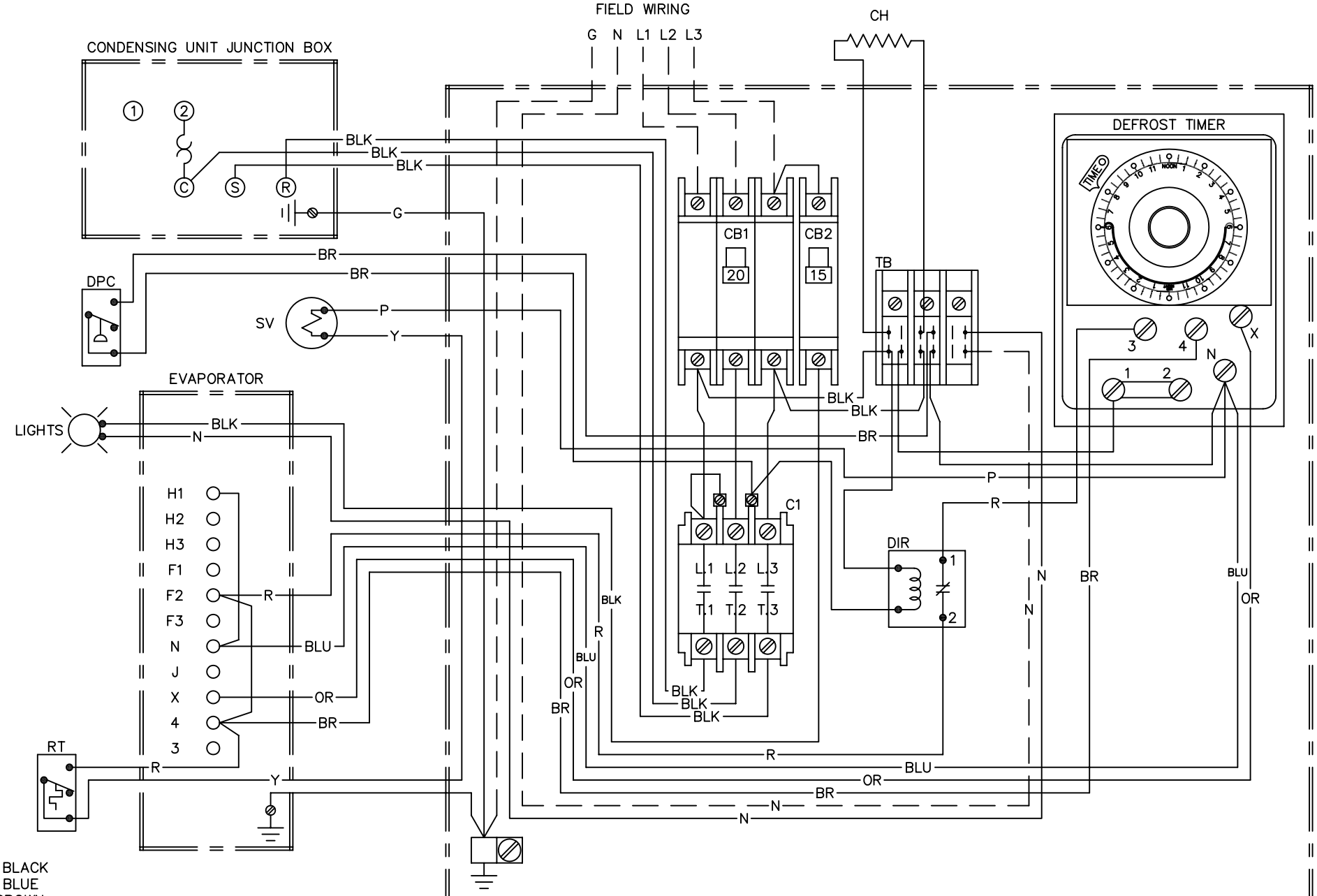
BLK – BLACK
BLU – BLUE
BR – BROWN
GR – GREEN
G – GROUND
N – NEUTRAL
OR – ORANGE
P – PURPLE
R – RED
W – WHITE
Y – YELLOW

CH – CRANKCASE HEATER
DPC – DUAL PRESSURE CONTROL
RT – ROOM THERMOSTAT
SV – LIQUID LINE SOLENOID VALVE
DIR – DEFROST INTERLOCK RELAY

WALK-IN TYPE: Freezer		COMPRESSOR TYPE: Semi-Hermetic	
VOLTAGE: 208-230	PHASE: Single	CYCLES: 60 hz	HORSEPOWER: 1/2 to 2
DRAWN BY: MD Leppek	MODEL NO.:	SCALE: None	DATE: 3-13-03
DRAWING NAME: 208230-1-60 0050-0200 Freezer			



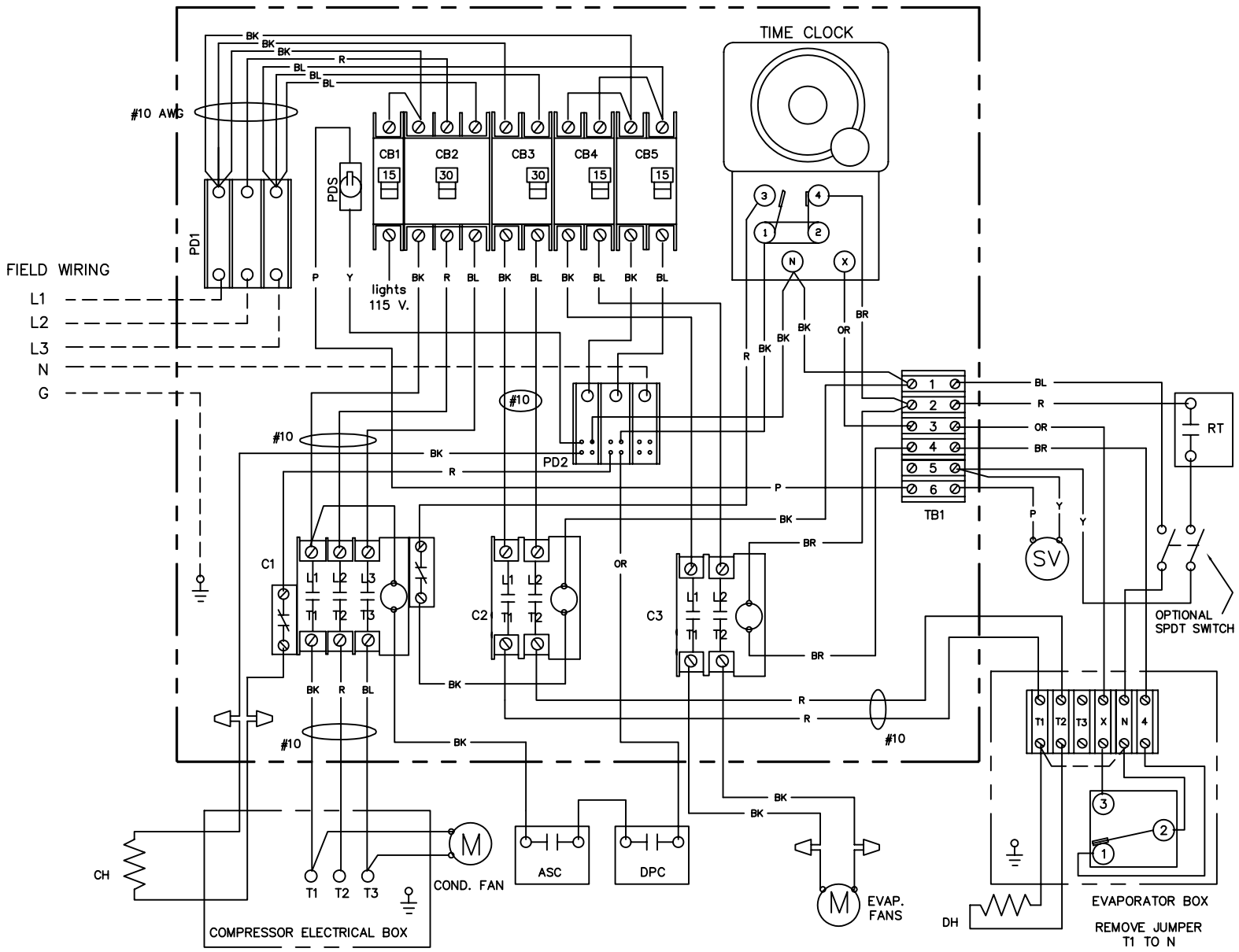
WALK-IN TYPE:		COMPRESSOR TYPE:	
Cooler		Hermetic	
VOLTAGE: 208–230	PHASE: Three	CYCLES: 60 hz	HORSEPOWER: 1/2 to 2
DRAWN BY: MD Leppek	MODEL NO.:	SCALE: None	DATE: 3–13–03
DRAWING NAME: 208230–3–60 0050–0200 Cooler			



BLK – BLACK
BLU – BLUE
BR – BROWN
GR – GREEN
G – GROUND
N – NEUTRAL
OR – ORANGE
P – PURPLE
R – RED
W – WHITE
Y – YELLOW

RT – ROOM THERMOSTAT
CH – CRANKCASE HEATER
DPC – DUAL PRESSURE CONTROL
SV – LIQUID LINE SOLENOID VALVE
CB1 – 208–230 VOLT CIRCUIT BREAKER
CB2 – 110 VOLT CIRCUIT BREAKER
TB – TERMINAL BLOCK
C1 – COMPRESSOR CONTACTOR
DIR – DEFROST INTERLOCK RELAY

WALK-IN TYPE: Freezer		COMPRESSOR TYPE: Semi-Hermetic	
VOLTAGE: 208–230	PHASE: Three	CYCLES: 60 hz	HORSEPOWER: 1/2 to 2
DRAWN BY: MD Leppek	MODEL NO.:	SCALE: None	DATE: 3–13–03
DRAWING NAME: 208230–3–60 0050–0200 Freezer			



BLK – BLACK
BLU – BLUE
BR – BROWN
GR – GREEN
G – GROUND
N – NEUTRAL
OR – ORANGE
P – PURPLE
R – RED
W – WHITE
Y – YELLOW

CB# – CIRCUIT BREAKER
C1 – COMPRESSOR CONTACTOR
C2 – HEATER CONTACTOR
C3 – FAN CONTACTOR
PDS – PUMP DOWN SWITCH
PD# – POWER DISTRIBUTION BLOCK
TB1 – TERMINAL BLOCK
DPC – DUAL PRESSURE CONTROL
RT – ROOM THERMOSTAT
SV – SOLENIOD VALVE
DH – DEFROST HEATER
CH – CRANKCASE HEATER
ASC – ANTI SHORT CYCLE

ALL WIRES TO BE 14 AWG
EXCEPT WHERE NOTED.

WALK-IN TYPE: Freezer		COMPRESSOR TYPE: Semi-Hermetic	
VOLTAGE: 208-230	PHASE: Three	CYCLES: 60 hz	HORSEPOWER: 3
DRAWN BY: MD Leppek	MODEL NO.:	SCALE: None	DATE: 3-13-03
DRAWING NAME: 208230-3-60 0300 Freezer			

SEQUENCE OF OPERATION COOLERS AND FREEZERS

COOLERS

All standard units are equipped with an adjustable thermostat located on the lower right hand side of the evaporator coil, on the inside of the walk-in. All units are set at the factory to the temperature requested by the customer. Minor adjustments in operating temperature may be made to suit your needs by a qualified refrigeration technician. Polar King recommends that you do not set the temperature colder than required, as this will cause unnecessary power consumption. Recommended temperature for a cooler ranges from +34° to +37° F, unless specified otherwise for special applications.

Refrigeration - Initial Start-Up

When starting up the cooler refrigeration system for the first time, the following events occur.

The operating sequence is as follows:

(1) Thermostat calls for refrigerant.

(2) Liquid line solenoid valve opens, allowing refrigerant to flow.

(3) Pressure control makes the control circuit and the condensing unit operates.

(4) When the room thermostat is satisfied, the liquid line solenoid will close, and the compressor will pump down and turn off. (Fan on unit cooler will continue to run.)

These units are designed for application conditions 33°F and above.

CAUTION: DO NOT SET A COOLER BELOW 32°F OR DAMAGE MAY OCCUR.

Defrost

Defrost is accomplished during refrigeration off cycle. Four defrost cycles per day are programmed at the factory (4 a.m., 10 a.m., 4 p.m., and 10:00 p.m.). It may be necessary to change the defrost cycle times to fit your work schedule.

The interior temperature may rise slightly during the defrost cycle. Do not be alarmed. Soon after the cycle is complete, the unit will return to proper temperature.

FREEZERS

All standard units are equipped with an adjustable thermostat located on the lower right hand side of the evaporator coil, on the inside of the walk-in. All units are set at the factory to the temperature requested by the customer. Minor adjustments in operating temperature may be made to suit your needs. Polar King recommends that you do not set the walk-in temperature colder than required, as this will cause unnecessary power consumption. Recommended temperature on a freezer ranges from 0 to -10° F for frozen food, and -10° to -15° F for ice cream.

Refrigeration - Initial Start-Up

When starting the system up for the first time, the fans will be delayed by the defrost termination thermostat and will not operate until the coil temperature is approximately +20° F.

The operating sequence is as follows:

(1) Thermostat calls for refrigerant.

(2) Liquid line solenoid valve opens, allowing refrigerant to flow.

(3) Pressure control makes the control circuit and the condensing unit operates.

(4) The coil temperature falls to approximately 20°F and the evaporator fans come on. (Note: The fans may cycle two or three times until the room temperature is stabilized.)

(5) When the room thermostat is satisfied, the liquid line solenoid will close, and the compressor will pump down and turn off. (Fan on unit cooler will continue to run.)

DEFROST (TIME INITIATED - TEMPERATURE TERMINATED)

After a run period of approximately 6 hours, the evaporator coil will be frosted and require a defrost. Four defrost cycles per day are programmed at the factory (4 a.m., 10 a.m., 4 p.m., and 10 p.m.). It may be necessary to change the defrost cycle times to fit your work schedule.

The interior temperature may rise 10-20° F during the defrost cycle. Do not be alarmed. No thawing of the product will occur. Soon after the cycle is complete, the unit will return to proper temperature.

The defrost sequence is as follows:

(1) Timer starts defrost cycle.

(2) Liquid line solenoid valve closes, evaporator fans stop, and the defrost heaters are energized.

(3) After pumping down, the compressor stops.

(4) The heaters warm the coil, melt the frost, and trip the termination thermostat at the set temperature.

(5) The defrost cycle is terminated; the liquid line solenoid opens; and defrost heaters are de-energized.

(6) The pressure switch closes and the compressor starts the refrigeration cycle.

(7) The evaporator fans will remain off until the coil temperature reaches approximately 20°F.

Should the termination thermostat fail to end the defrost cycle; the timer fail-safe time is designed to end after 30 minutes.

DEFROST ADJUSTMENTS - FREEZER

Optimal defrost is accomplished when the defrost cycle ends immediately after all the ice has cleared from the finned coil surface on the evaporator. Too long or too short of a defrost period may cause operational problems or waste electricity.

The defrost periods set at the factory are for "average" freezer use. Depending on the frequency of door openings and the ambient climate, it may be necessary to make adjustments to the defrost cycle.

ICE DROPLETS FORMING ON THE CEILING is a sign that the system is remaining in defrost too long after the ice clears from the coil fins. This can be corrected by turning the defrost duration screw towards the "shorter" position (fig. 5-1). If freezer still remains in defrost too long, a defrost setting pin should be removed from the timer clock (fig. 5-2). Repeat if necessary.

ICE BUILD-UP ON BACK OF EVAPORATOR COIL is a sign that the defrost period is not long enough. Turn duration setting towards the "longer" position (fig. 5-1). If build-up still occurs, a defrost setting should be added to the timer clock (fig 5-2).

NOTE:

(1) If excessive ice build-up has occurred, it may be necessary to manually melt away ice from coil surface, prior to making adjustments. System must be turned off in order to manually defrost the coil.

(2) Allow 24 hours between adjustments.

(3) Not all freezers are adjustable. To find out if yours is, find the defrost control (fig. 5-1), or call for assistance.

DEFROST CONTROL

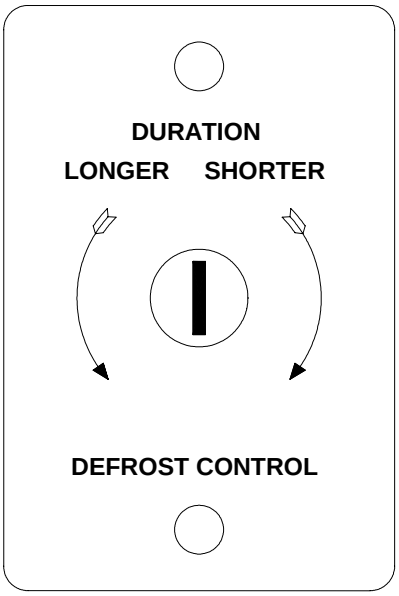


FIGURE 5-1
LOCATED ON RIGHT END OF EVAPORATOR COIL (MLT MODELS ONLY)

DEFROST TIMER CLOCK

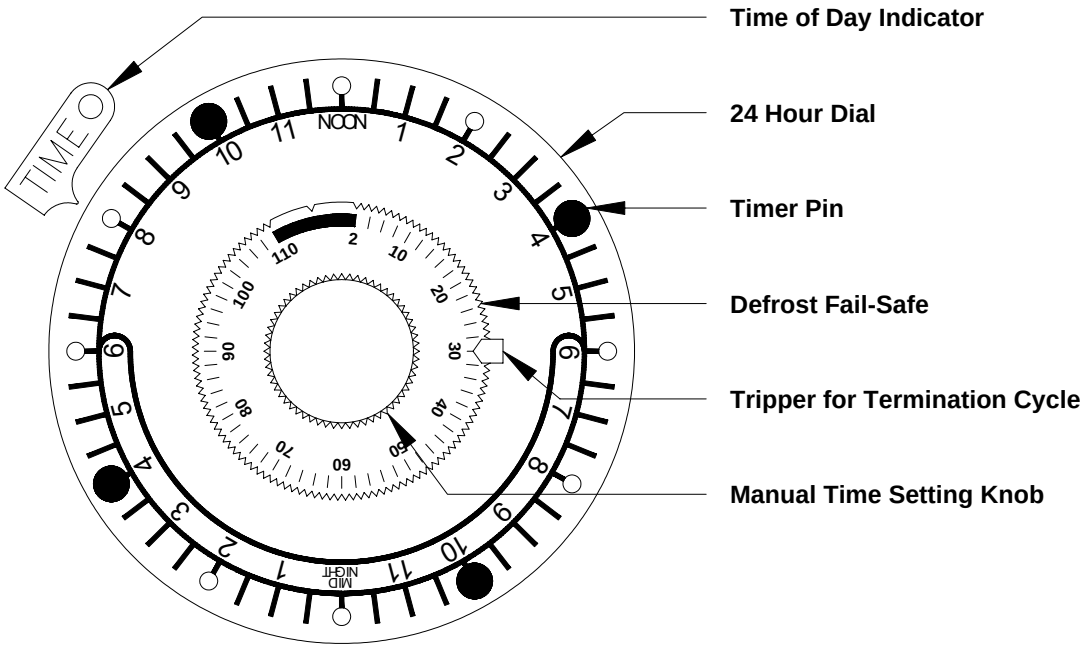


FIGURE 5-2
LOCATED IN ELECTRICAL CONTROL PANEL ON TOP OF WALK-IN

OPERATING TIPS

The operation of your Polar King walk-in cooler and/or freezer has been engineered to be as simple and trouble free as possible. This catalog provides you some helpful hints for everyday use of your equipment.

(1) After unit has been delivered, we recommend that anyone who will work with your Polar King unit take a minute and walk through it to familiarize themselves with the unit.

THINGS TO LOOK FOR:

A. Door Handle: Locking equipment and safety equipment.

B. Lighting: Location of switch, indicator light, and light bulb.

C. Thermometer: Proper operating temperature. If the temperature displayed on the thermometer is incorrect, the thermometer may be out of adjustment. Verify the walk-in temperature with another thermometer, and follow the pointer-reset instructions.

D. Thermostat: Location on right side of evaporator coil in unit. Adjusting dial higher or lower can change the temperature. Polar King recommends that you do not run your unit any cooler than required for economical operation. (Do not set a cooler below 32 degrees Fahrenheit or damage may occur.)

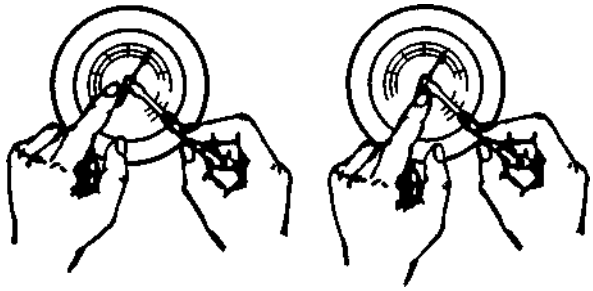
(2) Keep door opening and closing to a minimum to conserve energy.

(3) When working inside, close the door behind you. There is a door opener inside.

(4) When loading unit, be careful not to block the airflow from coil.

(5) Periodically check coil fan for proper operation. Check coil for ice. Faulty fan or iced coil will cost you unneeded power use.

TO RESET DIAL THERMOMETER POINTER



FOR LOWER TEMPERATURE

Place left index finger at wide end of pointer, but close to hub. Insert screwdriver in pointer slot and turn slowly clockwise. Adjust to proper setting.

FOR HIGHER TEMPERATURE

Place left index finger at wide end of pointer, but close to hub. Insert screwdriver in pointer slot and turn slowly counter-clockwise. Adjust to proper setting.

SERVICE ANALYSIS

GENERAL REFRIGERATION SYSTEM SERVICE ANALYSIS

POSSIBLE CAUSES	POSSIBLE CORRECTIVE STEPS
Problem - Compressor will not run.	
No supply at motor.	Check connections and controls.
Main disconnects open.	Close disconnect.
Fuse blown.	Repair electrical defect: replace fuse.
Overload open circuit	Rectify overload condition; replace overload.
Control open circuit.	Repair or replace.
Burn out.	Check windings with meter.
Problem - Compressor hums but will not start.	
Incorrectly wired.	Check against wiring diagram.
Motor winding incorrectly connected.	Check winding resistance. The resistance of the start windings for single-phase motor should be higher than that of the run windings. The windings of three phase motors should be equal.
Low line voltage.	Check voltage at motor terminals.
Start capacitor open circuit.	Replace start capacitor.
Relay not operating.	Replace relay.
Motor winding open circuit.	Check leads, if correct, replace compressor.
Seized compressor.	Check oil level; rectify seize or replace compressor.
Piston jammed or broken valve reed.	Rectify cause of liquid pumping; replace valve plate.
Problem - Compressor will not run up to speed.	
Low line voltage.	Check voltage at motor terminals.
Relay defective.	Replace relay.
Start capacitor shorted.	Replace capacitor.
High discharge pressure.	Ensure that discharge shut-off valve is open. Check condenser cooling.
Incorrectly wired.	Check against wiring diagram.
Motor winding incorrectly connected.	Check winding resistance. The resistance of the start windings for single-phase motors should be higher.

GENERAL REFRIGERATION SYSTEM SERVICE ANALYSIS

POSSIBLE CAUSES	POSSIBLE CORRECTIVE STEPS
Problem - Compressor short cycles.	
Control differential too small.	Readjust controls.
Valve plate leaking.	Replace valve plate.
Motor overloading.	Check condenser cooling, refrigerant charge, compressor lubrication, and load conditions.
Shortage of refrigerant.	Repair leak and check for acidity.
Expansion valve.	Adjust or replace.
High-pressure switch operates.	Check condenser cooling, and refrigerant charge.
Problem - Start relay burnt out.	
Low voltage.	Check voltage at motor terminals.
Run capacitor incorrect.	Fit correct valve capacitor.
Short cycling.	Reduce number of starts per hour to 20 or less.
Prolonged operations on start windings.	Reduce starting load, check for low voltage.
Incorrect relay.	Fit correct relay.
Problem - High discharge pressure.	
Refrigerant overcharge.	Remove refrigerant.
Air in system.	Purge air.
Dirty condenser.	Clean.
Problem - Low discharge pressure.	
Shortage of refrigerant.	Check for leaks and moisture; add refrigerant.
Compressor inefficient.	Check and replace valve plate.
Problem - Compressor noisy.	
Shortage of oil.	Check application for oil return; add oil.
Pumping liquid.	Check application for oil return; ensure that liquid refrigerant does not return to compressor.
Broken valve reed.	Check application for liquid pumping; replace valve plate.

APPROVALS & CODE COMPLIANCES

EQUIPMENT APPROVALS / COMPLIANCES

National Sanitation Foundation (NSF)

National Electric Code (NEC)

U.L. Listed, Class I Urethane Foam

U.L. Listed Major Refrigeration Components

U.L. Listed Electrical Components

BUILDING CODE GENERAL COMPLIANCES

International Conference of Building Officials (ICBO)

Southern Building Code Congress International (SBCCI)

Building Officials Congress Association (BOCA)

CONDITIONS OF SALE

All sales of goods by Polar King International, Inc., or through its designated representatives (hereinafter referred to as "The Seller") are made subject to the terms and conditions appearing herein.

CONDITIONS OF SALE

Acceptances of orders from buyers are subject to acceptance by the Seller at its Ft. Wayne, Indiana plant. These conditions of sale shall govern and control all orders accepted by Polar King or its representatives. No terms or conditions appearing in the buyer's order that are contrary to the Seller's terms and conditions shall be binding upon the Seller unless specifically agreed to in writing by an officer of Polar King. No representative or agent shall have the authority to abrogate or change any part of these conditions of sale, nor to obligate the company for costs of any kind whatsoever, without permission from an officer of Polar King.

PRICES AND TERMS OF PAYMENT

Prices - The manufacturer's suggested list price is subject to change without notice.

Terms of Payment - Unless other terms are specified, payment shall become due 30 days from date of invoice. If shipment is delayed by the buyer, date of readiness for shipment shall be determined by the purchase price and percentage of completion of the order; the balance shall be payable within 30 days from date of invoice or readiness for shipment, as the case may be. All accounts not paid when due are subject to a service charge of 1-1/2% per month. If, in the Seller's judgment, the buyer's financial condition at any time does not justify the terms specified, the Seller may require full or partial payment as a condition to commencing or continuing manufacture or advance of shipment, or if shipment has been made, recover equipment from the carrier.

Taxes - Any tax or other governmental charge now or hereafter levied upon the production, sale, use or shipment of goods ordered or sold will be charged to and paid for by the buyer. Such taxes are not covered in the Seller's price unless expressly so stated on the quotation form.

Freight - Prices are F.O.B. shipping point unless otherwise quoted in writing.

DELIVERY

All delivery dates given by the Seller are approximate and are estimates only not promises and are contingent of fires, strikes, accidents, embargoes and other causes beyond the Seller's control. While every effort will be made to meet estimated delivery dates, the Seller accepts no liability for loss of profit, consequential, or other damages caused by delay in delivery or failure to deliver. The Seller has no obligation to deliver goods against any order unless and until it has accepted the order by issuance of its acknowledgment of order. The Seller assumes no responsibility beyond delivery to carrier in good order and is not responsible for loss, damage, goods in transit, or in aiding the purchaser in case of loss or damage. The consignee should make all claims for loss, damage, or delay against the carrier.

CANCELLATIONS

The Seller subject to a cancellation charge will accept cancellation of an order for time, materials, and delivery.

PATENTS

Goods manufactured and sold by the Seller may be used by the buyer pursuant to such patent rights as the Seller has, and such goods do not, in and of themselves, infringe any unexpired U.S. patent; but the Seller shall not be liable for any use to which any such goods may be put as part of any system, mechanism or process covered by patent rights of others.

WARRANTY

Warranty of Seller's Products - Except where different express written warranty has been issued with respect to a particular product, no warranty of any kind, express or implied, is extended by the Seller to any person or persons other than its direct buyer. The Seller warrants only that it will furnish a replacement for, or in its option repair, the product of its manufacture of part or portion thereof, proved to its satisfaction to be defective in material or workmanship under normal use and service when returned to us freight prepaid. The Seller shall have no responsibility for performance of any product sold by it under conditions varying materially from those under which such product is usually tested under existing industry standards, nor for any damage to the product from abuse or misuse, nor for the design or operation of any particular application. The Seller shall not be liable for any cost or expense incurred including without limitation, freight, labor expense, or loss of refrigerant and materials in connection with the removal or replacement of alleged defective equipment or any part or portion thereof, nor for incidental or consequential damages of any kind, nor under any circumstances for any damage beyond the original purchase price of the goods sold.

WARRANTY

Polar King International, Inc., hereinafter referred to as Polar King, hereby warrants its cold storage units originally purchased from Polar King and installed and operated within the forty-eight contiguous states of the United States of America, as follows:

A. On units originally purchased from Polar King, Polar King warrants the unit structure, insulation, roof, doors, interior and exterior surfaces, and skids to be free of defects in materials and workmanship for a period of ten (10) years from date of delivery of the unit. This warranty covers replacement materials and labor only.

B. On units originally purchased from Polar King, Polar King warrants the refrigeration system, motors, compressors, condensers, evaporators, safety and operating controls, electrical components, defrost system, refrigerant specialties and piping to be free of defects in materials and workmanship for a period of one (1) year from date of delivery of the unit. This warranty covers replacement materials and labor only.

C. On units originally purchased from Polar King, Polar King warrants the compressor to be free of defects in materials and workmanship for an extended additional period of four (4) years after expiration of the general compressor warranty contained in Paragraph B above. This extended additional warranty shall be limited to replacement of the compressor by Polar King. The Polar King obligation to pay for replacement shall never exceed the wholesale exchanged price for a like compressor that might be purchased locally. This extended additional warranty does not cover or include any cost or expense for refrigerant or labor.

D. On unit originally purchased from Polar King, Polar King warrants all miscellaneous parts and accessory items not manufactured by Polar King, but which are attached or otherwise installed by Polar King at the customer's request, to be free of defects in materials and workmanship for a period of one (1) year from date of delivery of the unit. This warranty covers replacement materials and labor only.

E. Warranty does not cover any damage or malfunction caused by or that may be attributed to normal wear and tear, accidents, alterations, abuse, misuse, flood, fire, war, nuclear contamination, improper and/or unauthorized repairs, negligence, or any casualty unforeseen other than an operating defect or failure within the warranty period.

F. This warranty is not assignable without the expressed consent of Polar King.

G. Polar King's obligation hereunder shall be limited to the current Polar King cost to repair or replace any item, and shall not extend to consequential damages for loss due to the defects warranted including, but not limited to, the loss of contents stored within the unit.

H. All warranty service claims made must be made in accordance with the Polar King "Warranty Work Policy."

The above states the entire warranty provided by Polar King, and is in lieu of any and all other warranties expressed or implied.

WARRANTY WORK POLICY

In the event of a malfunction in operation of your Polar King walk-in cooler and/or freezer, the following steps must be taken in this order.

Review the preliminary checklist.

A. Check power source (Are lights working, etc?).

B. Is there heat on the bottom of evaporator coil in the walk-in? If so, the unit may be in a defrost cycle. Wait approximately 30 minutes. Unit should return to proper operation after cycle is complete.

C. Is the thermometer working properly?

After this checklist has been reviewed and operation has not been restored, the following steps must be taken:

A. Contact the licensed commercial refrigeration company of your choice or call Polar King for a recommendation.

B. If the unit is a cooler, wet ice should be packed around food to maintain proper temperature.

C. If the unit is a freezer, dry ice should be used to maintain proper temperature.

D. After problem has been identified, have the service company call Polar King for authorization and a work order number, if problem occurs during normal business hours (8 A.M. - 5 P.M. EST).

E. If problem occurs outside of these hours, have the service company correct problem and call Polar King the following day to obtain a work order number.

F. All replaced parts and the repair bill must be sent to Polar King International, Inc. (4424 New Haven Avenue, Fort Wayne, IN 46803) freight collect.

The procedure stated in this "Warranty Work Policy" must be followed. Failure to follow this procedure may make you responsible for all expenses incurred, since any service call not requiring warrantable item will not be paid for by Polar King International, Inc.

NO WARRANTY CLAIM WILL BE PAID WITHOUT A WORK ORDER NUMBER ON THE INVOICE AND THE REPLACED PARTS RETURNED TO POLAR KING INTERNATIONAL, INC.

TO OBTAIN WARRANTY SERVICE AUTHORIZATION PLEASE CALL:

TOLL FREE 1-800-223-2017