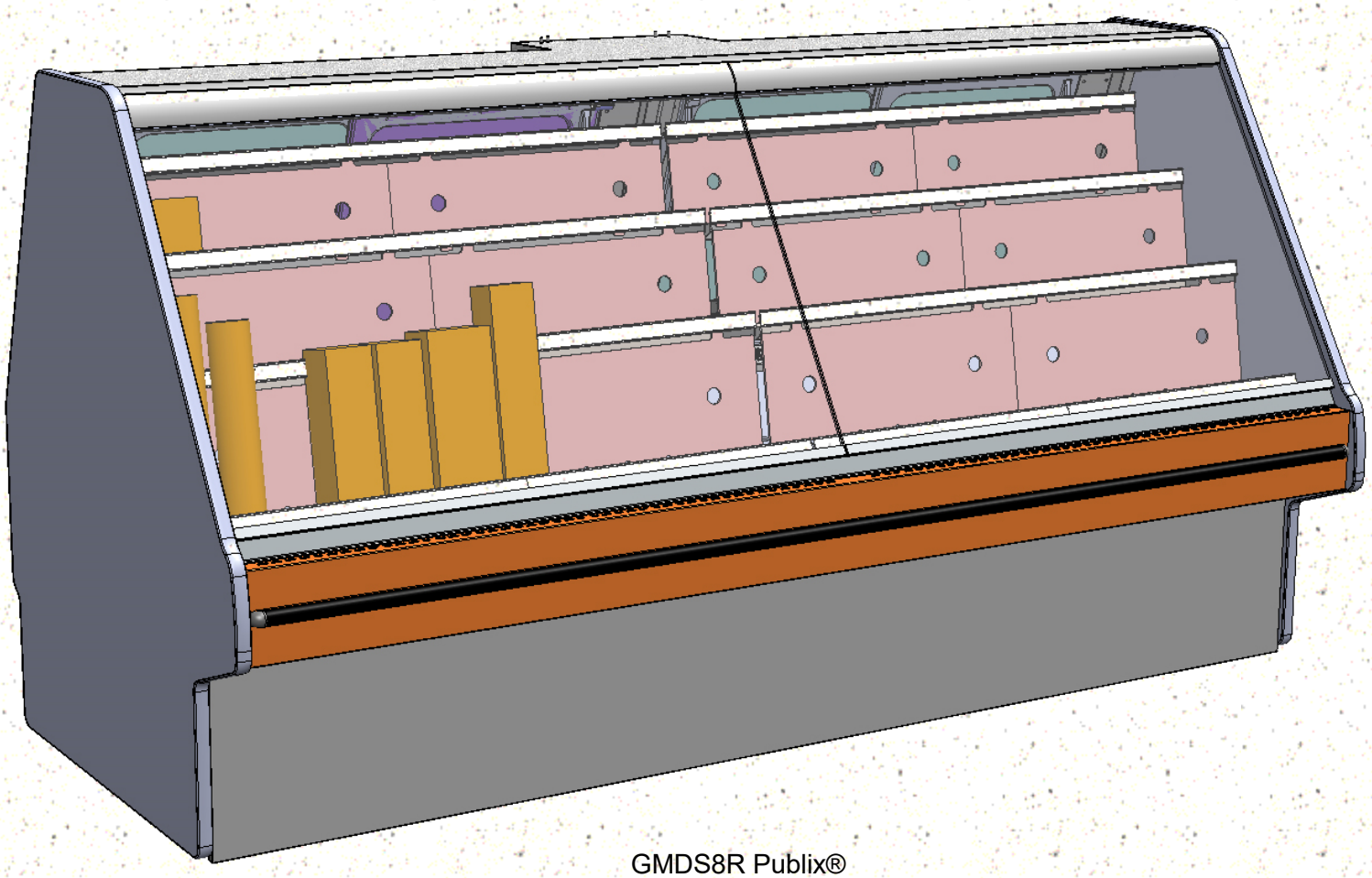
READ AND SAVE THESE INSTRUCTIONS

G-SERIES INSTALLATION AND OPERATING MANUAL

P/N 21-08773

G-SERIES PUBLIX® REFRIGERATED MID-VOLUME SERVICE DELI MERCHANDISERS
> REMOTE REFRIGERATION SYSTEM ONLY > ANGLED BACK WITH REAR SLIDING DOORS
> FLAT ANGLED FRONT GLASS > ABS PRODUCT STOPS > REAR ACCESS PANELS IN TOE-KICK
> REAR ADJUSTABLE SPLASH GUARDS > SCALE STAND WITH RECEPTACLE AND CAT-5 OUTLET



GMDS8R Publix®
With Scale Stand/Top Board Integration.
Sample Product Placement For Illustrative Purposes Only

Structural Concepts Structural Concepts Corporation · 888 E. Porter Road · Muskegon, MI 49441 Phone: 231.798.8888 Fax: 231.798.4960 · www.structuralconcepts.com

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OVERVIEW

- These Structural Concepts merchandisers are designed to merchandise packaged products at 38 °F (3.3 °C) or less product temperatures (unless custom cases with wire rack shelving).
- Product must be pre-chilled to 38 °F (3.3 °C) or less prior to being placed in merchandiser.
- Cases should be installed and operated according to this operating manual's instructions to ensure proper performance. Improper use will void warranty.

TYPE

This unit is designed for the display of products in ambient store conditions where temperatures and humidity are maintained within a specific range.

- For Type 1 Conditions (most cases): ambient conditions are to be at 55% maximum humidity and maximum temperatures of 75 °F (24 °C).
- For Type 2 Conditions: ambient conditions are to be at 55% maximum humidity and maximum temperatures of 80 °F (27 °C).
- If unsure if unit is Type 1 or 2, see tag next to serial label. See ***SERIAL LABEL LOCATION & INFORMATION LISTED / TECH INFO & SERVICE*** section in this manual for sample serial labels).

COMPLIANCE

- Performance issues when in violation of applicable NEC, federal, state and local electrical and plumbing codes are not covered by warranty.
- See below compliance guideline.

WARNINGS

- This page contains important warnings to prevent injury or death. Please read carefully!

PRECAUTIONS and WIRING DIAGRAMS

- See next page for ***PRECAUTIONS*** and ***WIRING DIAGRAM*** information.

COMPLIANCE

This equipment MUST be installed in compliance with all applicable NEC, federal, state and local electrical and plumbing codes.

WARNING

Risk of electric shock. Disconnect power before servicing unit.
CAUTION! More than one source of electrical supply is employed with units that have separate circuits.
Disconnect ALL ELECTRICAL SOURCES before servicing.

WARNING

Hazardous moving parts. Do not operate unit with covers removed. Fan blades may be exposed when deck panel is removed. Disconnect power before removing deck panel.

WARNING: This product can expose you to chemicals, including Urethane (Ethyl Carbamate), which are known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to P65Warnings.ca.gov.

PRECAUTIONS

- Following are important precautions to prevent damage to unit or merchandise. Please read carefully!
- See previous page for specifics on ***OVERVIEW, TYPE, COMPLIANCE*** and ***WARNINGS***.

WIRING DIAGRAM

- Each case has its own wiring diagram folded and in its own packet.
- Wiring diagram placement may vary; it may be placed near ballast box, field wiring box, raceway cover, or other related location.

REFRIGERANT DISCLOSURE STATEMENT

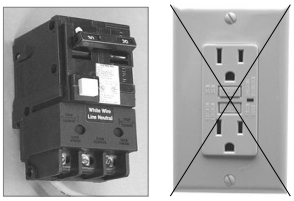
- This equipment is prohibited from use in California with any refrigerants on the "List of Prohibited Substances" for that specific end-use, in accordance with California Code of Regulations, title 17, section 95374.
- This disclosure statement has been reviewed by Structural Concepts and Structural Concepts attests, under penalty of perjury, that these statements are true and accurate.

POWER CORD AND PLUG MAINTENANCE (FOR CASES THAT ARE NOT FIELD-WIRED)

- Caution! Risk of electric shock.
- If cord or plug becomes damaged, replace only with cord and plug of same type.

CAUTION! LAMP REPLACEMENT GUIDELINES

LED lamps reflect specific size, shape and overall design.
Any replacements must meet factory specifications.

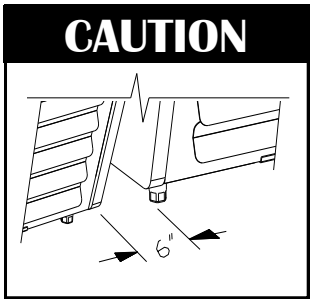


CAUTION! GFCI BREAKER USE REQUIREMENT

If N.E.C. (National Electric Code) or your local code requires GFCI (Ground Fault Circuit Interrupter) protection, you MUST use a GFCI breaker in lieu of a GFCI receptacle.

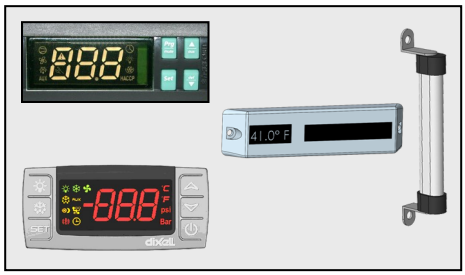
CAUTION! CASES WITH POWER CORD AND PLUG

Risk of electric shock. If cord or plug becomes damaged, replace only with cord and plug of same type.



CAUTION! ADVERSE CONDITIONS / SPACING ISSUES

- **Performance issues caused by adverse conditions are NOT warranted.**
- **End panels must be tightly joined or kept at least <u>6-inches</u> away from any structure to prevent condensation.**
- **Unit must be kept at least <u>15-feet</u> from exterior doors, overhead HVAC vents or any air curtain disruption to maintain proper temperatures.**
- **Unit must not be exposed to direct sunlight or any heat source.**



CAUTION!
DO NOT RELY ON THERMOMETERS OR THERMOSTATS FOR ACTUAL PRODUCT (FOOD) TEMPERATURES.

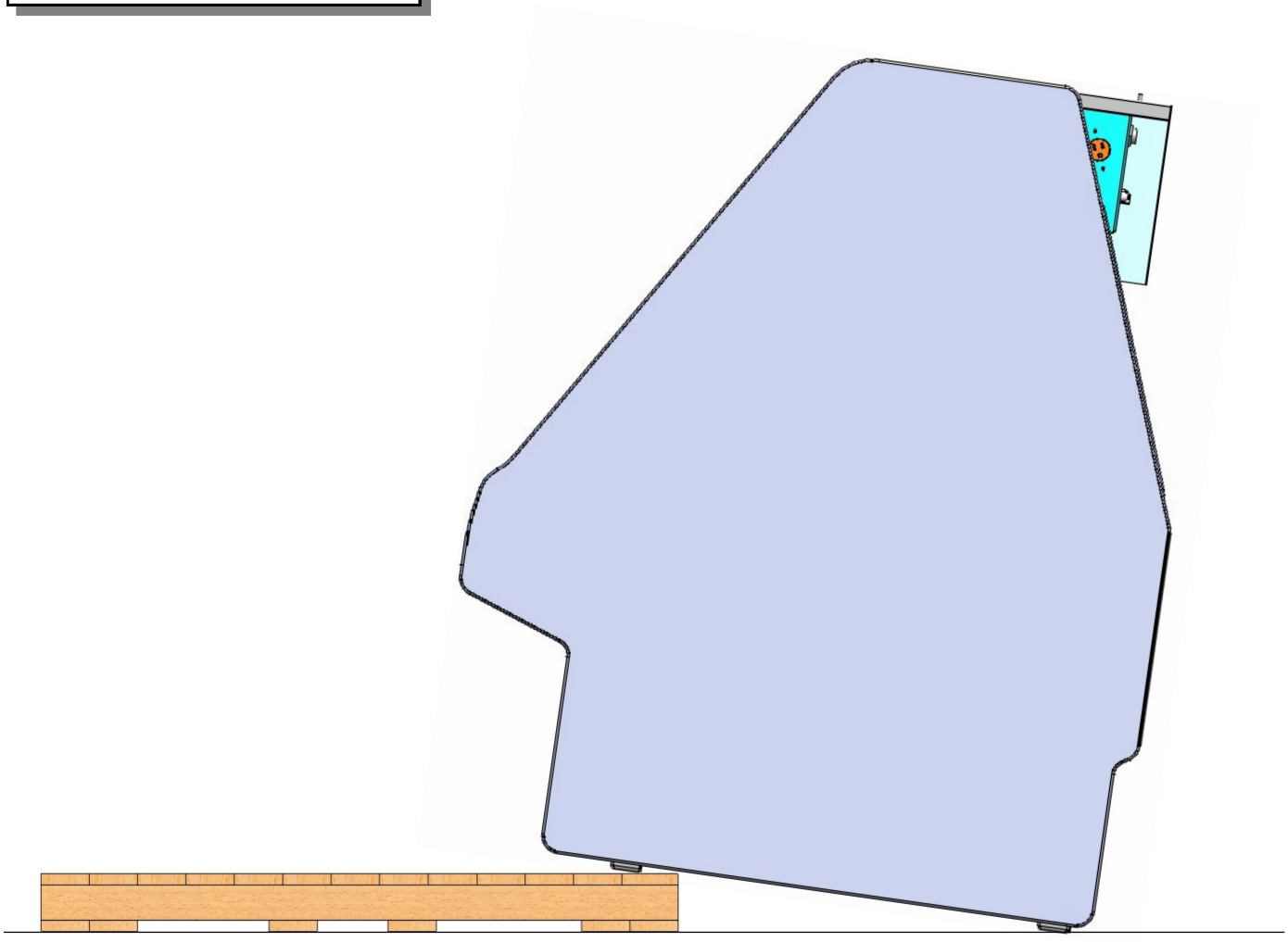
- **Thermometers & thermostats reflect air temperatures ONLY.**
- **For ACTUAL product (food) temperatures, use a calibrated food thermometer.**

INSTALLATION: REMOVAL FROM SKID

Remove Case From Skid

- Remove shipping brace that may be securing case to skid.
- Support case to prevent tipping.
- *Caution! Rails can be damaged if case hits floor with heavy force!*
- Carefully slide unit to rear of skid and tip backward off skid.
- Illustration may not reflect every feature or option of your particular case.

Note: Illustration shown may not exactly reflect every feature or option of your particular unit.



INSTALLATION: POSITION-ALIGN CASES / SHIMMING FRAME SUPPORT RAILS / FRONT TOE-KICK

1. Position & Align Cases As Required

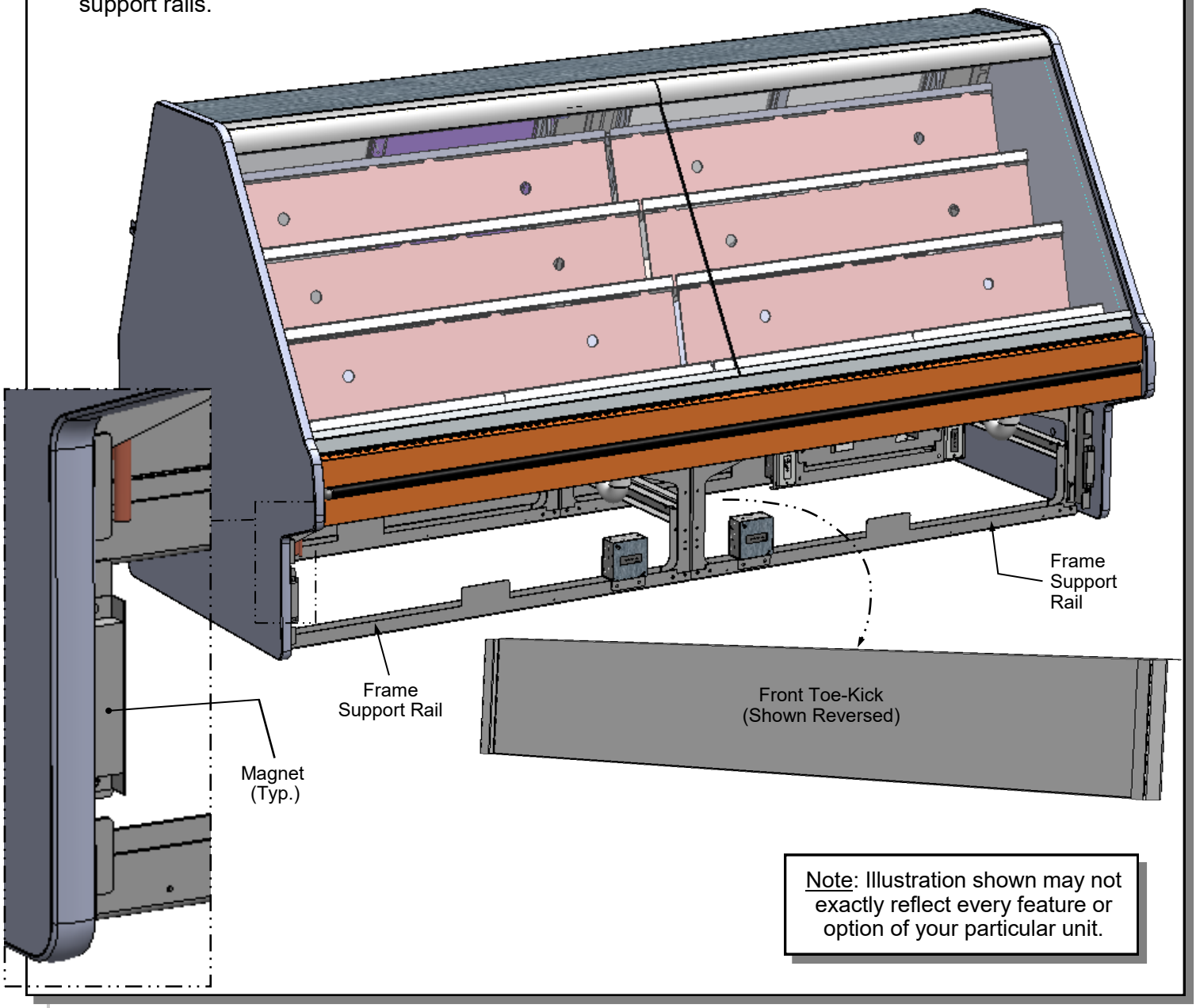
- Before shimming frame support rails, make certain that the case is in proper position and, if required, aligned with adjoining case.
- This may require the repositioning of the case you are installing or the already positioned case.
- Though case below shows both end panels, case adjoinment routinely consist of end panel removal for case-to-case placement.
- See next page for detailed adjoinment instructions.

2. Frame Support Rails Must Be Shimmed

- Illustration below shows case with frame support rails.
- Shims will be provided with all cases that have frame support rails.
- Use shims to level case.
- ***Note: After case is in position, it must be sealed to floor to prevent entry or leakage of liquid or moisture.***

3. Removable Front Toe-Kick

- Toe-kick is to be lifted up and off case.
- Case magnets hold toe-kick in position.
- Illustration below show case after toe-kick has been removed and reversed (for illustrative purposes).



Note: Illustration shown may not exactly reflect every feature or option of your particular unit.

4. Case Adjoinment Instructions

>> Warranty is void if improper caulk/sealant is used.
>> Lay generous beads of caulk/sealant as specified.

A. Prior To Adjoinment - Apply Industrial Grade Urethane at Center of Uprights

- Apply a generous bead (approximately ø3/8") of industrial grade urethane at center of uprights (not-visible to the eye).
- Urethane application prevents refrigerated air from escaping between cases (causing condensation and reducing refrigeration efficiency) as well as preventing ants or other insects from entering case.
- See illustration below.

B. Adjoining Cases - Using Bolts and Nuts

- Use appropriately sized nuts and bolts for each hole.

#1 - Holes are accessible by raising front flat glass (if unable to access hole due to gas cylinder location, start at #2 in bolt/nut attachment process.
#2 - Holes are accessible through rear sliding door.
#3 - Holes are accessible at underside of decking. Decking must be removed to attach bolts/nuts.
#4 - Holes are accessible at base frame (through front of case after front toe-kick has been removed).

- Tighten nuts securely (but do not over-tighten).
- See illustration below.

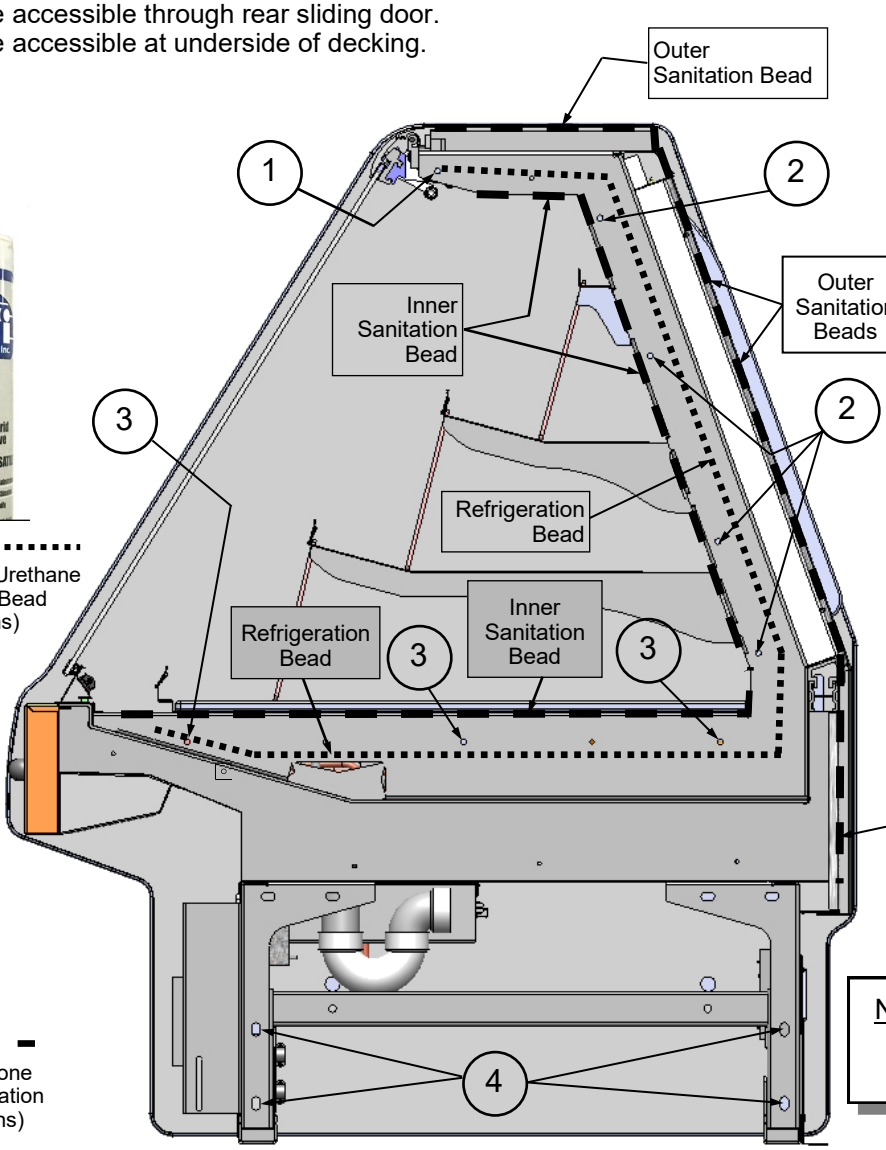
C. After Adjoinment - Apply Food Grade Silicone Sealant To Inner And Outer Seams

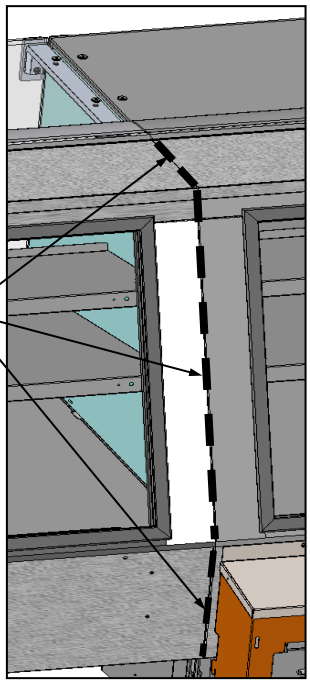
- After all nuts/bolts are securely attached to case, apply a generous bead of food grade silicone sealant at both inner and outer seams.
- When properly applied, this food grade silicone sealant will prevent water from seeping between cases (into the case or to the floor) as well as crumbs or other residue from entering between case seams.
- See illustrations below.

>> You must re-attach toe-kick and decking after case adjoinment process is complete.

Industrial Grade Urethane Refrigeration Bead Applications)

Food Grade Silicone Sealant (For Sanitation Bead Applications)





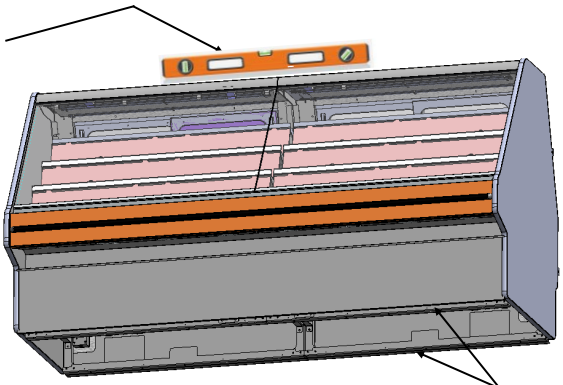
Outer Sanitation Bead To Be Applied At Rear Adjoinment Seams (Shown Above)

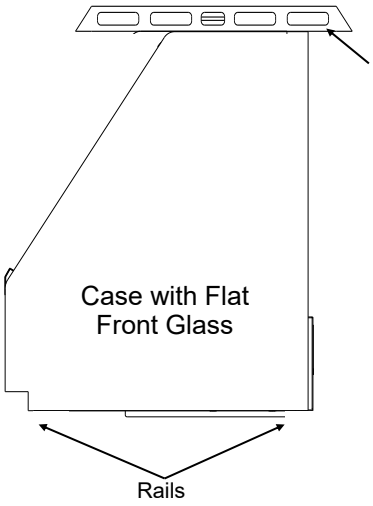
Note: Illustration shown may not exactly reflect every feature or option of your particular unit.

5. Front Glass Alignment & Adjustment via Rail System (For Curved and Flat Front Glass)

- Proper alignment of the front glass is important to create and maintain a seal inside the case.
- Improper alignment can cause air leaks compromising the environment inside the case and create condensation.
- Follow the five steps listed below to assure proper front glass alignment.
- Illustrations shown may not exactly reflect every feature or option of your particular case.

A. Side-to-Side Leveling: Place a level on top of display case (parallel to front glass). Raise or lower either side of case by inserting shims under the rails to level the case (following steps 3 and 4 below).

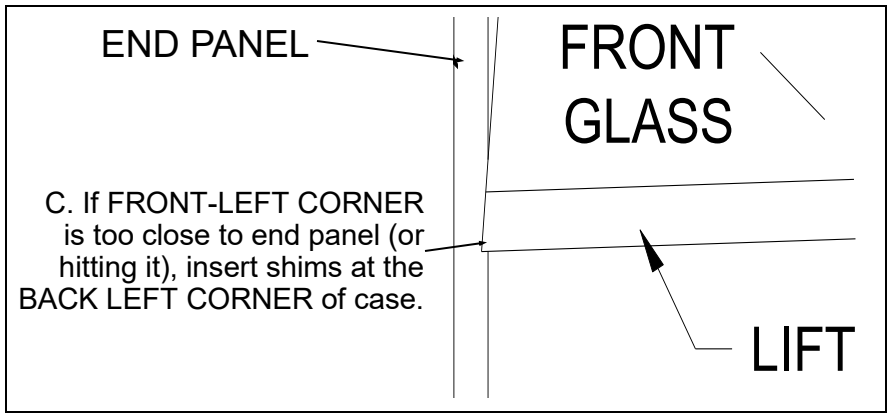


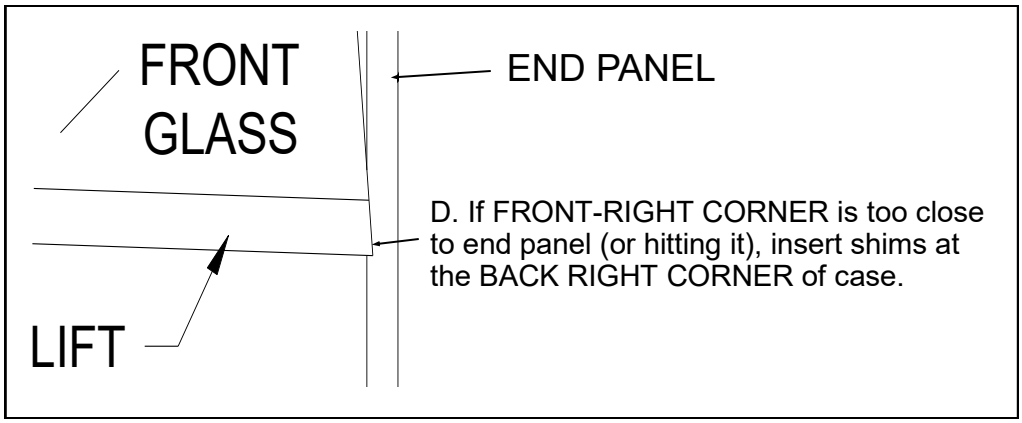


B. Front-to-Back Leveling:

- Place a level on top of case, perpendicular to the front glass.
- Raise or lower either side of case by shimming under the rails (following steps 3 & 4 below).
- Double-check the side-to-side level.

Note: Illustration shown may not exactly reflect every feature or option of your particular unit.





E. Verification:

- After inserting shims, open and shut the front glass.
- Verify (again) that the front glass is properly aligned at both left-hand and right-hand side of the case.
- If not, repeat the shimming procedure until the front glass is properly aligned along both sides of the case.

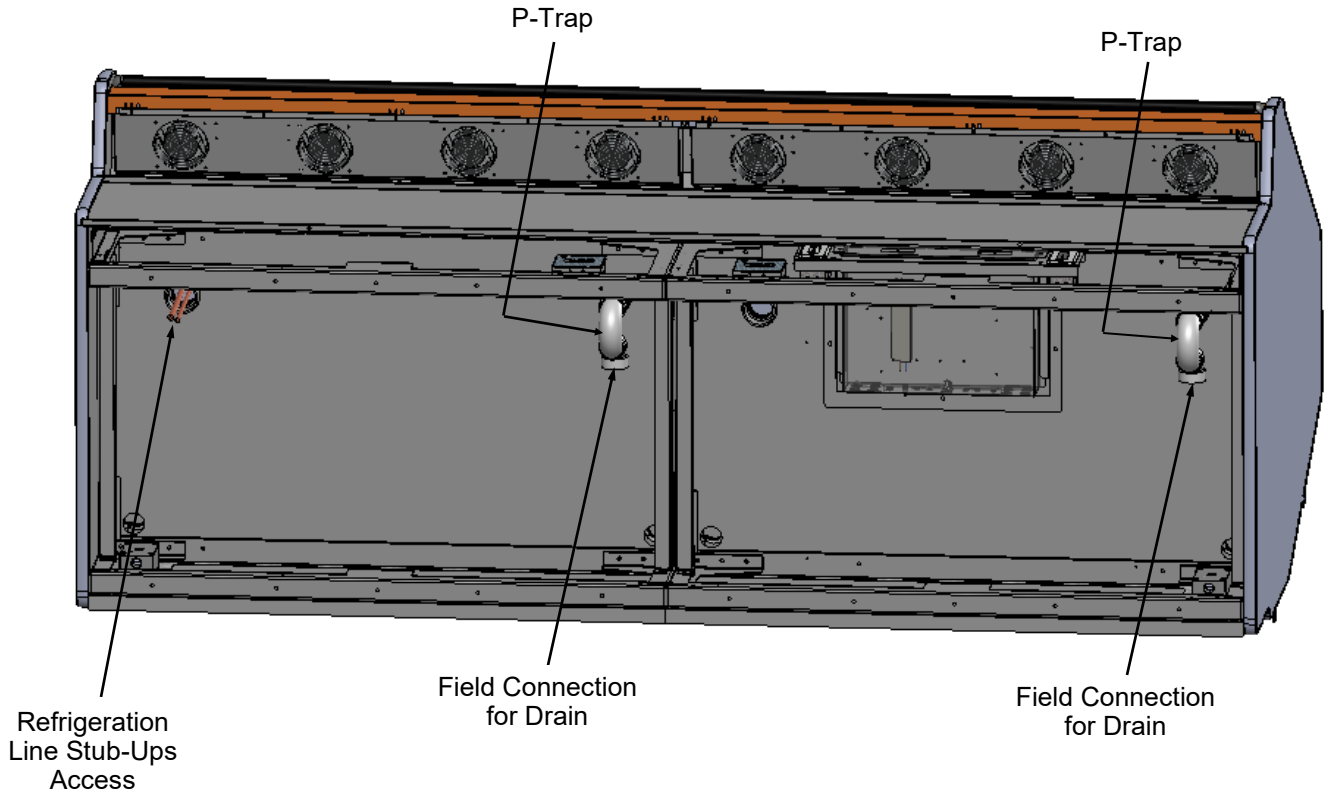
6. Refrigration Line Stub-Up Connections

- Refrigerant stub-up access is at underside of case.
- Stub-up connections are accessed by removing rear panel (no screws required).
- Run case-to-case connections through cutouts in base.
- Sweat the high and low pressure connections.
- Fill access hole with suitable filler to insure watertight integrity of tub.
- Note: Illustration below may not reflect every feature or option of your particular case.

7. Drains

- Cases have drains at left and right hand sides.
- Longer cases may have drain at case center.
- Drain field connection location as shown.
- See next page for illustration of TXV Valve, Drains, Refrigeration Line Stub-Ups Access, etc.
- Depending upon drain access needs, either front or rear panel may be removed to gain access to drain stub-up.
- 1.5" male PVC stub-up connection is under case.
- Drain stub-up may be at case center in extended length cases.
- Connect tub drain to floor drain. Maintain 1/4"-fall per foot to provide proper drainage.

Note: Illustration shown may not exactly reflect every feature or option of your particular unit.



8. Removable Rear Toe-Kick

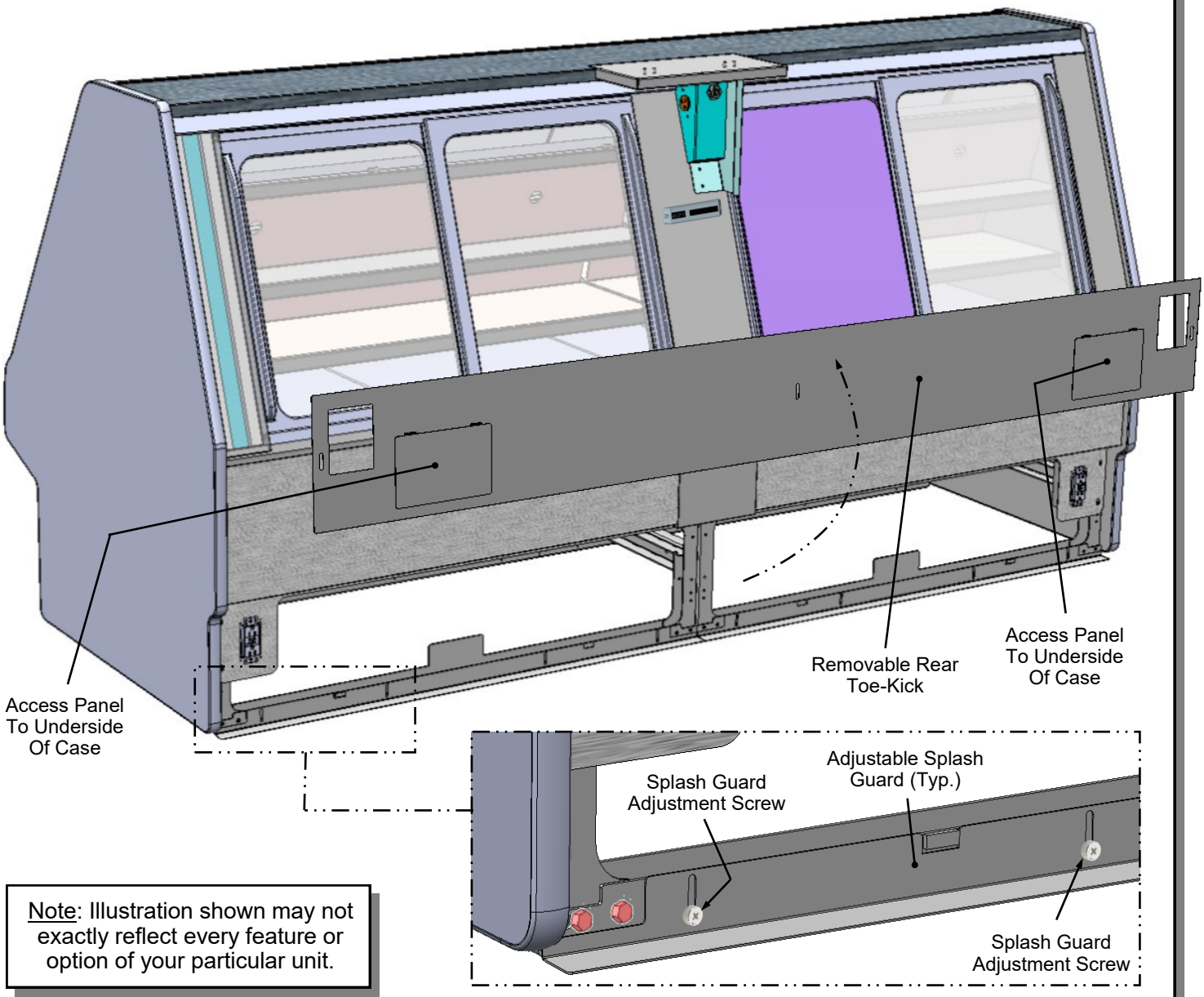
- Rear toe-kick is removable to service/clean underside of case.
- Rear toe-kick is removable via three (3) screws located at center and sides.
- See illustration below.

9. Rear Access Panels

- Rear access panels allow access to underside of case WITHOUT removing entire rear toe-kick.
- See illustration below for location.

10. Adjustable Splash Guards

- The separately shipped splash guard is designed to prevent entry or leakage of liquid or moisture to underside of case.
- After case has been properly positioned and frame support rails have been shimmed, place a bead of industrial grade silicone sealant to underside of splash guards (that rests on floor).
- Then, insert SCC-supplied screws through holes to secure bracket to floor.
- After splash guard bracket has been secured to floor apply another bead of sealant where front of bracket meets floor. See illustration below.

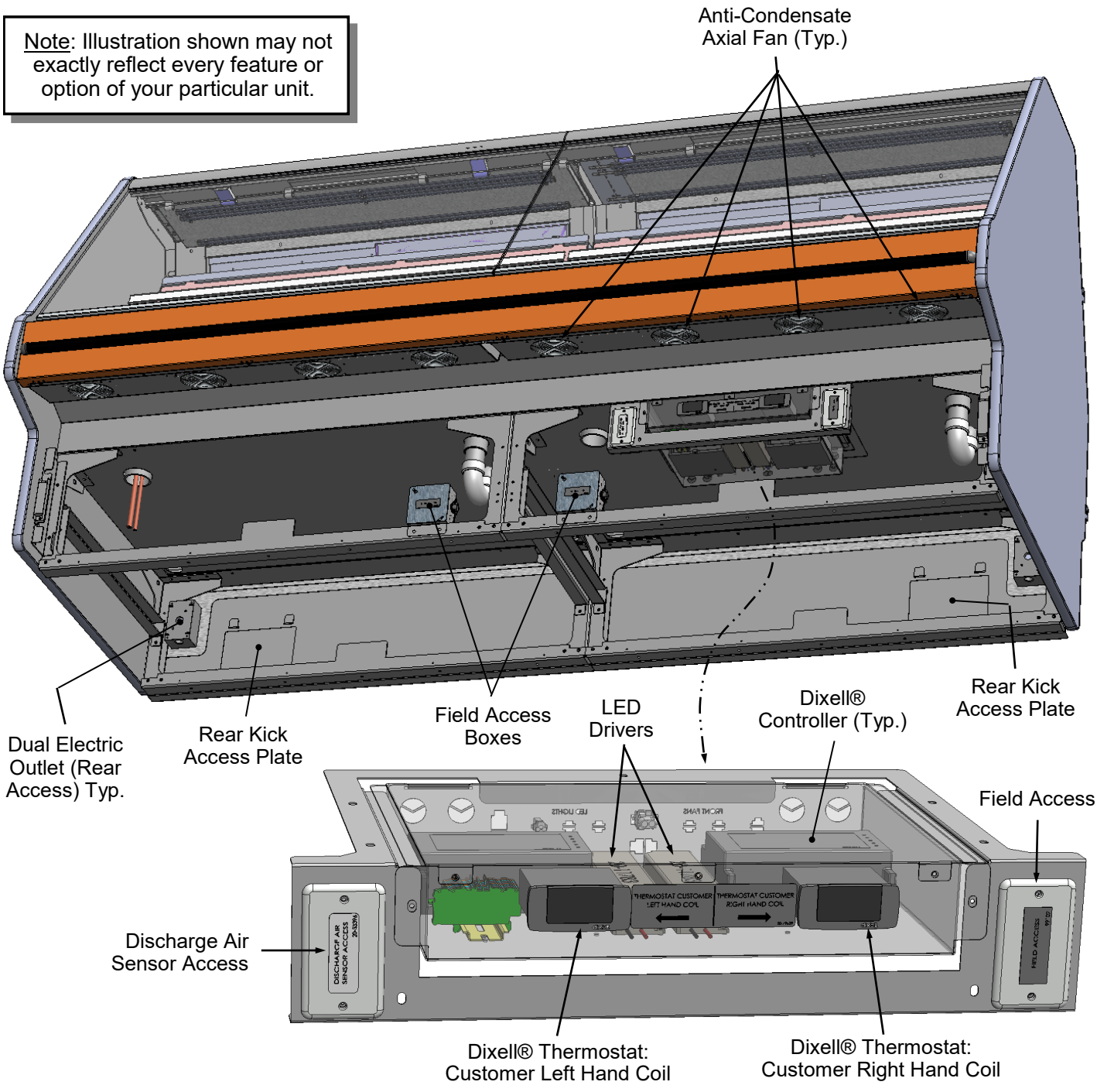


Note: Illustration shown may not exactly reflect every feature or option of your particular unit.

11. Field Access Box / Field Wiring Box / LED Drivers / Discharge Air Sensor, Etc.

- Illustration shown is after removal of front panel.
- Electrical box contains, thermostats, controllers, relay, terminal block and LED drivers.
- Two (2) separate thermostats control customer-left AND customer right hand coils.
- Anti-condensate axial fans (for front glass) may be accessed (at underside of front panel) by simply removing four screws, and dropping fans down.
- ***Caution! Only certified electricians are to access electrical components!***

Note: Illustration shown may not exactly reflect every feature or option of your particular unit.



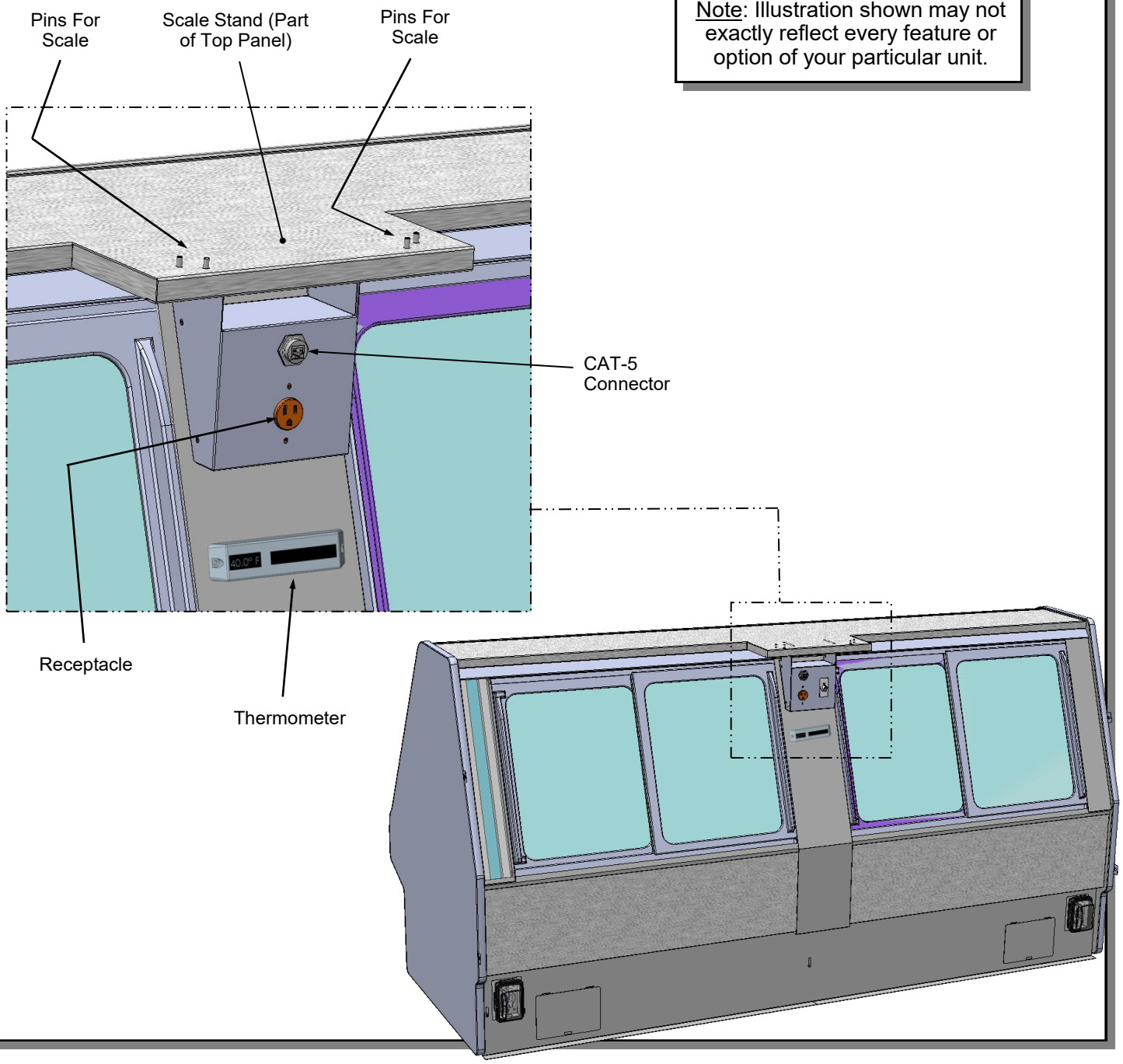
12. Scale Stand / CAT-5 / Receptacle

- Scale stand location is shown below.
- Route the scale stand cord through into receptacle (shown below).
- Plug scale stand cord into receptacle as shown in illustration below.
- Depending upon options chosen, CAT 5 (Category 5) network cable outlet may also be available at scale stand base (as shown below).

13. Thermometer

- Thermometer is at case rear (general location shown below).
- Thermometer reflects general case temperature.
- Note: Any thermometers DO NOT reflect exact product temperatures (not actual food temperature). Use probe thermometers to determine actual product temperatures.

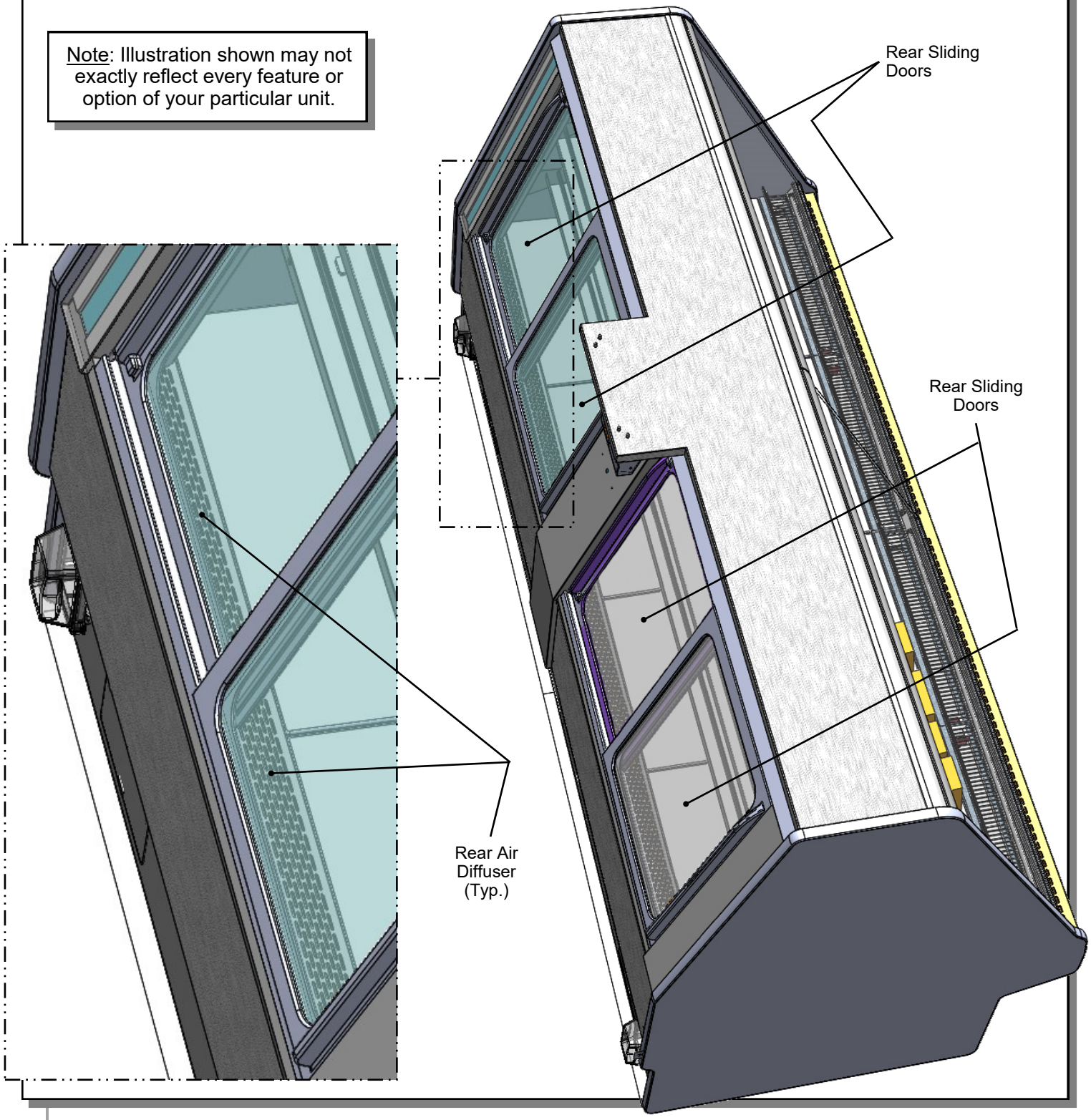
Note: Illustration shown may not exactly reflect every feature or option of your particular unit.



1. Rear Air Diffuser / Airflow Detection

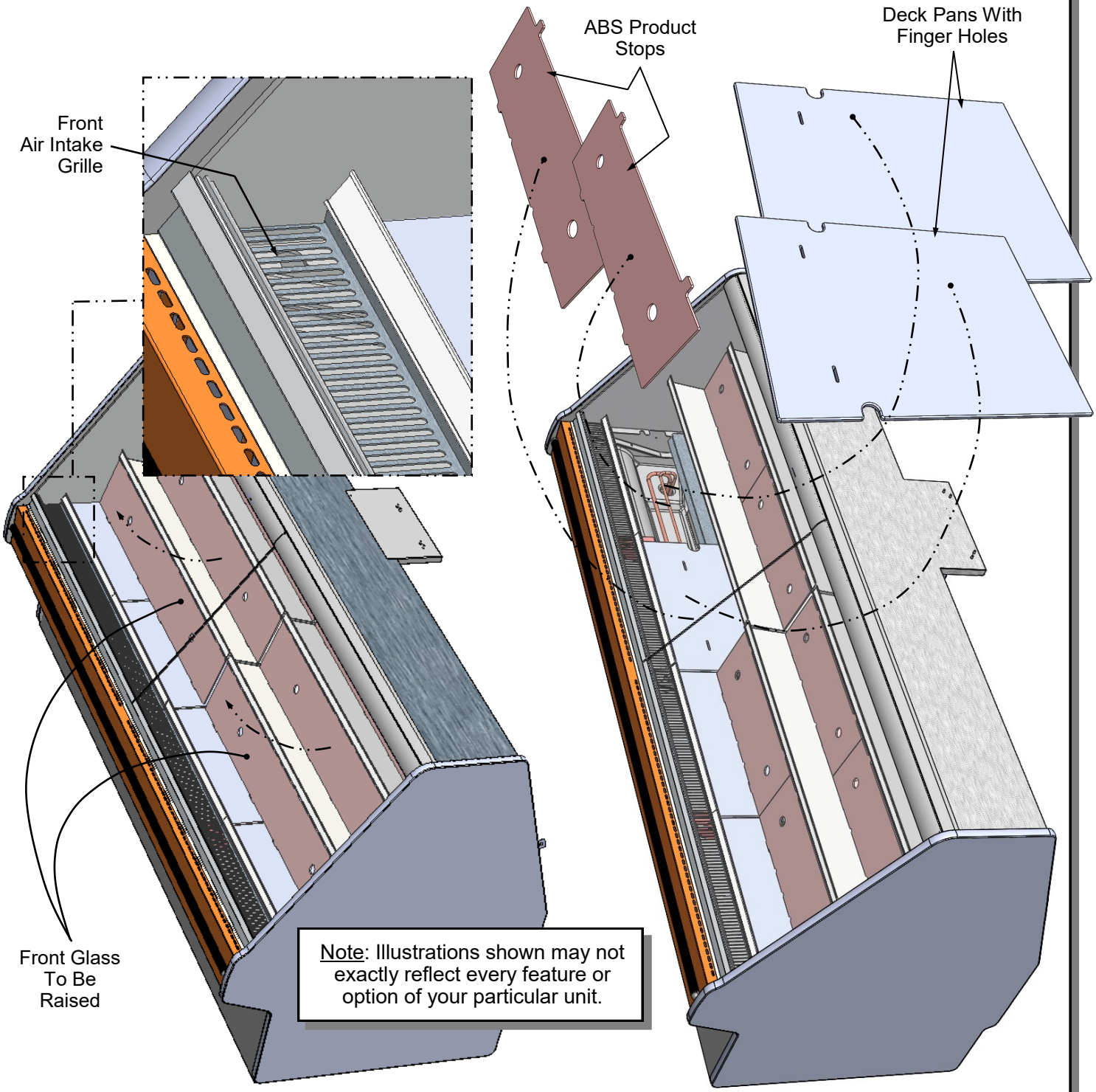
- Unit will energize when properly field wired.
- Evaporator coil fans will automatically turn on.
- Rear doors may be slid open and airflow should be detected from rear air diffuser.
- See illustration below.

Note: Illustration shown may not exactly reflect every feature or option of your particular unit.



2. Font Glass / Front Air Intake Grille / ABA Product Stops / Deck Pans

- Unit will energize when properly field wired. Evaporator coil fans will automatically turn on.
- From case front, raise front glass to see front air intake grille.
- Grasp ABS product stops (using finger holes) and remove from case.
- Grasp deck pans via finger holes and raise upward to check that evaporator fans are working.
  Note: Deck pans are shown removed from case for illustrative purposes only.
- Return ABS product stops and deck pans in reverse order they were removed.



1. LED Style Light Fixtures

Removal of Faulty LED Lights:

- Contact Structural Concepts' Technical Service Department for replacement LED lights.
- Turn off LED light switch.
- To remove faulty LED light, follow these steps:
  A. Disconnect plug from LED light.
  B. Using both hands, grasp LED light assembly (with its magnetic mounting clips). Pull downward and off its shelf (or header).
  C. Remove magnetic mounting clips from LED light by pressing against flange part of clip with thumb.

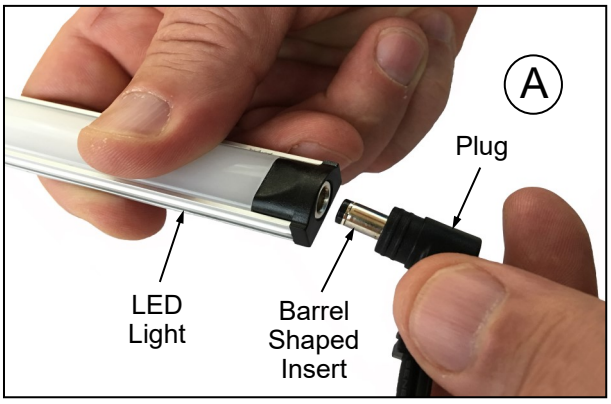
>> Note: Mounting clips MAY be riveted to shelf or header. In such instances, simply remove LED light from mounting clips by pressing against flange part of clips with thumb.

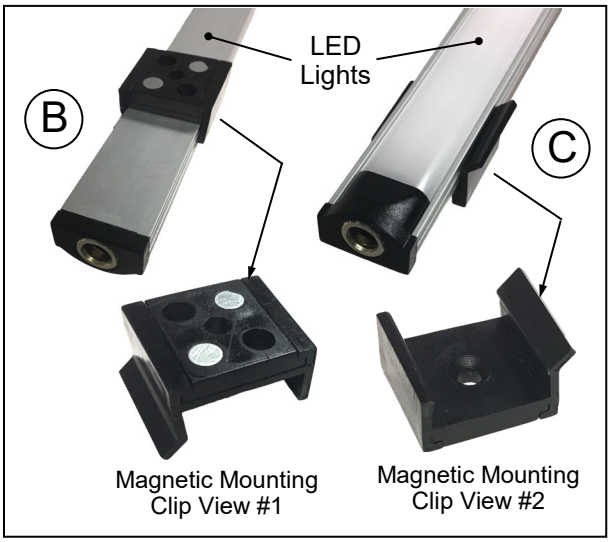
Replacement of LED lights:

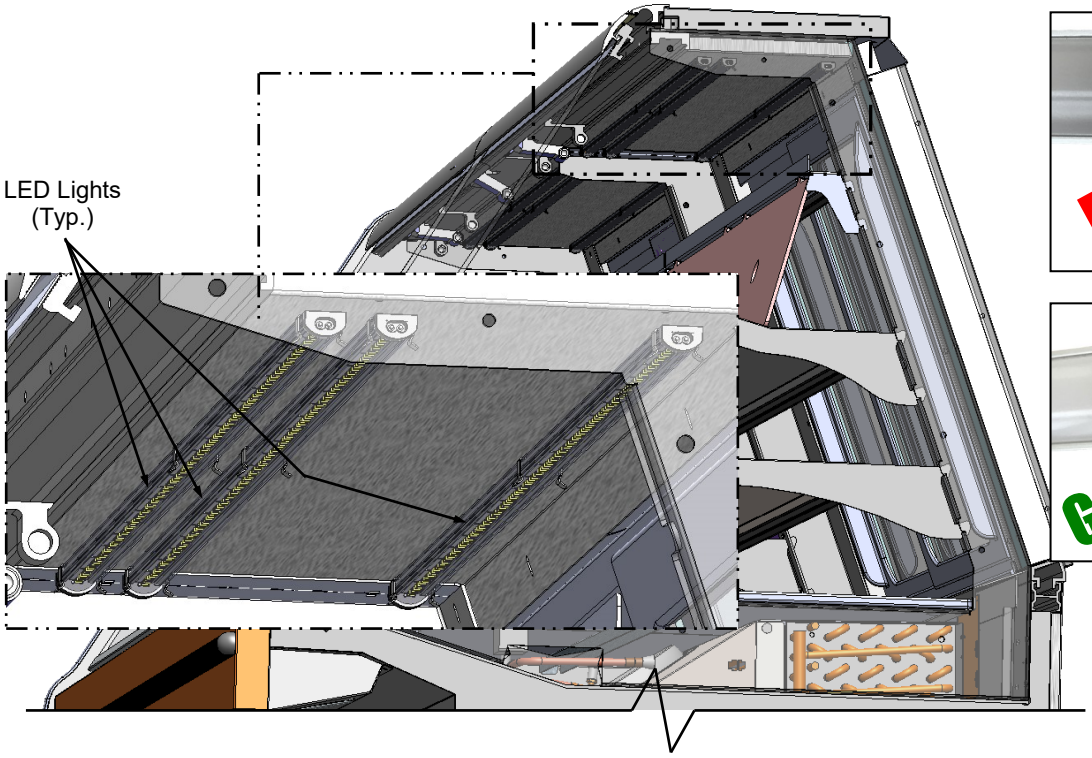
- Attach magnetic mounting clips onto LED light.
- Adjust magnetic mounting clips so they are equally spaced on LED light.
- Reattach LED light assembly to its shelf/header.
- Position properly in shelf/header.

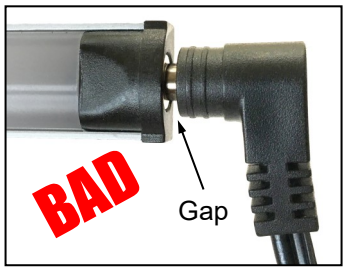
>> Note: If mounting clips are riveted to shelf (or header), attach by placing LED in base of clip and then snapping into clip at FLANGE SIDE.

- Press plug's barrel-shaped insert deep into LED light.
- Important: If plug is not inserted ALL THE WAY IN the LED light's orifice, the light may not energize. See **"BAD"** vs. **"GOOD"** insertion illustrations below-right.
- Turn LED light switch back on.



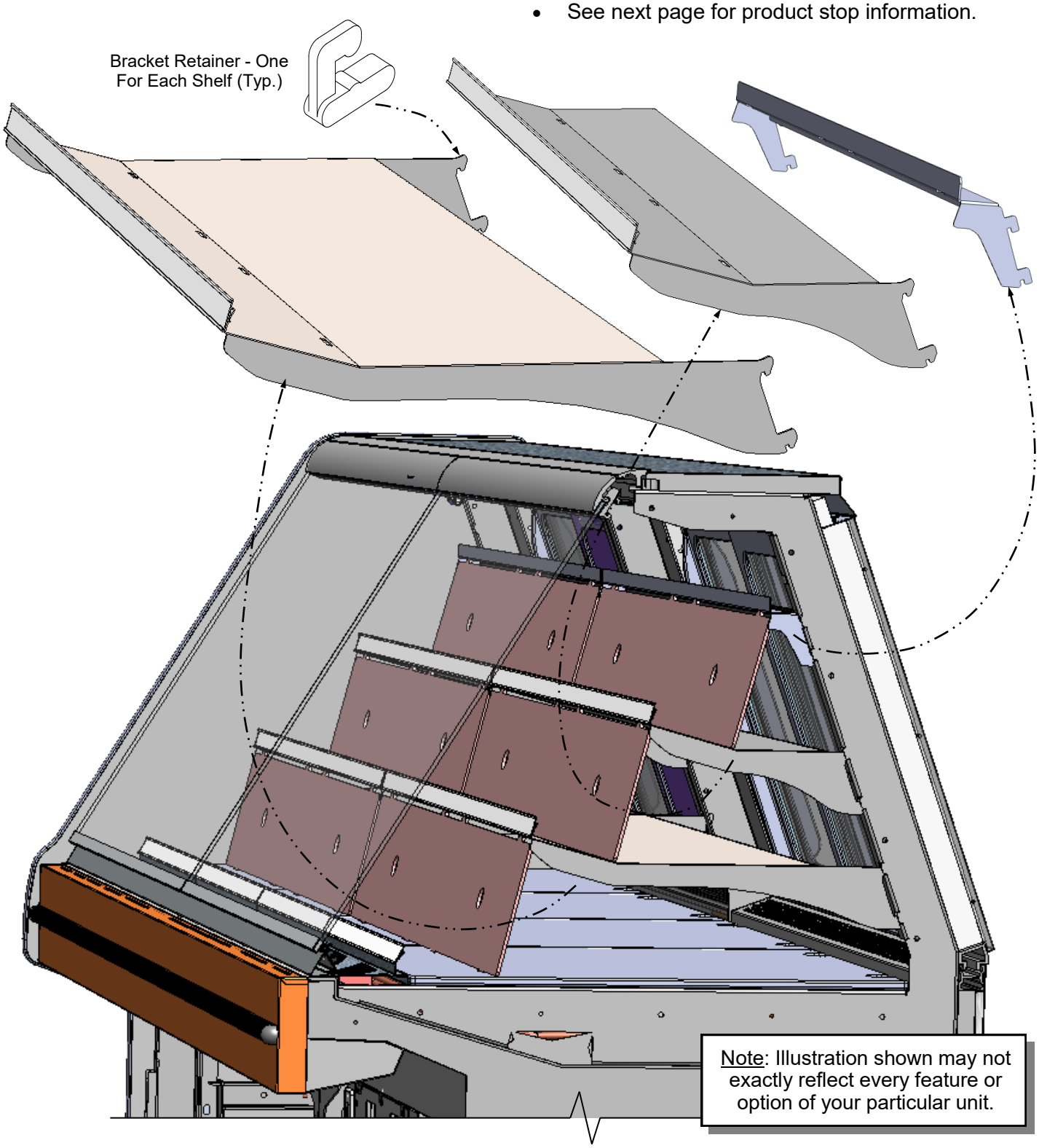






2. Shelf Assemblies

- Shelves may be removed from uprights for cleaning or service.
- Remove brackets. **Note: It may be necessary to remove the bracket retainer to do so.** Pliers may be required to accomplish this task; pull bracket retainers out of upright toward front of case.
- See next page for product stop information.

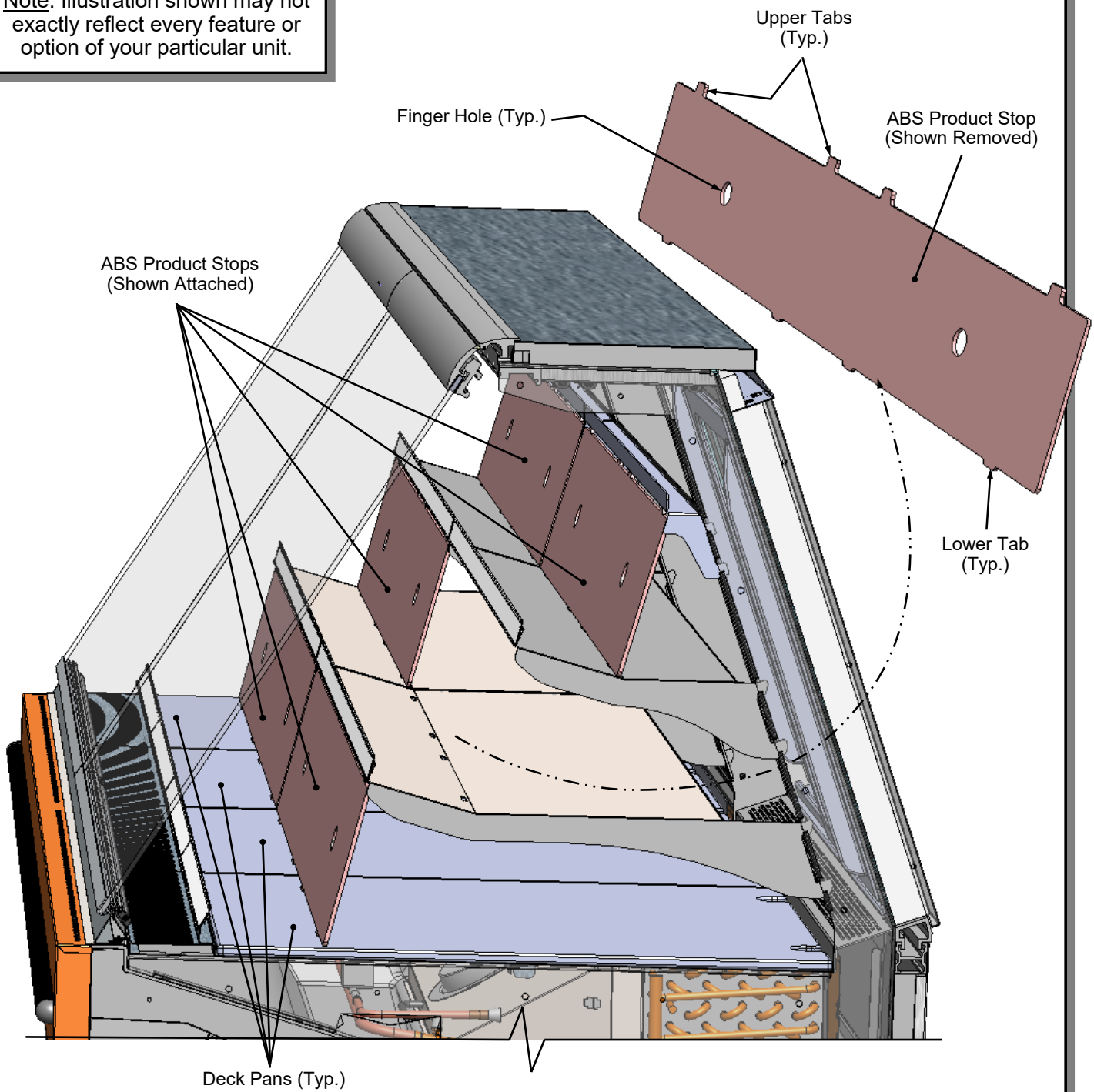


Note: Illustration shown may not exactly reflect every feature or option of your particular unit.

3. ABS Product Stops

- Product stops are able to be removed from case.
- To do so, simply grasp product stop by finger holes, lift upward and out.
- See illustration at top-right.

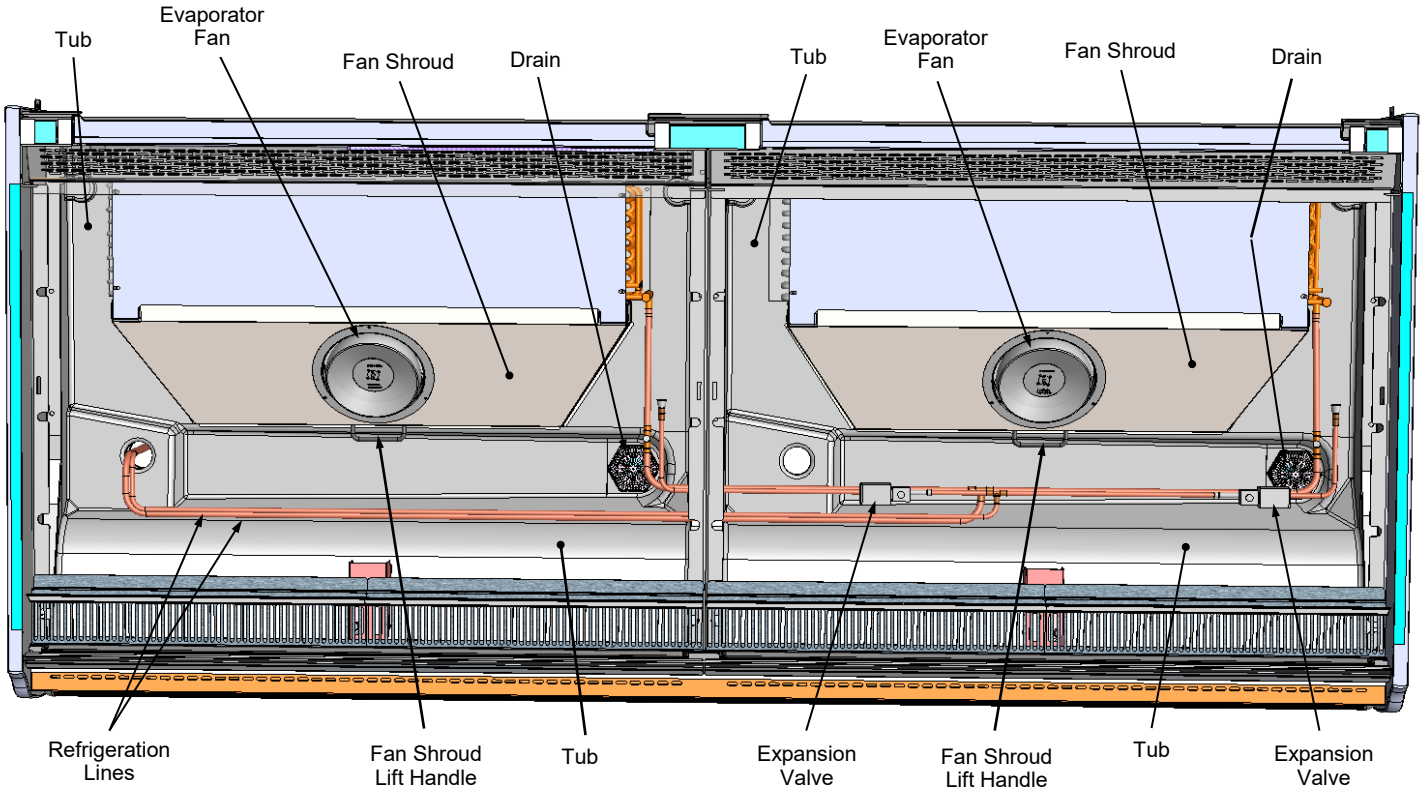
Note: Illustration shown may not exactly reflect every feature or option of your particular unit.



4. Tub, Drain, Evaporator Fans, Expansion Valve Access

- ***Caution! Rotating fans can cause severe injuries! Turn off power to case (via thermostats at front of case) before accessing evaporator fans and refrigerant flow.***
- Tubs, drains, evaporator fans and expansion valves are accessible from front of case.
- Simply lift deck pans to access tub area (and its components) for cleaning and/or maintenance.
- See ***CLEANING SCHEDULE - TO BE PERFORMED BY STORE PERSONNEL*** section in manual for cleaning instructions.
- Restore power to case after performing maintenance.

Note: Illustration shown may not exactly reflect every feature or option of your particular unit.

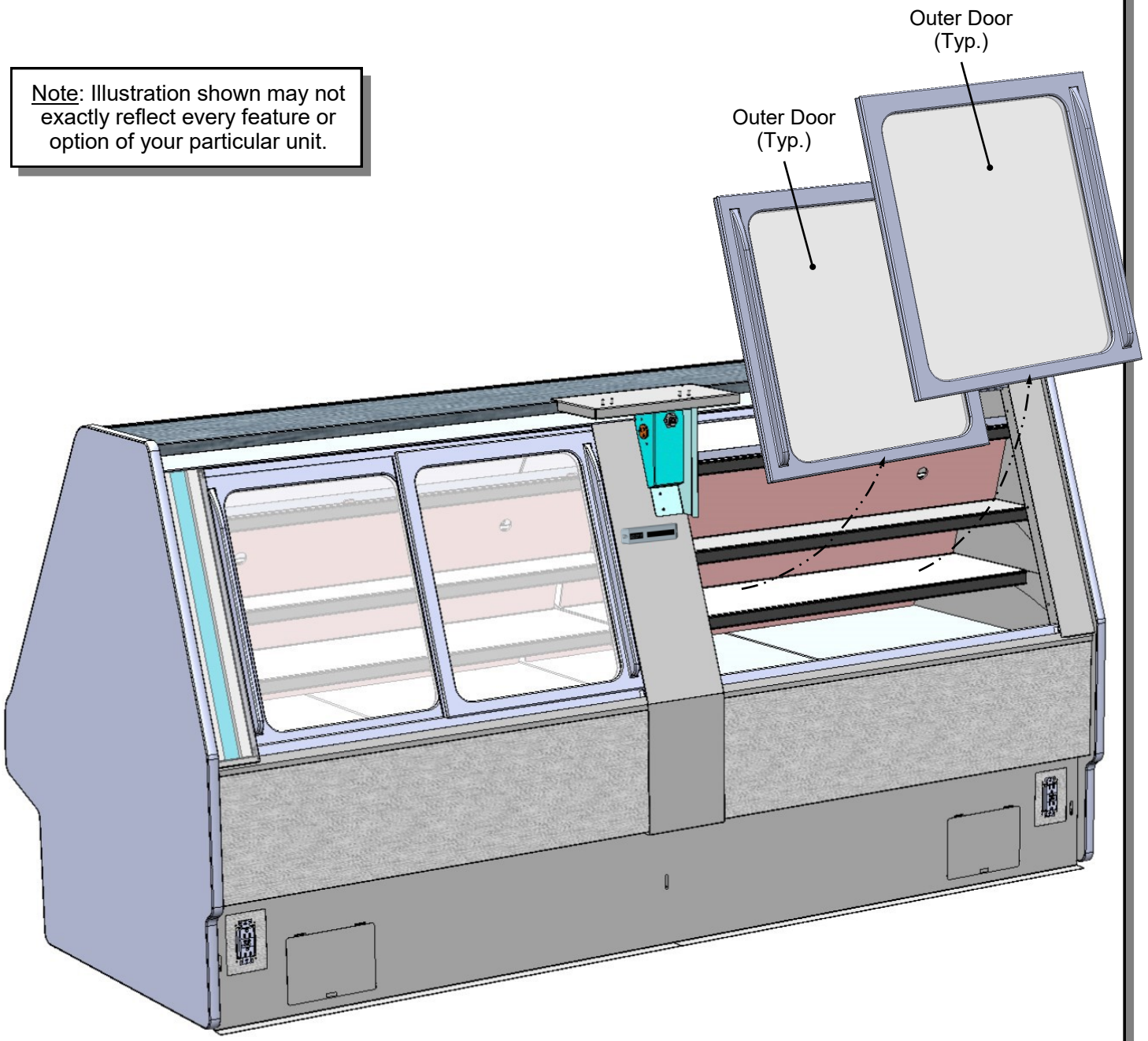


5. Rear Sliding Doors

Note: Doors are not interchangeable. There is an inner and outer door. The outer must be removed first and replaced last.

- Move doors toward the center of the case.
- Individually lift each door up toward the top of the case; pivot the bottom of the door out.
- Carefully set doors down to prevent them from falling or breaking.
- Replace rear sliding doors in reverse order they were removed.

Note: Illustration shown may not exactly reflect every feature or option of your particular unit.



CLEANING SCHEDULE - TO BE PERFORMED BY STORE PERSONNEL

AREA	FREQ.	INSTRUCTIONS
Exterior	**Daily**	**Front Flat Glass:** Clean front flat glass with household or commercial glass cleaner.
	Daily	**Rear Sliding Door, Exterior Glass and Scale Stand:** Clean with household or commercial glass cleaner. Clean out door track with moist cloth.
	Daily	**End Panels, Front Panel, Toe-Kick, Etc.:** Wipe off all surfaces with warm water and mild soap solution and non-abrasive cloth.
	Weekly	**Wood, Laminate and Painted Surfaces:** Clean with mild soap and water solution and a soft cloth .
	Quarterly	**Under Case Cleaning:** Remove front toe-kick (or rear panel). Vacuum under case with extension to remove all dust and dirt. Replace front toe-kick when complete.
Interior	**Daily**	**Decks, Shelves:** Wipe off decks with moist cloth dipped in mild soap and water solution.
	Daily	**ABS Product Stops:** • Carefully raise front glass. Wipe off product stops with moist cloth dipped in mild soap and water solution. Carefully lower front glass. • For stubborn stains and/or more thorough cleaning, carefully raise front glass. Remove ABS product stops from case. Submerse them in warm, soapy water solution. Rinse thoroughly. Dry. Return ABS product stops to case. Carefully lower front glass.
	Monthly	**Tub. Drain and Underside of Fan Shroud:** • ***Caution! Turn off power to unit (via thermostats at front of case) before proceeding.*** • Tub area (located at underside of decking) must be kept free of debris which could clog tub and drain. • Remove ABS product stops and decking to access area. • Grasp handles of fan shroud and lift upward to gain access to underside of fan shroud. • Follow your store's cleaning protocol to clean tub area and components. • After cleaning is complete, lower fan shroud back into place. Replace decking and ABS product stops. • Restore power to unit.

CLEANING SCHEDULE - TO BE PERFORMED BY STORE PERSONNEL, CONT'D: STAINLESS STEEL

General Stainless Steel Surface Cleaning (To Be Performed As Often As Needed):

- Certain grades of stainless steel, and some are more prone to corrosion than others.
- Stainless steel can become exposed to a wide variety of contaminants, which if left untreated can cause stains and rust.
- Stainless steel requires a specific cleaning procedure to maintain its sheen and remain rust-free.
- Wash with a solution of liquid dishwashing detergent and hot water.
- Rinse with pure hot water from spray bottle. Wipe with clean sponge. This will remove soap residue that can lodge in stainless steel's microscopic grooves, causing rust.
- Dry with clean, soft cloth or paper towel.
- *Caution! To prevent rust, you MUST rinse with pure hot water from a spray bottle while wiping with clean sponge after EACH cleaning.*
- *Caution! Never clean with scouring powder or steel wool as they can mar, scratch and/or erode the surface of stainless steel. When the surface properties of stainless steel have been compromised, rust can form.*

Brightening:

- Method 1: Brighten by polishing with a soft cloth or sponge with a solution of one part vinegar to 2 parts water in a spray bottle.
- Method 2: Sprinkle baking soda on sponge and rub gently with soft cloth or sponge.
- *Caution! To prevent rust, you MUST rinse with pure hot water from a spray bottle while wiping with clean sponge after EACH cleaning.*
- Dry with clean, soft cloth or paper towel.

Removing Streaks or Stains:

- Method 1: Place two teaspoons of rubbing alcohol on a microfiber cloth or pad. Rub the cloth along the grain of the appliance until the entire area has been wiped. The rubbing alcohol will air dry itself.
- Method 2: Dip soft cloth or sponge in club soda and rub gently over area of concern.
- *Caution! To prevent rust, you MUST rinse with pure hot water from a spray bottle while wiping with clean sponge after EACH cleaning.*
- Dry with clean, soft cloth or paper towel.

Polishing:

- Place a dab of olive oil onto clean soft cloth. Spread over area until a light sheen is observed. Use pressure to "work the oil" into the small grooves in the surface. Apply firm, steady pressure using small circular motions.
  > Dry buff: Remove excess oil with clean cloth or paper towel using small circular motions.
  > Wet buff: Use an ounce or white vinegar with clean cloth or paper towel using small circular motions.
  > Continue wiping until oily finish has been removed.
- *Caution! To prevent rust, you MUST rinse with pure hot water from a spray bottle while wiping with clean sponge after EACH cleaning.*
- Dry with clean, soft cloth or paper towel.

Removing Rust:

- If rust has begun to form, there are a variety of products that can treat it.
- Among these are CLR® (calcium, lime and rust remover) and Chemetall Oakite 33 (rust, oxides and scale remover).
- *Caution! To prevent food contamination, personal injury or further corrosion, carefully follow the recommended cleaning precautions and instructions.*

TROUBLESHOOTING - TO BE PERFORMED BY STORE PERSONNEL

CONDITION	TROUBLESHOOTING
Product Is Drying Out	Check the relative humidity in the store.
Water Is On The Floor	Check that the drain trap is free of debris.
	Check store conditions. • For NSF® Type 1 Conditions (most cases): ambient conditions are to be at 55% max. humidity / 75 °F. • For NSF® Type 2 Conditions: ambient conditions are to be at 55% maximum humidity / 80 °F.
Fan Emits Excessive Noise	Check that the case is aligned, level and plumb.
	Turn off power (via thermostats at front of case) before proceeding. Check evaporator fan for cleanliness.
	Turn off power (via thermostats at front of case) before proceeding. Unplug fan motors. Check motor shaft for bearing wear. Restore power to case when done.
	Turn off power (via thermostats at front of case) before proceeding. Check that fan motors are securely mounted in brackets.
	Turn off power (via thermostats at front of case) before proceeding. Verify that fan blades are securely mounted to fan motor.
	Turn off power (via thermostats at front of case) before proceeding. Check that nothing is preventing blade rotation.
	Check that the fan shroud is properly secured.
Fans Not Working	Check that fans are plugged in at the fan shroud.
	Turn off power (via thermostats at front of case) before proceeding. Check for foreign material obstructing fan performance.
	Turn off power (via thermostats at front of case) before proceeding. Check that fan blades freely rotate within fan shrouds.
	Check that power is going to fans.
	Check that fan wiring is connected on terminal blocks
Digital Control Display Is Blank	Check the circuit breaker box for tripped circuits.
System Not Operating	Check that the utility power is on.
	Check the circuit breaker box for tripped circuits.

CONDITION	TROUBLESHOOTING
Case Lights Not Working	Check that light switch has been flipped on.
	Check bulbs for proper installation and connection.
	Check for burned out bulbs.
Not Holding Temperature	If a large amount of warm product was added to the case, it will take time for the temperature to adjust. Unit needs product to be pre-chilled.
	Check that case is not in sun or near a heat or air-conditioning vent.
	If case is located near outside doors, temperature fluctuation can hinder unit's ability to maintain temperature.
	Check air return grilles for obstructions.
Condensing Unit Is Not Operating	Check that the power is turned on.

NOTE: THIS PAGE MAY NOT LIST EVERY SETTING OR PARAMETER ON YOUR CONTROLLER

Dixell *Installing and operating instructions* EMERSON

CONTROLLERS FOR MULTIPLEXED CABINETS
XM670K - XM679K
- MANUAL FOR THE SW REL 3.4 -

1. GENERAL WARNING

1.1 PLEASE READ BEFORE USING THIS MANUAL

- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Check the application limits before proceeding.
- Dixell Srl reserves the right to change the composition of its products, even without notice, ensuring the same and unchanged functionality.

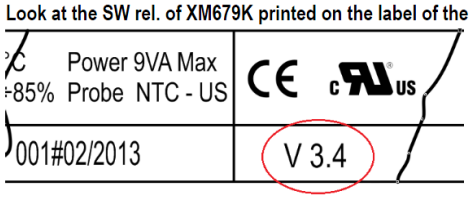
1.2 SAFETY PRECAUTIONS

- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
- Warning: disconnect all electrical connections before any kind of maintenance.
- Fit the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to "Dixell S.r.l." (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see Technical Data).
- Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or intertwining.
- In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.

2. BEFORE PROCEEDING

2.1 CHECK THE SW REL. OF THE XM679K

1. **Look at the SW rel. of XM679K printed on the label of the controller.**



2. **If the SW release is 3.4 proceed; otherwise, contact Dixell to secure correct manual.**

3.0 GENERAL DESCRIPTION

The **XM670K/XM679K** are high level microprocessor-based controllers for multiplexed cabinets suitable for applications on medium or low temperature. It can be inserted in a LAN of up to 8 different sections which can operate (depending on the programming) as standalone controllers or following the commands coming from other sections.
The **XM670K/XM679K** have 6 relay outputs to control the solenoid valve, defrost (which can be either electrical or hot gas), evaporator fans, lights, an auxiliary output and an alarm output with one output to drive **pulsed electronic expansion valves (only XM679K)**. The devices are also provided with four probe inputs: 1) temperature control 2) control of defrost end temperature of evaporator 3) display 4) for application with virtual probe or for inlet/outlet air temperature measurement. Model **XM679K** is provided with two other probes to be used for superheat measurement and regulation. Finally, the **XM670K/XM679K** are equipped with three digital inputs (free contact) fully configurable by parameters.
Instruments are equipped with the HOTKEY connector that permits simple programming. Direct serial output **RS485 ModBUS-RTU** compatibility permits simple XWEB interfacing. **RTC** are available as options. The HOTKEY connector can be used to connect **X-REP** display (depending on the model).

3.01 KEYS & FUNCTIONS ON CONTROLLER FRONT PANEL

3.1 KEYS & FUNCTIONS ON CONTROLLER FRONT PANEL

Key	Function
SET	Press to display the target setpoint, to select a parameter in programming mode, or to confirm an operation. Pressing this key for 3 seconds while the minimum or maximum temperature is displayed will erase the temperature currently displayed.
∧	Press this key to browse the parameter codes in programming mode or increases the displayed value. Pressing this key for 3 seconds will give you access to the Section menu.
∨	Press this key to access the fast access menu, browse the parameter codes in programming mode, decrease the displayed value, or activate or deactivate an auxiliary output.
❄	Starts a defrost when pressed for 3 seconds.
☼	Switches the room light ON and OFF.
⏻	Press for 3 seconds to switch the device ON and OFF.
°C	Measurement unit

Key	Function
°F	Measurement unit
BAR	Measurement unit
PSI	Measurement unit
Key Combinations	
∨ + ∧	Locks/Unlocks the keyboard
SET + ∨	Switches mode to programming mode
SET + ∧	Exits the programming mode

Information Derived From Emerson-Dixell Installation & Operating Instructions 15920223080 XM670K_XM679K GB r3.4 03.04.2015 and Installation & Operating Manual 026-1218 Rev 3 05-FEB-2015

NOTE: THIS PAGE MAY NOT LIST EVERY SETTING OR PARAMETER ON YOUR CONTROLLER

3.2 USE OF LEDs

LED	Mode	Function
❄	ON	Compressor and valve regulation enabled. To see the valve opening percentage, enter the fast access menu.
	Flashing	Anti-short cycle delay enabled
❄	ON	Defrost enabled
	Flashing	Drip time in progress
(!)	ON	An alarm is occurring
	ON	Energy saving enabled
	ON	Fans enabled (fans are running)
	Flashing	Door opened or delay after defrost
AUX	ON	Auxiliary relay ON
°C/°F/Bar/PSI	ON	Measurement unit
	Flashing	Programming phase
	ON	The controller is working in ALL mode
	Flashing	The controller is working in remote virtual display mode
	Flashing	During the CLOCK modification (if clock is present)

3.3 HOW TO ENTER THE FAST ACCESS MENU

1. Press and release the UP button.
2. The First Label will be displayed. Press the UP or DOWN button to navigate the menu.

3.4 HOW TO SEE MAX AND MIN TEMPERATURE RECORDED

1. Press and release the UP button.
2. The First Label will be displayed. Press the UP or DOWN button to navigate the menu. Search the **L°t** label and press SET to see minimum temperature; search the **H°t** label and press SET to see maximum temperature.

3.5 HOW TO SEE AND MODIFY THE SETPOINT

1. Press the SET button for 3 seconds to show the setpoint value.
2. The measurement unit starts blinking.
3. To change the setpoint value, press the UP or DOWN button for 10 seconds.
4. To store the new setpoint value, press the SET key again or wait 10 seconds.

3.6 HOW TO START A MANUAL DEFROST

Press the **DEF** key for more than 3 seconds to start a manual defrost.

3.7 HOW TO ENTER THE PARAMETERS LIST PR1

To enter the parameter list in **Pr1** (user accessible parameters):

1. Enter the programming mode by pressing the SET and DOWN buttons for a few seconds (wait for the measurement unit to start blinking).
2. The controller will show the first parameter present in **Pr1**.

3.8 HOW TO ENTER THE PARAMETERS LIST PR2

To access the parameter list in **Pr2**:

1. Enter the **Pr1** level. Follow the steps in **Section 3.7.,** *How to Enter the Parameters List PR1*.
2. Select **Pr2** parameter and press the SET key.
3. The **PAS** flashing message will display, followed shortly by "**0** --" with a flashing zero.
4. Use the UP or DOWN button to input the security code in the flashing digit. Confirm the security code by pressing SET. The security code is **321**.
5. If the security code is correct, the access to **Pr2** is enabled by pressing SET on the last digit.

Another way to enter the programming mode is by pressing the SET and DOWN buttons for 30 seconds immediately after switching the controller ON.

NOTE: Each parameter in Pr2 can be removed or put into Pr1 (user level) by pressing SET + DOWN buttons. When a parameter is present in Pr1, the Alarm LED will be display.

NOTE: THIS PAGE MAY NOT LIST EVERY SETTING OR PARAMETER ON YOUR CONTROLLER

3.9 HOW TO ASSIGN A MODBUS ADDRESS

1. To enter the programming mode, press and hold the SET and DOWN buttons together until the temperature measurements start blinking.
2. Scroll through the parameters using the UP or DOWN button until **Adr** is displayed.
3. Press and hold SET to select **Adr**.
4. Use the arrow keys to choose the address number of the device.
5. Press and hold SET again to select the desired number and save.
6. To exit, press the SET and UP arrow keys together.

3.10 HOW TO CHANGE THE PARAMETER VALUE

1. Enter the programming mode.
2. Select the required parameter using the UP or DOWN button.
3. Press the SET key to display the parameter value (measurement unit starts blinking).
4. Use the UP or DOWN button to change the value.
5. Press SET to store the new value and move to the next parameter.
6. To exit, press SET + UP keys or wait 15 seconds without pressing a key.

3.11 ON/OFF FUNCTION

By pressing the ON/OFF key, the controller shows OFF. During the OFF status, all the relays are switched OFF and the regulations are stopped; if a monitoring system is connected, it does not record the controller data and alarms.

NOTE: During the OFF status, the Light and AUX buttons are active.

4. FAST ACCESS MENU

FAST ACESS MENU		
HM	Fast Access Menu to Clock Settings	(If present)
An	Fast Access to Analog Output Reading	(If present)
SH	Superheat	Shows the actual superheat value (Only XM679)
oPP	Valve opening percentage	Shows the actual opening percentage of the valve (Only XM679)
dP1	Probe 1 value displaying	Shows the temperature measured by probe 1
dP2	Probe 2 value displaying	Shows the temperature measured by probe 2
dP3	Probe 3 value displaying	Shows the temperature measured by probe 3
dP4	Probe 4 value displaying	Shows the temperature measured by probe 4
dP5	Probe 5 value displaying	Shows the temperature measured by probe 5
dP6	Probe 6 value displaying	Shows the temperature measured by probe 6
dPP	Pressure probe value	Shows the value of pressure measured by pressure transducer (Only XM679)
rPP	Remote pressure probe value	Shows the value of pressure received by remote pressure probe connected to other XM600 device (Only XM679)
L°t	Minimum measured temperature	Shows the minimum temperature read by the regulation probe
H°t	Maximum measured temperature	Shows the maximum temperature read by the regulation probe
dPr	Virtual regulation probe value	Shows the value measured by the virtual regulation probe
dPd	Virtual defrost probe value	Shows the value measured by the virtual defrost probe
dPF	Virtual fans probe value	Shows the value measured by virtual fan probe
rSE	Real setpoint	Shows the setpoint used during the energy saving cycle or during the continuous cycle

NOTE: THIS PAGE MAY NOT LIST EVERY SETTING OR PARAMETER ON YOUR CONTROLLER

5.0 SECTIONS MENU

This menu allows the user to access to a particular feature of the XM series related to the LAN (Local Area Network) of controllers. Depending on the programming of this menu, a single keyboard can control either the module of the local section of the LAN or ALL. The possibilities are: LOC: the keyboard controls and display the value, the status, and the alarms of the local section of the LAN; and ALL: the command given by the keyboard are effective on all the sections of the LAN.

1. Press the UP key for more than 3 seconds.
2. The label corresponding to the section controlled by the keyboard will be displayed.
3. Using the UP or DOWN key, select the section you want to control.
4. Press the SET key to confirm and exit.

5.1 TO SET ENERGY SAVING TIMES

ILE	Energy Saving cycle start during workdays	(0 to 23 h 50 min) During the Energy Saving cycle, the setpoint is increased by the value in HES so that the operation setpoint is SET + HES.
dLE	Energy Saving cycle length during workdays	(0 to 24 h 00 min) Sets the duration of the Energy Saving cycle on workdays.
ISE	Energy Saving cycle start on holidays	(0 to 23h 50 min)
dSE	Energy Saving cycle length on holidays	(0 o 24h 00 min)
HES	Temperature increase during the Energy Saving cycle	(-30 to 30°C/ -54 to 54°F) Sets the increasing value of the setpoint during the Energy Saving cycle.

5.2 TO SET TIMED DEFROST PARAMETERS

Ld1 to Ld6	Workday defrost start	(0 to 23h 50 min) These parameters set the beginning of the eight programmable defrost cycles during workdays. For example, when Ld2=12.4, the second defrost starts at 12.40 during workdays.
Sd1 to Sd6	Holiday defrost start	(0 to 23h 50 min) These parameters set the beginning of the eight programmable defrost cycles during holidays. For example, when Sd2=3.4, the second defrost starts at 3.40 on holidays.

NOTE: To disable a defrost cycle, set it to nu (not used). For example, if Ld6=nu, the sixth defrost cycle is disabled.

6.0 ELECTRONIC EXPANSION VALVE MENU (MODEL XM679 ONLY)

1. Enter the programming mode by pressing the SET and DOWN buttons for a few seconds (measurement unit starts blinking).
2. Press the UP or DOWN key until the controller displays the EEU label.
3. Press SET. You are now in EEV function menu.

7.0 CONTROLLING LOADS / 7.1 SOLENOID VALVE

The regulation is performed based on the temperature measured by the thermostat probe that can be a physical probe or a virtual probe obtained by a weighted average between the two probes (see **Section 8,** *Parameters List*) with a positive differential from the setpoint. If the temperature increases and reaches setpoint plus the differential, the solenoid valve is opened and then it is closed when the temperature reaches the setpoint value again.

In case of fault in the thermostat probe, the opening and closing time of the solenoid valve are configured by **Con** and **CoF** parameters.

19. USE OF THE PROGRAMMING "HOT KEY"

The XM units can UPLOAD or DOWNLOAD the parameter list from its own E2 internal memory to the "**Hot Key**" and vice-versa through a TTL connector.

19.1 DOWNLOAD (FROM THE "HOT KEY" TO THE INSTRUMENT)

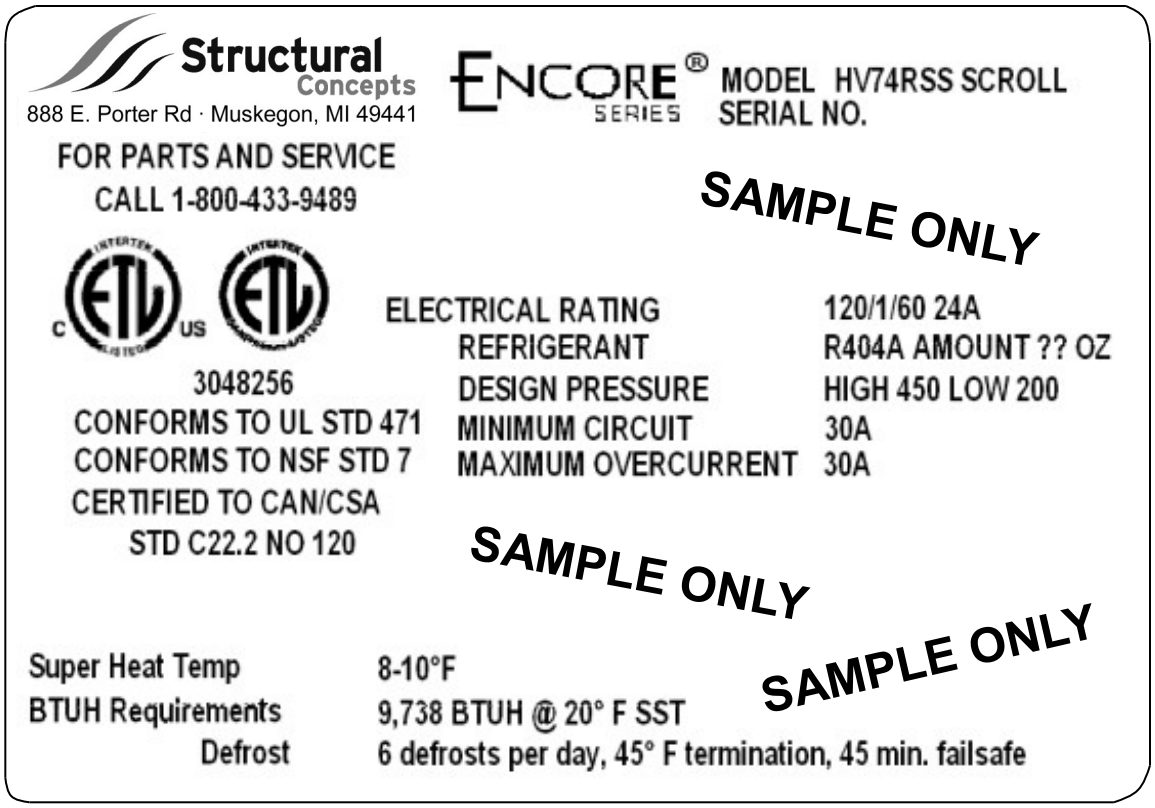
1. Turn OFF the instrument by means of the ON/OFF key ,insert the "**Hot Key**" and then turn the unit ON.
2. Automatically the parameter list of the "**Hot Key**" is downloaded into the controller memory, the "**doL**" message is blinking. After 10 seconds the instrument will restart working with the new parameters. At the end of the data transfer phase the instrument displays the following messages: "**end**" for right programming. The instrument starts regularly with the new programming. "**err**" for failed programming. In this case turn the unit off and then on if you want to restart the download again or remove the "**Hot key**" to abort the operation.

19.2 UPLOAD (FROM THE INSTRUMENT TO THE "HOT KEY")

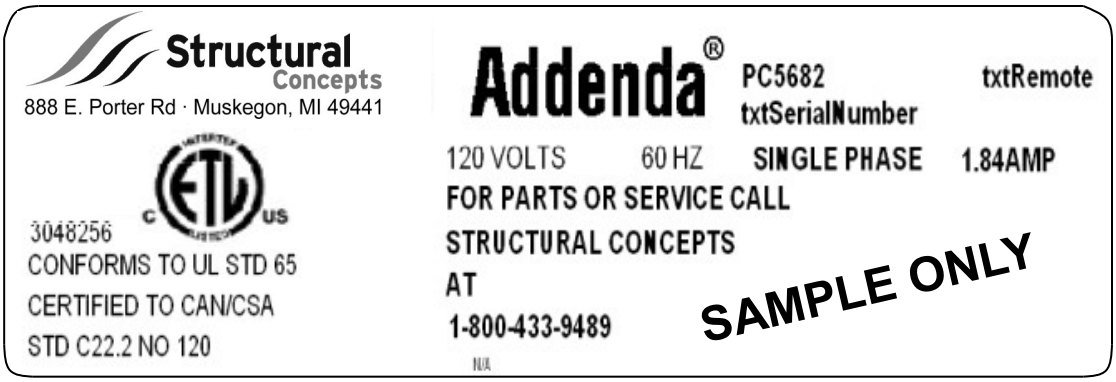
1. When the XM unit is ON, insert the "**Hot key**" and push ⇨ key; the **"uPL"** message appears.
2. The UPLOAD begins; the "**uPL**" message is blinking.
3. Remove the **"Hot Key"**.
   At the end of the data transfer phase the instrument displays the following messages:
   "**end** " for right programming.
   "**err**" for failed programming. In this case push "SET" key if you want to restart the programming again or remove the not programmed "**Hot key**".

Serial Label Location & Information Listed / Technical Information & Service

- Serial labels are located near the electrical access on your case.
- Serial labels contain electrical, temperature & refrigeration information, as well as regulatory standards to which the case conforms.
- For additional technical information and service, see the *TECHNICAL SERVICE* page in this manual for instructions on contacting Structural Concepts' Technical Service Department.
- See images below for samples of both refrigerated and non-refrigerated serial labels.



----- Sample Serial Label For Refrigerated Case -----



----- Sample Serial Label For Non-Refrigerated Case -----

TECH SERVICE/WARRANTY CONTACT INFO:
1 (800) 433-9490 / EXTENSION 1

DAYS/HOURS AVAILABLE:
MONDAY - FRIDAY (CLOSED HOLIDAYS)
8:00 a.m. TO 5:00 p.m. EST

YOU MUST HAVE THE FOLLOWING INFO AVAILABLE BEFORE CONTACTING STRUCTURAL CONCEPTS:

SERIAL NO. / MODEL NO. / STORE NO. / STORE ADDRESS / DETAILS (PHOTOS, LEAK LOCATIONS, DAMAGE, STORE'S AMBIENT CONDITIONS, ETC.)

LIMITED WARRANTY

Overview: All sales by Structural Concepts Corporation (hereafter referred to as "SCC") are subject to the following limited warranty. "Goods" refers to the product or products being sold by SCC.

Warranty Scope: Warranty is for equipment sold in the United States, Canada, Mexico and Puerto Rico. Equipment sold elsewhere may carry modified warranties.

Warranty; Remedies; Limitations: The limit of liability of SCC toward the exchange cost of the original compressor motor (and/or any other components) is one year parts and labor. If any Goods are found to be of faulty material or workmanship within one year of the original F.O.B. (free on board) unit shipment, SCC will, at its option (after inspection by an authorized representative), replace or pay the reasonable cost of replacement of the faulty Goods. If warranty claim is not made within this one year time period, SCC is not bound to warrant Goods. A motor-compressor (and/or any other components) replaced during the warranty shall not exceed manufacturer's current established wholesaler's exchange price. If replacement motor-compressor (and/or other components) is available via storage facility, parts truck, etc., SCC mandates that readily accessible replacement components be used toward repair of Goods; in such instances, SCC will replace such equipment (at its own expense) after confirmation of its use/placement on defective unit. SCC shall not be charged an additional fee, up-charge or expense for such replacement Goods. If SCC is unable to repair or replace the defective Goods, SCC shall issue a credit to the Purchaser for full or partial purchase price, as SCC shall determine. The replacement or payment in the manner described above shall be the sole and exclusive remedy to Purchaser for a breach of this warranty. If any Goods are defective or fail to conform to this warranty, SCC will furnish instructions for their disposition. No Goods shall be returned to SCC without its prior consent.

SCC's liability for any defect in the Goods shall not exceed the purchase price of the Goods. SCC SHALL HAVE NO LIABILITY TO PURCHASER FOR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, PERSONAL INJURY, PROPERTY DAMAGE, LOST PROFITS, OR OTHER ECONOMIC INJURY DUE TO ANY DEFECT IN THE GOODS OR ANY BREACH OF SCC, SCC SHALL NOT BE LIABLE TO THE PURCHASER IN TORT FOR ANY NEGLIGENT DESIGN OR MANUFACTURE OF THE GOODS, OR FOR THE OMISSION OF ANY WARNING THEREFROM.

SCC shall have no obligation or liability under this warranty for claims arising from any other party's (including Purchaser's) negligence or misuse of the Goods or environmental conditions. This warranty does not apply to any claim or damage arising for or cause by improper storage, handling, installation, maintenance, or from fire, flood, accidents, structural defects, building settlement or movement, acts of God, or other causes beyond SCC's control.

Except as expressly stated herein, SCC makes no warranty, express, implied, statutory or otherwise as to any parts or goods not manufactured by SCC. SCC shall warrant such parts or Goods only (I) against such defects, (II) for such periods of time, and (III) with such remedies, as are expressly warranted by the manufacturer of such parts of Goods. Notwithstanding the foregoing, any warranty with respect to such parts of Goods and any remedies available as a result of a breach thereof shall be subject to all of the procedures, limitations, and exclusions set forth herein.

THE WARRANTIES HEREIN ARE IN LIEU OF ALL WARRANTIES, EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE. IN PARTICULAR, SCC MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No representative, agent or dealer of SCC has authority to modify, expand, or extend this Warranty, to waive any of the limitations or exclusions, or to make any different or additional warranties with respect to Goods.

Period of Limitations: No claim, suit or other proceeding may be brought by Purchaser for any breach of the foregoing warranty or this Agreement by SCC or in any way arising out of this Agreement or relating to the Goods after one year from the date of the breach. In the interpretation of this limitation on action for a breach by SCC, it is expressly agreed that there are no warranties of future performance of the goods that would extend that period of limitation herein contained for bringing an action.

Indemnifications: Purchaser agrees to indemnify, hold harmless, and defend SCC if so requested, from any and all liabilities, as defined herein, suffered, or incurred by SCC as a result of, or in connection with, any act, omission, or use of the Goods by Purchaser, its employees or customers, or any breach of this Agreement by Purchaser. Liabilities shall include all costs, claims, damages, judgments, and expenses (including reasonable attorney fees and costs).

Remedies of SCC: SCC's rights and remedies shall be cumulative and may be exercised from time to time. In a proceeding or action relating to the breach of this Agreement by Purchaser, Purchaser shall reimburse SCC for reasonable costs and attorney's fees incurred by SCC. No waiver by SCC of any breach of Purchaser shall be effective unless in writing nor operate as a waiver of any other breach of the same term thereafter. SCC shall not lose any right because it has not exercised it in the past.

Applicable Law. This Agreement is made in Michigan; it is governed by and interpreted according to Michigan law. Any lawsuit arising out of this Agreement or the Goods may be handled by a federal or state court whose district includes Muskegon County, Michigan, and Purchaser consents that such court shall have personal jurisdiction over Purchaser.

LED Lighting Components Within Lighting System: Supermarket: 5-year LED warranty from date of shipment. Foodservice: 2-year LED warranty from date of shipment. After one year, warranty does not include labor or other costs incurred for diagnosing, repairing, removing, installing, shipping, servicing, or handling of either defective part or replacement parts. Remedy of repair or provision of a replacement part without charge shall be the exclusive remedy for any warranty claim. The replacement LED and/or power supply assumes the unused portion of warranty remaining on unit(s). A 90-day warranty will apply for any LED sold as a service part. Warranty claim must include serial and model number of unit as well as date code on defective LED lighting component(s). Manufacturer may request return of defective part(s) at customer's expense to initiate claim.

Glass Material: Glass (UV-bonded glass, glass sneeze guards, glass enclosures, glass held in place via posts, etc.) is only warranted to FIRST POINT OF DELIVERY.

Miscellaneous: If any provision of this Agreement is found to be invalid or unenforceable under any law, the provision shall be ineffective to that extent and for the duration of the illegality, but the remaining provisions shall be unaffected. Purchaser shall not assign any of its rights nor delegate any of these obligations under this Agreement without prior written consent of SCC. This Agreement shall be binding upon and inure to the benefit of SCC and Purchaser and each of their legal representatives, successors and assignees. SCC warrants its products to be free of defects in materials and workmanship under normal use and service for a period of one (1) year from the date of delivery.

This warranty is extended only to the original purchaser for use of the Goods. It does not cover normal wear parts such as plastic tongs, tong holders, tong cables, bag holders, or acrylic dividers.

General Conditions: All service labor and/or parts charges are subject to approval by SCC. Contact Customer Service Dept. in writing, by phone, fax or email.

All claims must contain the following information: (1) model & serial code number of equipment; (2) the date and place of installation; (3) the name and address of the agency which performed the installation; (4) the date of the equipment failure; and (5) a complete description of the equipment failure and all circumstances relating to that failure.

Once the claim has been determined to be a true warranty claim by SCC's Customer Service Department, the following procedure will be taken: (1) replacement parts will be sent at no charge from SCC on a freight prepaid basis; (2) reimbursement for service labor will be paid if the following conditions have been met - (a) prior approval of service agency was awarded from the Customer Service Department; and (b) an itemized statement of all labor charges incurred is received by the Customer Service Department. The cost of the service labor reimbursement will be based on straight time rates and reasonable time for the repair of the defect.

If problems occur with any compressor, notify SCC's Customer Service Department immediately. Any attempt to repair or alter the unit without prior consent from the Customer Service Department will render any warranty claim null and void. This warranty and protection plan does not apply to any condensing unit or any part thereof which has been subject to accident, negligence, misuse, or abuse, or which has not been operated in accordance with the manufacturer's recommendations or if the serial number of the unit has been altered, defaced, or removed.

One Year Limit of Liability: After SCC's one-year parts and labor warranty on the original F.O.B. (free on board) unit has expired, SCC is not liable for either the equipment or labor costs of repairing or replacing the motor compressor, nor any other components that were included in the original F.O.B. (free on board) unit.