Hill PHOENIX
EXCELLENCE™

Merchandisers

Engineering

Reference

Manual

2000

A DOVER DIVERSIFIED COMPANY

Rev. 1 5/00

Hill PHOENIX
EXCELLENCE™

Statement of Purpose

We will lead the markets we serve with innovative products, solutions and technological advances in a relentless pursuit to exceed customer expectations.

We will create a culture that promotes teamwork, integrity and respect for our customers, our suppliers and ourselves.

We are intolerant of mediocrity and dedicated to continuous improvement as a way of life.

As a result, ***Hill PHOENIX*** will enhance the success of our customers, the return to our shareholders, and the satisfaction of our employees.

Revisions From the 1999 Merchandisers Engineering Reference Manual

New Cases Added

ONZ	ONHP	MDCA-4’
ON2UM	BB	UPA-8’
ON2.5UM	ONRBH	O2SIA-4’
ON3UM	ORBH	OPA
ON3.5UM	ONRZH	ONNA
O3.5UD	OREZ	CURVED CASES
O6UM	O3IM	

Revisions

GLOBAL	All Pages	Added superheat set point and defrost run-off time to all models. Hot gas defrost termination temperature for all medium temp. cases changed to 45°. Hot gas defrost termination temperature for all low temp. cases changed to 60°.
OC	Page 2	Standard fan wattage changed. 12' defrost heater amperage changed for 208 volts. 27" front evaporator temperature changed to 17°, which changed the BTUH/ft and all other temperature data. Average product temperature changed. Timed-off defrost termination temperature changed. Reverse air defrost data added to model.
OM	Page 4	Timed-off defrost termination temperature changed. Reverse air defrost data added to model.
OMZD	Page10	Standard fan amperage changed. Anti-condensate heater amperage and wattage changed. Defrost heater amperage and wattage changed from three phase to single phase.
OP	Page14	39" rear cut produce BTUH/ft, discharge temperature, return temperature, and air velocity changed. 43" rear cut produce discharge temperature changed 39" rear bulk produce discharge temperature, average product temperature, return temperature, and air velocity changed. 43" rear bulk produce BTUH/ft, discharge temperature, and return temperature changed. All defrost termination temperatures changed.
OSIO	Page 18	Standard fan amperage changed. Electric and timed-off defrost termination temperature changed. Hot gas defrost data added to this model.
OWSIO	Page 22	Standard fan amperage changed. Hot gas defrost data added to this model. Timed-off defrost termination temperature changed.
O2UM	Page 30	4' defrost heater amperage changed.
O2.5UM	Page 38	4' defrost heater amperage changed.
O3UM	Page 48	4' defrost heater amperage changed.
O3.5UM	Page 56	4' Defrost heater amperage changed. Average product temperature changed.

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O4UM	Page 62	Average product temperature changed.
ON5DM	Page 72	Added performance data at 27° evaporator temperature. Timed-off and reverse air defrost termination temperatures changed.
O5DM	Page 74	12' defrost heater amperage changed at 208 volts. Discharge air velocity changed. Timed-off and reverse air defrost termination temperatures changed.
O5DMH	Page 80	12' defrost heater amperage changed at 208 volts. Timed-off and reverse air defrost termination temperatures changed.
O5DR	Page 84	High efficiency fan data changed. Defrost heaters added to model. Typical per row and maximum lighting changed. Electric, hot gas, and reverse air defrost data added to model. Cross-section was updated.
O5Z	Page 88	Defrost heater amps changed for 208 volt and 240 volt.
ONHM	Page 90	Standard and high efficiency fan data changed. BTUH/ft, average product temperature, return air temperature, and discharge air velocity changed. Timed-off and reverse air defrost termination temperature changed.
OHM	Page 92	27" front at 12° evaporator temperature the discharge temperature and return temperature changed. 27" front at 17° evaporator temperature the return temperature changed. 31" & 33" front at 17° evaporator temperature the return temperature changed. Timed-off and reverse air defrost termination temperature changed.
OHMH	Page 94	27" front at 12o evaporator temperature all data changed. Added 27" front and 31"/33" data at 17° evaporator temperature. Removed 31"/33" front data at 12° evaporator temperature. Electric, hot gas, and reverse air defrost fail-safe minutes changed. Timed-off and reverse air defrost termination temperature changed.
OHP	Page 98	Timed-off defrost fail-safe minutes changed. Electric, timed-off, and reverse air defrost termination temperatures changed.
OHPH	Page 100	Timed-off defrost fail-safe minutes changed. Electric, timed-off, and reverse air defrost termination temperatures changed.
ONRB	Page 112	High efficiency fan motor amperage changed Electric and timed-off defrost fail-safe minutes changed. All defrost termination temperatures changed.
ORB	Page 116	High efficiency fan motor amperage changed Electric and timed-off defrost fail-safe minutes changed. All defrost termination temperatures changed.
ONRZ	Page 120	High efficiency fan motor wattage changed
ORZ	Page 124	High efficiency fan motor wattage changed Discharge air velocity changed.

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ORZH	Page 126	High efficiency fan motor wattage changed Anti-condensate heater data changed. Frozen food discharge temperature changed.
ONIM	Page 132	Standard fan amperage changed. Timed-off defrost data added to model.
OIM	Page 136	Standard fan amperage changed. OIMB-8' maximum lighting amperage changed. Timed-off defrost fail-safe minutes changed. Electric and timed-off defrost termination temperature changed.
OIP	Page 140	Standard fan amperage changed.
ONIZ	Page 144	Standard fan amperage changed.
OIZ	Page 148	Standard fan amperage changed. Electric defrost termination temperature changed.
OWIZ	Page 150	Standard fan amperage changed.
OWEZ	Page 152	Standard fan amperage changed. OWEZG for ice cream application defrost heater amperage changed.
O3IC	Page 156	Standard fan amperage changed. O3ICB-6' standard fan wattage changed. O3ICB-12' anti-condensate heater wattage changed. Electric defrost termination temperature changed.
O3IP	Page 168	Standard fan amperage changed.
OSA	Page 172	Standard fan amperage changed. Added hot gas defrost data to model.
OSM	Page 176	Standard fan amperage changed. Added hot gas defrost data to model.
OSAG	Page 180	Standard fan amperage changed.
OSI	Page 188	Standard fan amperage changed. Hot gas defrost data added to this model. Timed-off defrost fail-safe minutes changed. Electric and timed-off defrost termination temperature changed.
OWSI	Page 192	Standard fan amperage changed. Hot gas defrost data added to this model. Timed-off defrost fail-safe minutes changed. Electric and timed-off defrost termination temperature changed.
OSIF	Page 194	Standard fan amperage changed. Hot gas defrost data added to this model. Timed-off defrost fail-safe minutes changed. Electric and timed-off defrost termination temperature changed.

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OLF	Page 198	12' defrost heater amperage at 208 volts changed.
OLFG	Page 202	Anti-condensate heater data changed. 12' defrost heater amperage at 208 volts changed. Timed-off defrost fail-safe minutes changed.
OSAH	Page 206	Added electrical data for European configurations. Added OSAH 12' data to both domestic and European electrical data. Added cross-section of an OSAH on an 11" baseframe.
MMCA-4'	Page 216	Plug style changed.
OSIOPA-4'	Page 222	Updated cross-section.
O2.5UMA	Page 228	Electric defrost termination temperature changed.
O3UMA	Page 230	24 hour energy usage changed. Electric defrost termination temperature changed.
O5DMA	Page 232	Minimum circuit ampacity changed. Removed high efficiency fans and added condenser fan information to electrical data. Drain heater amperage changed. O5DMA-4' compressor RLA changed. Timed-off defrost termination temperature. Updated cross-sections.
ONUA	Page 238	Minimum circuit ampacity changed. Removed high efficiency fans and added condenser fan information to electrical data.
ONIMA	Page 242	Standard fan amperage changed. Maximum fuse size on the ONIMA-12' changed. Minimum circuit ampacity changed. Removed high efficiency fans and added condenser fan information to electrical data.
ONIMBA	Page 244	Standard fan amperage changed. Maximum fuse size on the ONIMBA-12' changed. Minimum circuit ampacity changed. Removed high efficiency fans and added condenser fan information to electrical data.
OIMA	Page 246	Standard fan amperage changed. Maximum fuse size changed. Minimum circuit ampacity changed. Removed high efficiency fans and added condenser fan information to electrical data. Electric defrost termination temperature changed.
OIMBA	Page 248	Standard fan amperage changed. Maximum fuse size changed. Minimum circuit ampacity changed. Removed high efficiency fans and added condenser fan information to electrical data. Electric defrost termination temperature changed.
OIPA	Page 250	Standard fan amperage changed. Maximum fuse size changed. Minimum circuit ampacity changed. Removed high efficiency fans and added condenser fan information to electrical data.

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O3ICA	Page 252	Standard fan amperage changed. Maximum fuse size changed. Minimum circuit ampacity changed. Removed high efficiency fans and added condenser fan information to electrical data. Electric defrost termination temperature changed.
O3ICBA	Page 254	Standard fan amperage changed. Maximum fuse size changed. Minimum circuit ampacity changed. Removed high efficiency fans and added condenser fan information to electrical data. Electric defrost termination temperature changed.
OSIA-4’	Page 256	Compressor RLA and LRA data changed.

Revision (1) of the 2000 Merchandisers Engineering Reference Manual

OSA	Page 172	Discharge air temperature corrected.
OSM	Page 176	Discharge air temperature corrected.
OLF	Page 198	Cross-section updated.
OLFG	Page 202	Cross-section updated.
Index	Page 270	Corrected page numbering errors.

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Single Deck Merchandisers

Notes:

- *Average product temperatures are calculated as defined by ASHRAE* standards and should not be used to determine application.*
- *Cases meet FDA** Food Code 1997 product temperature requirements (41°F or less) for hazardous foods when used for their prescribed applications.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*

* *American Society of Heating Refrigeration and Air Conditioning Engineers*

** *Food and Drug Administration*

Single Deck Deli/Cheese Merchandiser

OC - 6', 8', & 12

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OC	6'	2	1.00	60	0.60	40	0.20	24	2.88	600	3.33	798
	8'	2	1.00	60	0.60	40	0.25	30	3.85	800	4.44	1065
	12'	3	1.50	90	0.90	60	0.38	46	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OC	6'	0.57	68	0.57	68
	8'	0.57	68	0.57	68
	12'	0.77	92	0.77	92

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OC	27"	480	17	6-8	26	35	39	305
	31" & 33"	415	17	6-8	26	34	35	305

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OC	2	6 - 8	40	49	70	47	26	45	40	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

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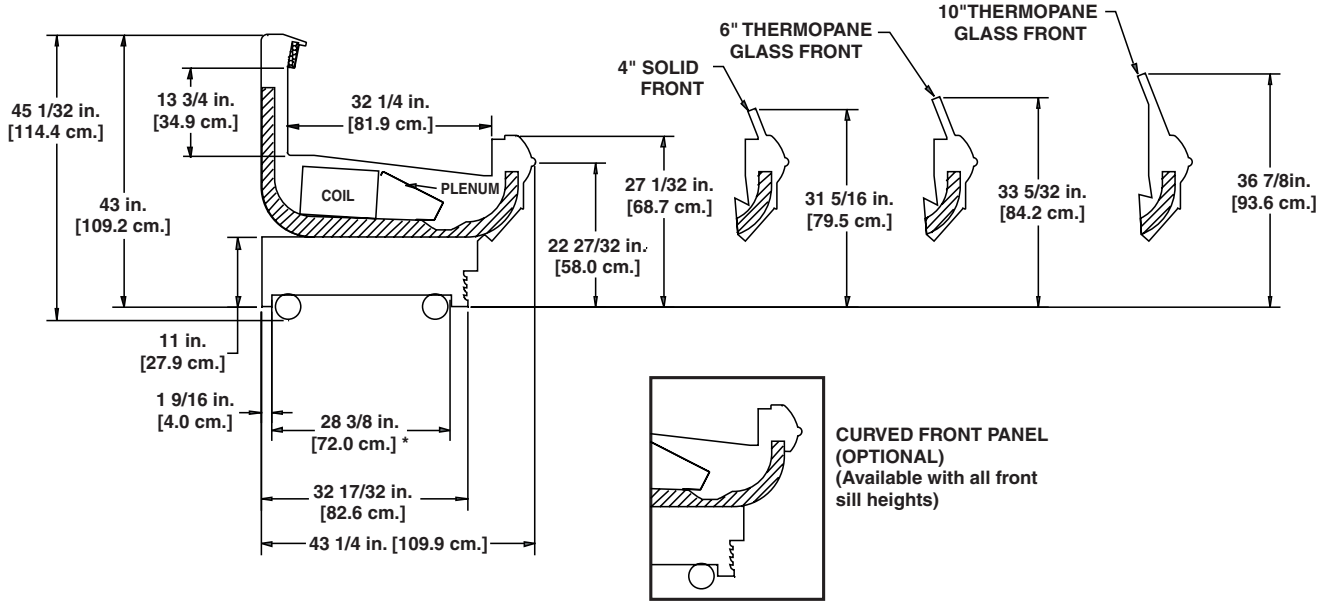
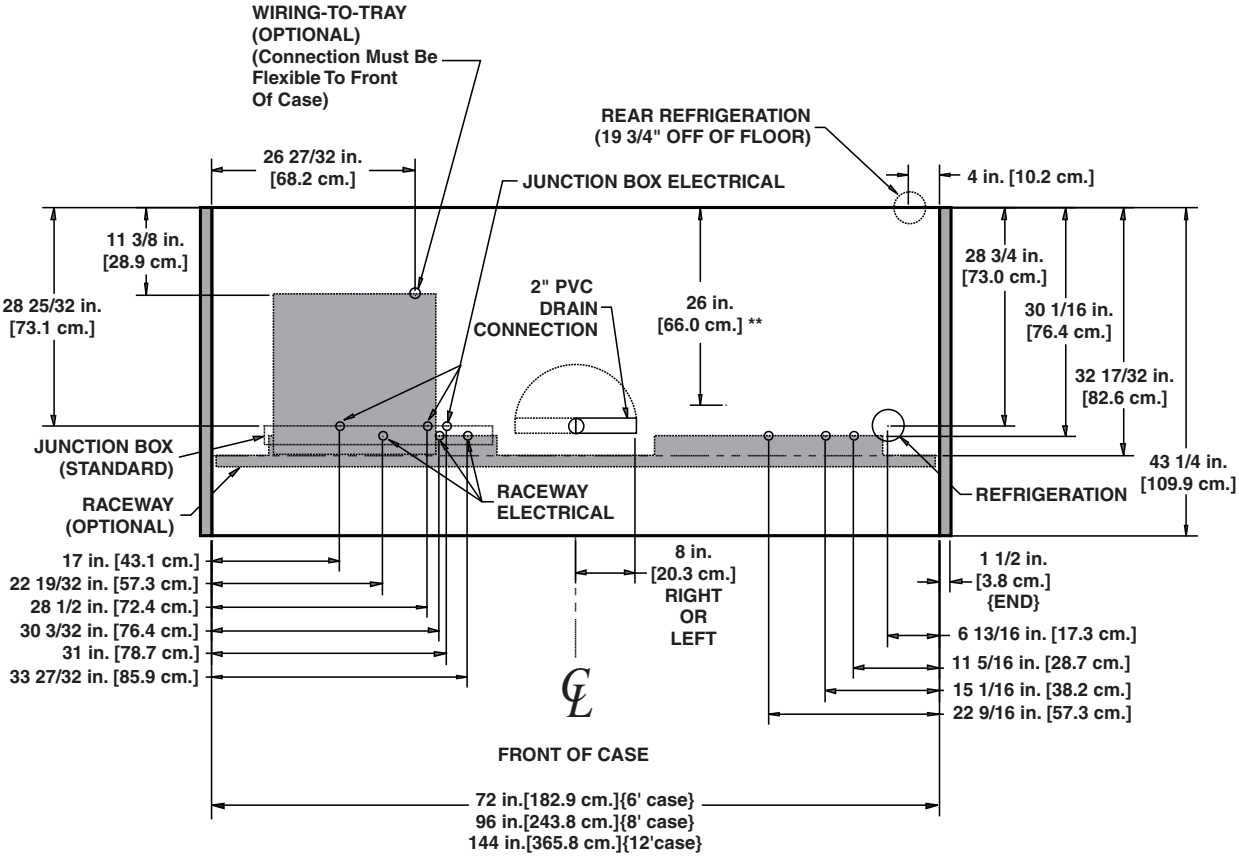


CURVED FRONT PANEL
(OPTIONAL)
(Available with all front sill heights)



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"

Single Deck Deli/Meat/Seafood Merchandiser

OM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters[1] 120 Volts Amps	Anti-Condensate Heaters[1] 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OM	4'	2	1.00	60	0.60	40	0.14	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20	24	2.88	600	3.33	798
	8'	2	1.00	60	0.60	40	0.25	30	3.85	800	4.44	1065
	12'	3	1.50	90	0.90	60	0.38	46	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OM	4'	0.57	68	0.57	68
	6'	0.57	68	2.06	247
	8'	0.57	68	2.06	247
	12'	0.77	92	3.08	370

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OM	27"	560	12	6-8	22	33	37	305
	27"	480	17	6-8	26	35	39	305
	31" & 33"	415	17	6-8	26	34	35	305

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OM	2	6 - 8	40	49	70	47	26	45	40	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

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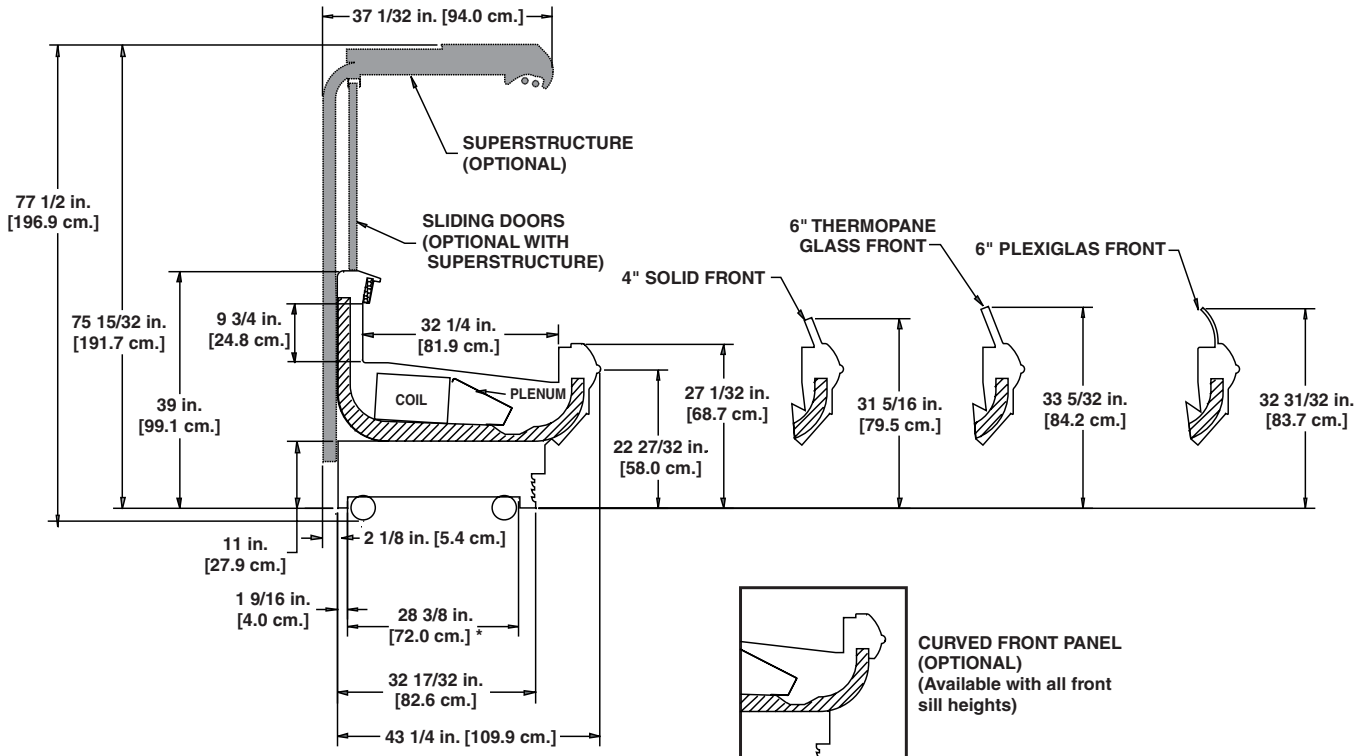
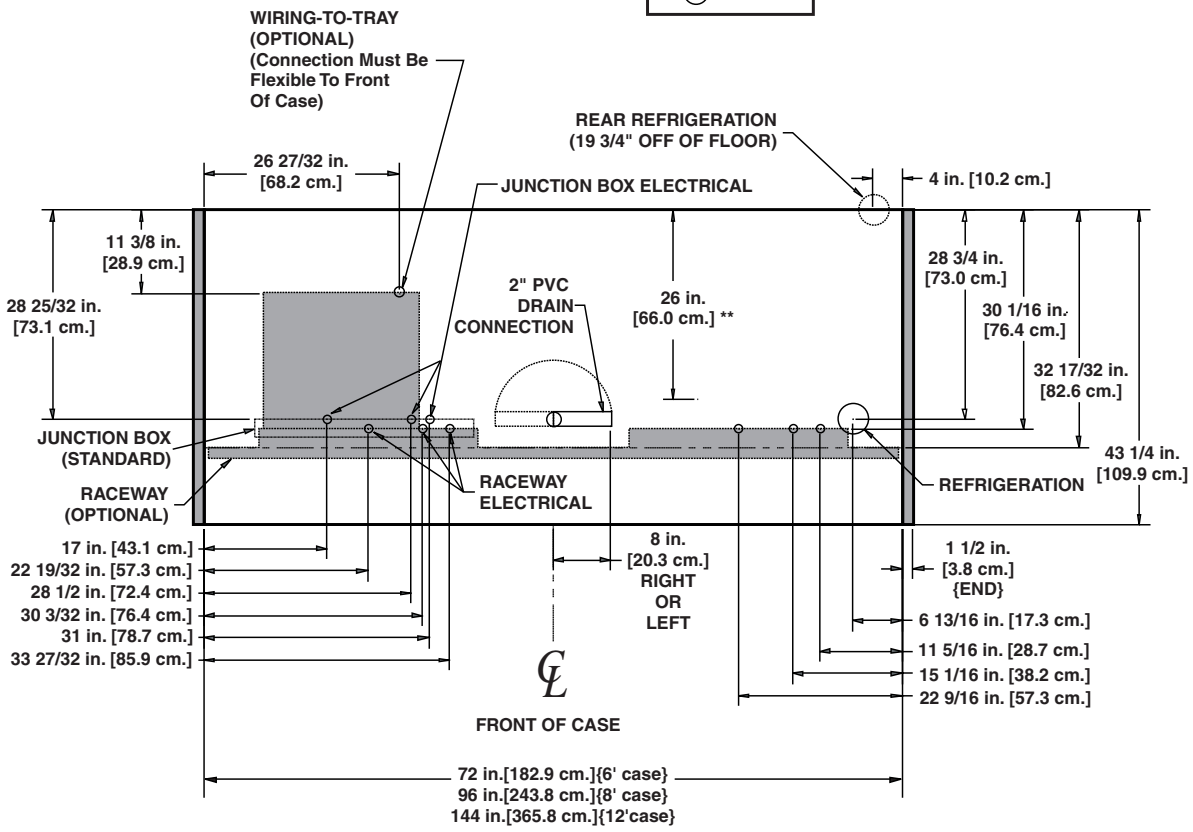
All measurements are taken per CRMA specifications.

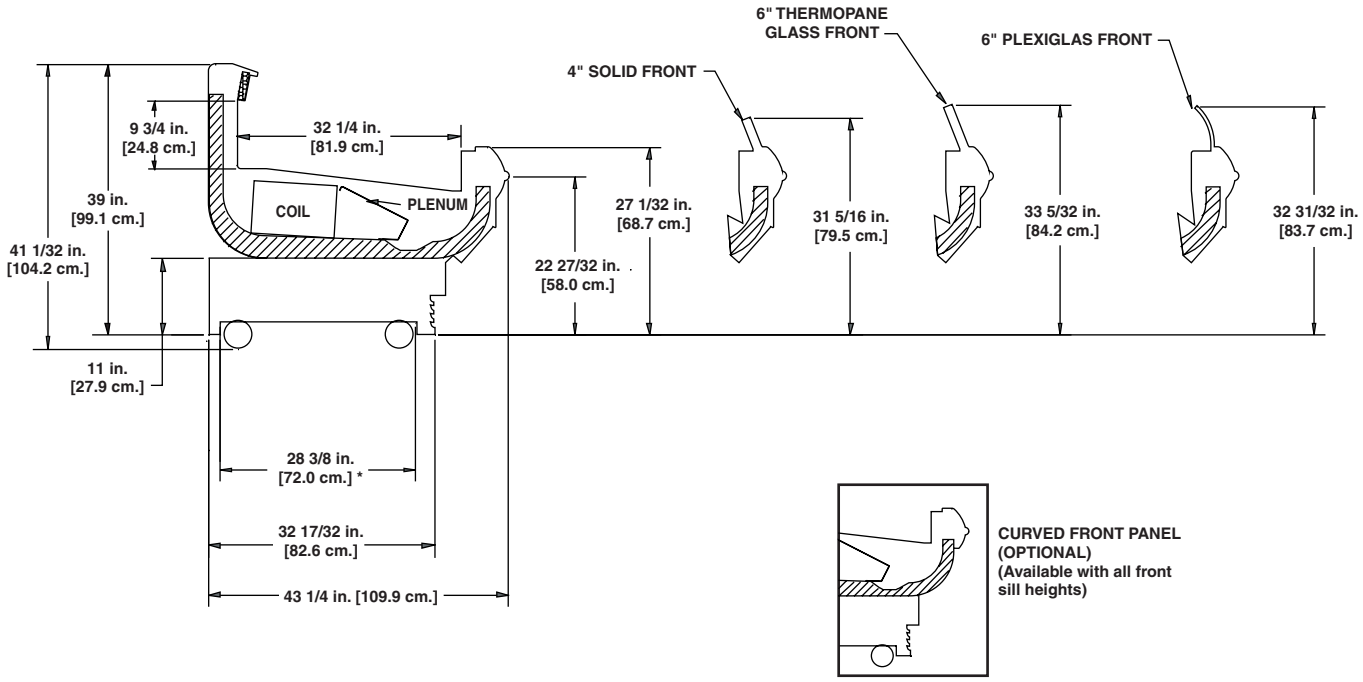




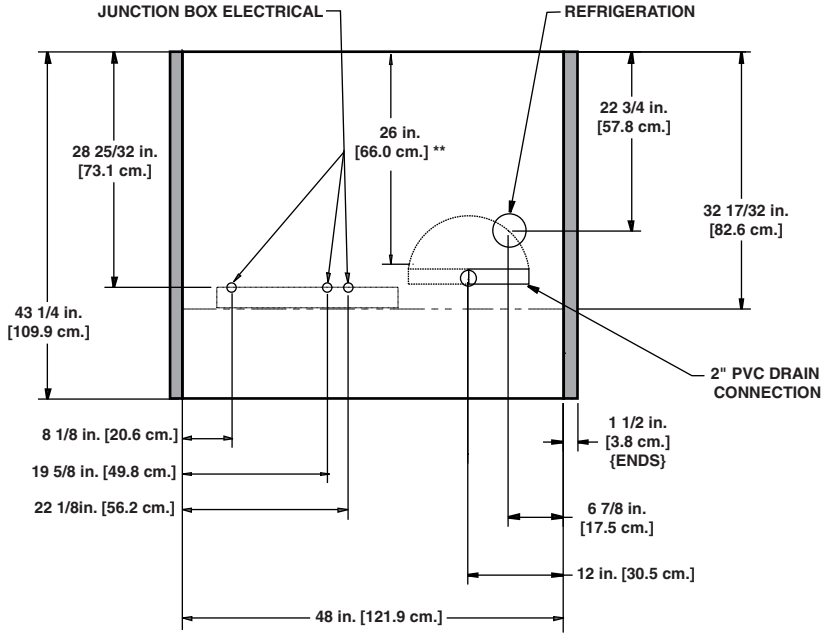
NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"



CURVED FRONT PANEL (OPTIONAL) (Available with all front sill heights)



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"

Single Deck Frozen Meat Merchandiser

OMZ - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OMZ	6'	2	1.00	60	0.64	34	0.90	108	5.00[1]	1800	5.76[1]	2394
	8'	3	1.50	90	0.96	51	0.96	115	6.66[1]	2400	7.69[1]	3195
	12'	4	2.00	120	1.28	69	1.83	220	7.99[1]	2880	9.24[1]	3840

1 NOTE: 3 phase load. Figures given in maximum amps per phase.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OMZ	6'	0.57	68	0.57	68
	8'	0.57	68	0.57	68
	12'	0.77	92	0.77	92

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OMZ	33"	550	-23	3-5	-10	4	0	120

2 BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

3 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OMZ	4	13 - 15	45	47	- - -[4]	- - -	20	60	- - -	- - -

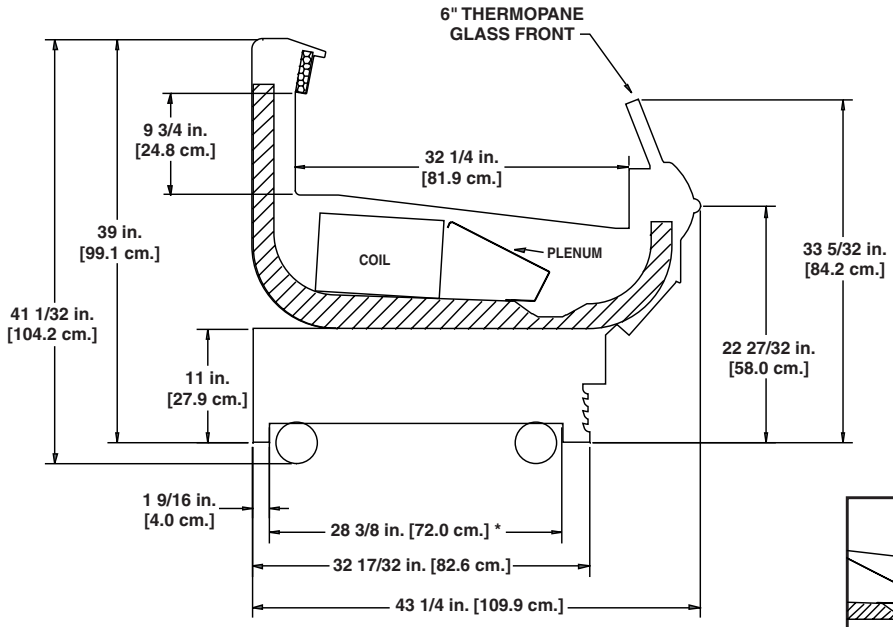
4 NOTE: - - - not an option on this case model.

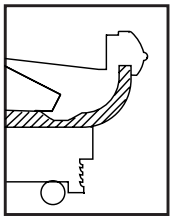
Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

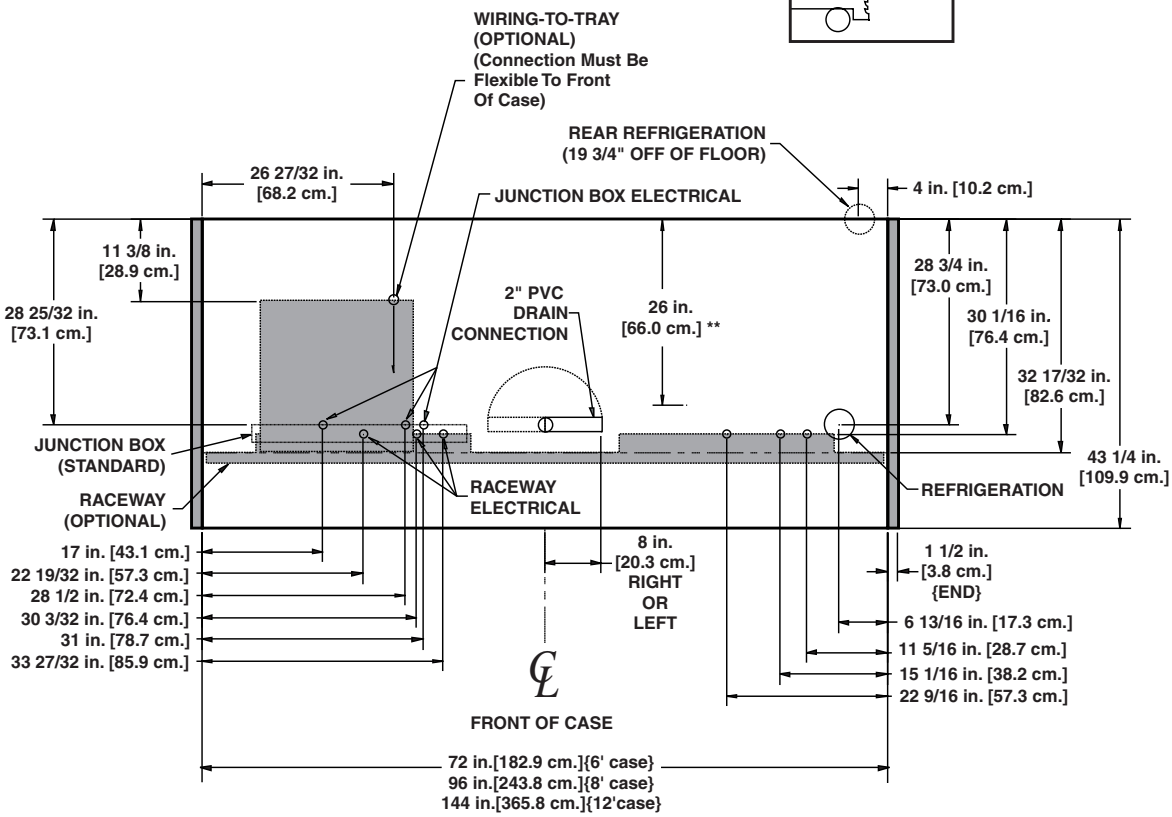
** Or immediately after store closing hour

All measurements are taken per CRMA specifications.





CURVED FRONT PANEL (OPTIONAL) (Available with all front sill heights)



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"

Single Deck Frozen Food/Ice Cream Merchandiser

OMZD - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OMZD	6'	2	0.90	34	0.30	22	1.28	154	11.54	2400	13.31	3196
	8'	3	1.35	51	0.45	33	1.45	174	15.38	3200	17.75	4260
	12'	4	1.80	68	0.60	44	2.59	311	23.08	4800	26.63	6390

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OMZD	6'	0.57	68	0.57	68
	8'	0.57	68	0.57	68
	12'	0.77	92	0.77	92

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OMZD-F[3]	35 19/32"	456	-18	3-5	-8	1	2	240
OMZD-C[3]	35 19/32"	476	-28	3-5	-18	-8	-8	240

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

[3] F=frozen food, C=ice cream.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OMZD	1	13 - 15	45	48	- - -[4]	- - -	20	60	- - -	- - -

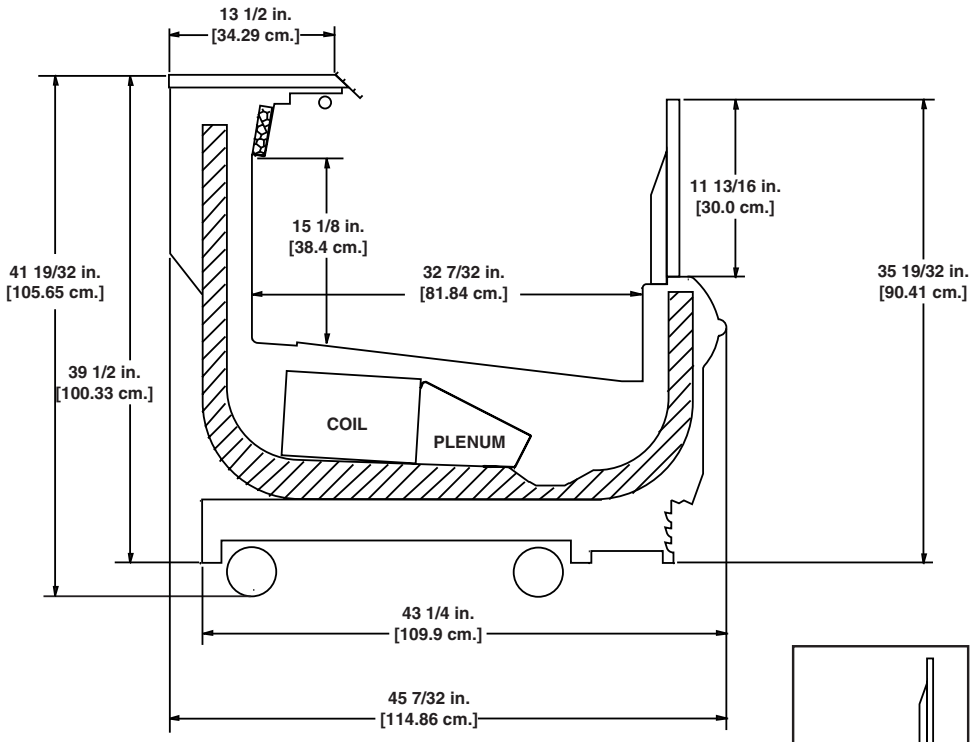
[4] NOTE: - - - not an option on this case model.

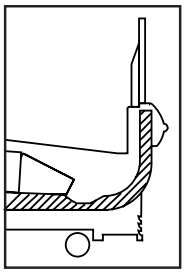
Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

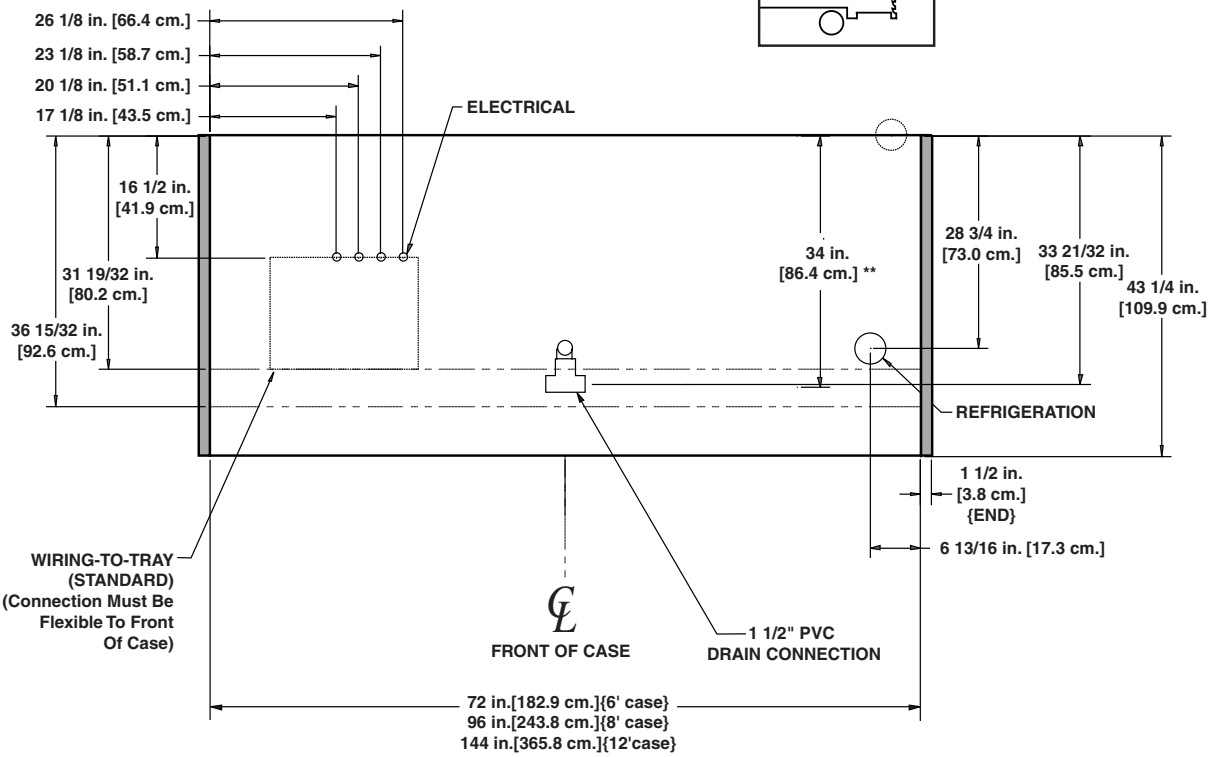
** Or immediately after store closing hour

All measurements are taken per CRMA specifications.





CURVED FRONT PANEL
(OPTIONAL)



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"

Single Deck Frozen Food/Ice Cream Merchandiser

ONZ - 8' & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts	Drain Heaters 120 Volts Amps	Drain Heaters 120 Volts Watts
ONZ	F-8'[1]	2	0.90	34	0.30	22	1.93	232	7.69	1600	8.88	2130	0.13	15
	F-12'	3	1.35	51	0.45	33	2.70	324	11.54	2400	13.31	3195	0.13	15
	C-8'	2	0.90	34	0.30	22	1.93	232	15.38	3200	17.75	4260	0.13	15
	C-12'	3	1.35	51	0.45	33	2.70	324	23.08	4800	26.63	6390	0.13	15

[1] F = frozen food, C = ice cream.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONZ	8'	- - -[2]	- - -	- - -	- - -
	12'	- - -	- - -	- - -	- - -

[2] NOTE: - - - not an option on this case model.

Guidelines & Control Settings

Model	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONZ - F	369	-23	3-5	-12	-1	0	180
ONZ - C	412	-33	3-5	-22	-11	-9	180

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

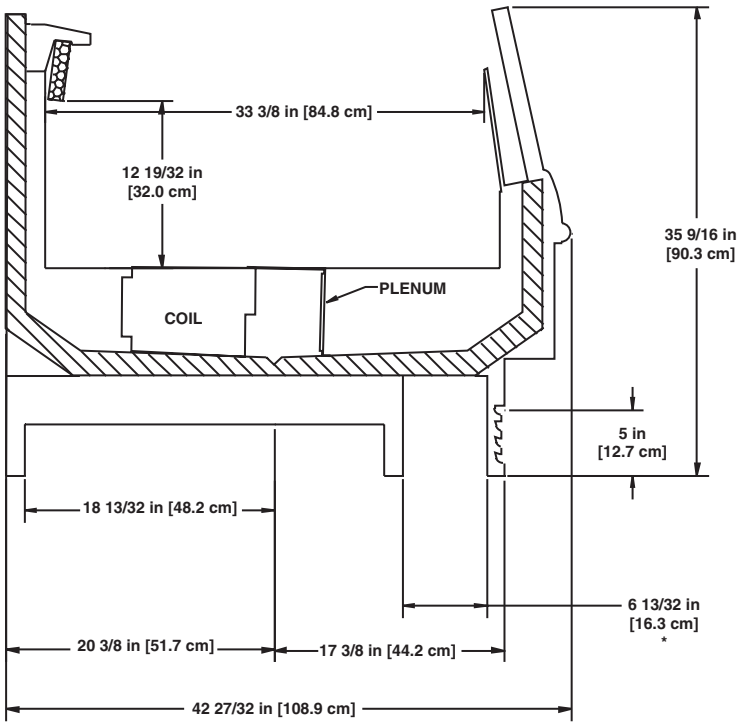
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONZ	1	13 - 15	48	47	- - -	- - -	20	60	- - -	- - -

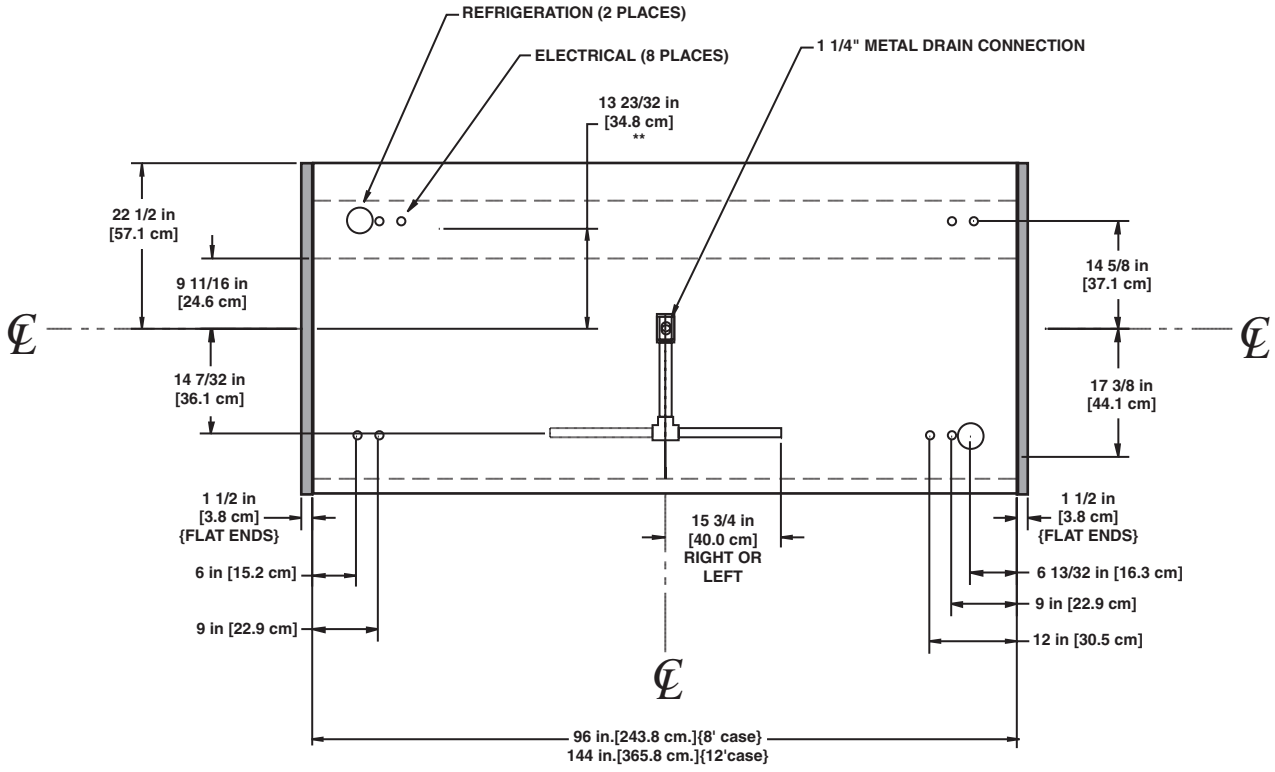
Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

Single Deck Produce Merchandiser

OP - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters[1] 120 Volts Amps	Anti-Condensate Heaters[1] 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OP	4'	2	1.00	60	0.60	40	- - -[1]	- - -	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	- - -	- - -	2.88	600	3.33	798
	8'	2	1.00	60	0.60	40	- - -	- - -	3.85	800	4.44	1065
	12'	3	1.50	90	0.90	60	- - -	- - -	5.77	1200	6.67	1600

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OP	4'	0.57	68	0.57	68
	6'	0.57	68	0.57	68
	8'	0.57	68	0.57	68
	12'	0.77	92	0.77	92

Guidelines & Control Settings

Model	Rear Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OP Cut Produce	39"	288	22	6-8	31	37	42	180
	43"	401	22	6-8	30	36	45	210
OP Bulk Produce	39"	230	27	6-8	26	40	44	180
	43"	374	27	6-8	35	40	47	210

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

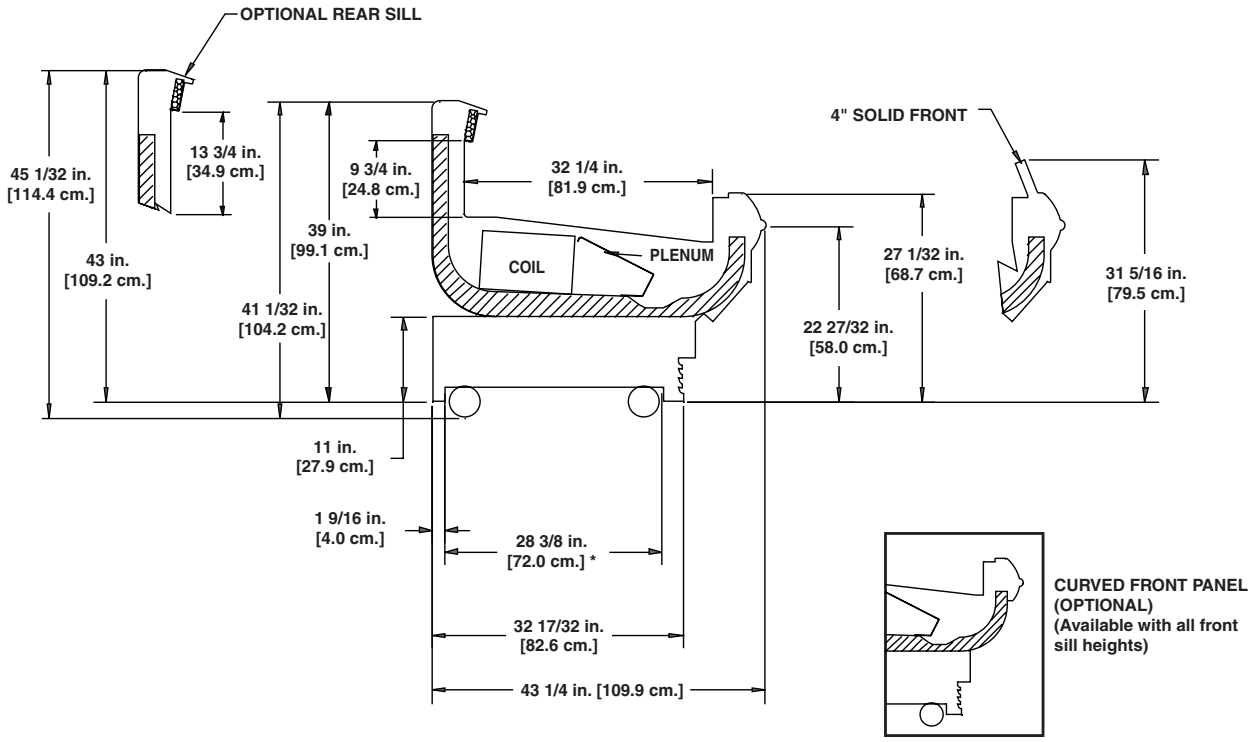
Defrost Controls

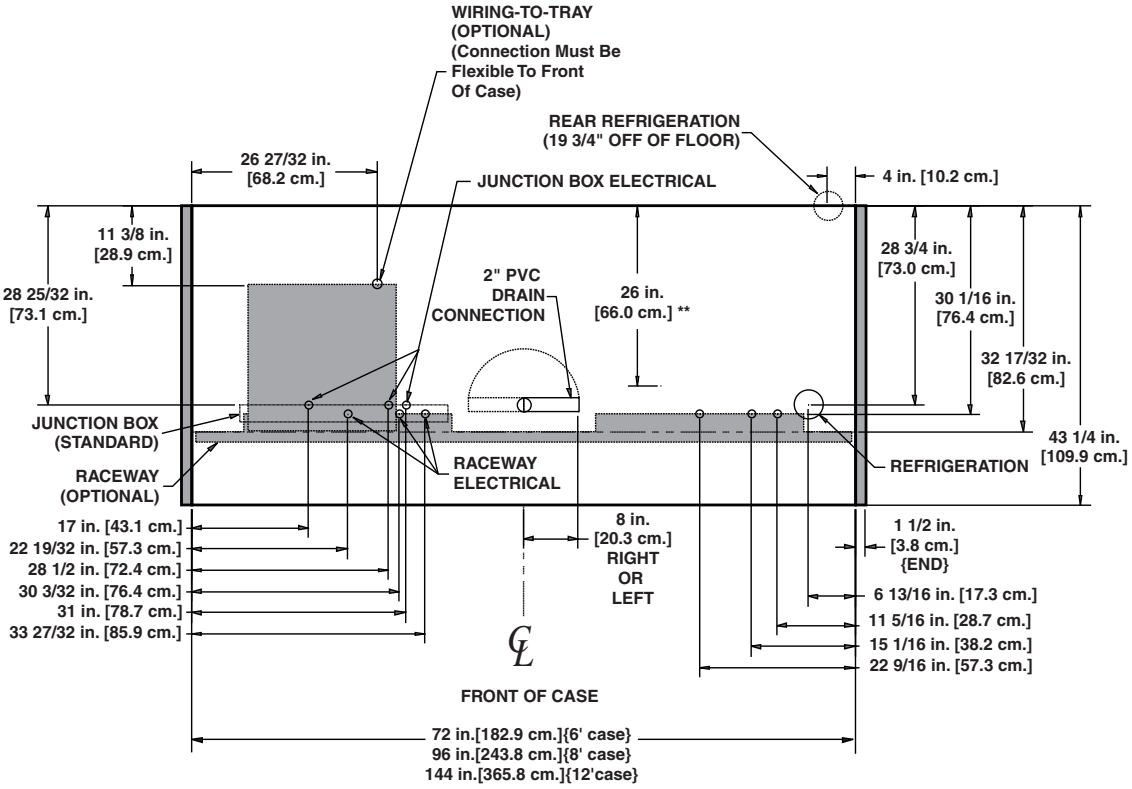
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OP	2	6 - 8	40	49	60	47	26	45	40	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

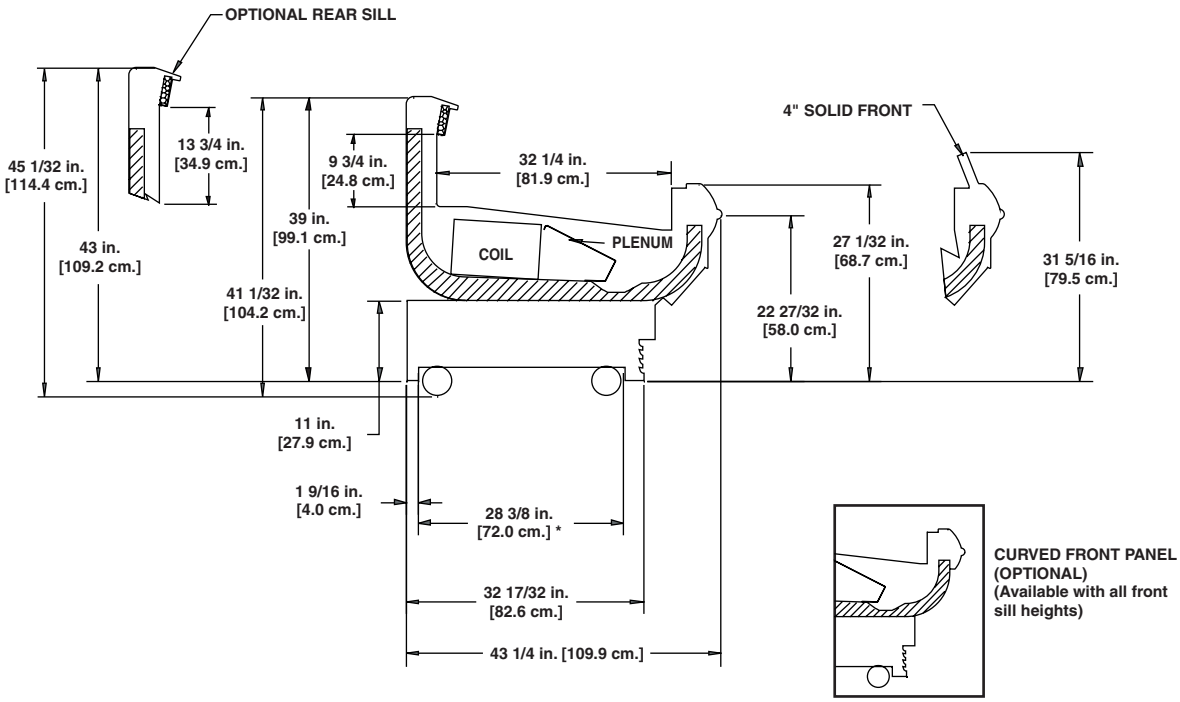


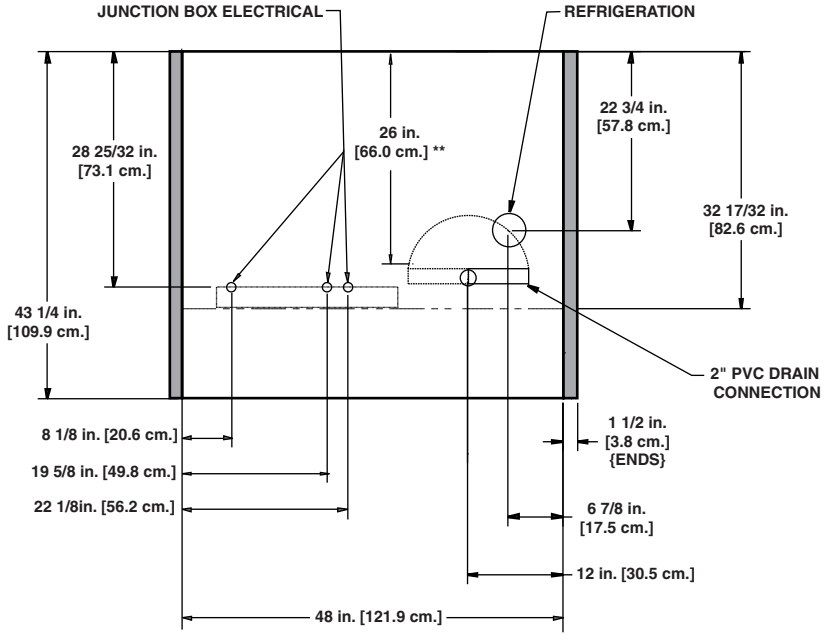


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"





FRONT OF CASE

NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"

International Style Single Deck Deli/Meat/Seafood Merchandiser

OSIO - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OSIO	4'	2	0.90	34	0.30	22	0.55	66	1.92	400	2.22	532
	6'	2	0.90	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.35	51	0.45	33	1.22	146	3.85	800	4.44	1065
	12'	4	1.80	68	0.60	44	1.88	226	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OSIO	4'	0.57	68	0.57	68
	6'	0.57	68	0.57	68
	8'	0.57	68	0.57	68
	12'	0.77	92	0.77	92

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSIO	31 27/32"	695[3]	12	6-8	24	33	33	180

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

[3] Calculated from OSIOA data compressor tables·

Defrost Controls

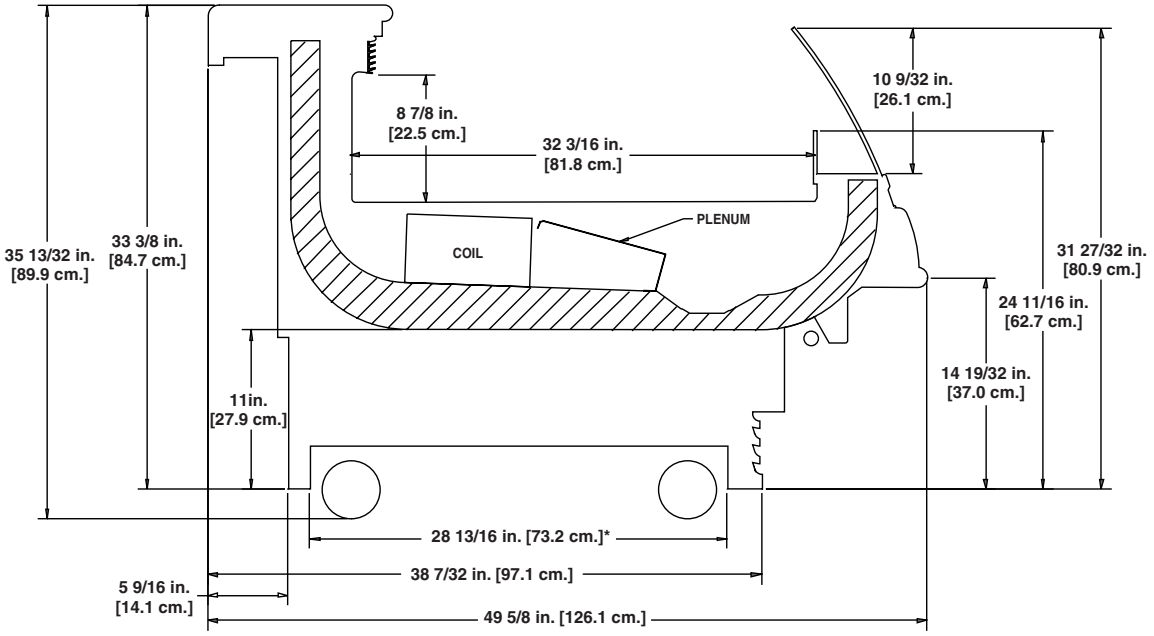
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OSIO	3	6 - 8	35	47	55	47	26	45	- - -[4]	- - -

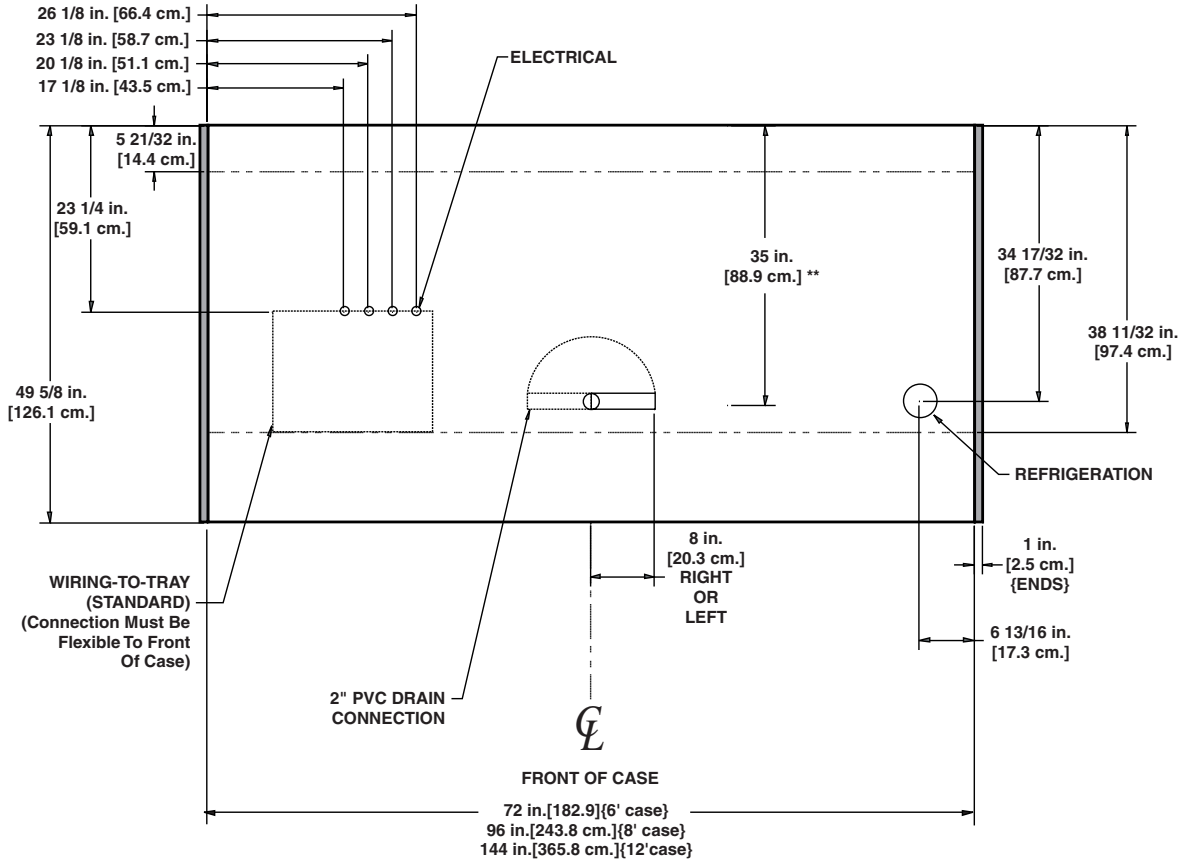
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

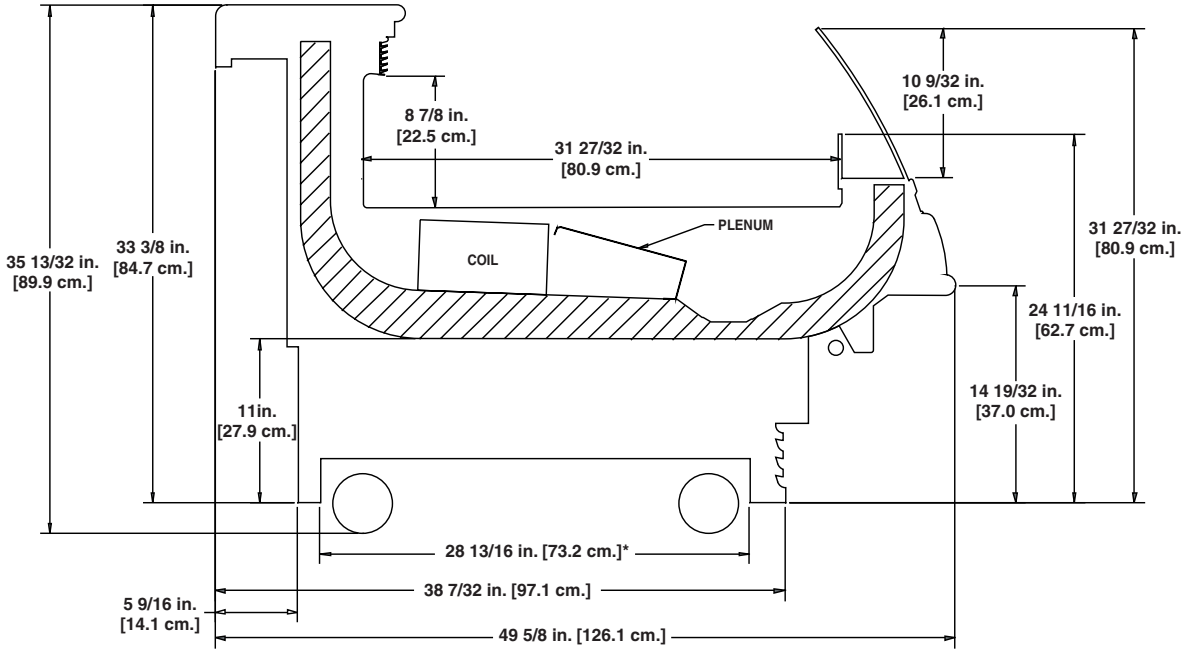


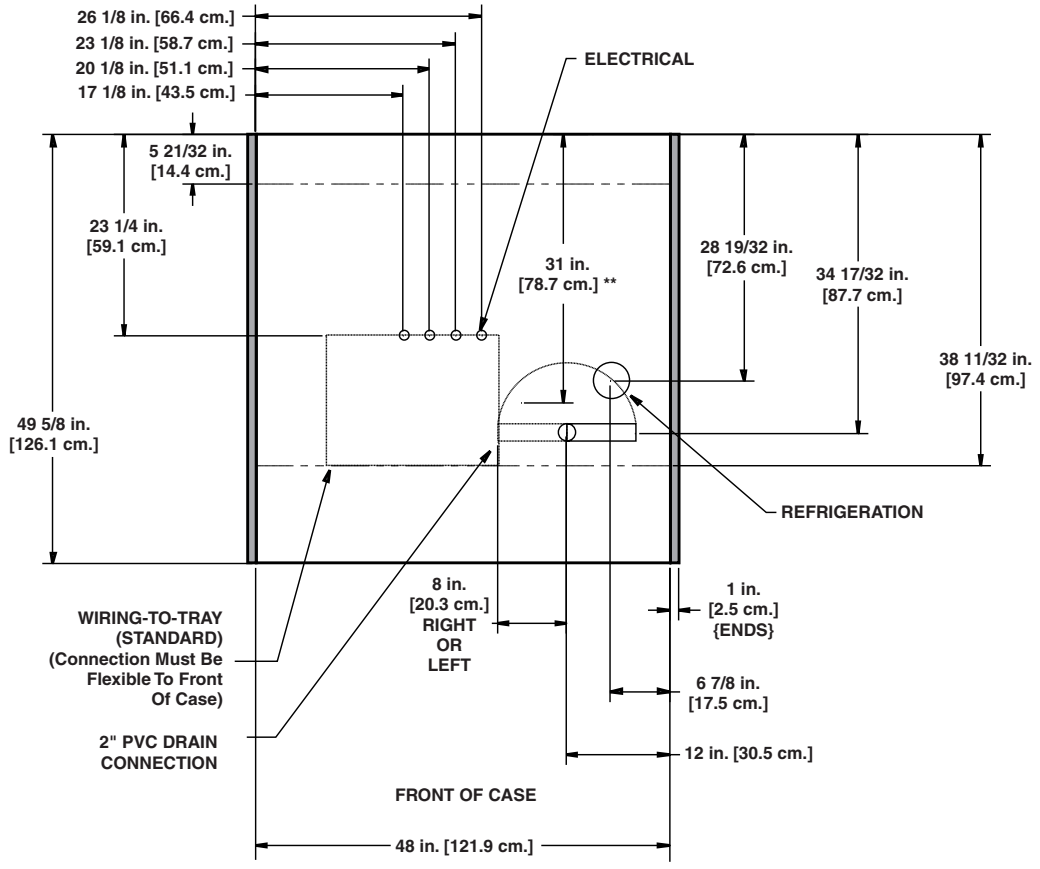


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT





NOTES:

* **STUB-UP AREA**
** **RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS**

• **ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT**

Wide International Style Single Deck Deli/Meat/Seafood Merchandiser

OWSIO - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OWSIO	6'	2	0.90	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.35	51	0.45	33	1.22	146	3.85	800	4.44	1065
	12'	4	1.80	68	0.60	44	1.88	226	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OWSIO	6'	0.57	68	0.57	68
	8'	0.57	68	0.57	68
	12'	0.77	92	0.77	92

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OWSIO	31 27/32"	795[3]	12	6-8	24	34	33	180

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

[3] Calculated from OSIOA data compressor tables·

Defrost Controls

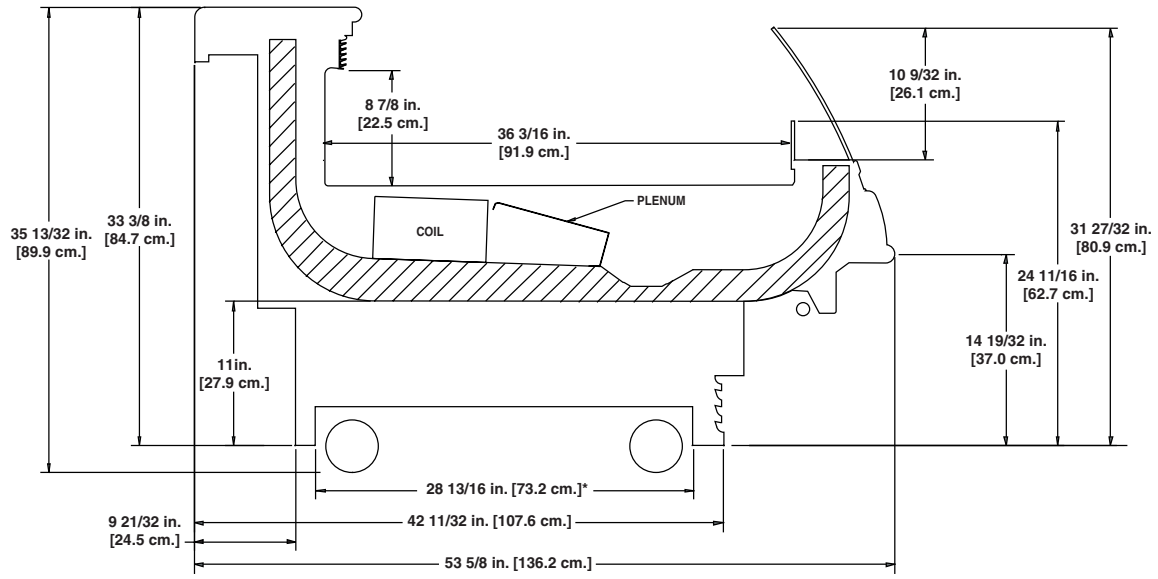
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OWSIO	3	6 - 8	35	47	55	47	26	45	- - -[4]	- - -

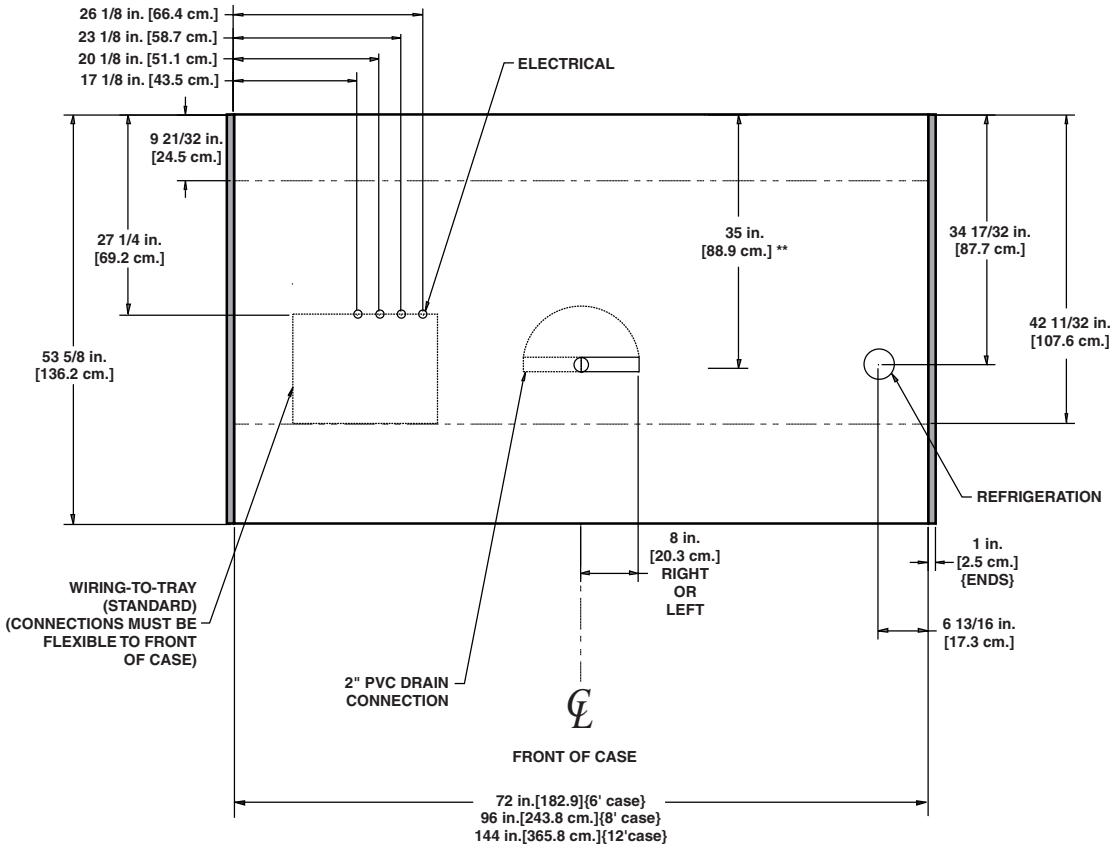
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

Multi-Deck Merchandisers

Notes:

- *Average product temperatures are calculated as defined by ASHRAE* standards and should not be used to determine application.*
- *Cases meet FDA** Food Code 1997 product temperature requirements (41°F or less) for hazardous foods when used for their prescribed applications.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*

* *American Society of Heating Refrigeration and Air Conditioning Engineers*

** *Food and Drug Administration*

Narrow Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser

ON2UM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans		High Efficiency Fans		Anti-Condensate Heaters[1]		Defrost Heaters			
			120 Volts		120 Volts		120 Volts		208 Volts		240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ON2UM	4'	2	1.00	60	0.60	40	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row		Maximum Lighting	
		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts
ON2UM	4'	0.57	68	1.14	137
	6'	0.57	68	2.06	247
	8'	0.57	68	2.06	247
	12'	0.77	92	3.08	370

Guidelines & Control Settings

Model[2]	Front Sill Heights	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON2UM	27", 31", 33"	657	17	6-8	28	32	35	280

[2] Model ON2UM only available for meat application with 33" front.

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

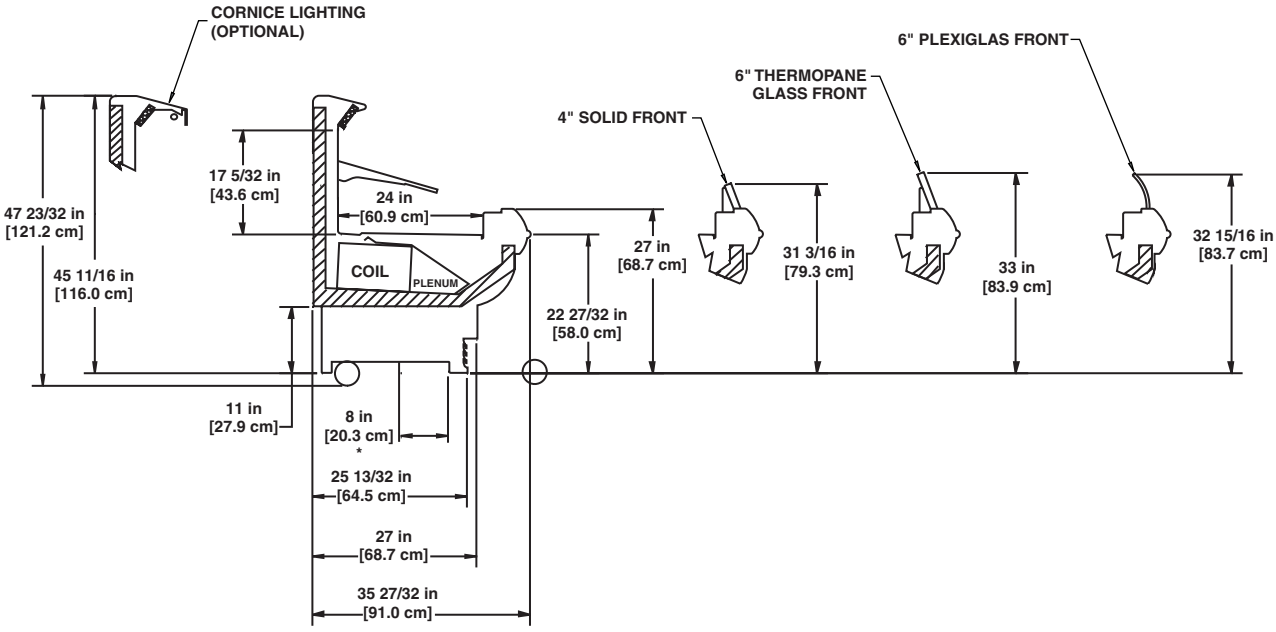
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
ON2UM	2	6 - 8	40	47	45	45	26	45	45	45

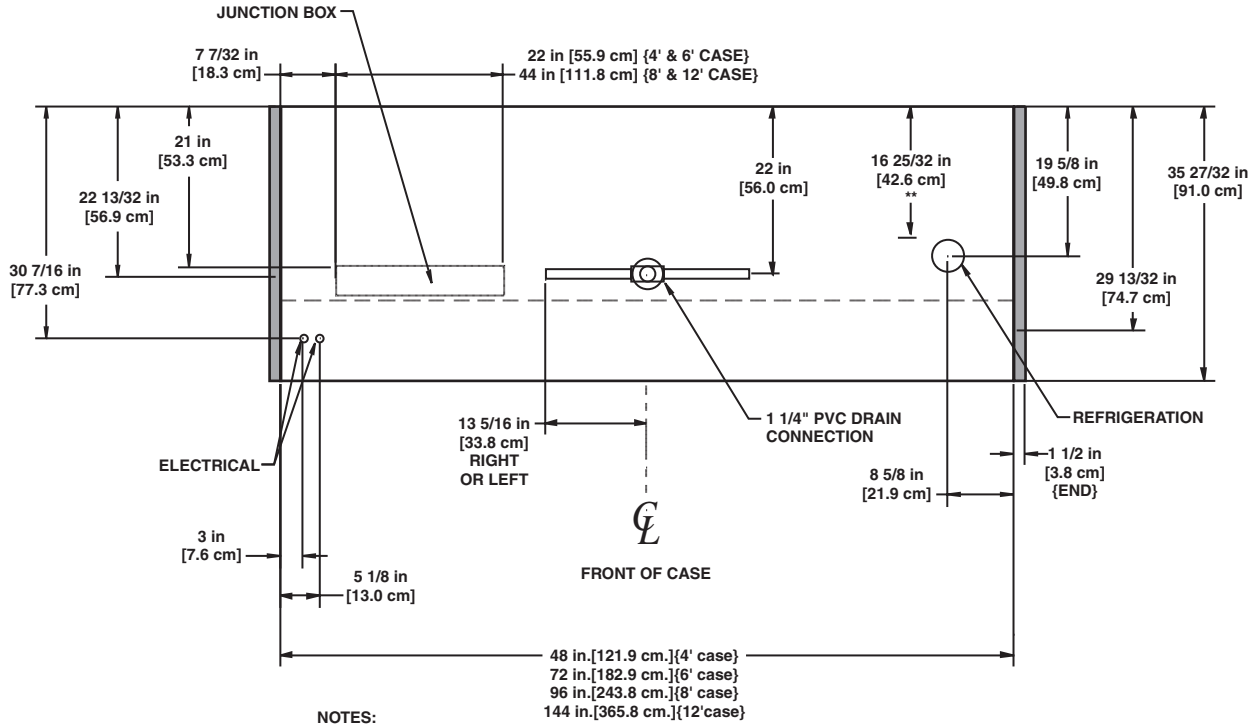
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*



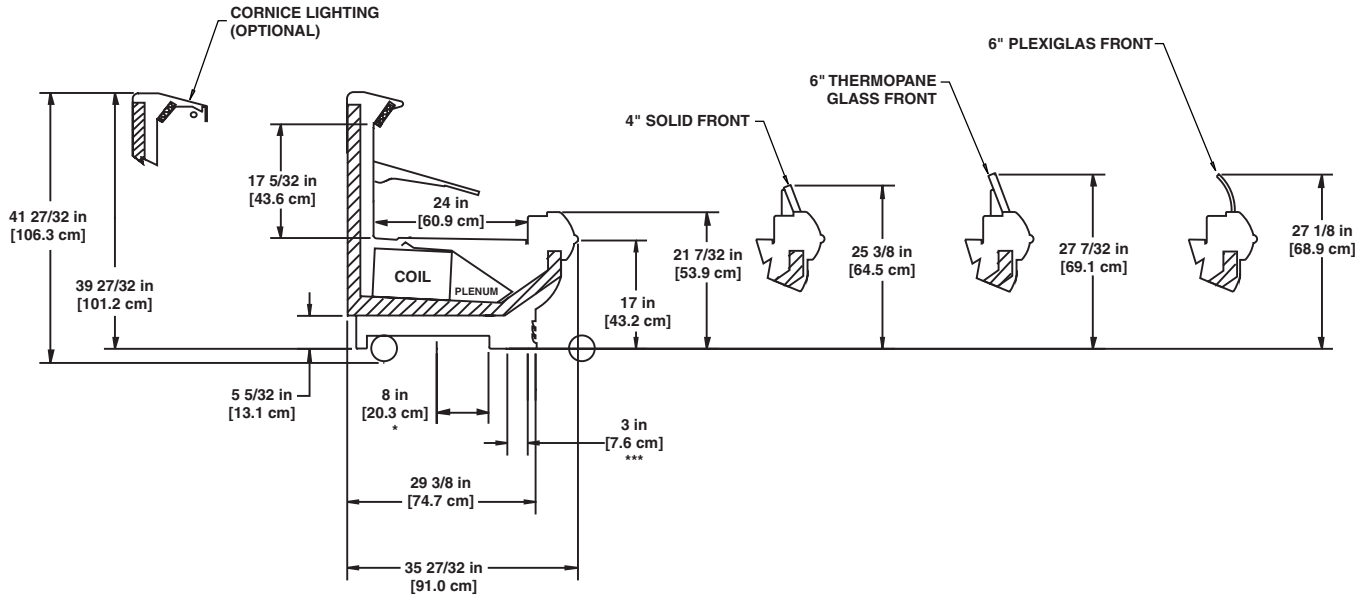


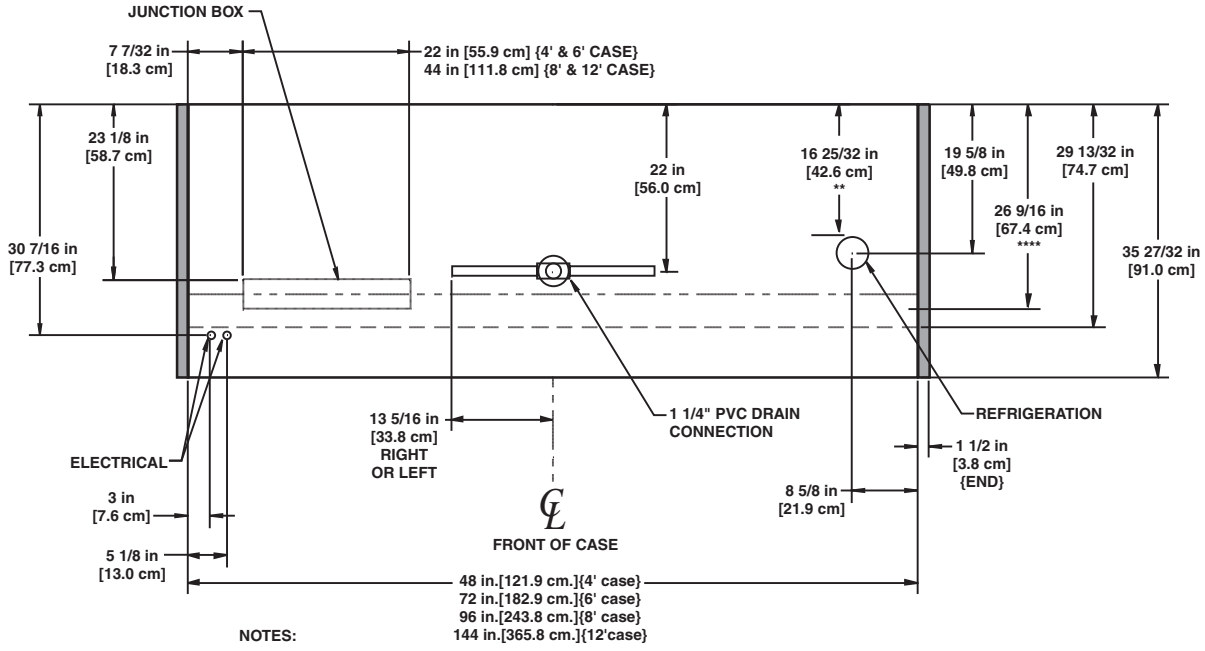
NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", & 16"

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", & 16"

Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser

O2UM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O2UM	4'	2	1.00	60	0.60	40	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O2UM	4'	0.57	68	1.14	137
	6'	0.57	68	2.06	247
	8'	0.57	68	2.06	247
	12'	0.77	92	3.08	370

Guidelines & Control Settings

Model[2]	Front Sill Heights	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O2UM	27", 31", 33"	1000	17	6-8	27	31	40	340

[2] Model O2UM only available for meat application with 33" front.

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

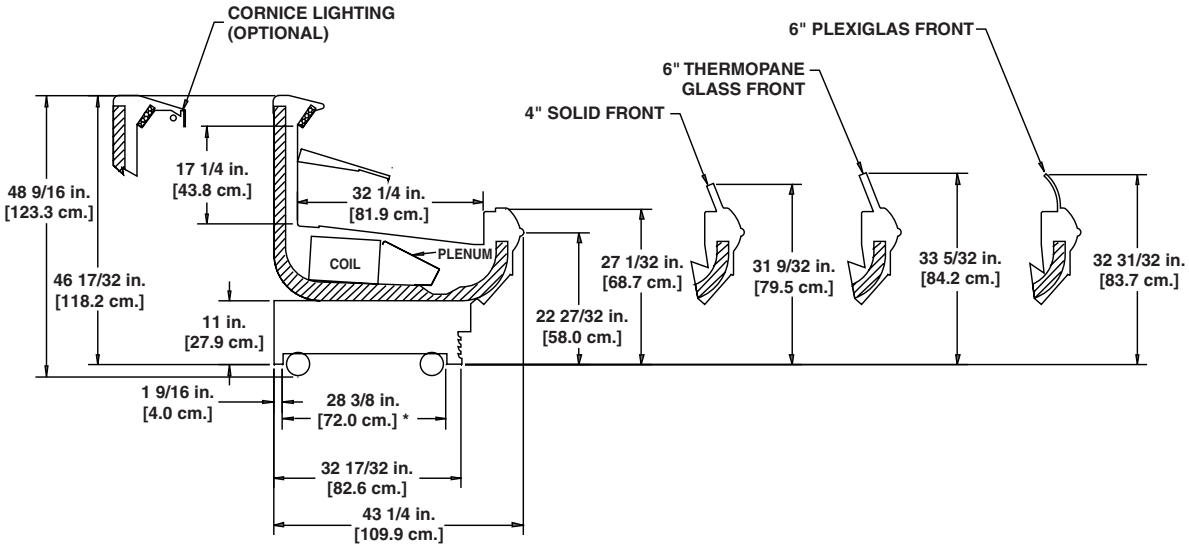
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O2UM	3	6 - 8	40	47	45	45	26	45	45	45

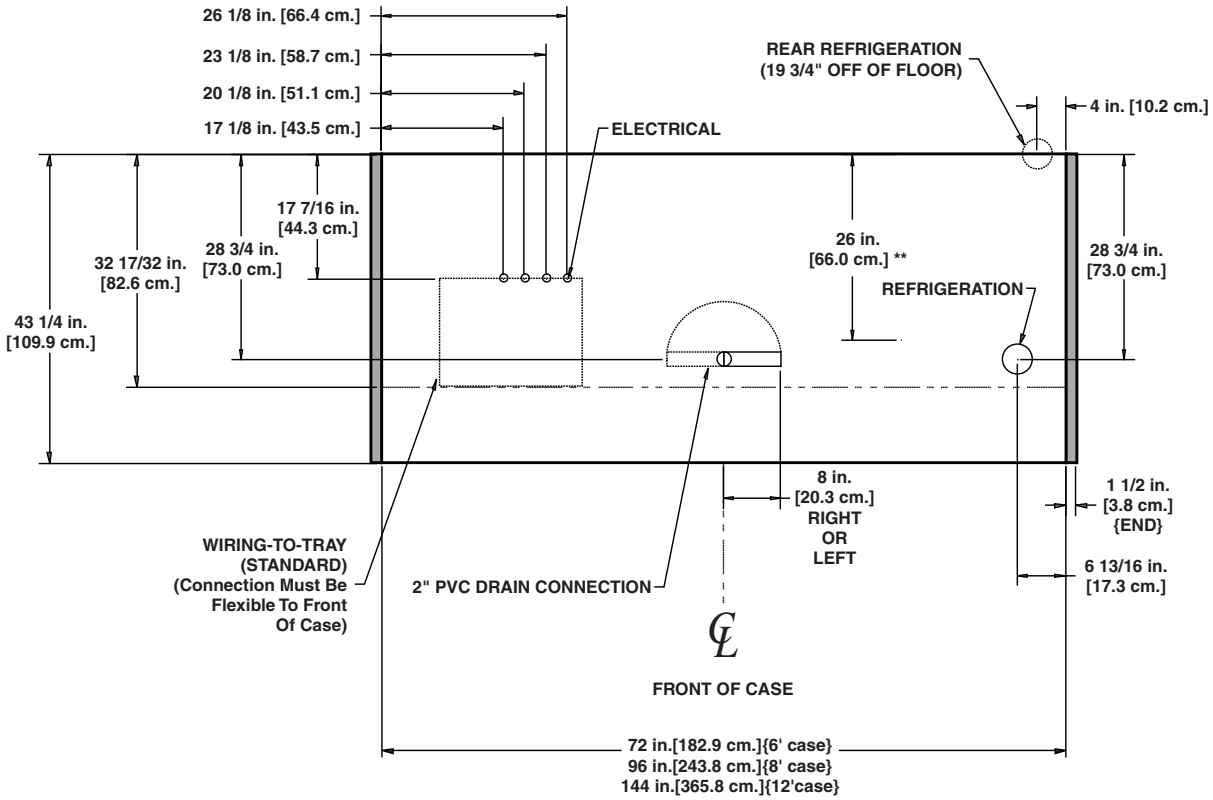
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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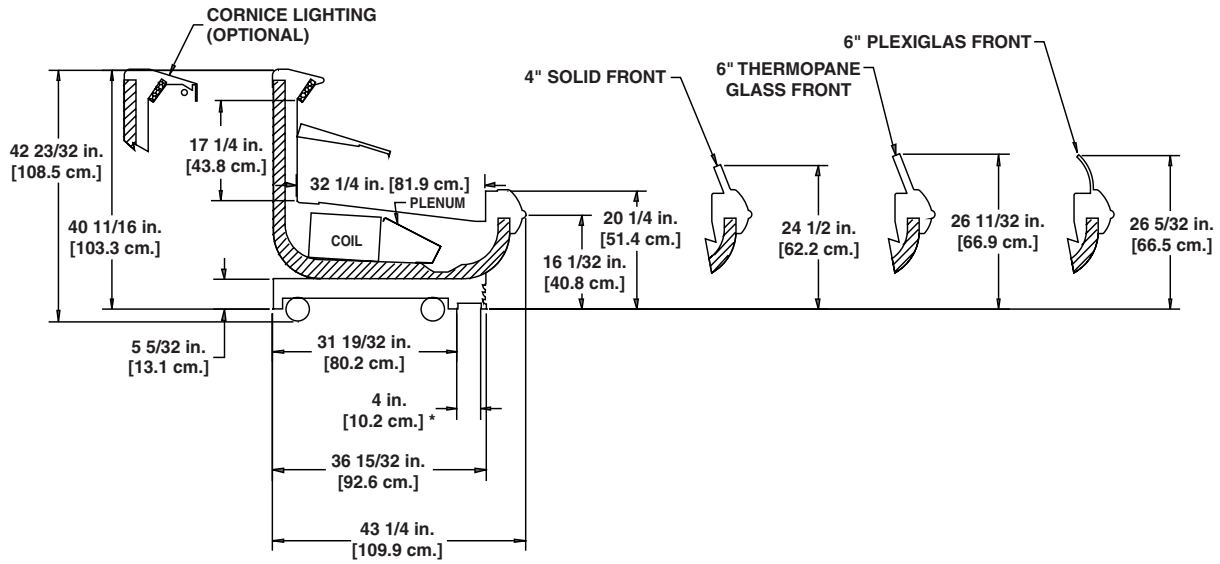

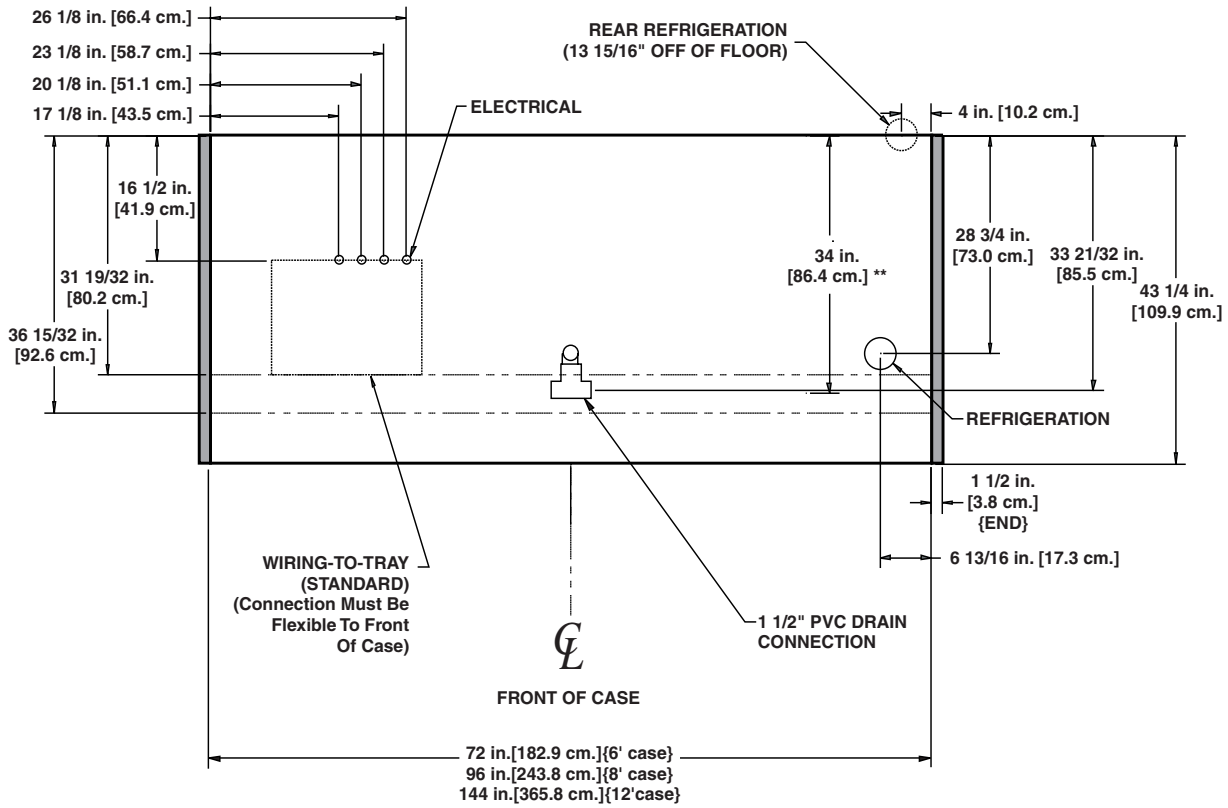

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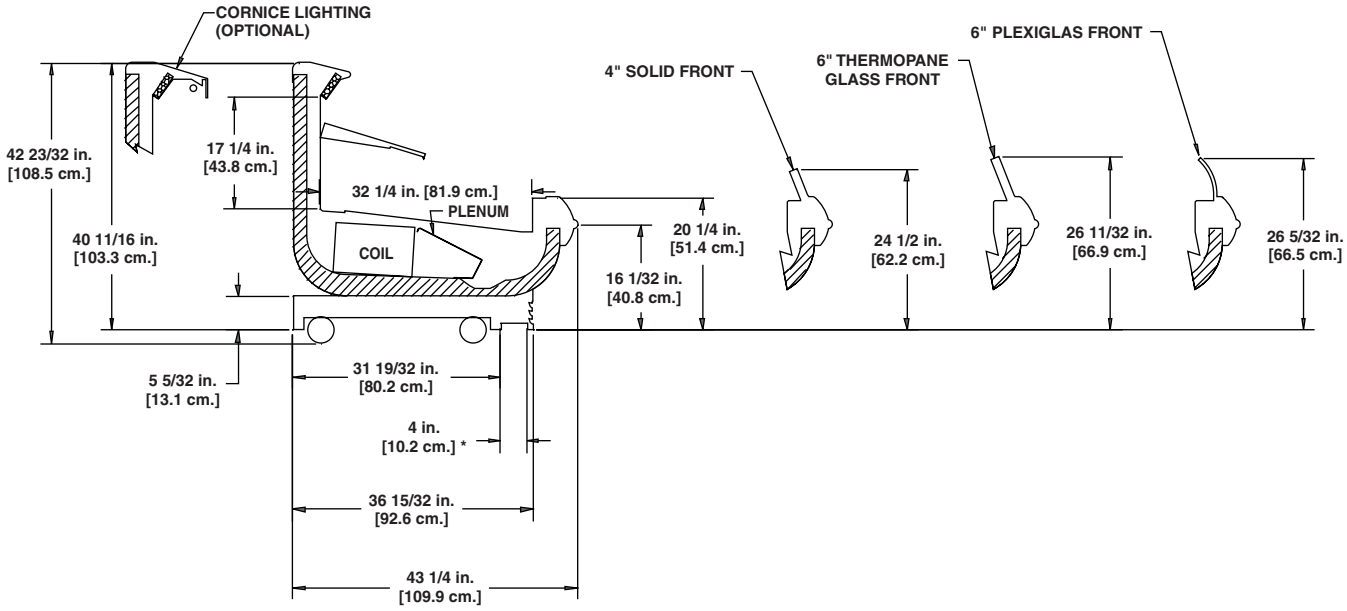

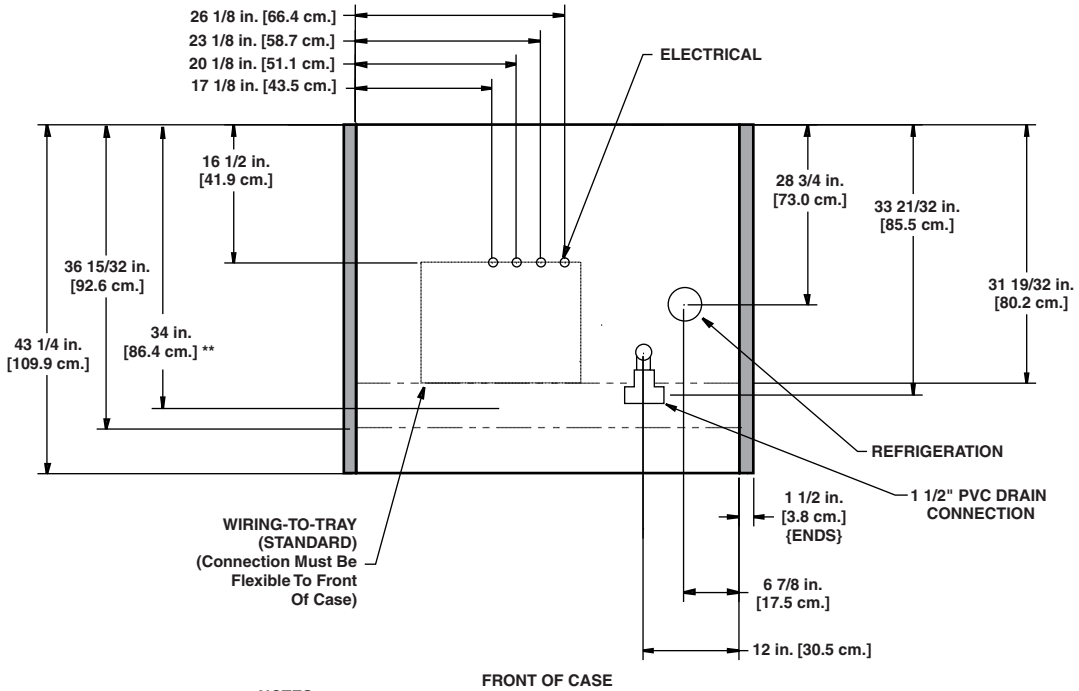

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Narrow Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser

ON2.5UM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ON2.5UM	4'	2	1.00	60	0.60	40	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row 120 Volts		Maximum Lighting 120 Volts	
		Amps	Watts	Amps	Watts
ON2.5UM	4'	0.57	68	1.71	205
	6'	0.57	68	2.41	289
	8'	0.57	68	2.41	289
	12'	0.77	92	4.02	482

Guidelines & Control Settings

Model[2]	Front Sill Heights	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON2.5UM	27", 31", 33"	811	17	6-8	28	32	35	284

[2] Model ON2.5UM only available for meat application with 33" front.

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ON2.5UM	2	6 - 8	40	47	45	45	26	45	45	45

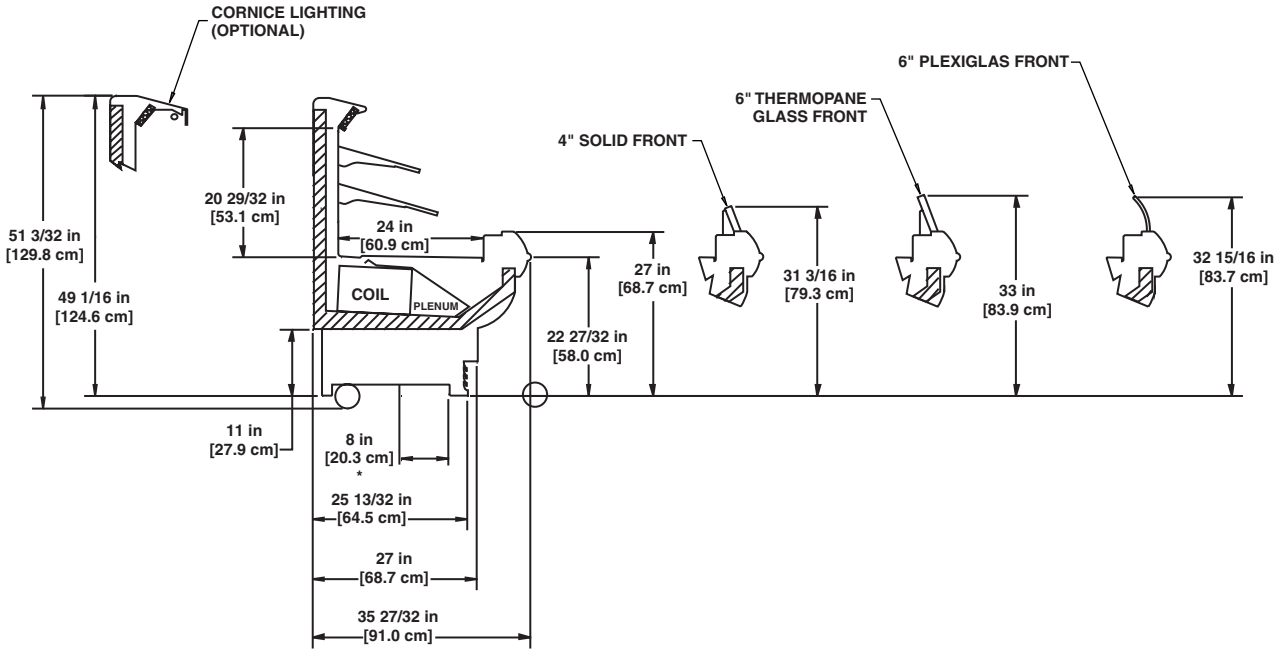
Medium Temperature Defrost Schedule

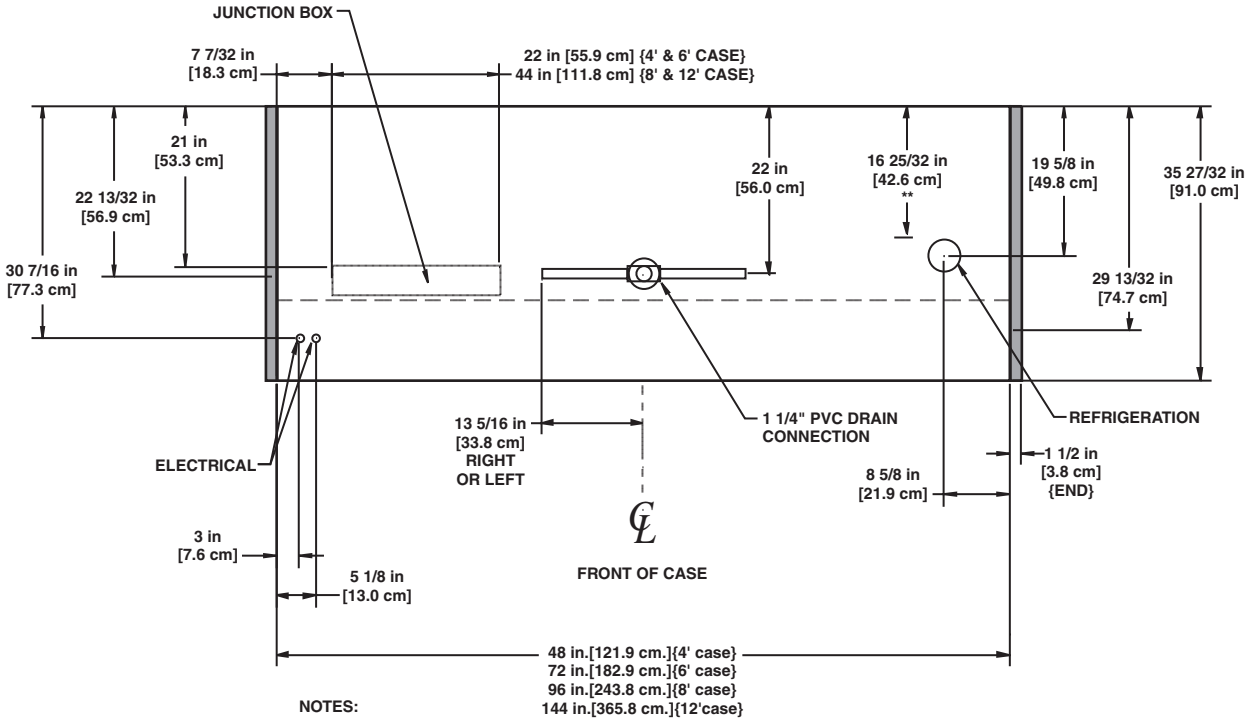
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

5/00

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





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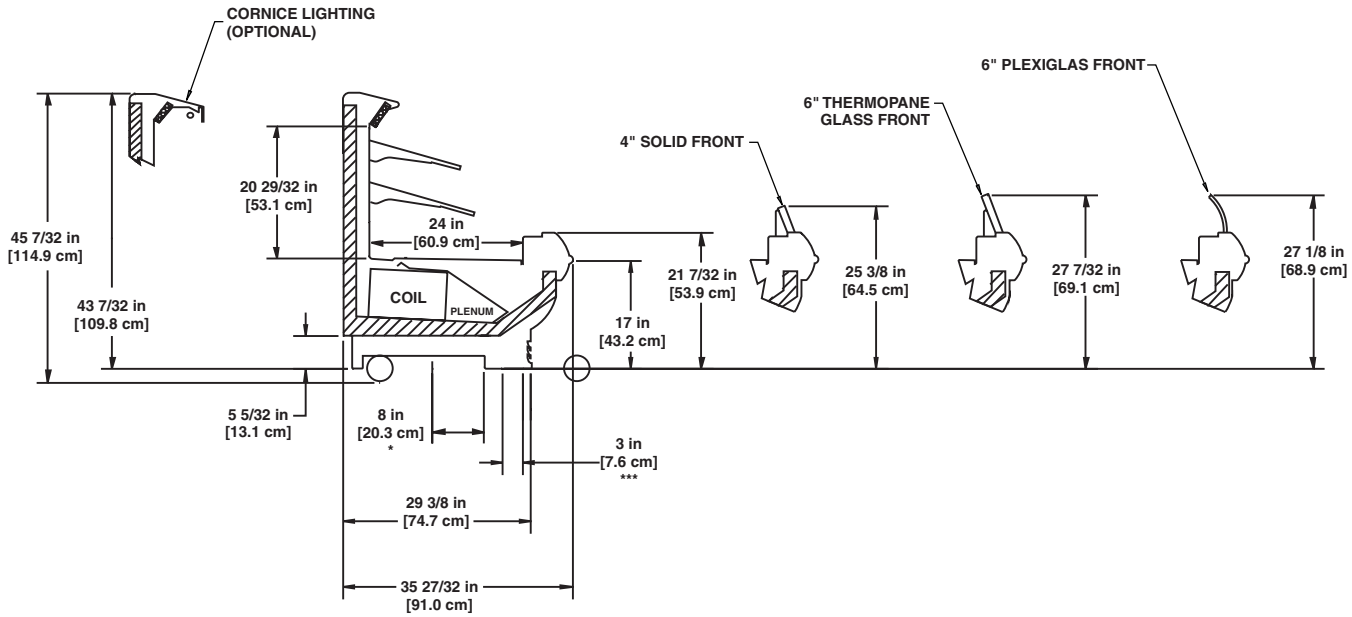
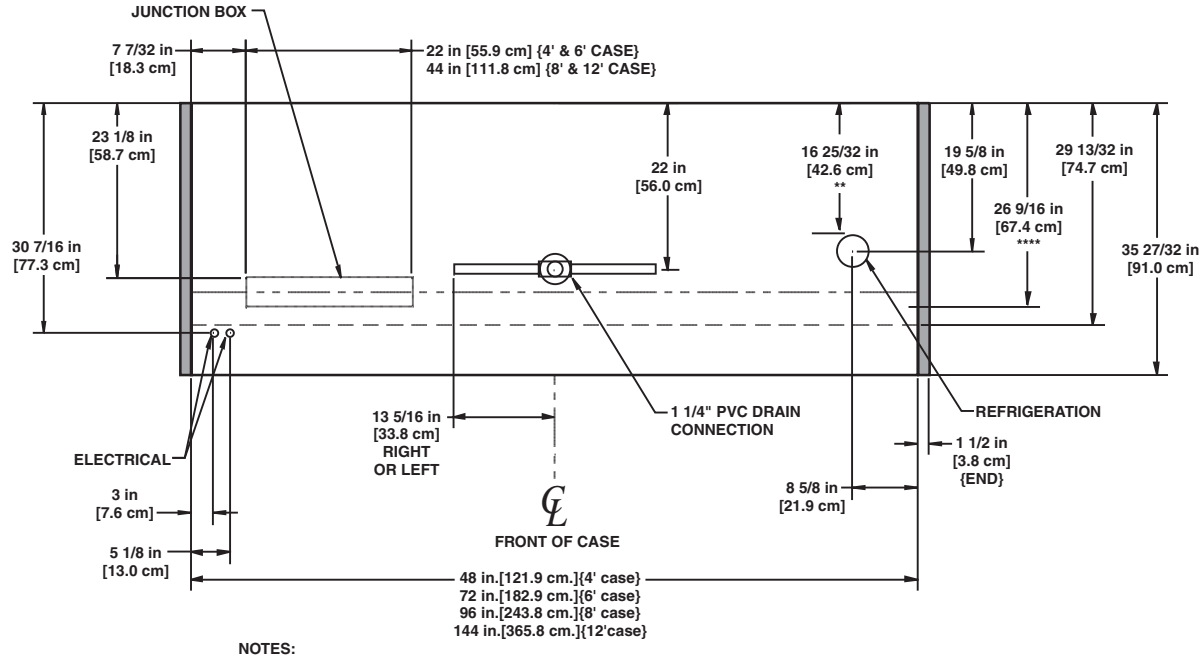
*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





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Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser

O2.5UM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O2.5UM	4'	2	1.00	60	0.60	40	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O2.5UM	4'	0.57	68	1.71	205
	6'	0.57	68	2.41	289
	8'	0.57	68	2.41	289
	12'	0.77	92	4.02	482

Guidelines & Control Settings

Model[2]	Front Sill Heights	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O2.5UM[5]	27", 31", 33"	1020	17	6-8	27	33	45	225
O2.5UM w/Plexi Dome	27", 31", 33"	1380	17	6-8	32	36	46	305

[2] Model O2.5UM only available for meat application with 33" front.

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

[5] For cases with rear refrigerated storage boxes add 110 BTUH/ft

Defrost Controls

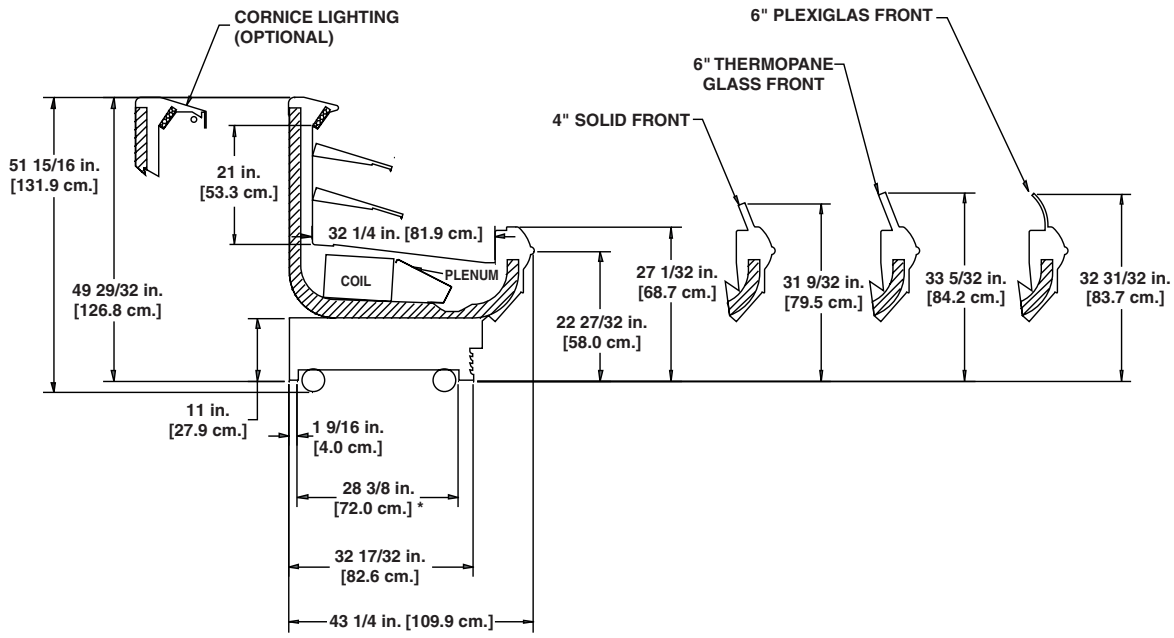
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O2.5UM	3	6 - 8	40	47	45	45	26	45	45	45

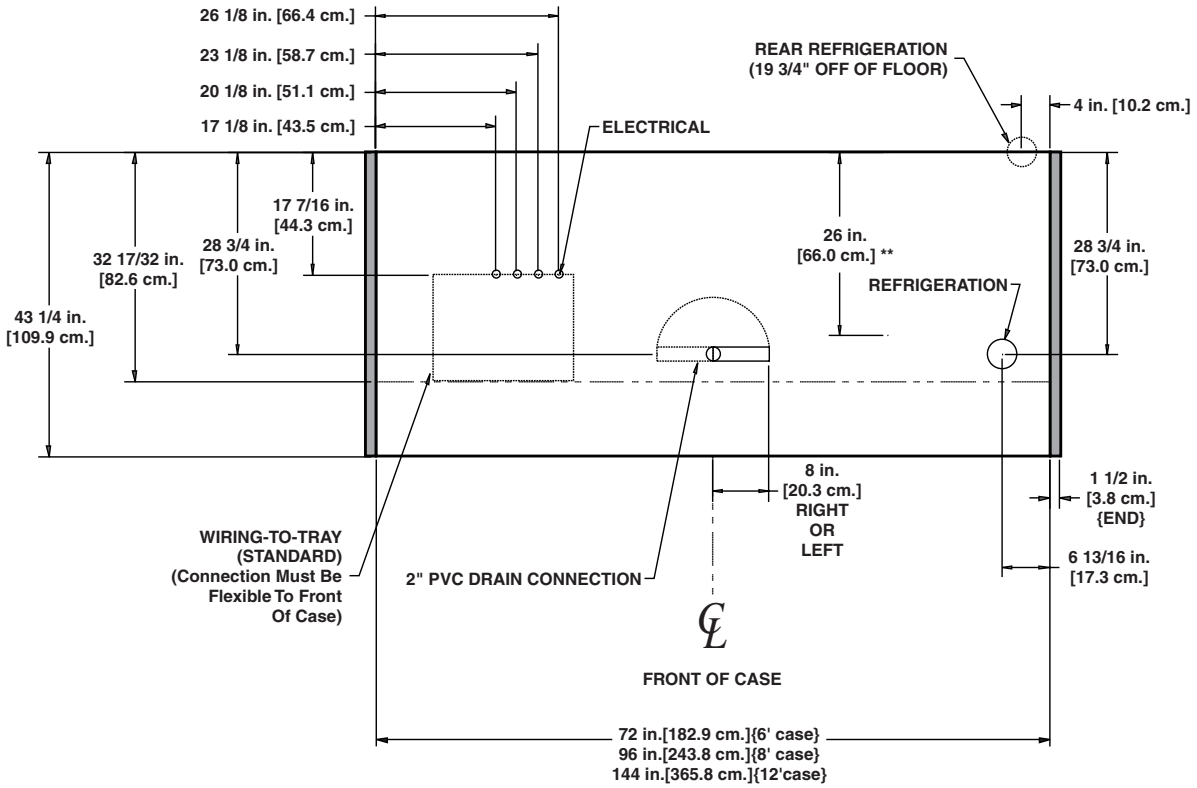
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





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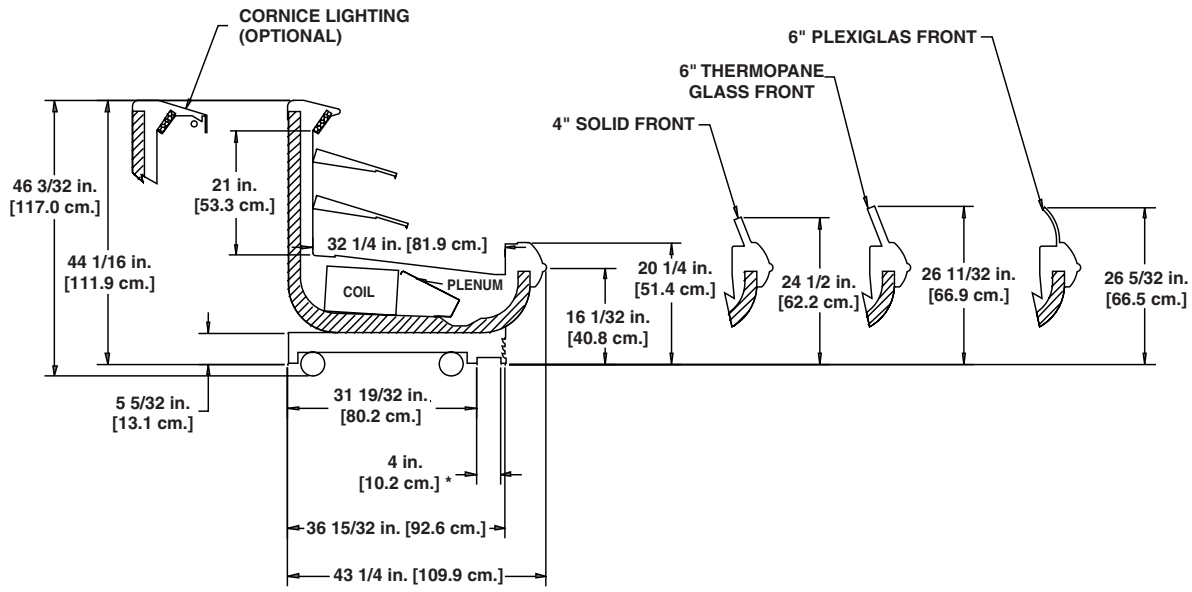

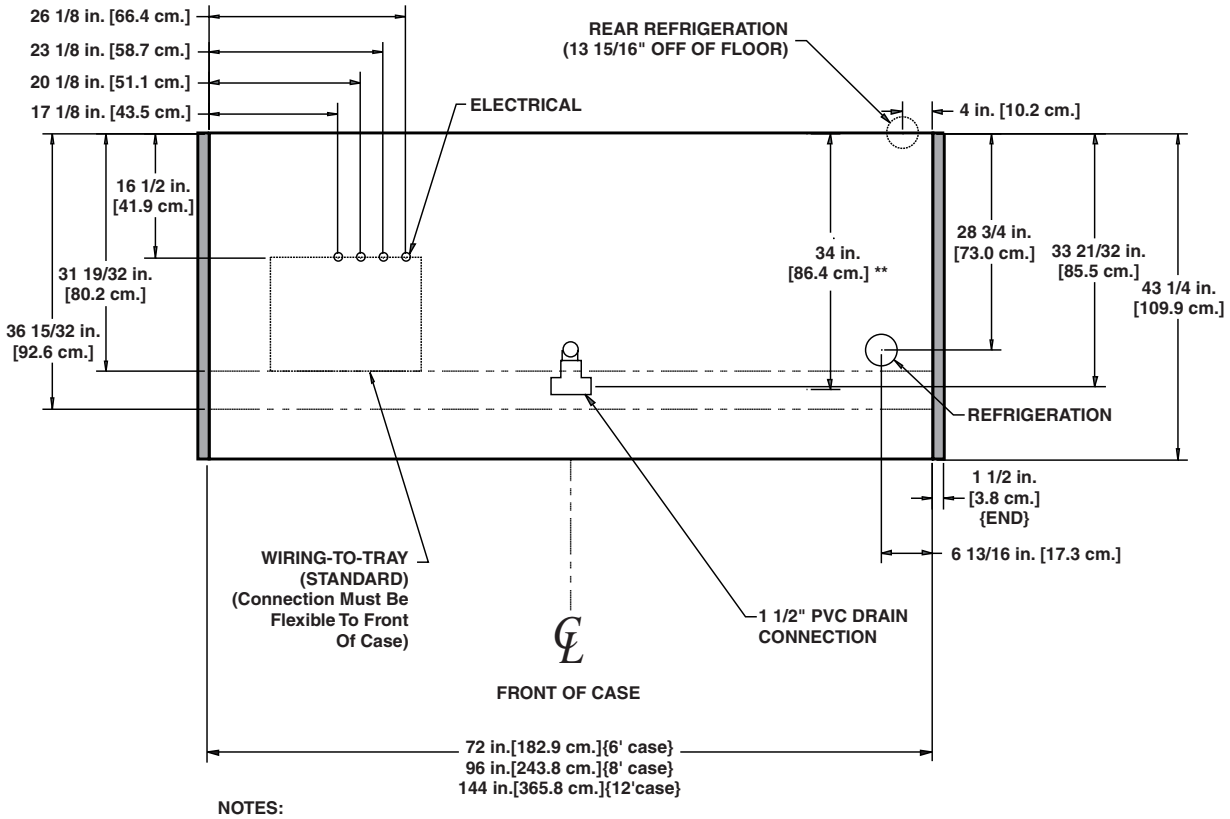

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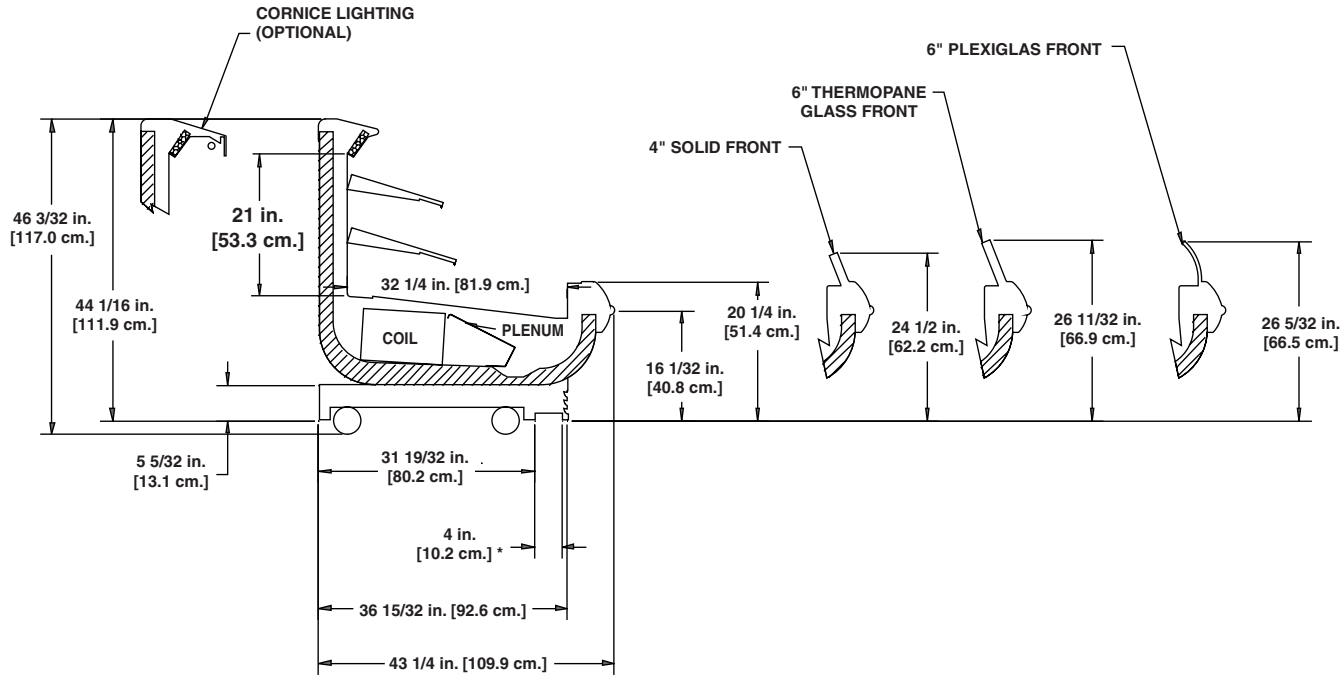

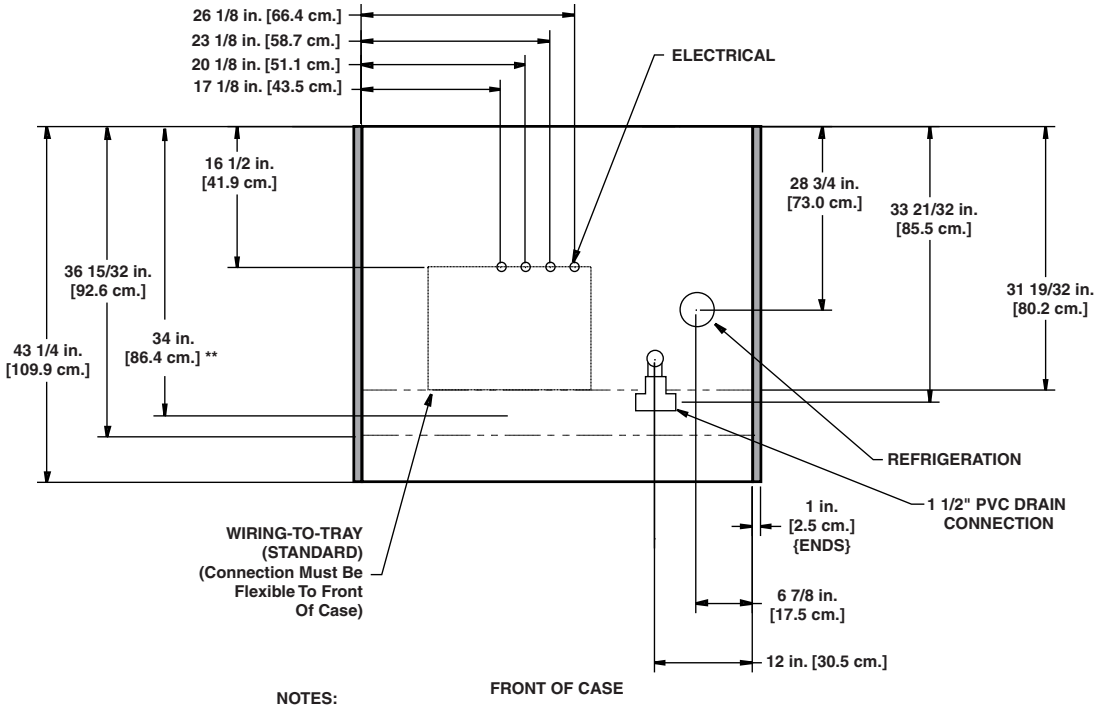

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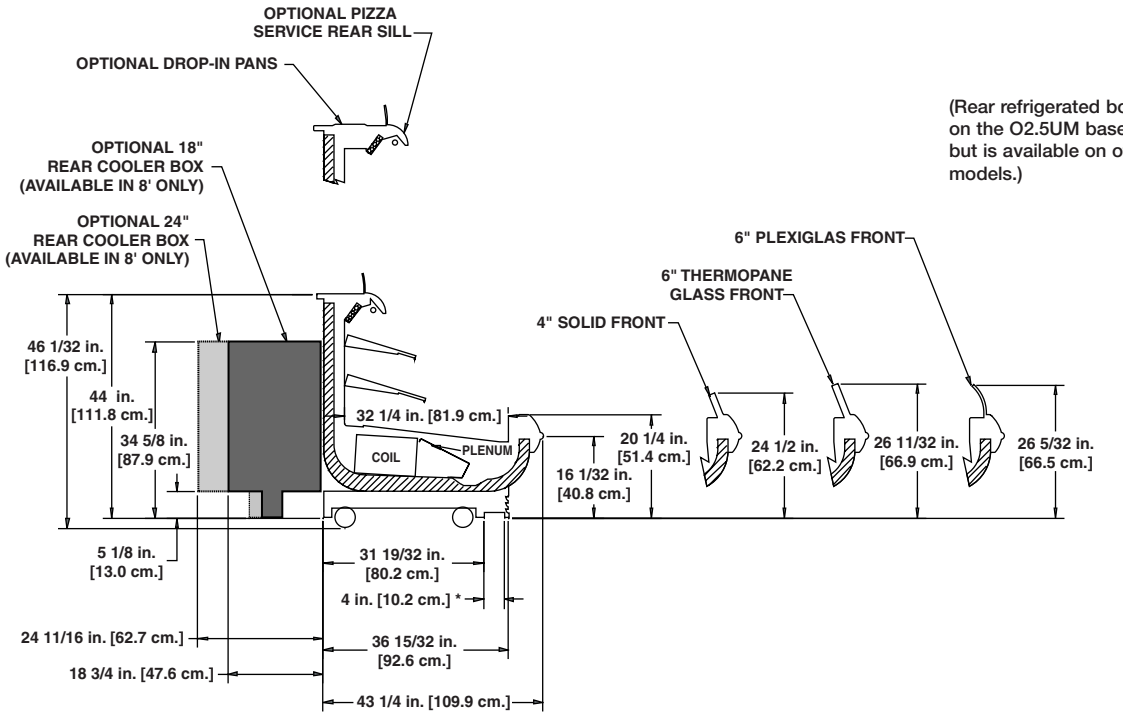
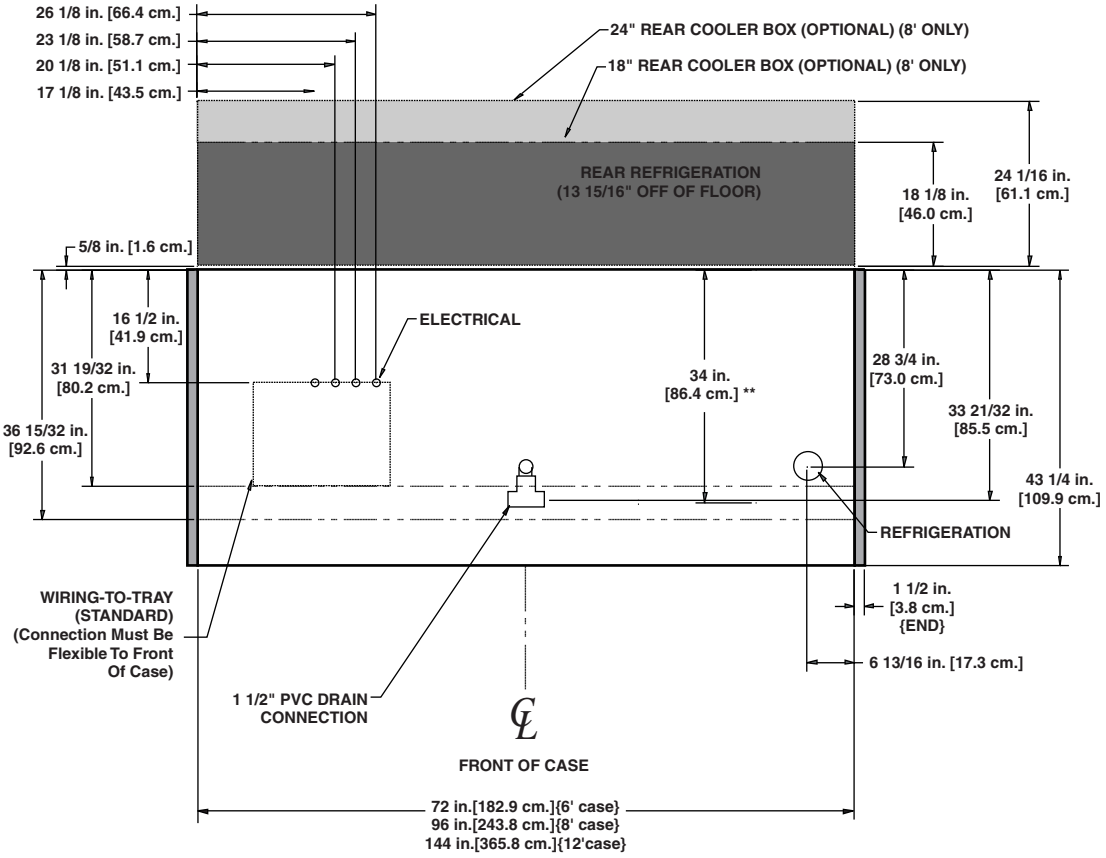


(Rear refrigerated box shown on the O2.5UM base model but is available on other OUM models.)



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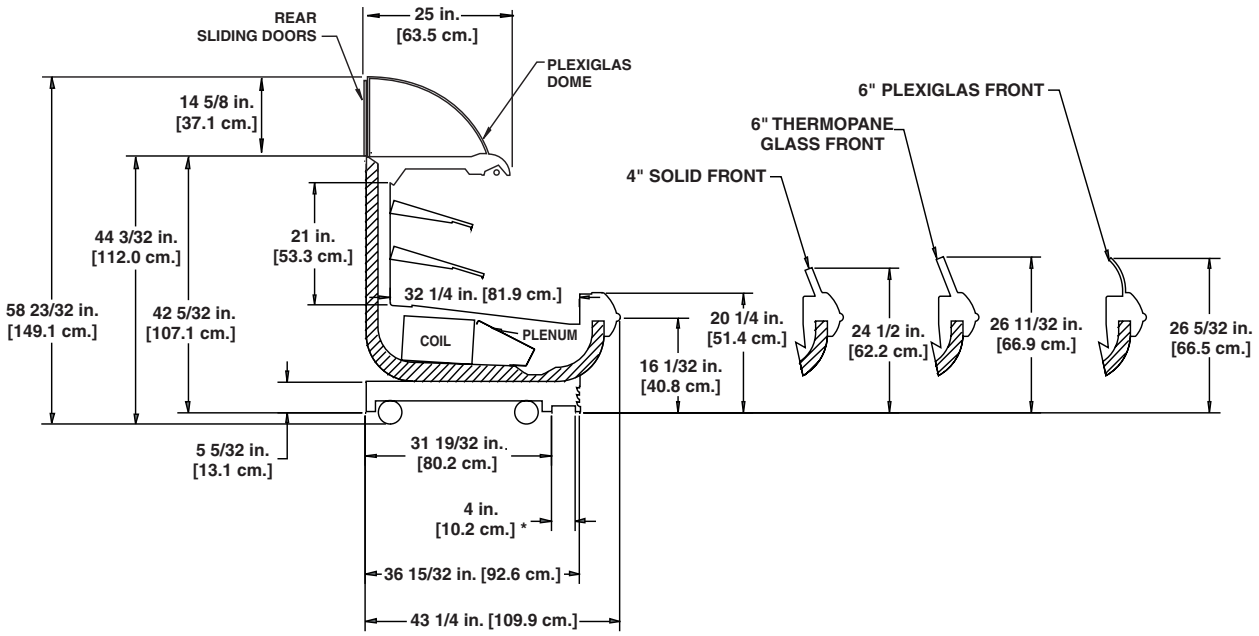

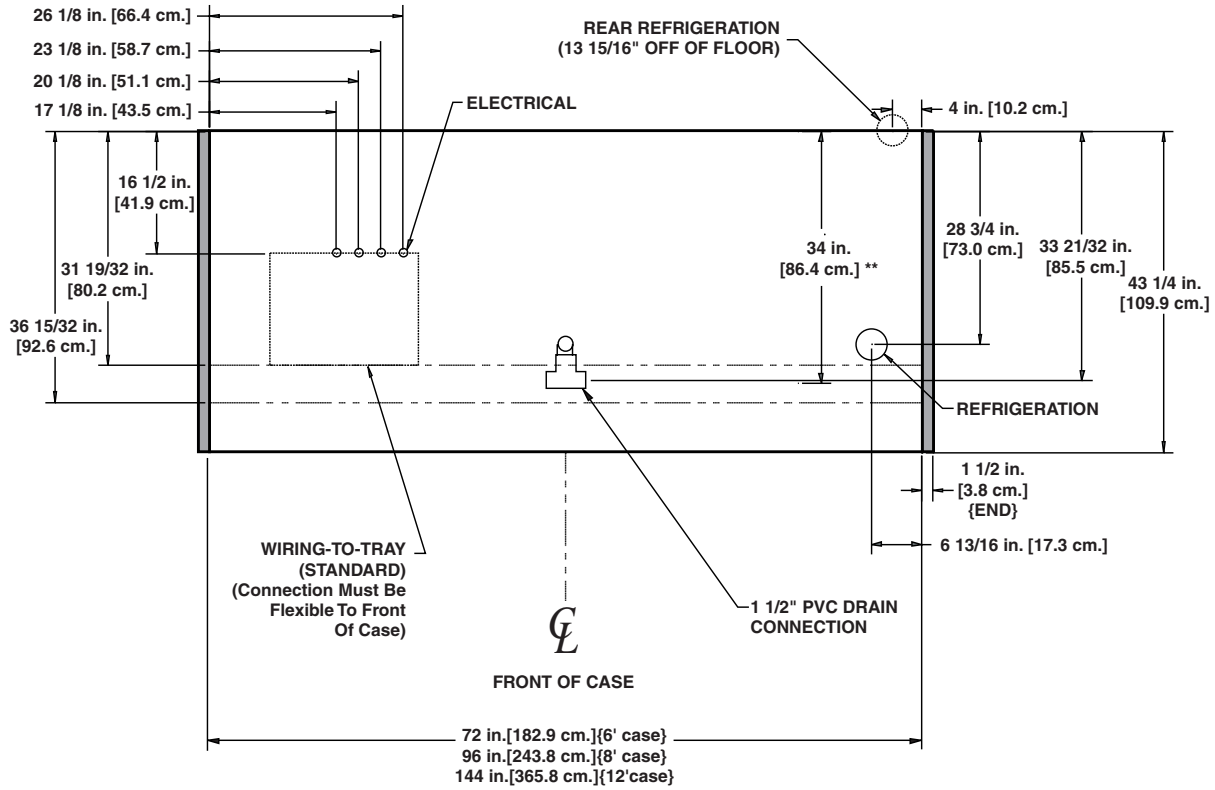

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Narrow Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser

ON3UM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ON3UM	4'	2	1.00	60	0.60	40	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row 120 Volts		Maximum Lighting 120 Volts	
		Amps	Watts	Amps	Watts
ON3UM	4'	0.57	68	1.71	205
	6'	0.57	68	2.41	289
	8'	0.57	68	2.41	289
	12'	0.77	92	4.02	482

Guidelines & Control Settings

Model[2]	Front Sill Heights	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON3UM	27", 31", 33"	824	17	6-8	28	32	35	230

[2] Model ON3UM only available for meat application with 33" front.

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ON3UM	2	6 - 8	40	47	45	45	26	45	45	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

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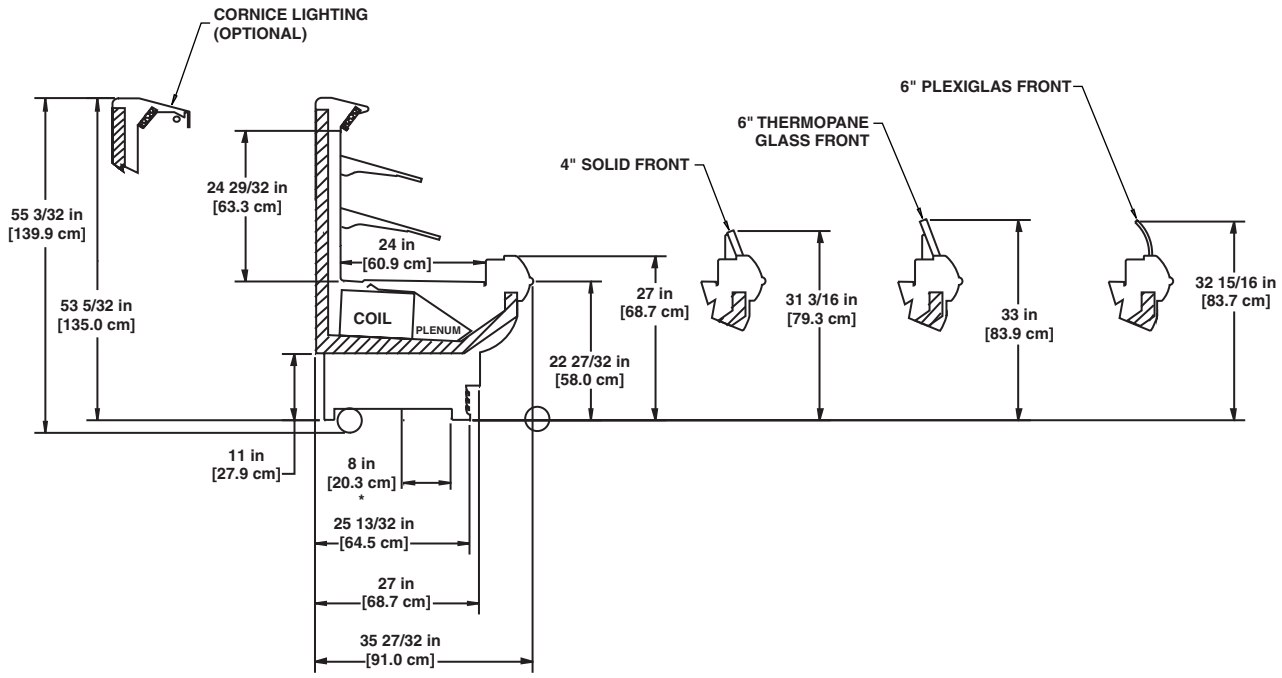

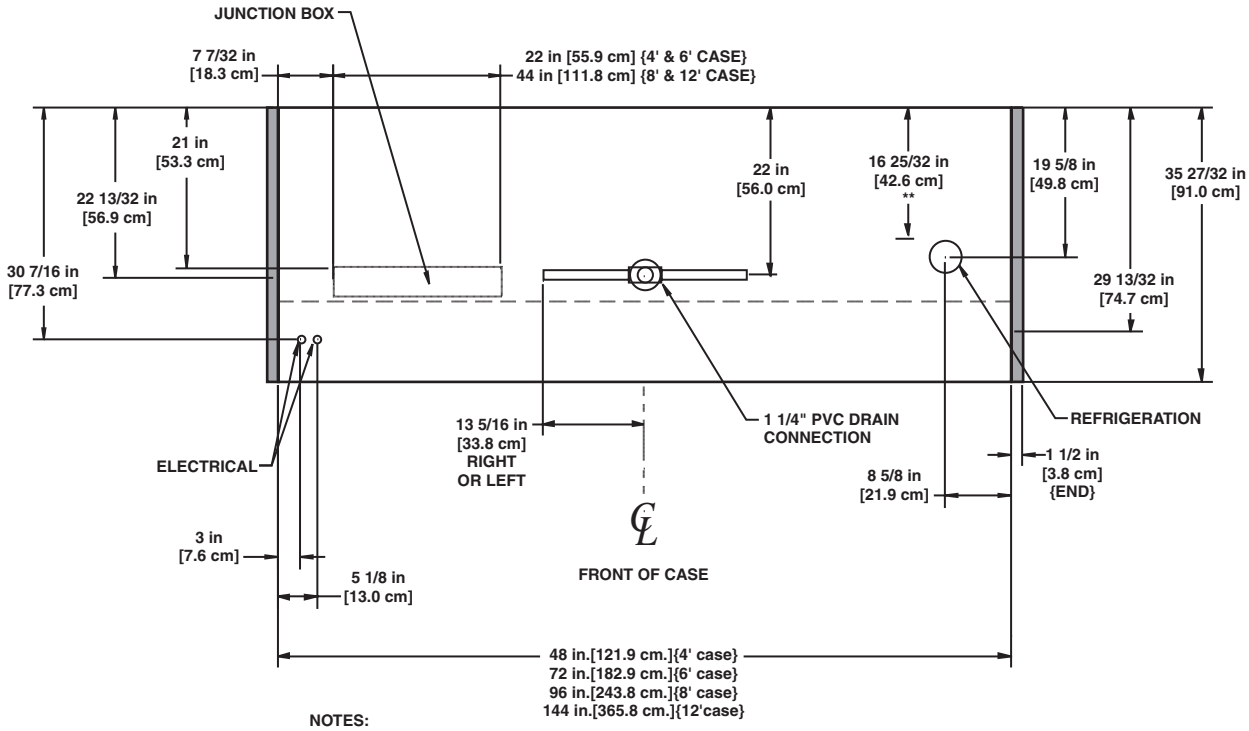

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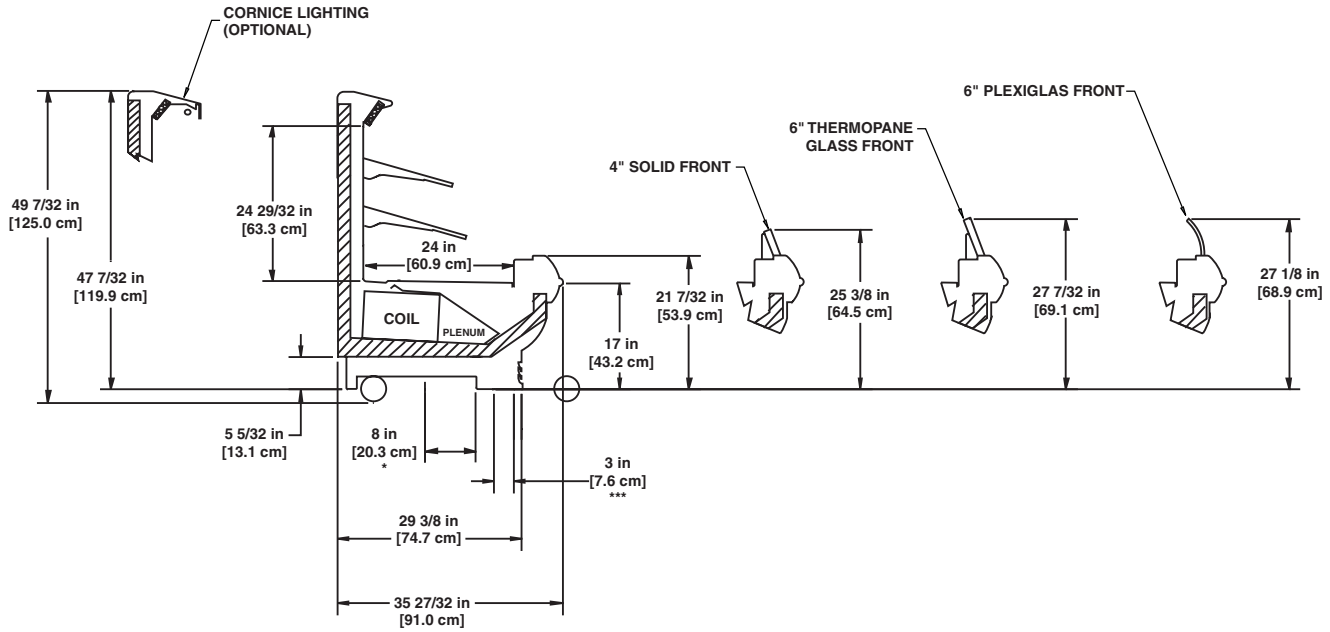

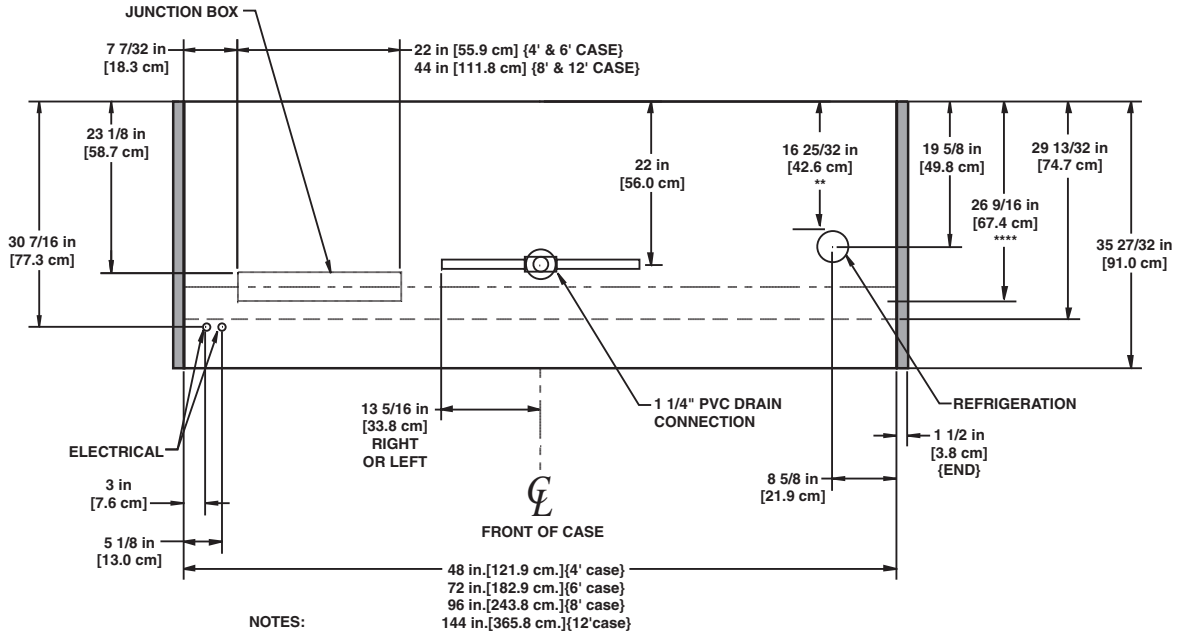

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Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser

O3UM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O3UM	4'	2	1.00	60	0.60	40	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3UM	4'	0.57	68	1.71	205
	6'	0.57	68	2.41	289
	8'	0.57	68	2.41	289
	12'	0.77	92	4.02	482

Guidelines & Control Settings

Model[2]	Front Sill Heights	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3UM	27", 31", 33"	1030	17	6-8	27	32	45	225

[2] Model O3UM only available for meat application with 33" front.

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

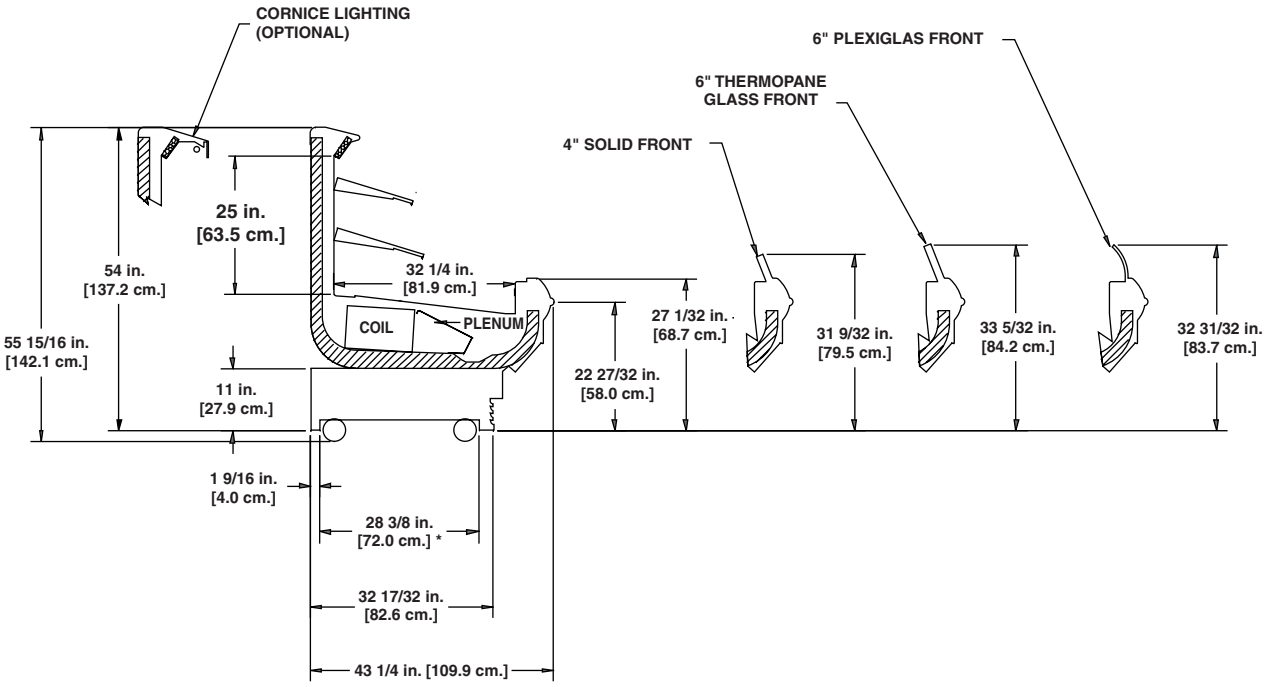
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3UM	3	6 - 8	40	47	45	45	26	45	45	45

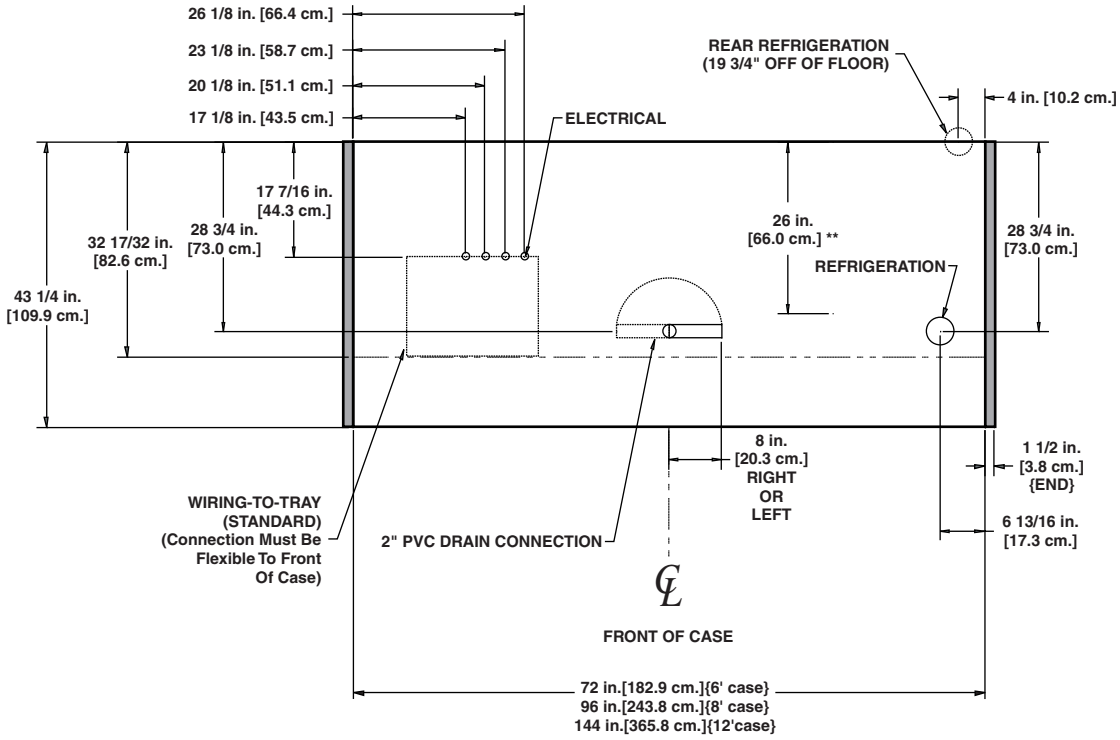
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*



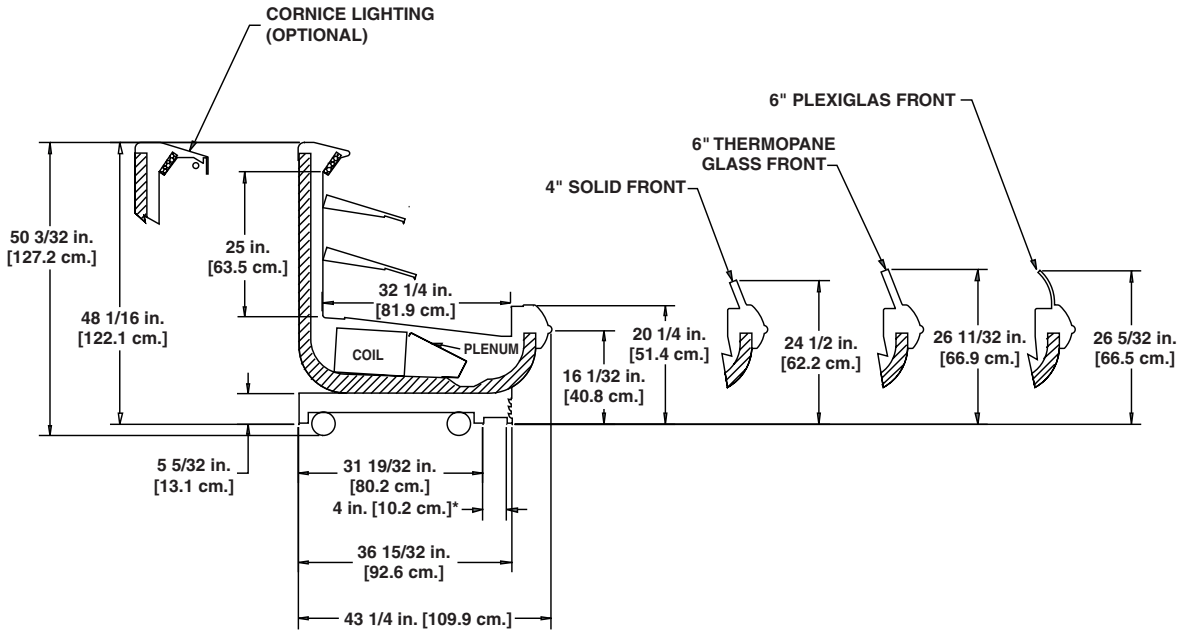


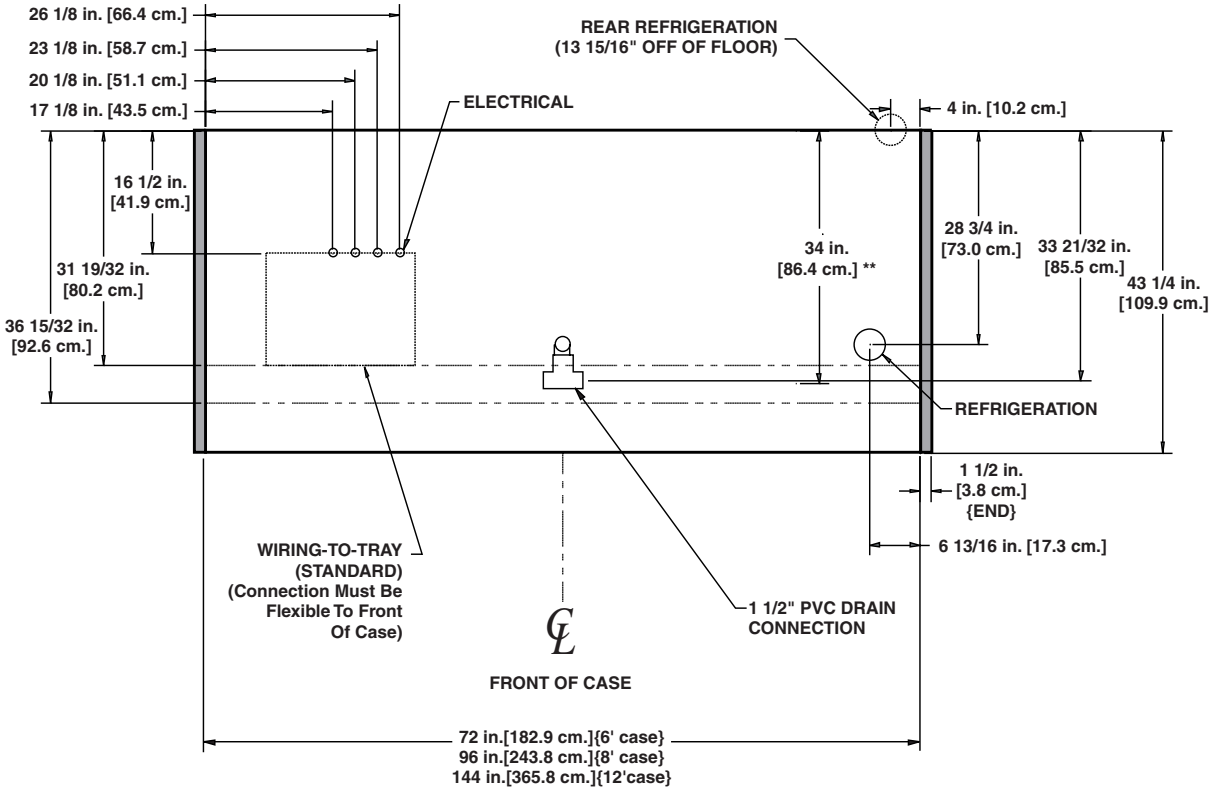
NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





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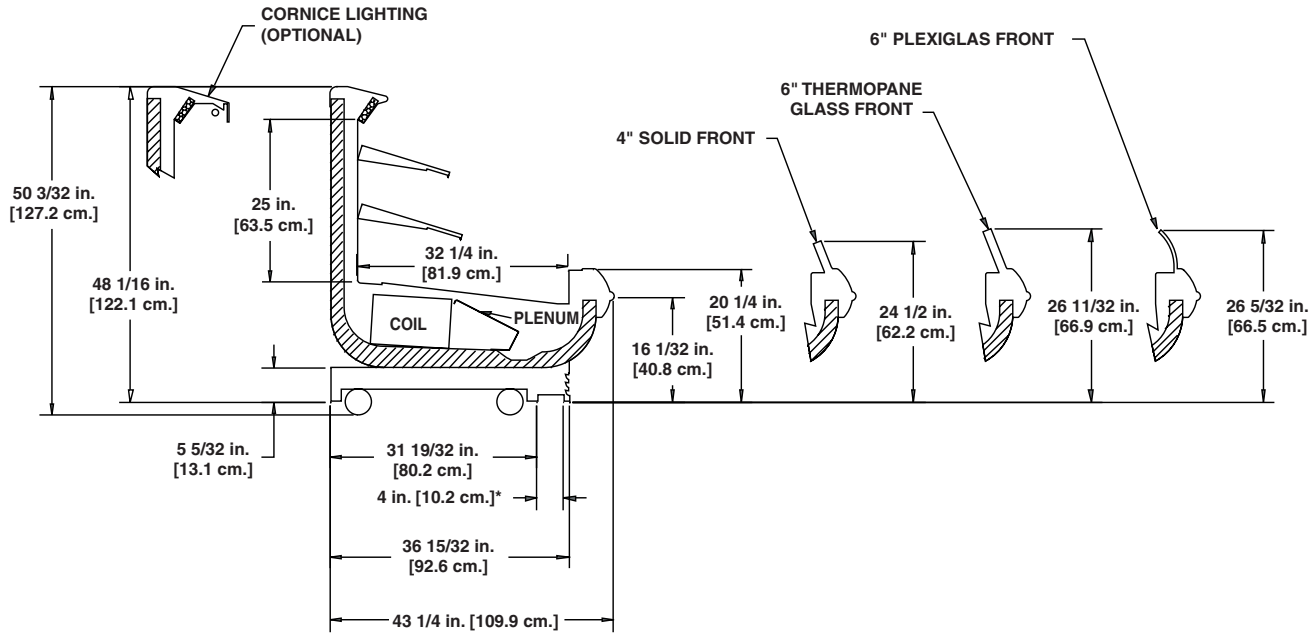
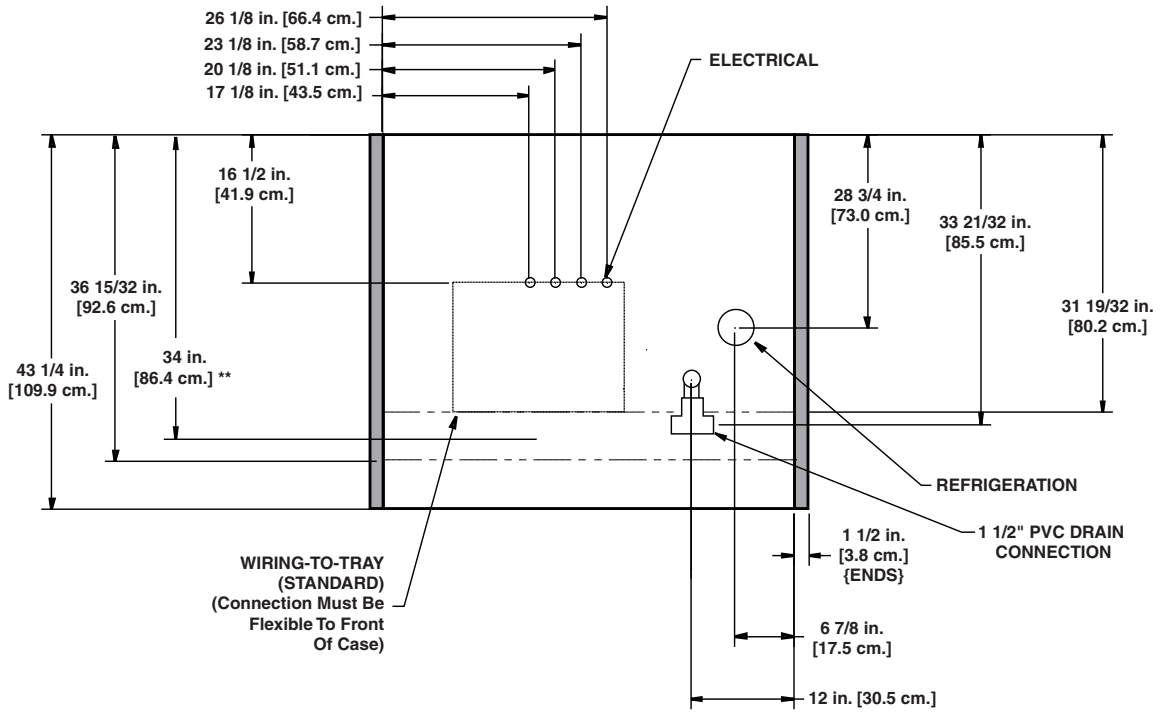
*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

Narrow Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser

ON3.5UM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ON3.5UM	4'	2	1.00	60	0.60	40	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ON3.5UM	4'	0.57	68	1.91	229
	6'	0.57	68	3.03	364
	8'	0.57	68	3.03	364
	12'	0.77	92	4.62	554

Guidelines & Control Settings

Model[2]	Front Sill Heights	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON3.5UM	27", 31", 33"	1019	17	6-8	28	32	35	204

[2] Model ON3.5UM only available for meat application with 33" front.

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

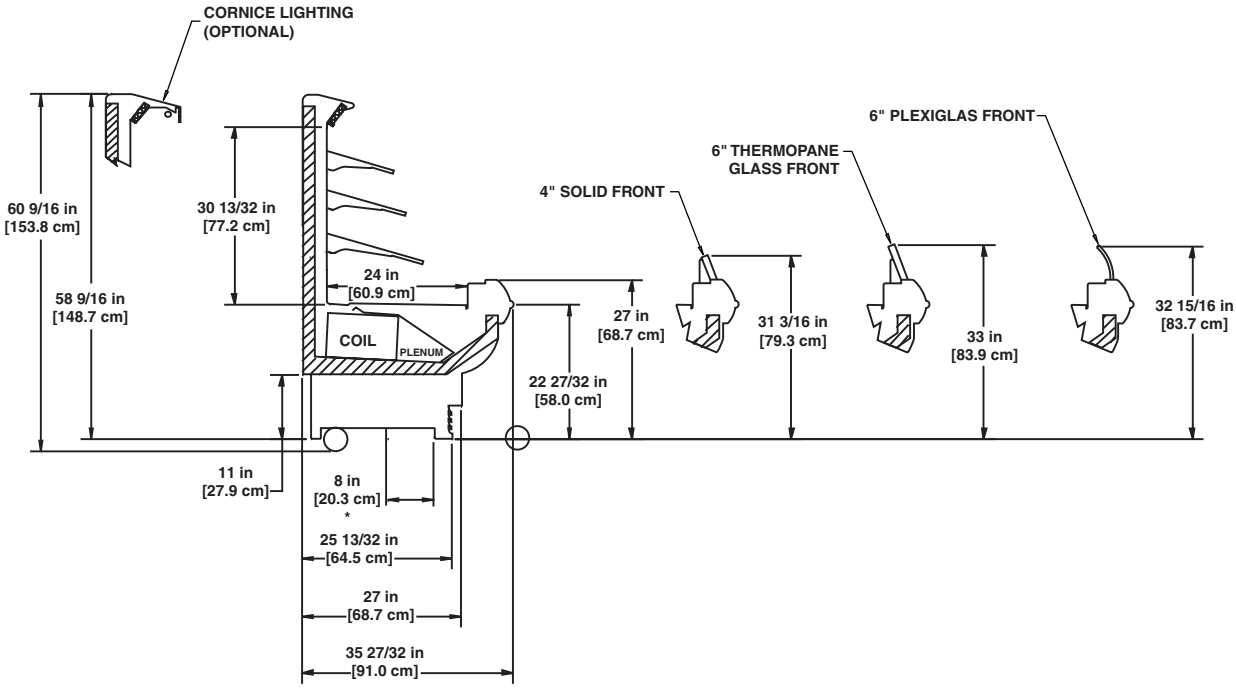
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ON3.5UM	3	6 - 8	40	47	45	45	26	45	45	45

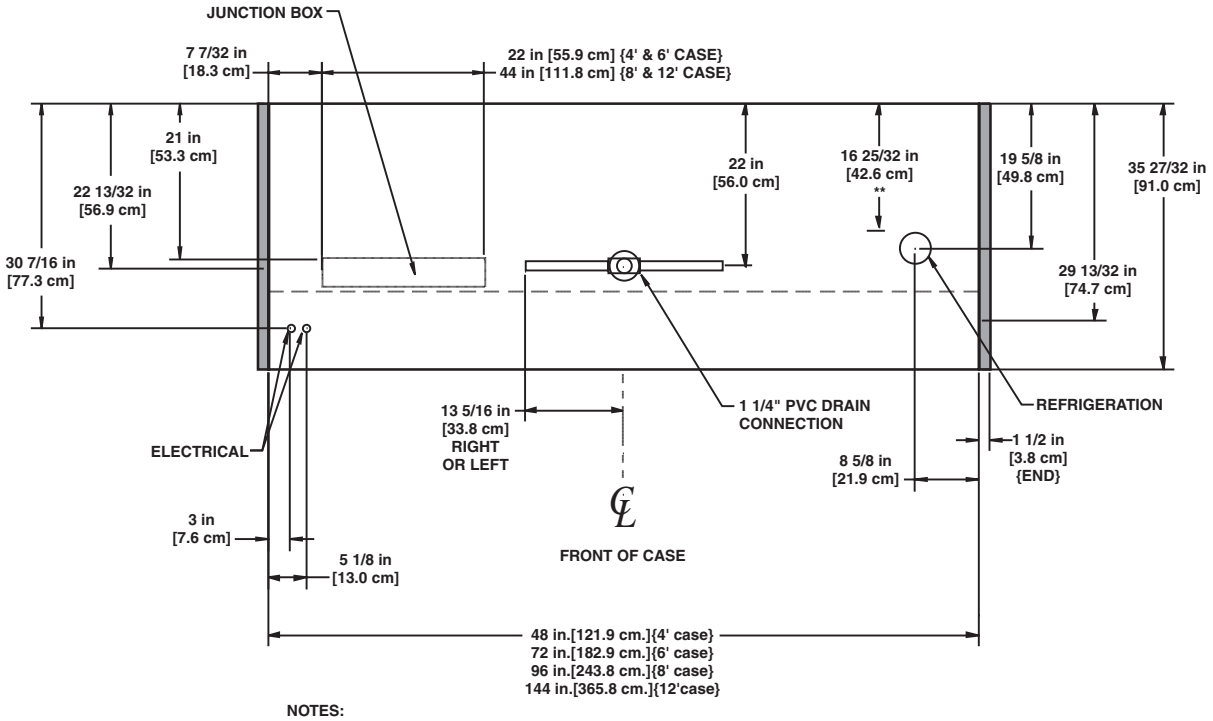
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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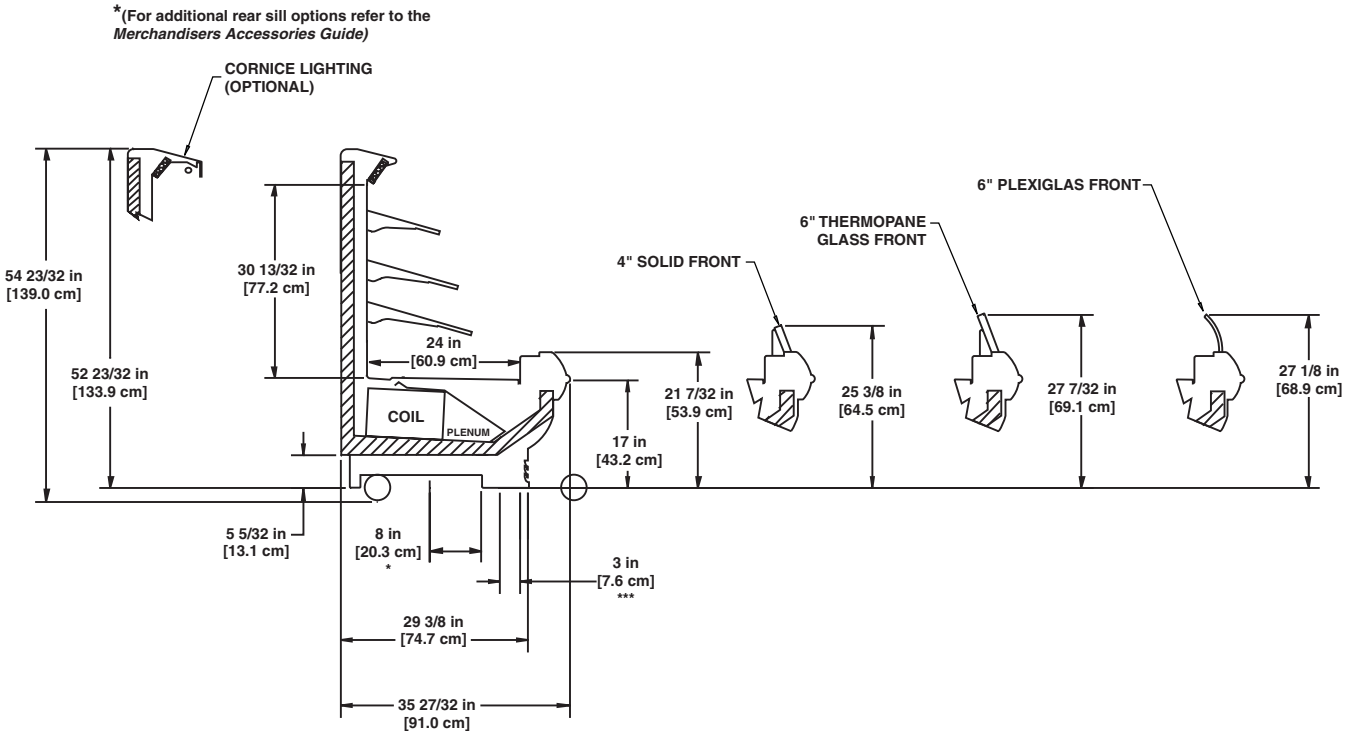
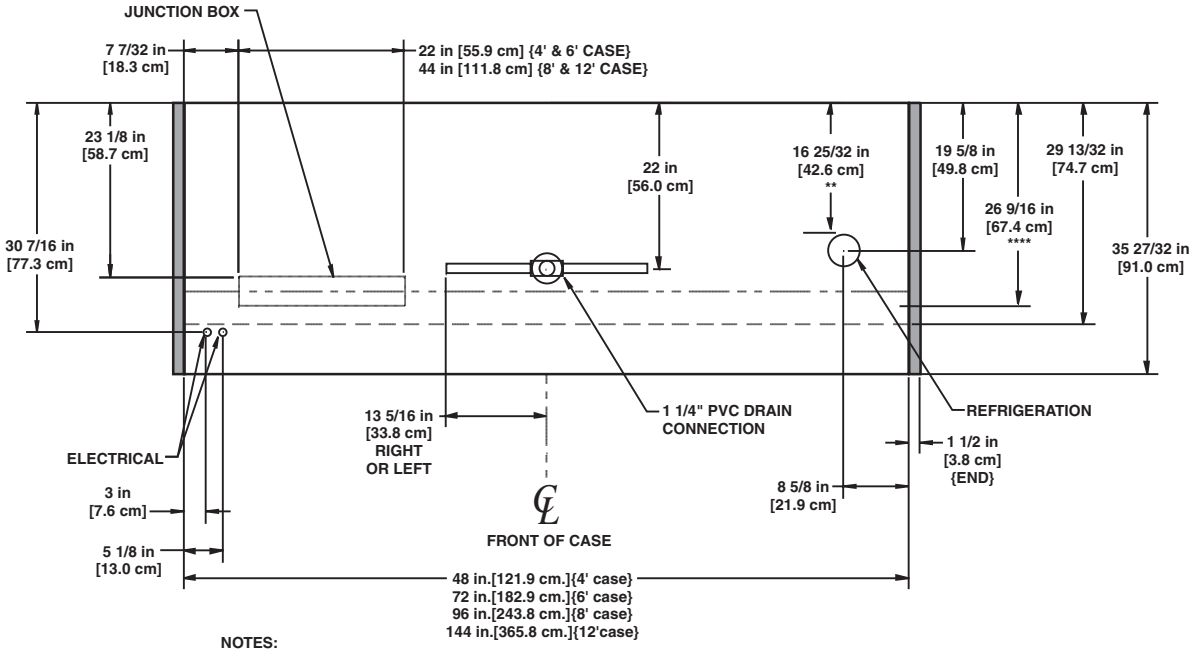
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"





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Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser

O3.5UM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O3.5UM	4'	2	1.00	60	0.60	40	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3.5UM	4'	0.57	68	1.91	229
	6'	0.57	68	3.03	364
	8'	0.57	68	3.03	364
	12'	0.77	92	4.62	554

Guidelines & Control Settings

Model[2]	Front Sill Heights	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3.5UM	27", 31", 33"	1300	17	6-8	30	35	45	300

[2] Model O3.5UM only available for meat application with 33" front.

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3.5UM	3	6 - 8	40	47	45	45	26	45	45	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

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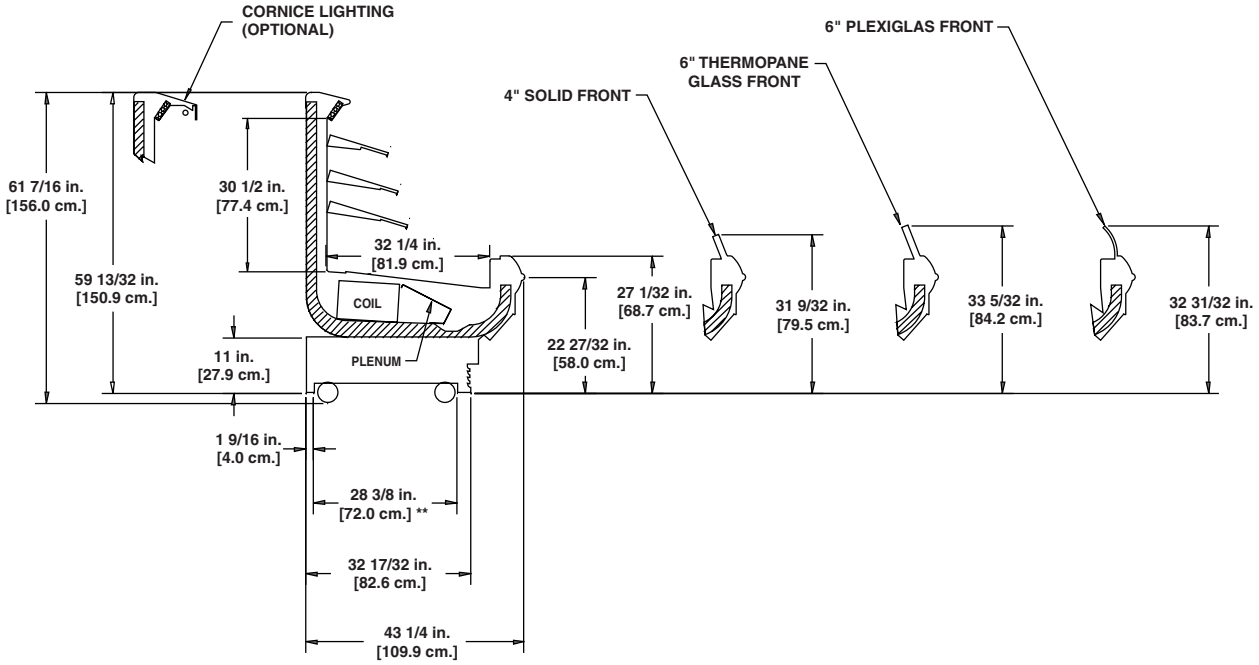
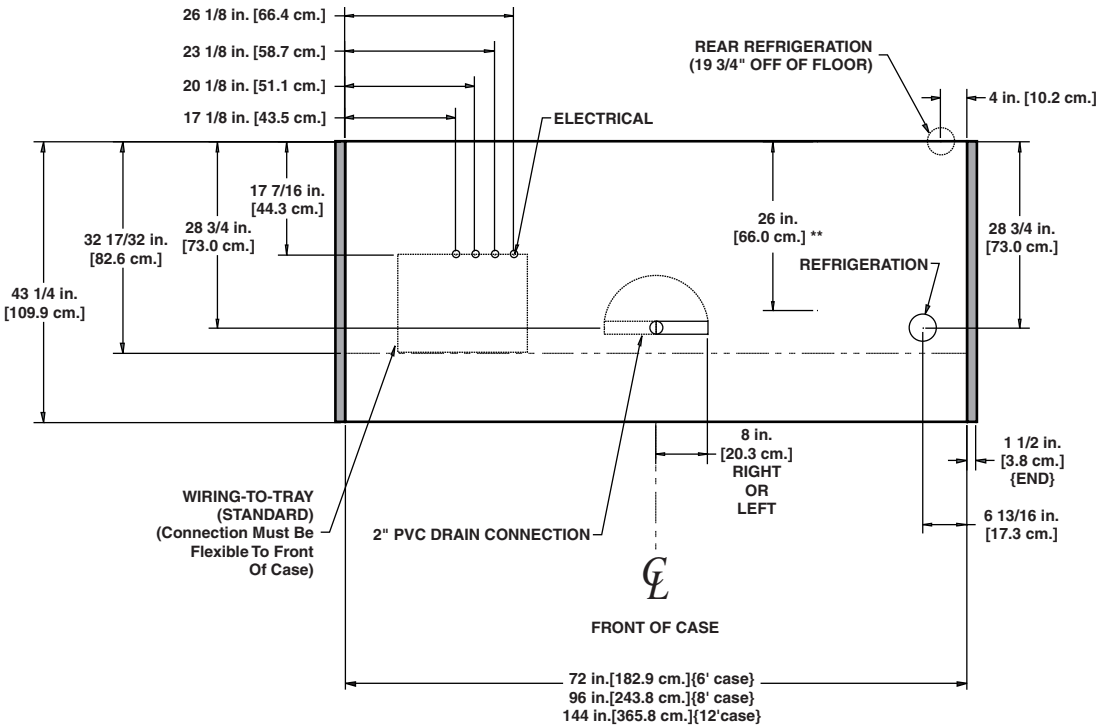
*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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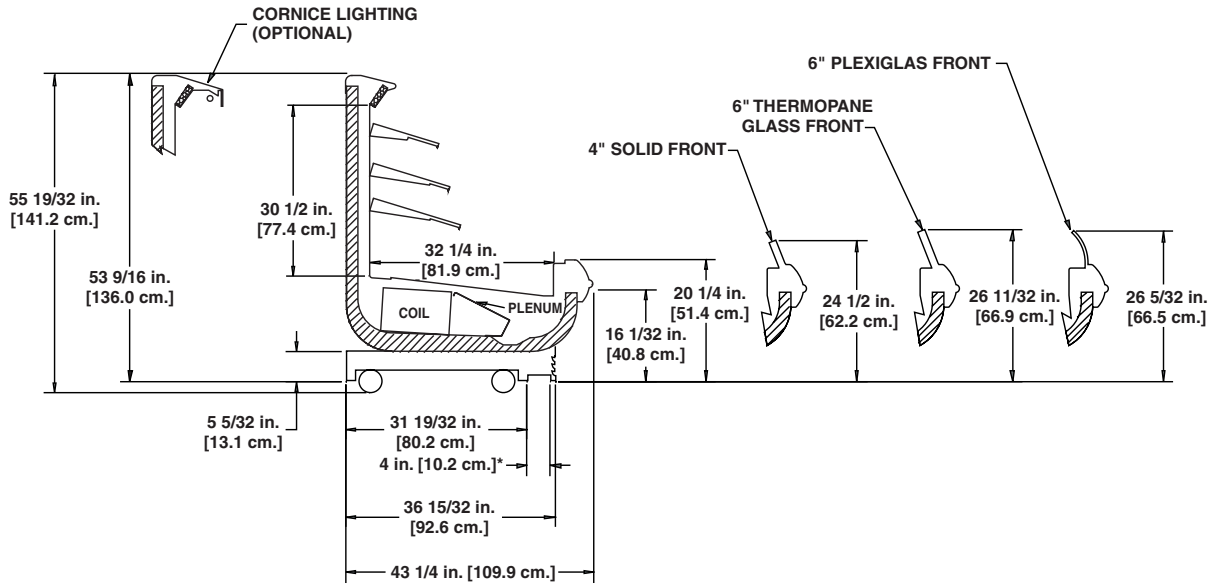
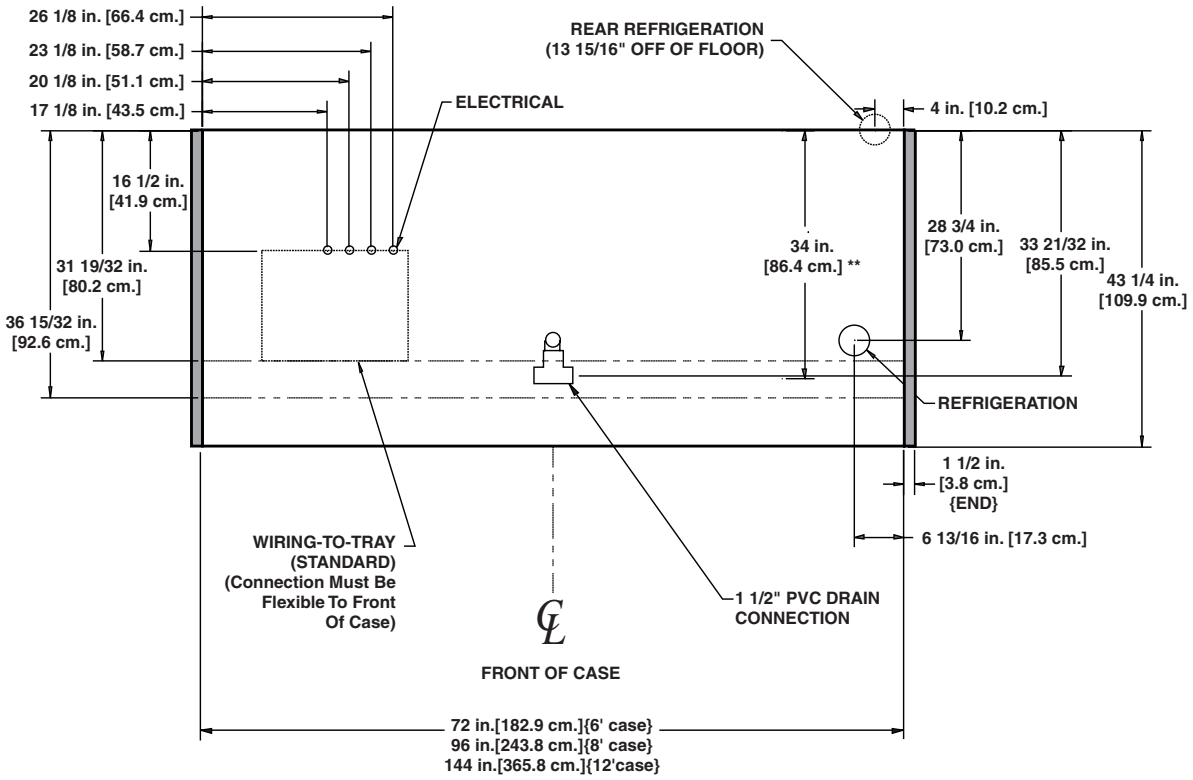
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





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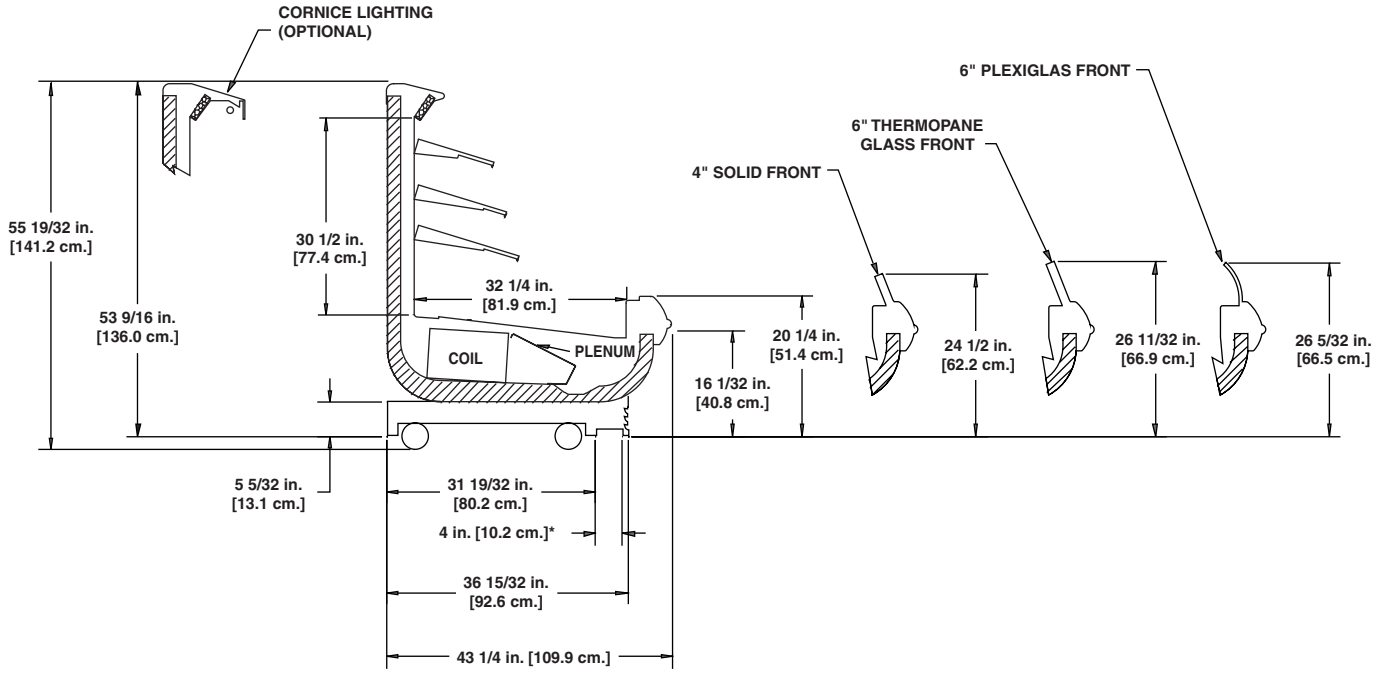

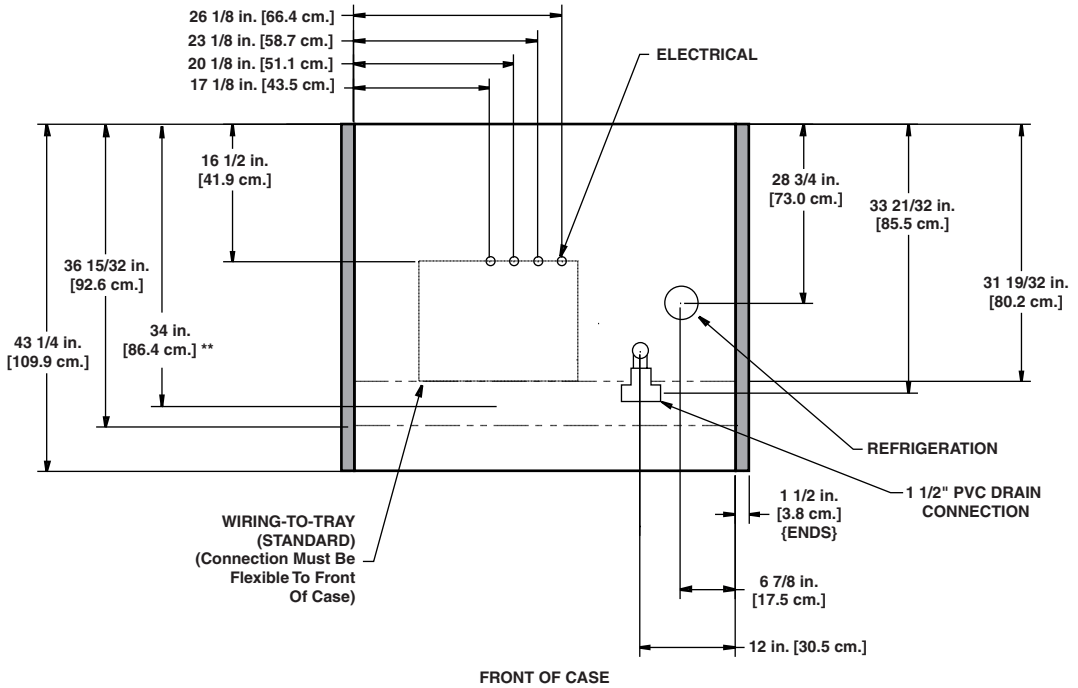

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Multi-Deck Produce/Dairy/Deli Merchandiser

O3.5UD - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O3.5UD	4'	2	1.00	60	0.60	40	0.14	17	1.92	400	2.22	532
	6'	2	1.00	60	0.60	40	0.20	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38	46	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3.5UD	4'	0.57	68	1.34	161
	6'	0.57	68	2.11	253
	8'	0.57	68	2.11	253
	12'	0.77	92	3.08	370

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
O3.5UD	18"	1300	17	6-8	30	36	45	300

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3.5UD	3	6 - 8	40	47	45	45	26	45	45	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

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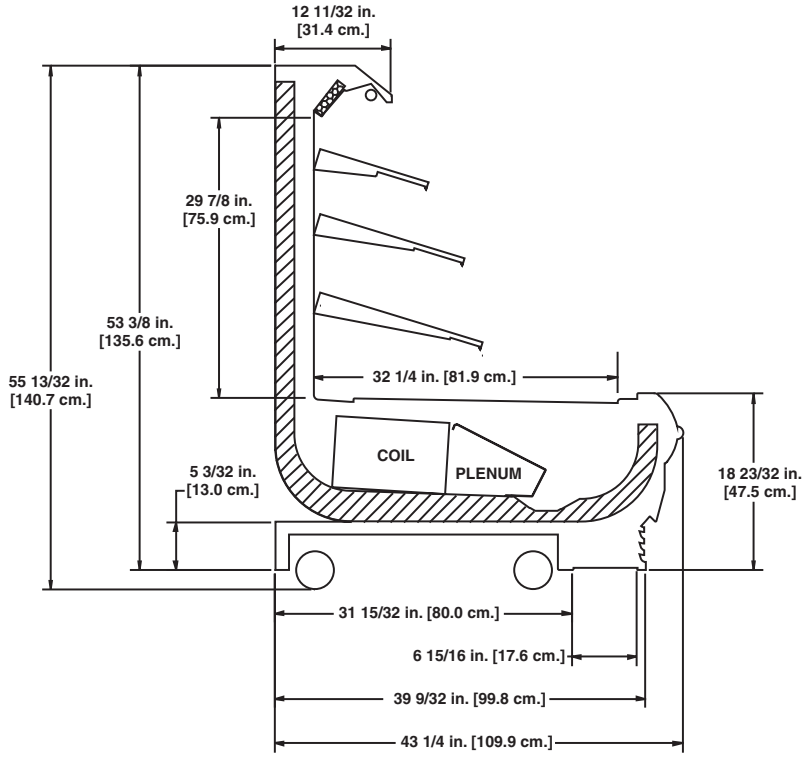

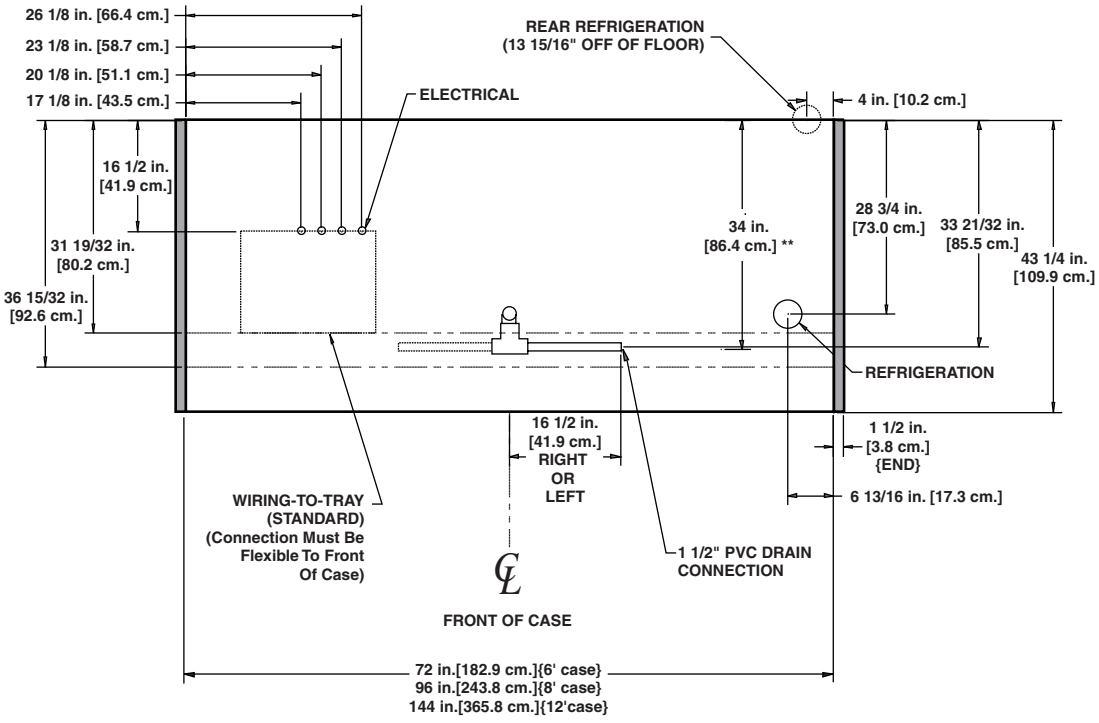

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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

Multi-Deck Produce/Dairy/Deli Merchandiser

O4UM - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O4UM	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O4UM	6'	0.57	68	3.03	364
	8'	0.57	68	3.03	364
	12'	0.77	92	4.62	554

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O4UM	33"	1460	17	6-8	30	36	43	300

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

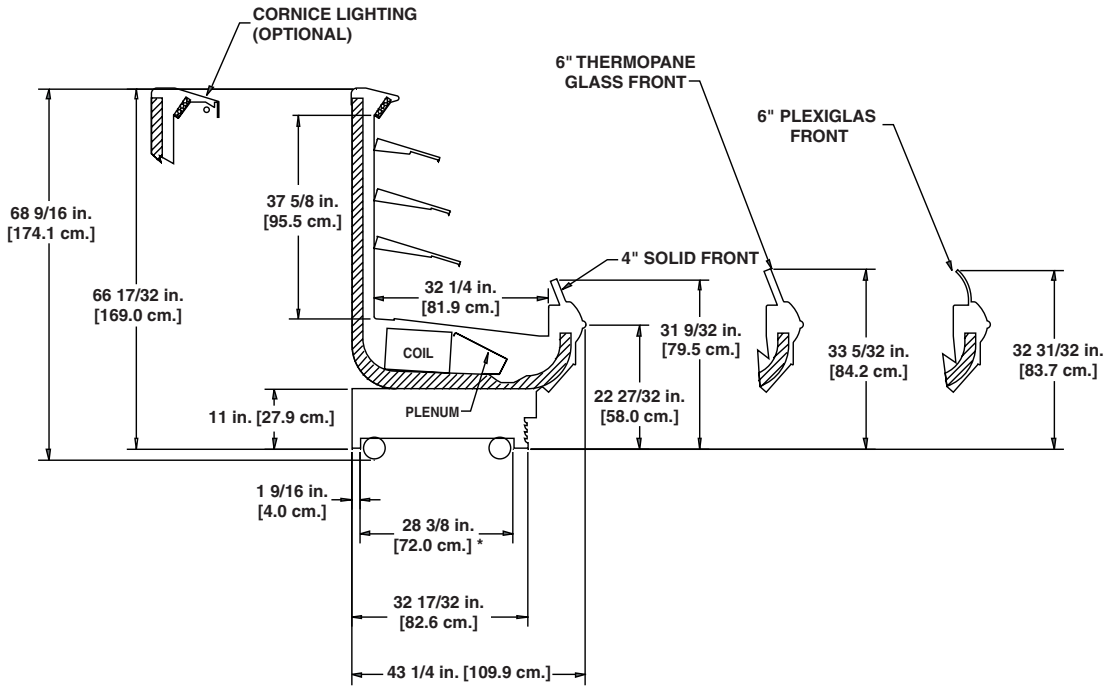
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O4UM	4	6 - 8	40	47	45	45	26	45	45	45

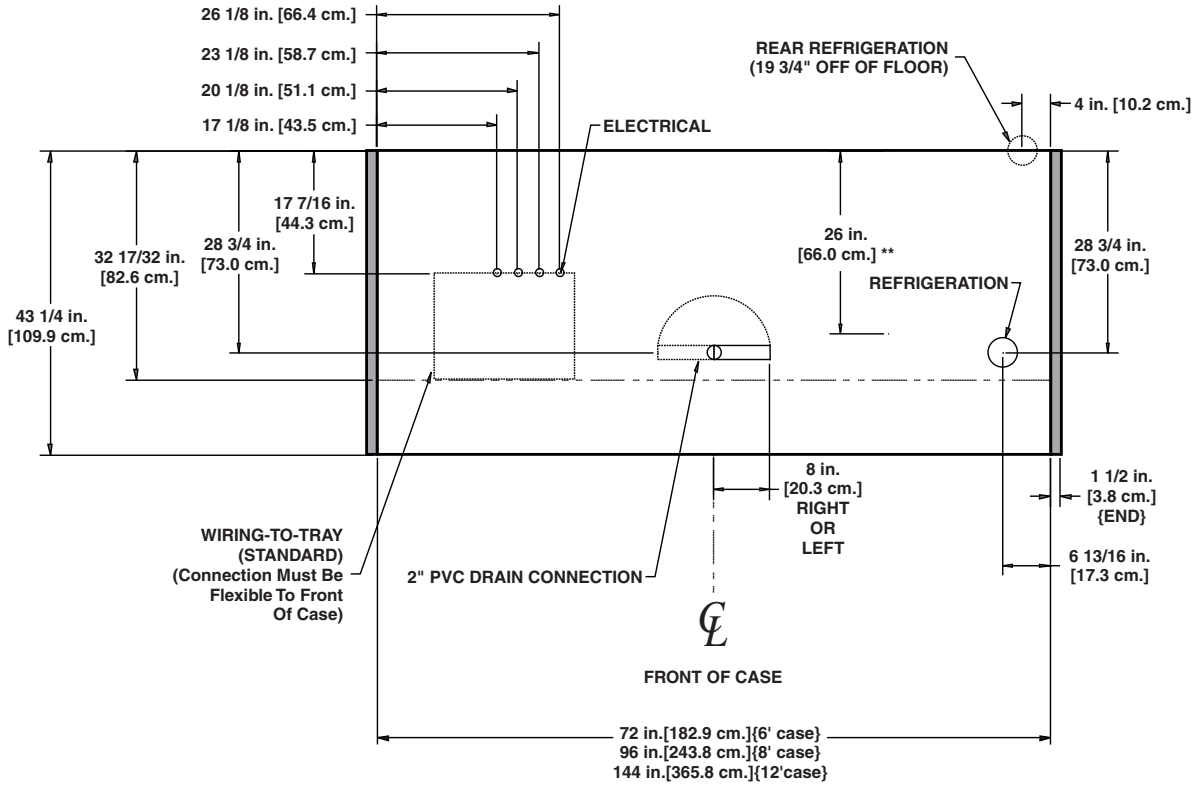
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





NOTES:

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**** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS**

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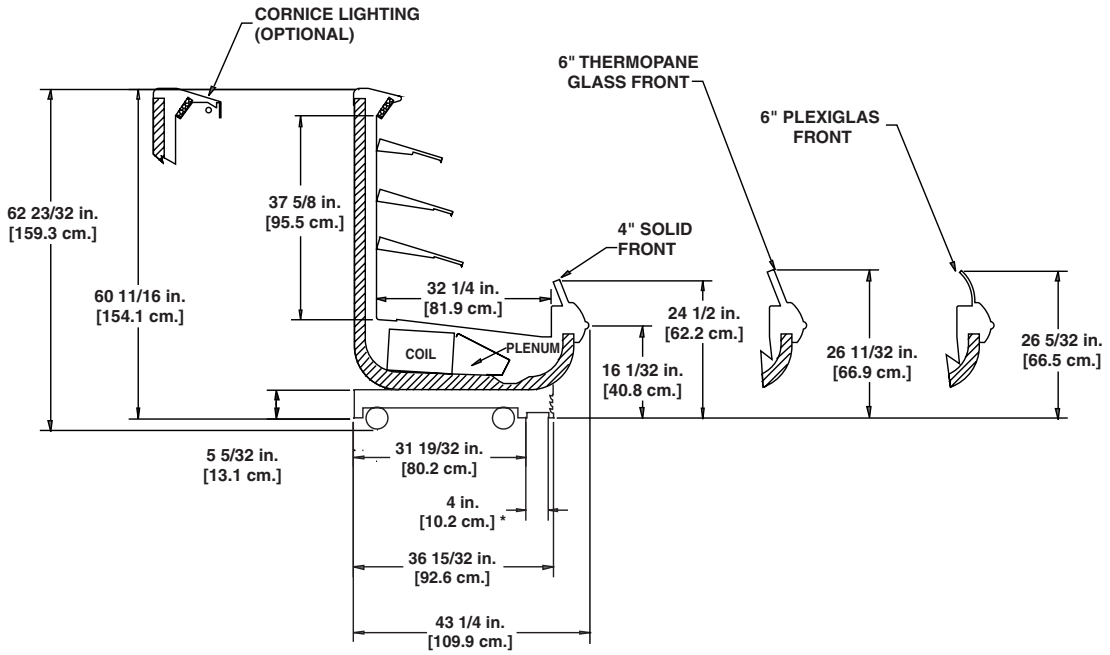
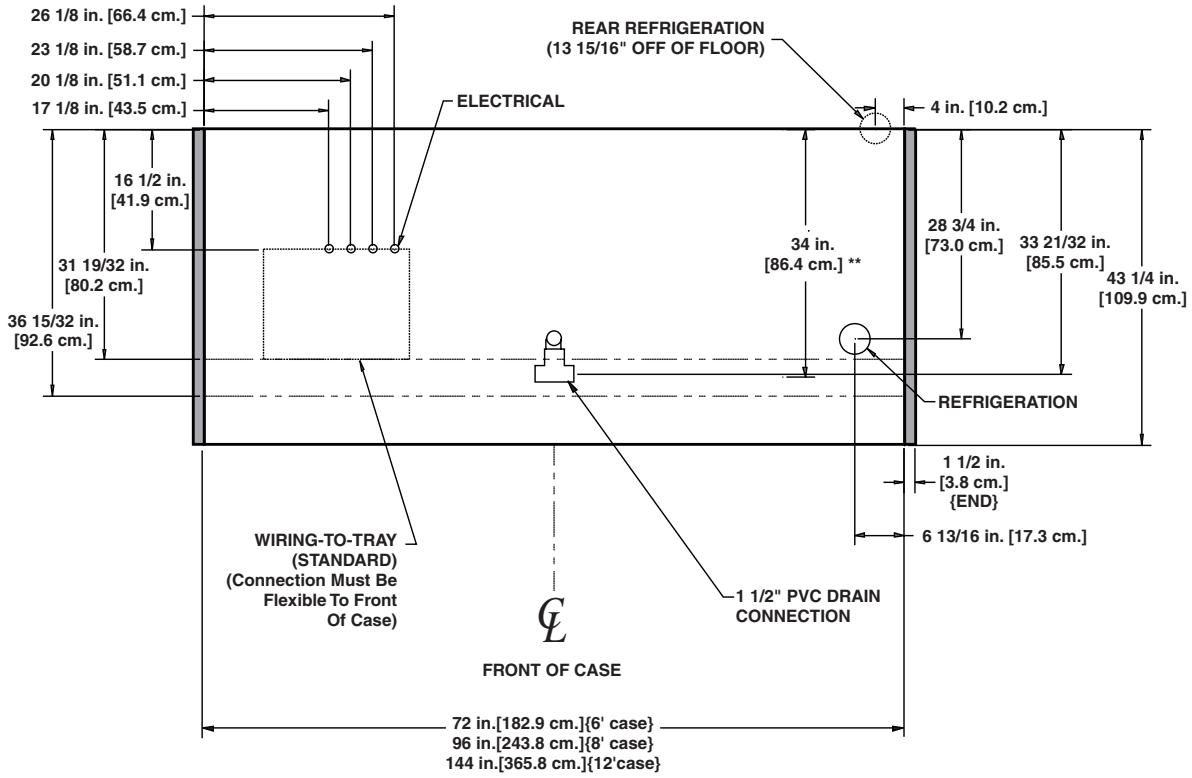
- **BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE**
- **SUCTION LINE - 7/8", LIQUID LINE - 3/8"**
- **AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"**

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





NOTES:

*** STUB-UP AREA**
**** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS**

- **ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT**
- **A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL**
- **BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE**
- **SUCTION LINE - 7/8", LIQUID LINE - 3/8"**
- **AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"**

Multi-Deck Produce/Dairy/Deli Merchandiser

O5UM - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O5UM	6'	2	1.00	60	0.60	40	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38[1]	46	5.77	1200	6.67	1600

[1] Anti-condensate heater data for unlighted rear sill. For lighted rear sill, double the values.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O5UM	6'	0.57	68	3.33	400
	8'	0.57	68	3.33	400
	12'	0.77	92	5.07	608

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O5UM	33"	1490	17	6-8	30	35	42	300

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O5UM	4	6 - 8	40	47	- - - [4]	- - -	26	45	45	45

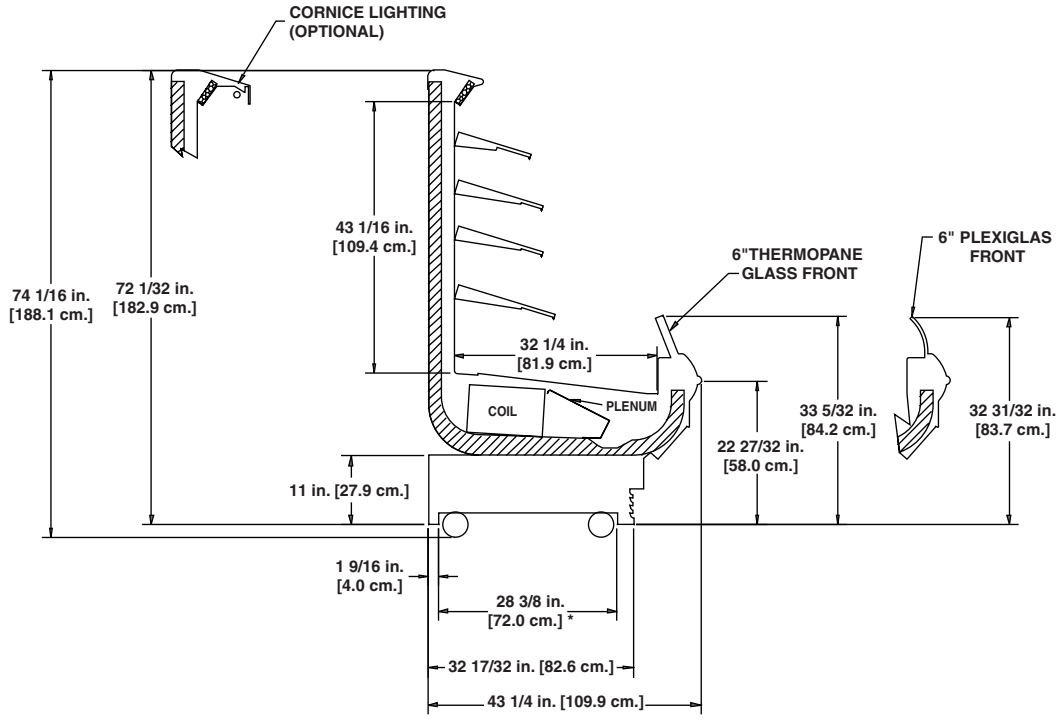
[4] NOTE: - - - not an option on this case model.

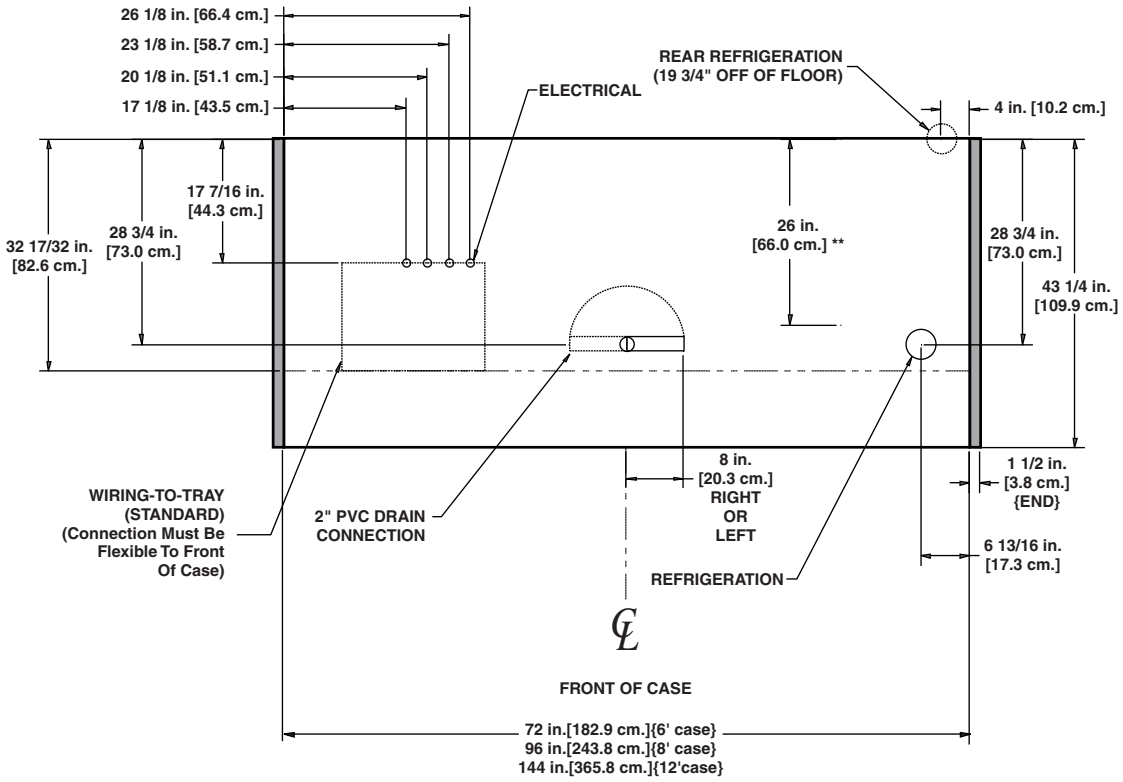
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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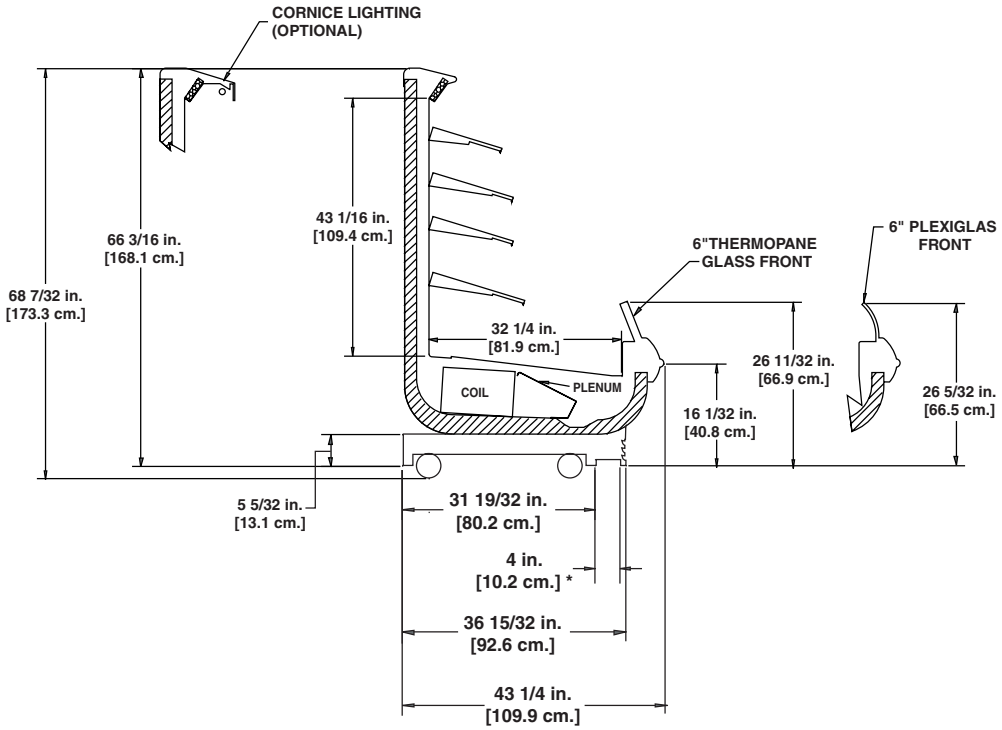
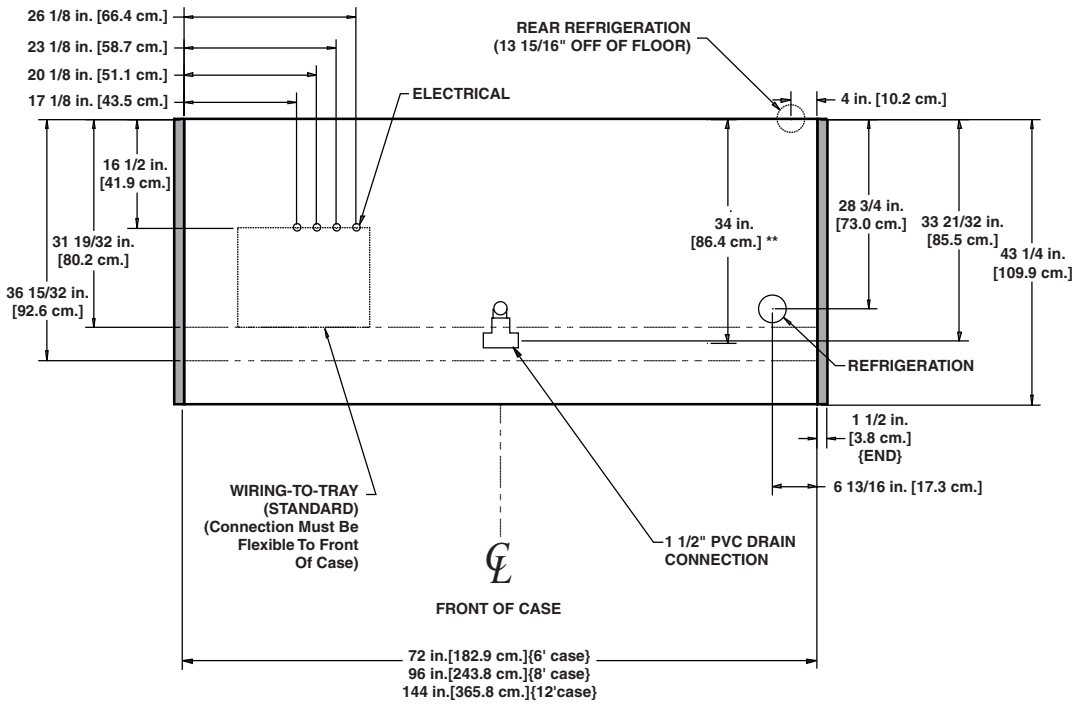
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

*(For additional rear sill options refer to the *Merchandisers Accessories Guide)*





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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

Multi-Deck Produce/Dairy/Deli Merchandiser

O6UM - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O6UM	6'	2	1.00	60	0.60	40	0.20	24	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	0.25	30	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	0.38	46	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O6UM	6'	0.57	68	3.33	400
	8'	0.57	68	3.33	400
	12'	0.77	92	5.07	608

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
O6UM	33"	1405	17	6-8	29	35	41	300

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

Defrost Controls

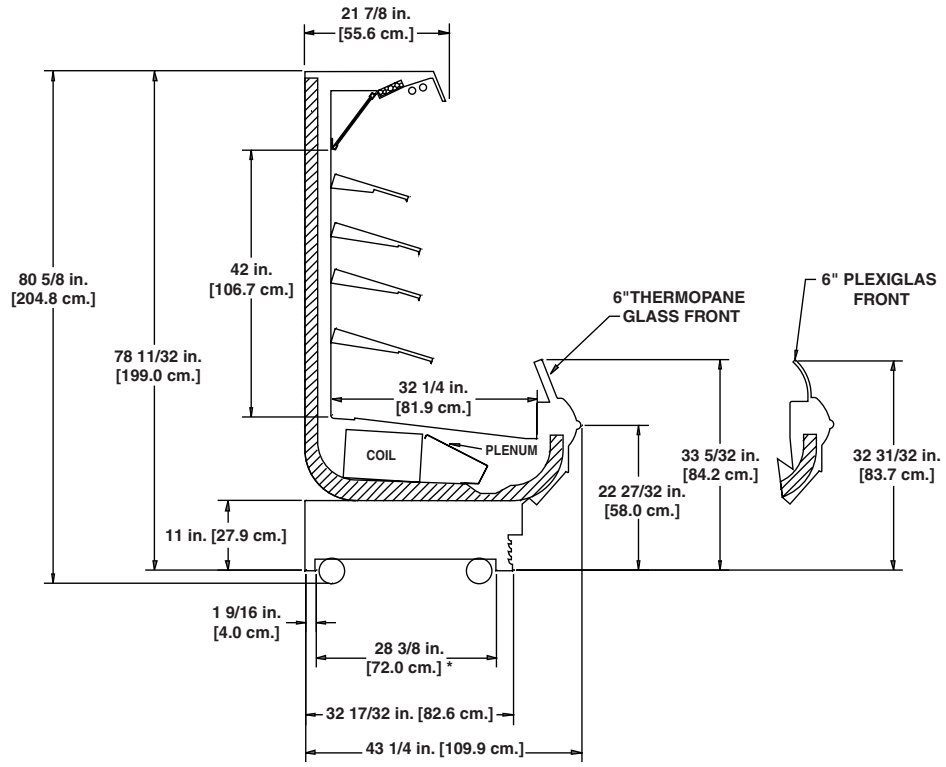
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O6UM	4	6 - 8	35	48	- - - [3]	- - -	26	45	- - -	- - -

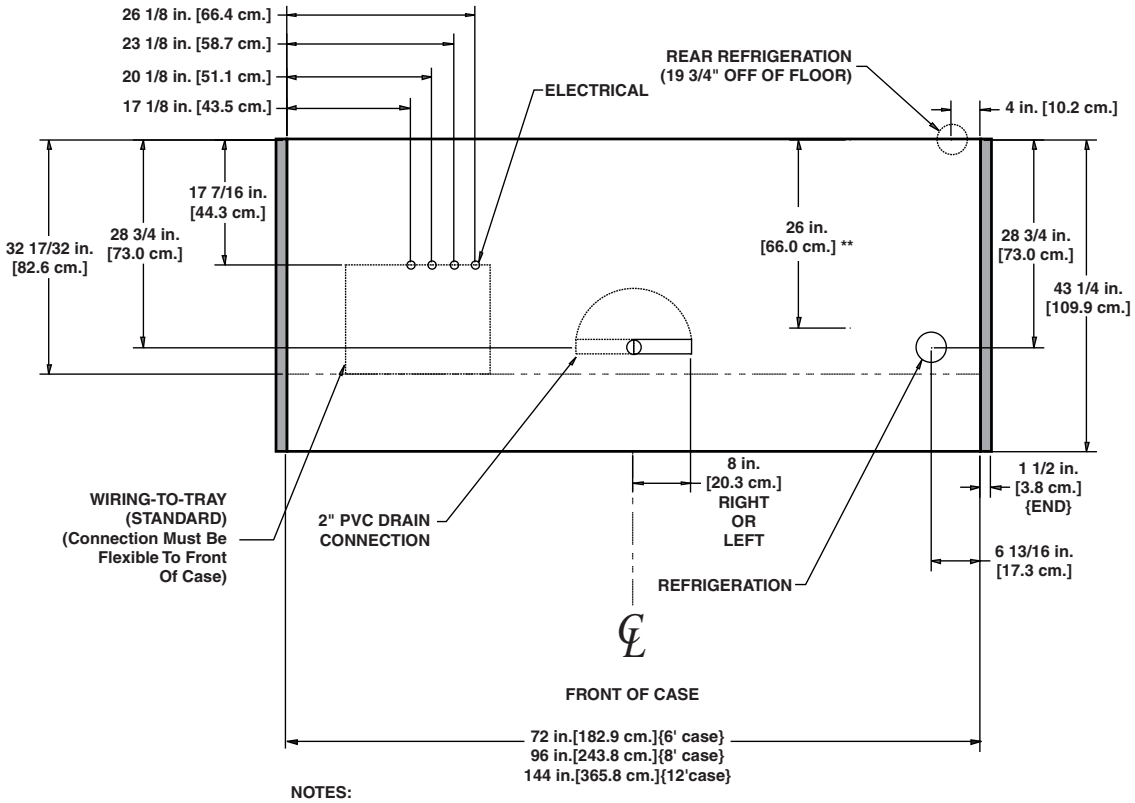
[3] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

Narrow Multi-Deck Produce/Dairy Merchandiser

ON5DM - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ON5DM	6'	3	1.50	90	1.50	51	- - -[1]	- - -	2.88	600	3.33	798
	8'	4	2.00	120	2.00	69	- - -	- - -	3.85	800	4.44	1065
	12'	5	2.50	150	2.50	85	- - -	- - -	5.77	1200	6.67	1600

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ON5DM	6'	0.57	68	4.47	536
	8'	0.57	68	4.47	536
	12'	0.77	92	6.61	793

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ON5DM Dairy	18"	1815	17	6-8	32	35	47	215
	21"	1770	17	6-8	31	34	44	215
	27"	1685	17	6-8	31	33	40	215
ON5DM Produce Beverage	18"	1670	27	6-8	37	39	53	215
	21"	1628	27	6-8	36	38	52	215
	27"	1550	27	6-8	36	37	52	215

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

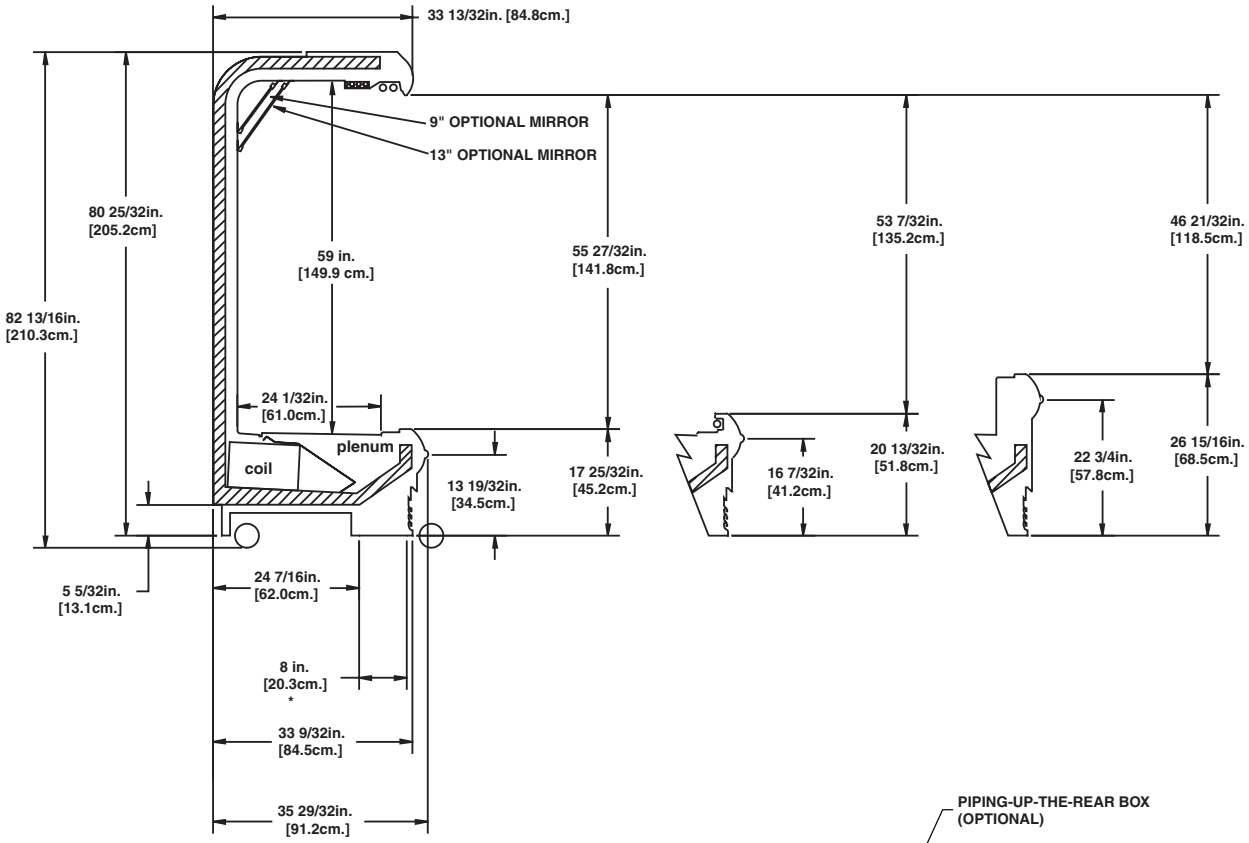
Defrost Controls

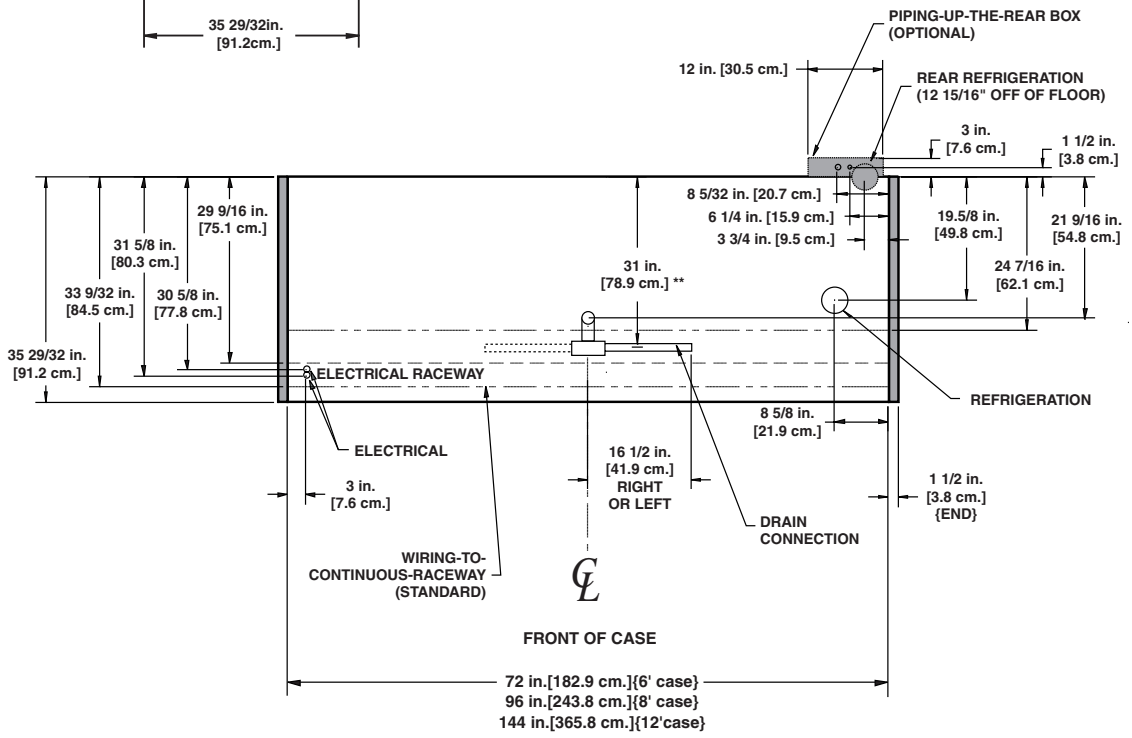
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ON5DM	4	6 - 8	32	47	42	47	26	45	42	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

Multi-Deck Produce/Dairy/Deli Merchandiser

O5DM - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fan 120 Volts Amps	Standard Fan 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O5DM	4'	2	1.00	60	1.00	34	- - -[1]	- - -	1.92	400	2.22	532
	6'	2	1.00	60	1.00	34	- - -	- - -	2.88	600	3.33	798
	8'	3	1.50	90	1.50	51	- - -	- - -	3.85	800	4.44	1065
	12'	4	2.00	120	2.00	69	- - -	- - -	5.77	1200	6.67	1600

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O5DM	4'	0.57	68	3.55	426
	6'	0.57	68	4.47	536
	8'	0.57	68	4.47	536
	12'	0.77	92	6.61	793

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O5DM Deli w/ Shelf Lights	21"	1570	17	6-8	30	35	44	270
	23"	1530	17	6-8	30	34	44	270
	26"	1500	17	6-8	30	33	44	270
O5DM Dairy Cut Produce w/ Shelf Lights	18"	1500	22	6-8	34	37	47	270
	21"	1460	22	6-8	34	36	47	270
	23"	1430	22	6-8	34	36	47	270
	26"	1400	22	6-8	34	36	47	270
O5DM Beverage Bulk Produce w/o Shelf Lights	18"	1490	27	6-8	36	39	52	270
	21"	1450	27	6-8	36	38	52	270
	23"	1420	27	6-8	36	38	52	270
	26"	1390	27	6-8	36	38	52	270

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

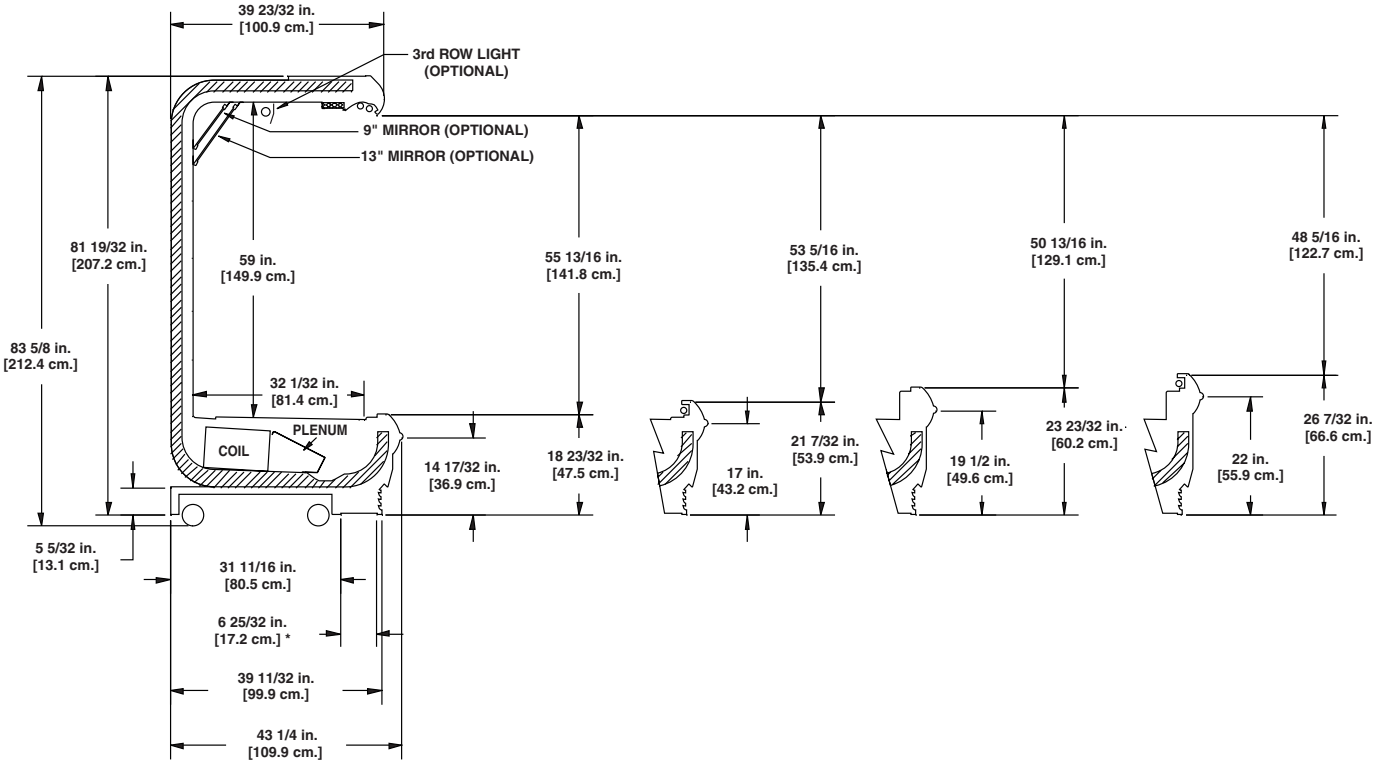
Defrost Controls

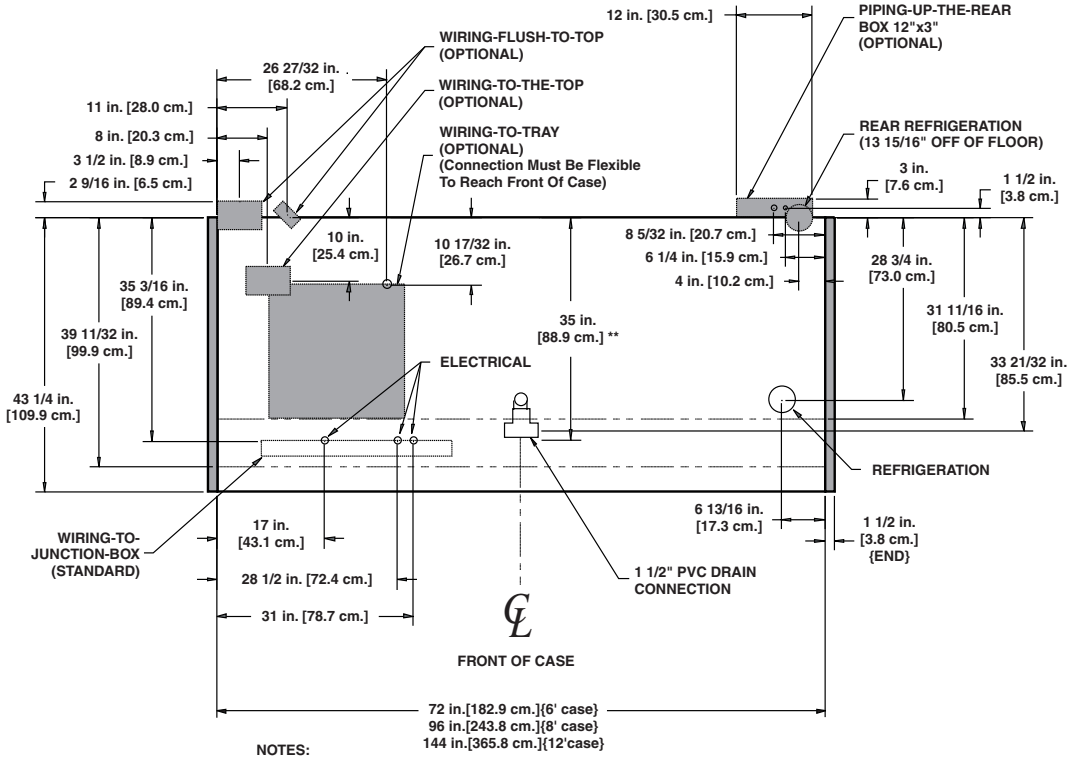
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O5DM	3	6 - 8	32	47	42	47	26	45	42	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
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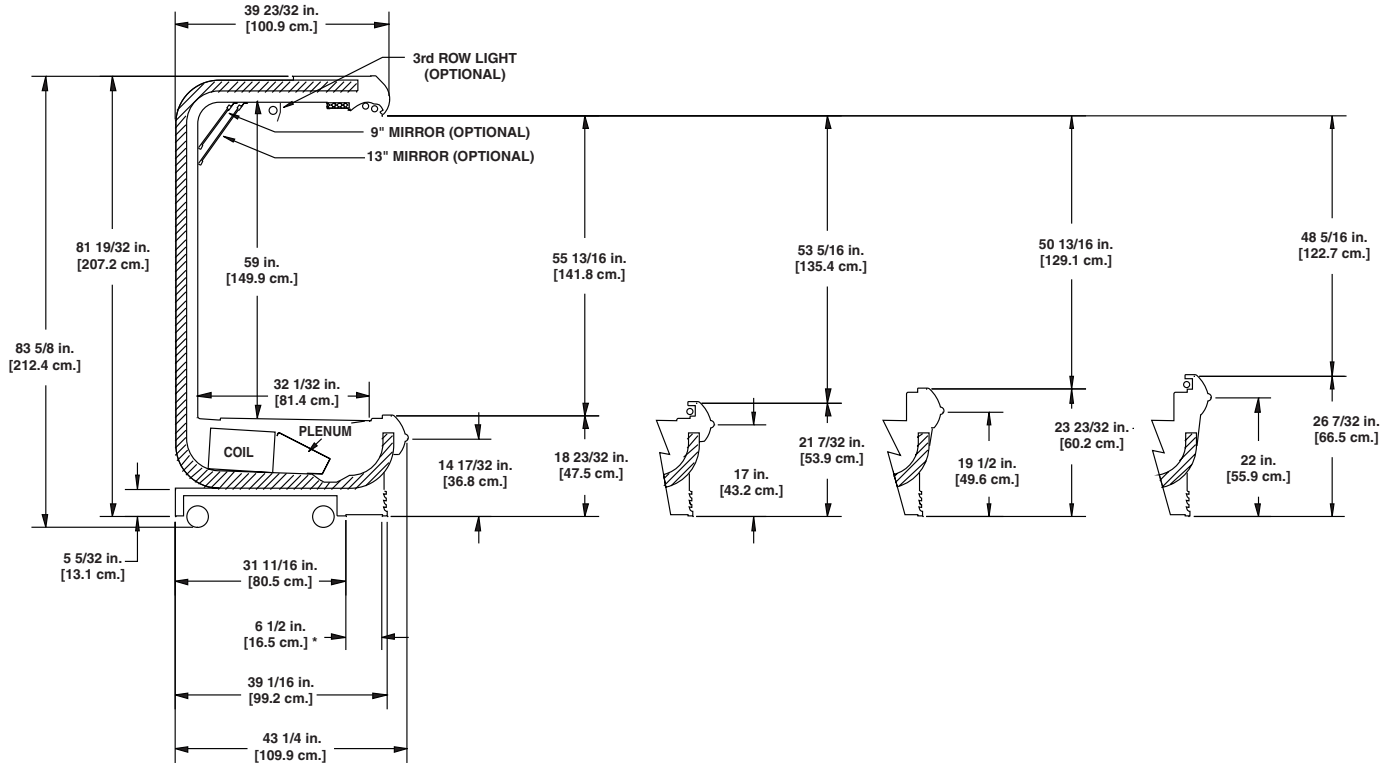

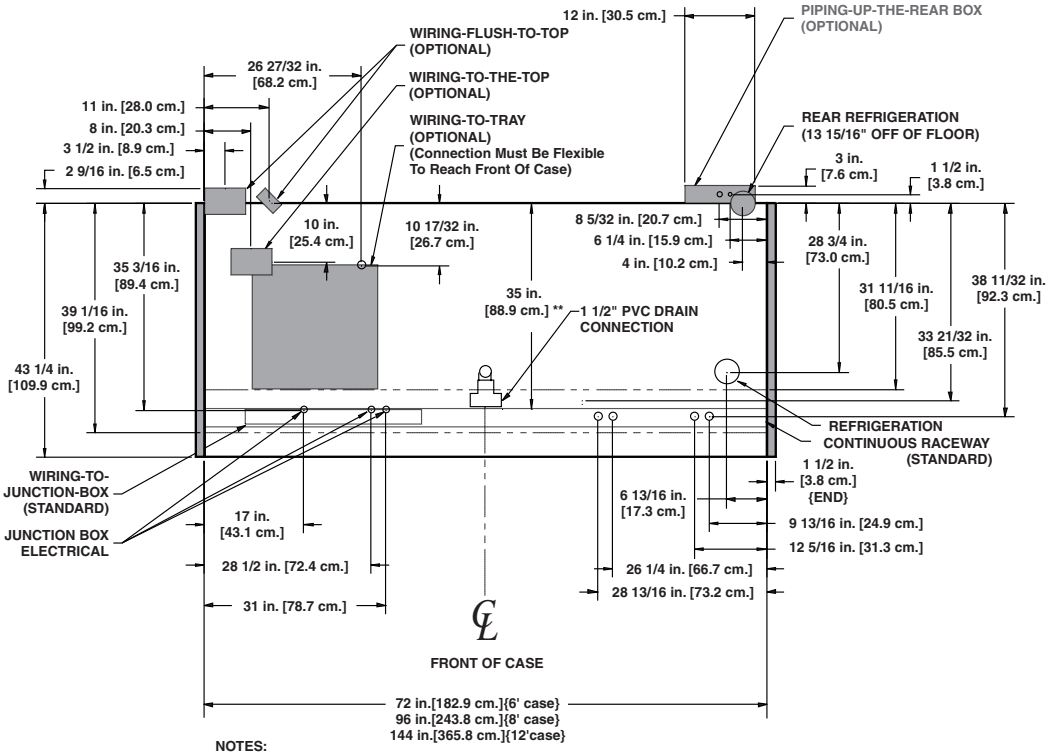

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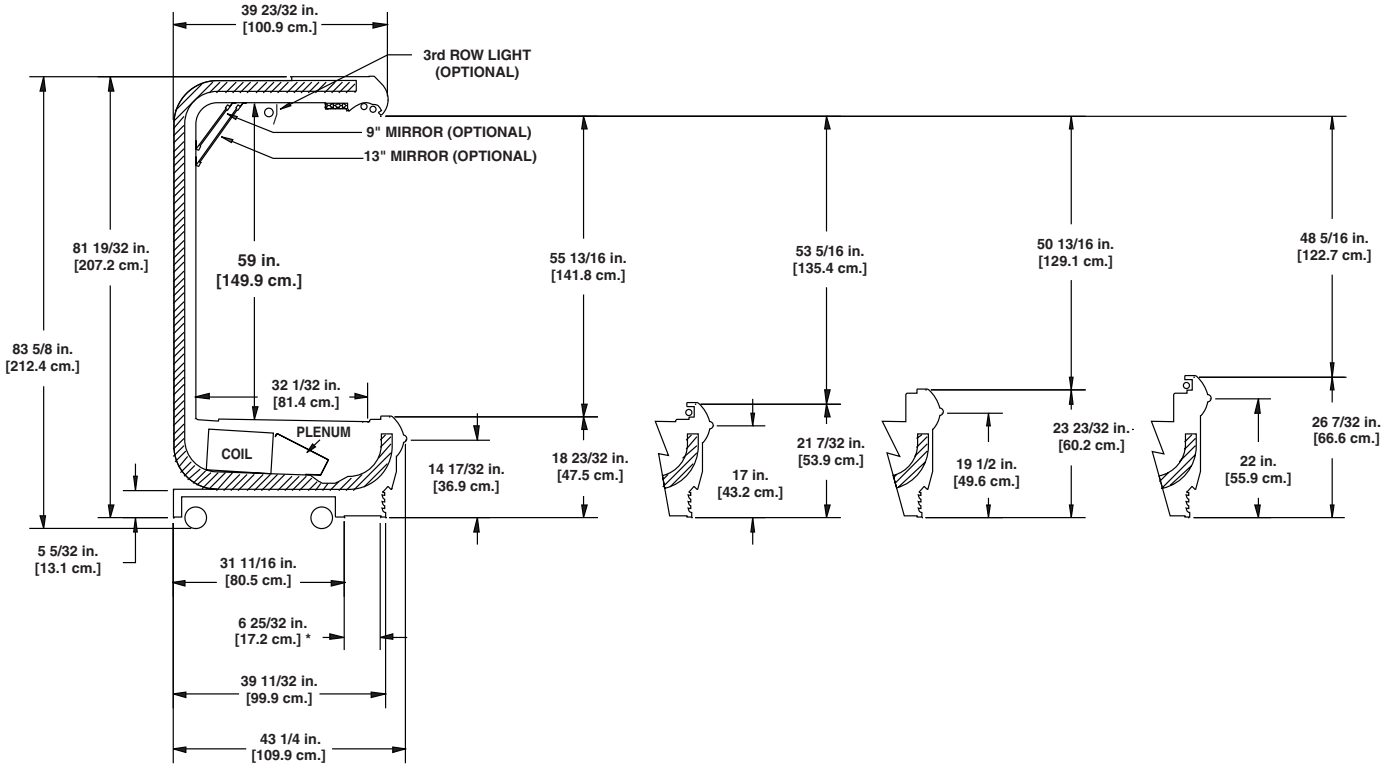

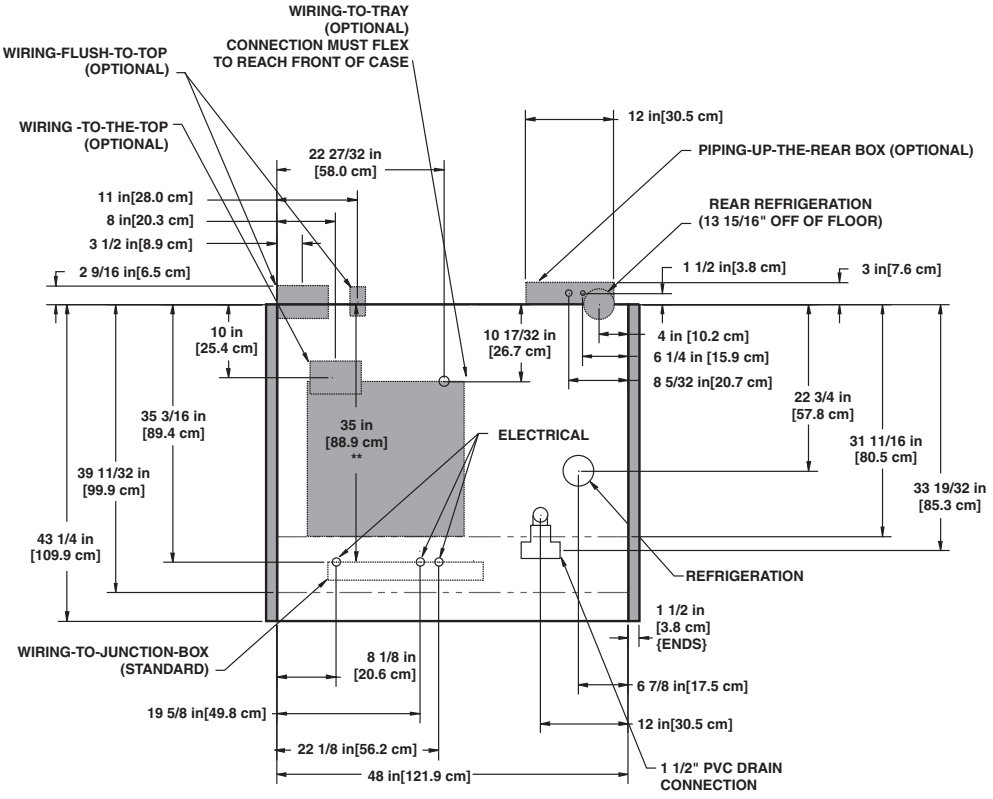

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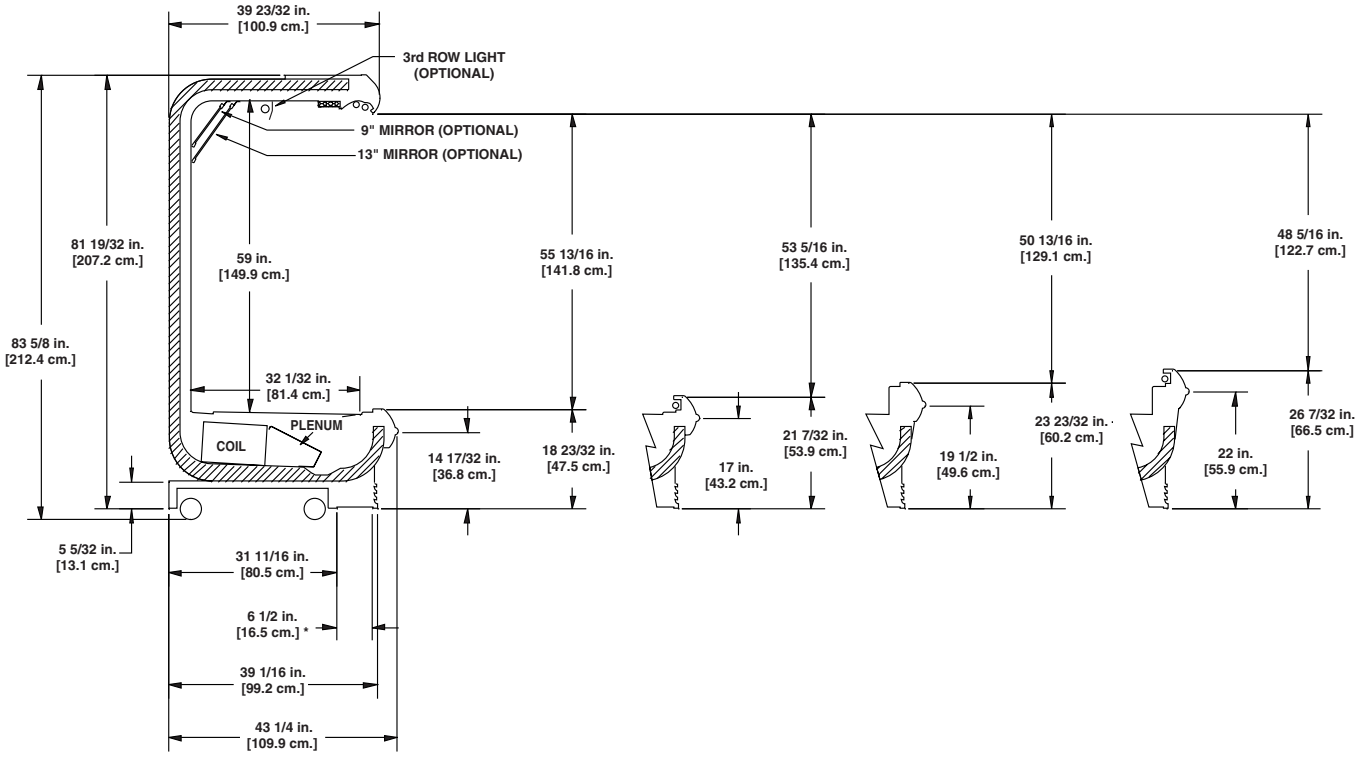
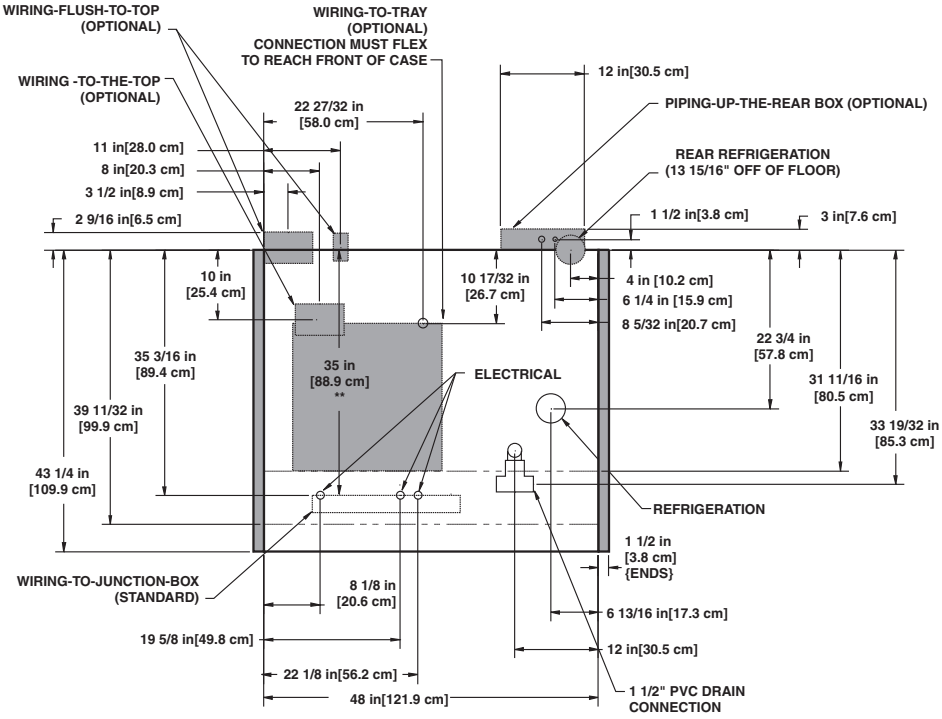
O5DM-4'

(CURVED FRONT PANEL)





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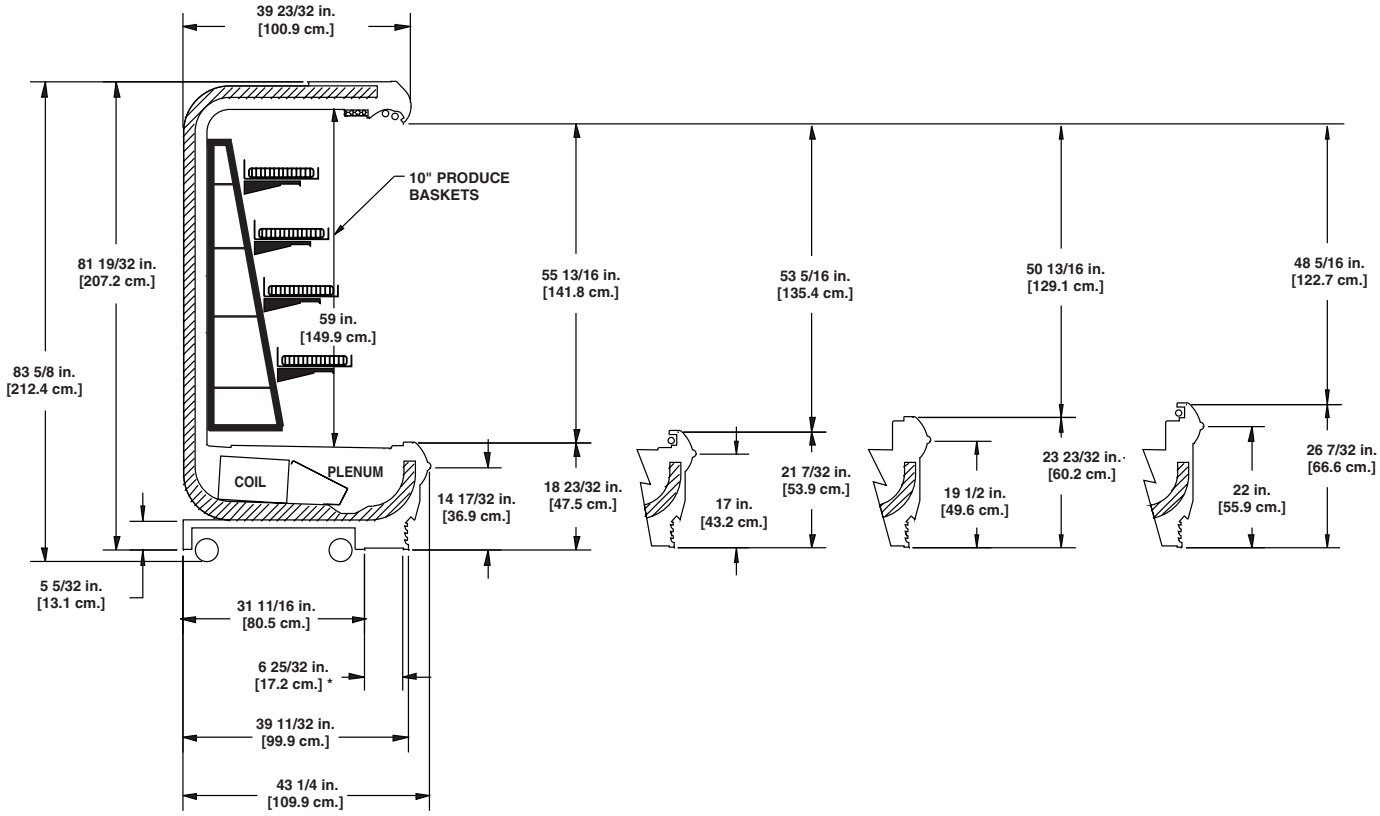

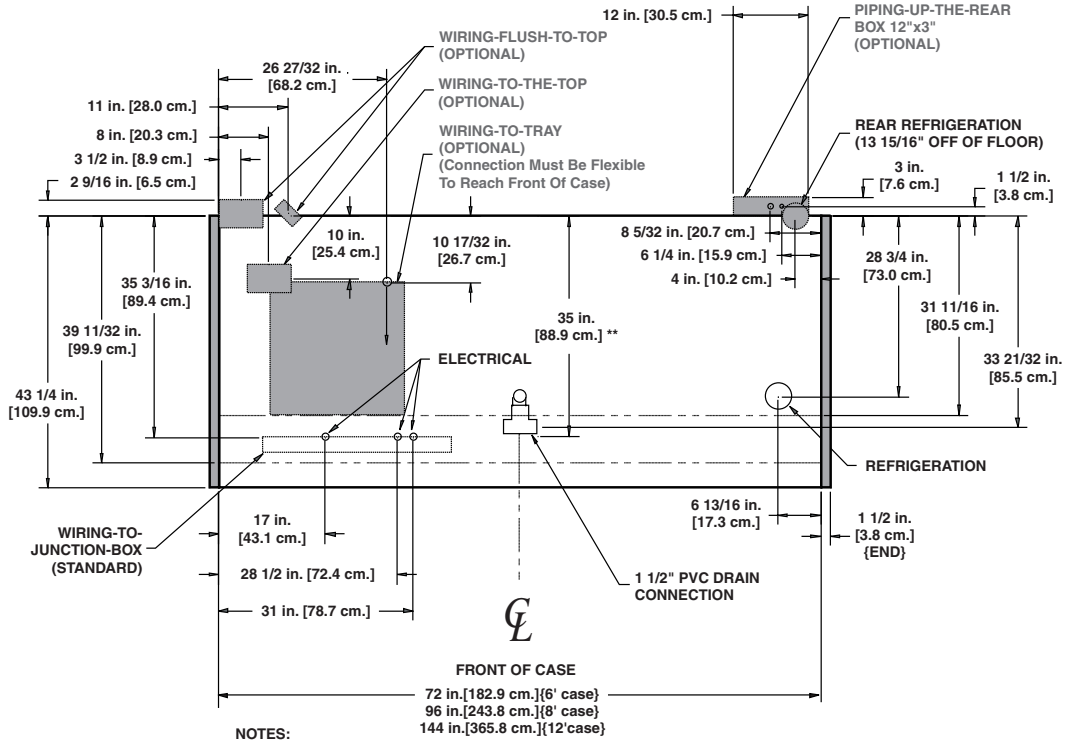

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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22", & 24"

High Multi-Deck Produce/Dairy/Deli Merchandiser

O5DMH - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fan 120 Volts Amps	Standard Fan 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O5DMH	4'	2	1.00	60	1.00	34	- - -[1]	- - -	1.92	400	2.22	532
	6'	3	1.50	90	1.50	51	- - -	- - -	2.88	600	3.33	798
	8'	4	2.00	120	2.00	69	- - -	- - -	3.85	800	4.44	1065
	12'	5	2.50	150	2.50	85	- - -	- - -	5.77	1200	6.67	1600

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O5DMH	4'	0.57	68	3.55	426
	6'	0.57	68	4.47	536
	8'	0.57	68	4.47	536
	12'	0.77	92	6.61	793

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O5DMH Deli	21"	1620	17	6-8	31	35	43	250
	23"	1570	17	6-8	31	34	43	250
	26"	1540	17	6-8	31	34	43	250
O5DMH Dairy Cut Produce	18"	1555	22	6-8	35	37	47	265
	21"	1500	22	6-8	35	37	47	265
	23"	1470	22	6-8	35	37	47	265
	26"	1440	22	6-8	35	37	47	265

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

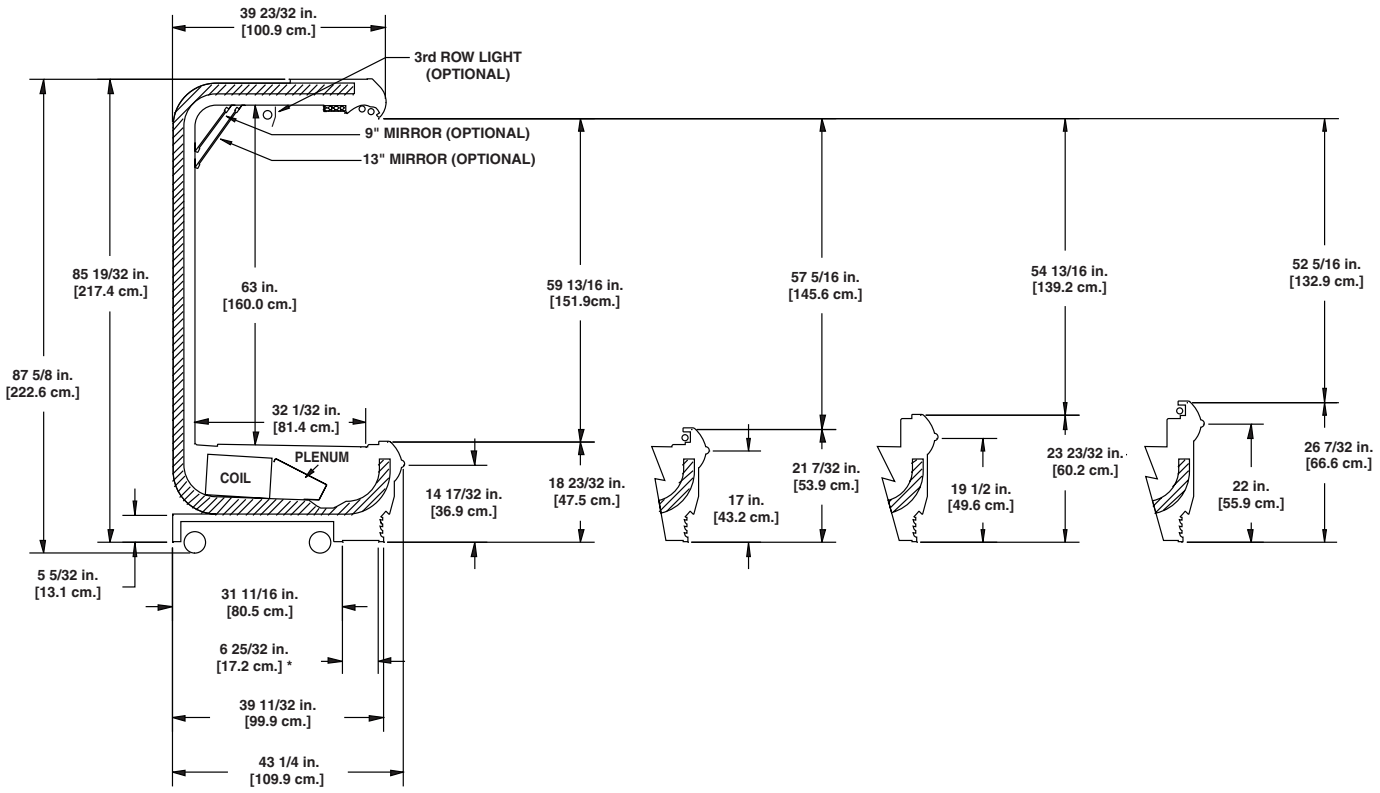
Defrost Controls

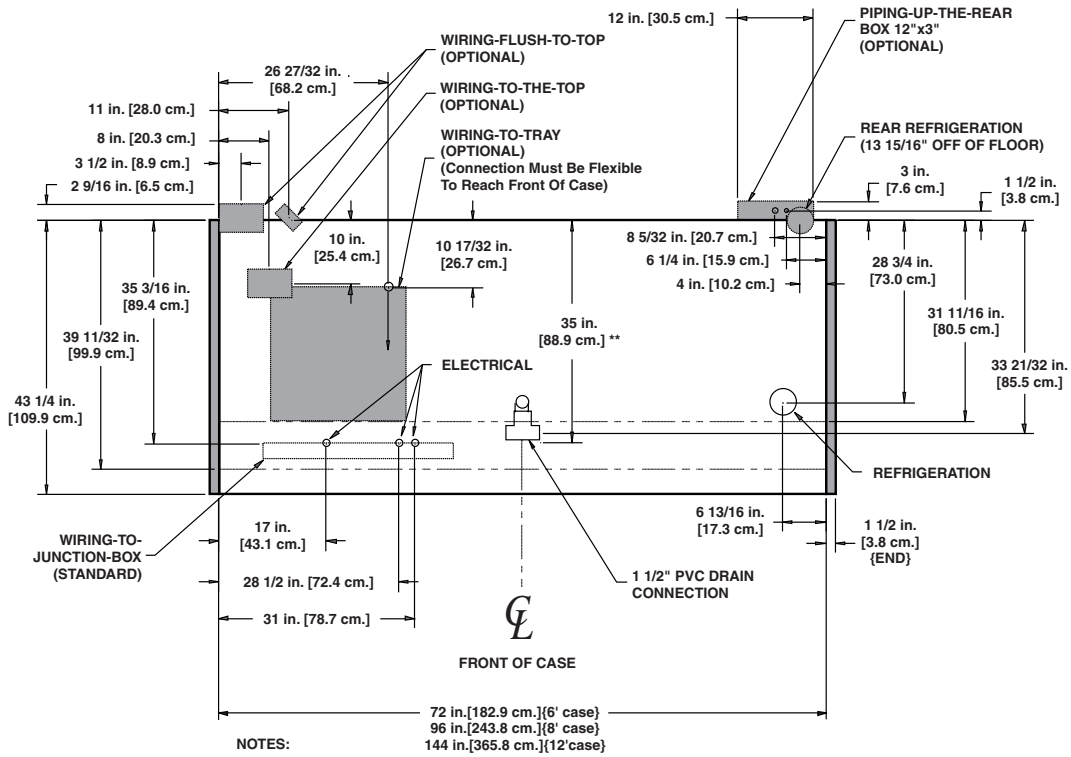
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O5DMH	3	6 - 8	32	47	42	47	26	45	42	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

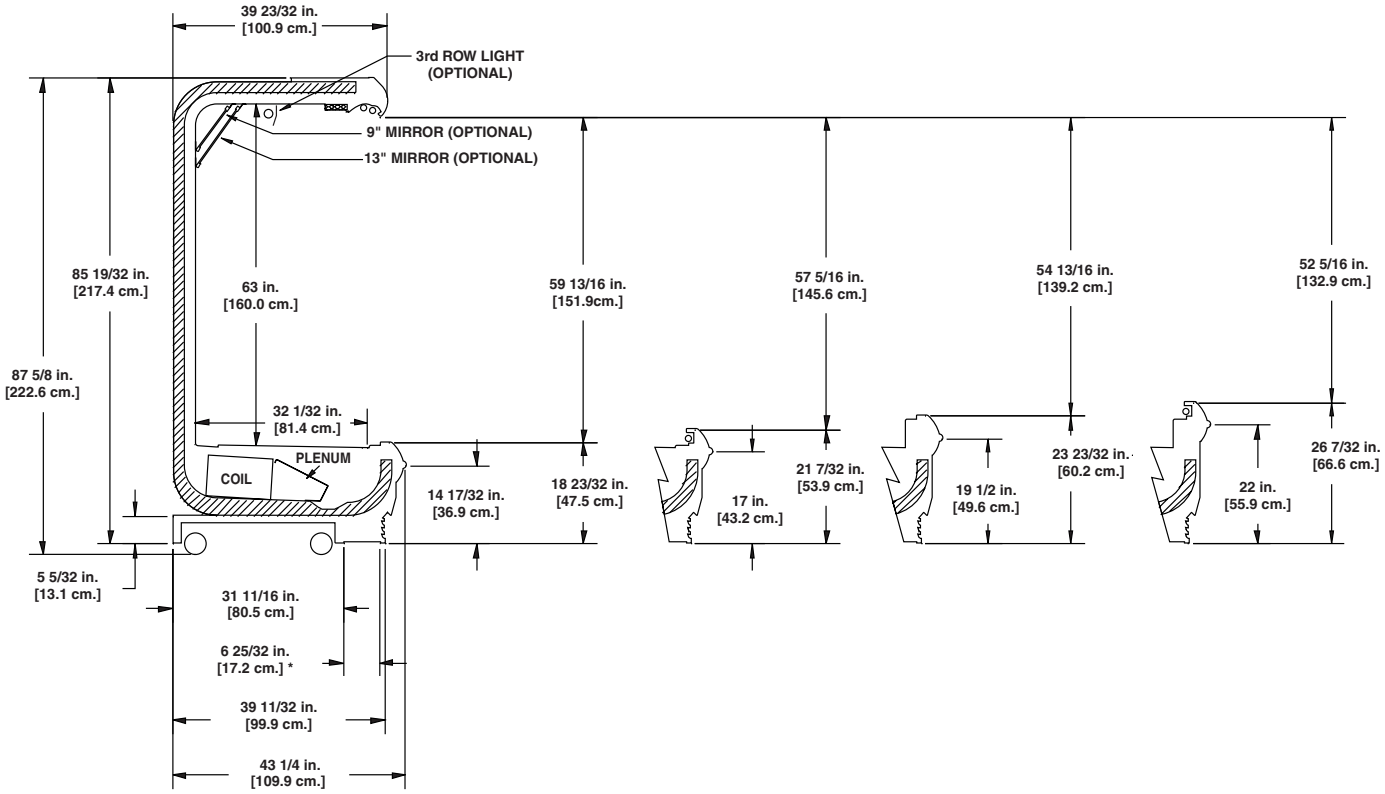


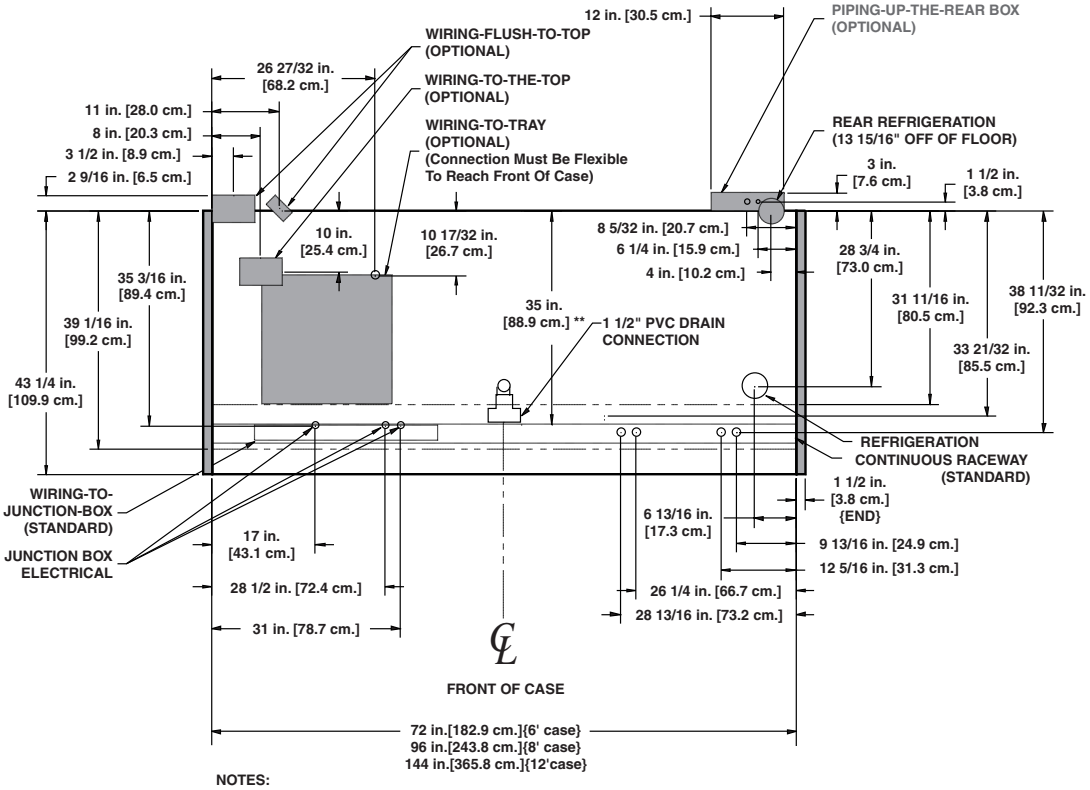


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22", & 24"





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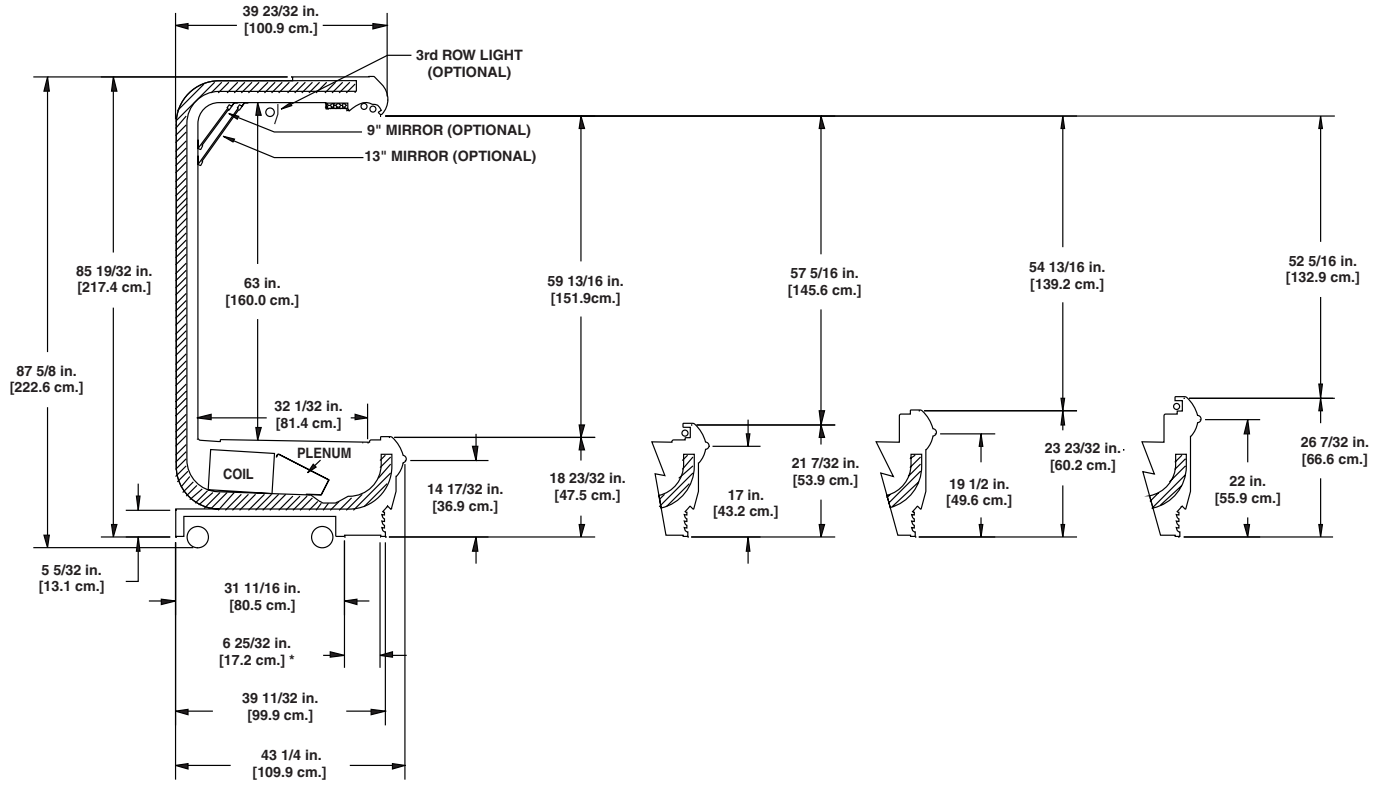
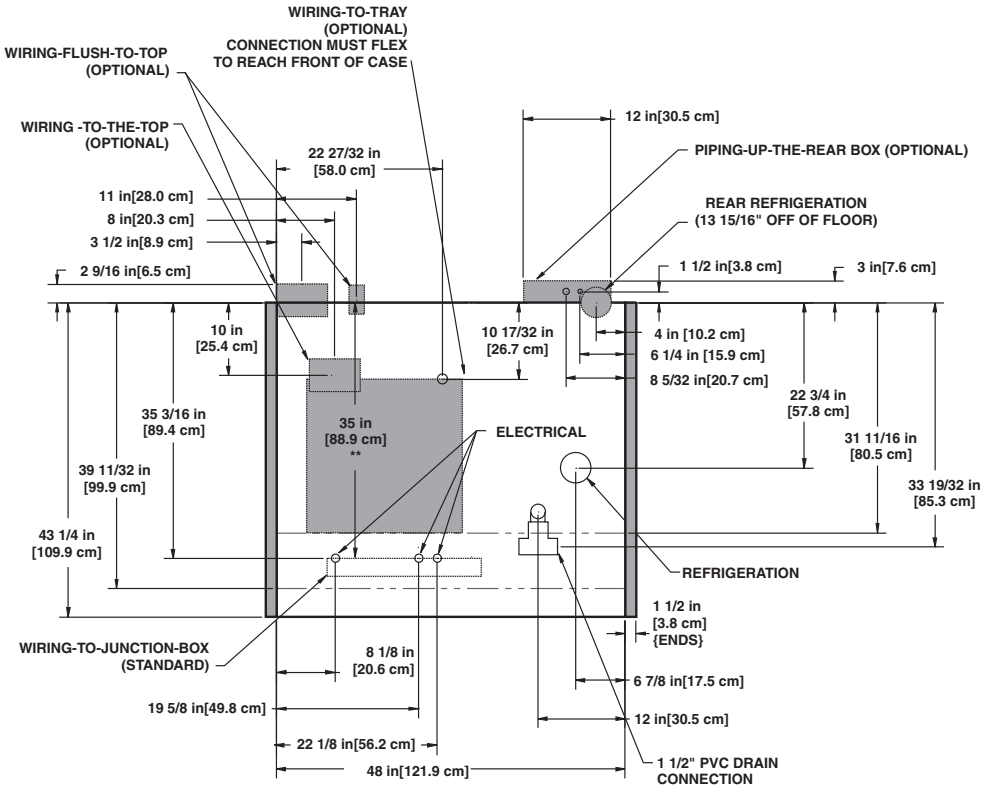
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22", & 24"





NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22", & 24"

Multi-Deck Rear Load Dairy Merchandiser

O5DR - 8' & 12'

Electrical Data

Model		Fans per Case	Standard Fan 120 Volts Amps	Standard Fan 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O5DR	8'	4	2.00	120	2.00	69	- - -[1]	- - -	3.85	800	4.44	1065
	12'	5	2.50	150	2.50	85	- - -	- - -	5.78	1200	6.67	1600

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O5DR	8'	0.57	68	4.47	536
	12'	0.77	92	6.61	793

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O5DR Dairy	18"	1502	17	6-8	32	36	47	275
	21"	1502	17	6-8	32	36	46	275
	23"	1453	17	6-8	32	35	42	275
	26"	1425	17	6-8	32	35	42	275
O5DR Dairy	21"	1389	22	6-8	35	37	48	275
	23"	1422	22	6-8	35	37	47	275

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

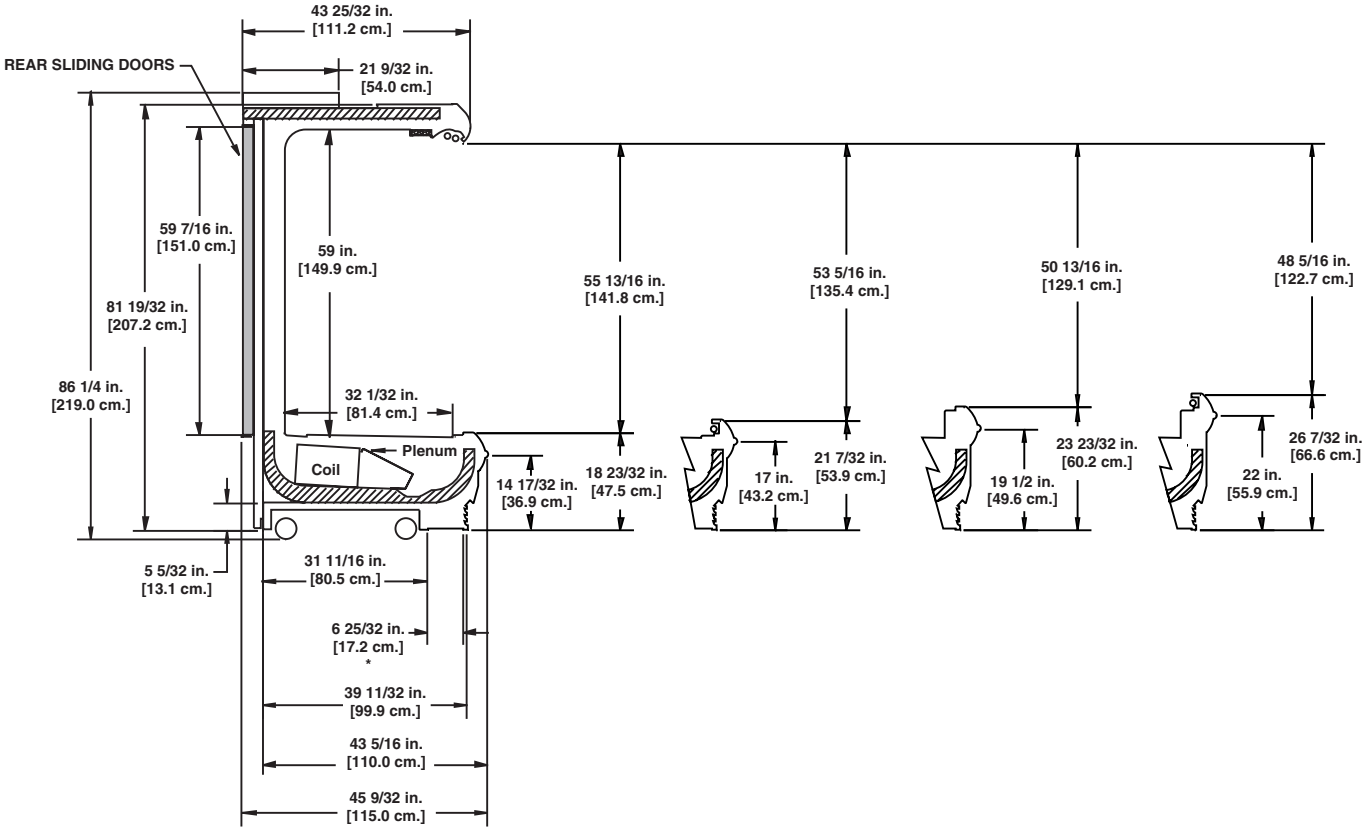
Defrost Controls

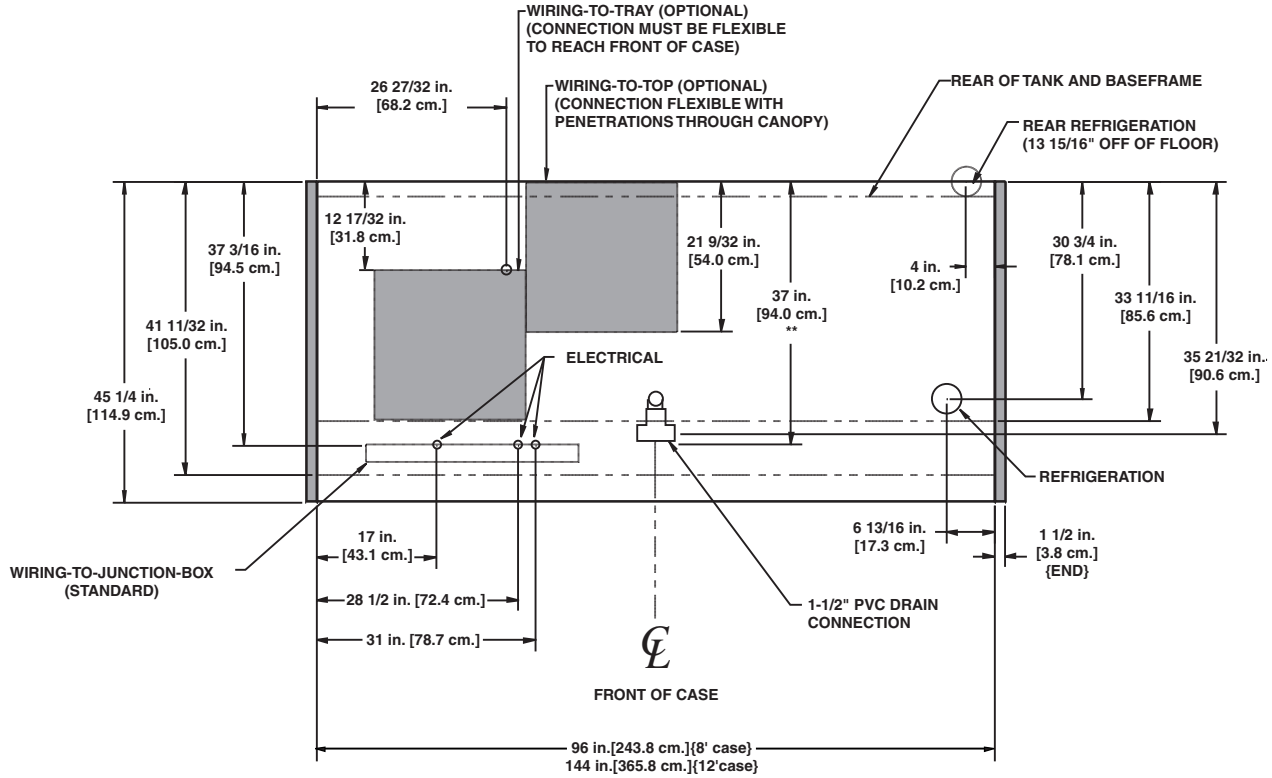
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O5DR	4	6 - 8	32	47	45	47	26	45	42	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

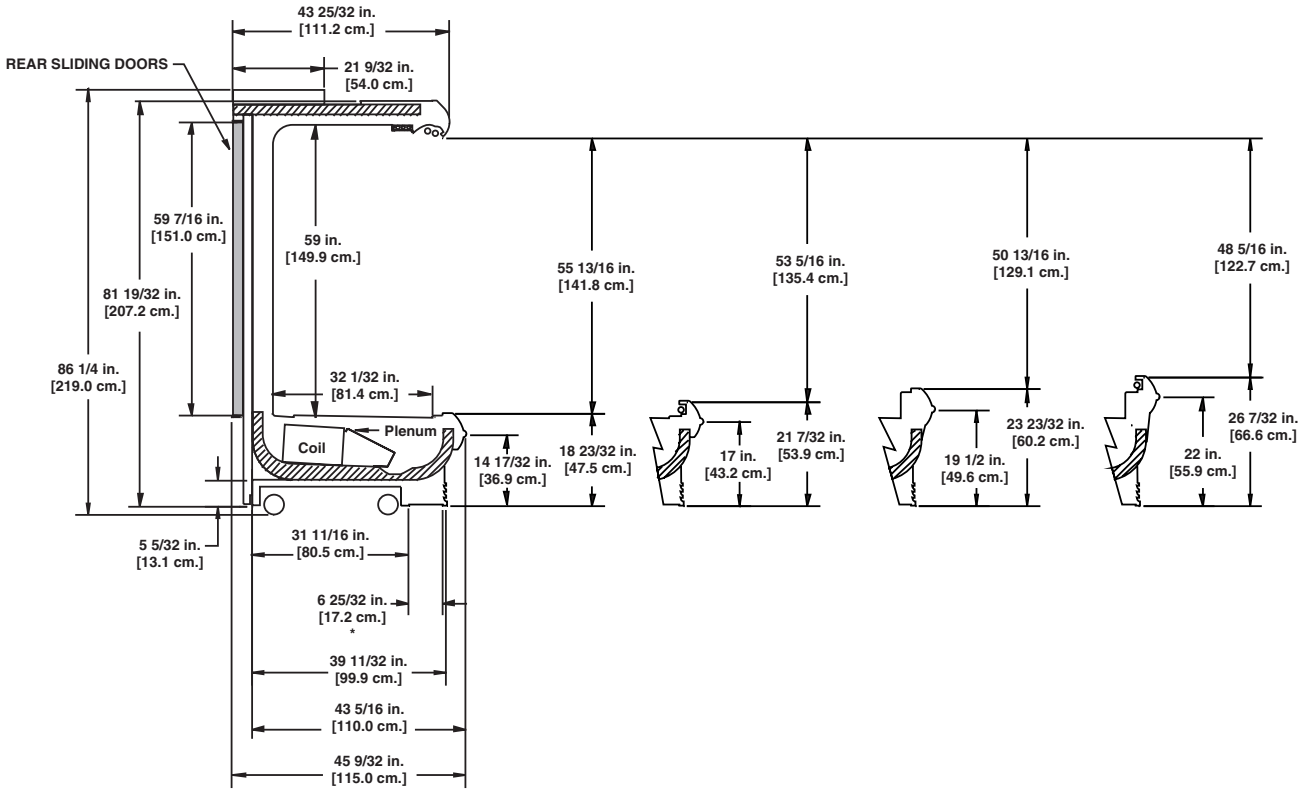


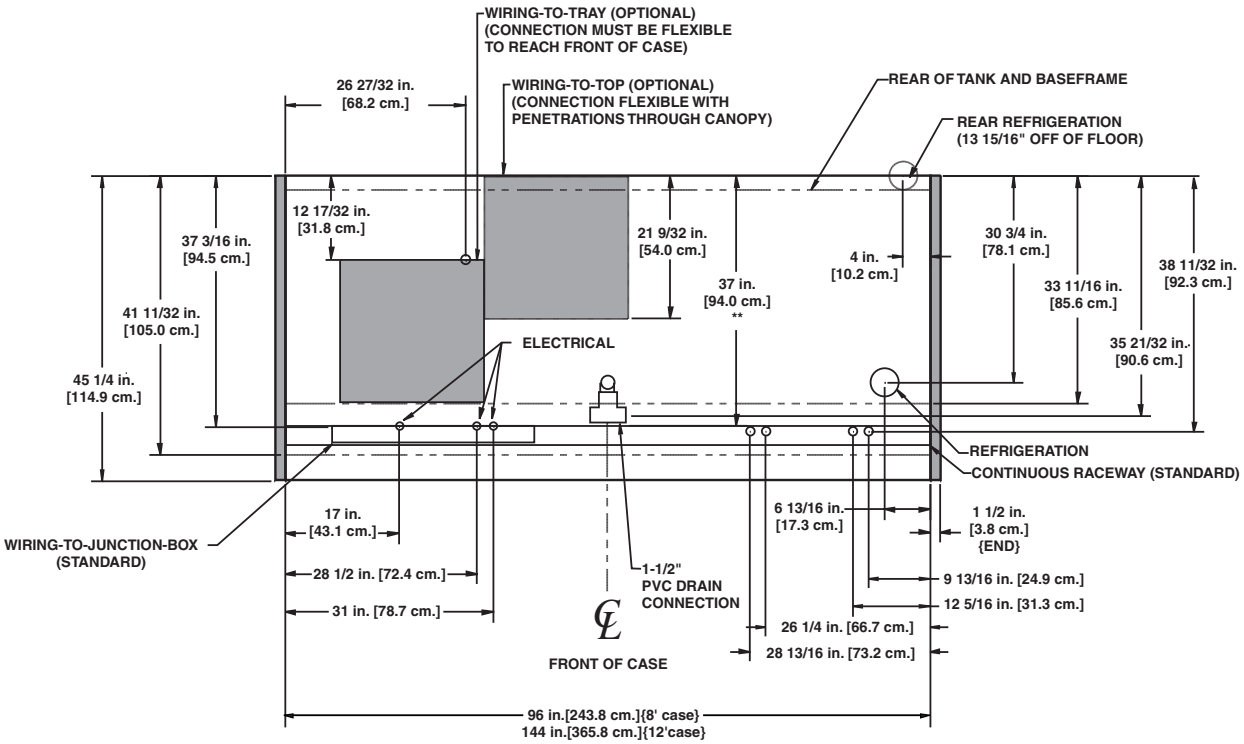


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22", & 24"





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22", & 24"

Multi-Deck Frozen Food Merchandiser

O5Z - 6', 8', & 12'

Electrical Data

Model		Fans per Case				Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
		Pri.[1]	Sec.	Amb.	Total	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O5Z	6'	4	2	2	8	4.56	280	2.04	187	2.25[2]	270	9.99[3]	3600	11.53[3]	4794
	8'	5	3	2	10	5.70	352	2.55	233	3.10[2]	344	13.32[3]	4800	15.37[3]	6390
	12'	7	4	3	14	7.98	490	3.57	327	4.68[2]	562	20.00[3]	7200	23.06[3]	9585

[1] Pri.=Primary, Sec.=Secondary, Amb.=Ambient

[2] Cases equipped with windowed ends add 1.85 amps per end.

[3] 3 phase load. Figure given is maximum amps per phase.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O5Z	6'	0.57	68	1.71	205
	8'	0.57	68	1.71	205
	12'	0.77	92	2.31	277

Air Defrost Option

Model		Defrost Heaters 120 Volts Amps	Defrost Heaters 120 Volts Watts
O5Z	6'	- - -[4]	- - -
	8'	6.69	803
	12'	9.20	1104

[4] NOTE: --- not an option on this case model.

Guidelines & Control Settings

Model	BTUH/ft[5]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM) Pri.	Sec.	Amb.
O5Z	1840	-18	3-5	-5	0	0	650	425	275

[5] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[6] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O5Z	2	13 - 15	34	50	- - -	- - -	24	60	50	50

Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.

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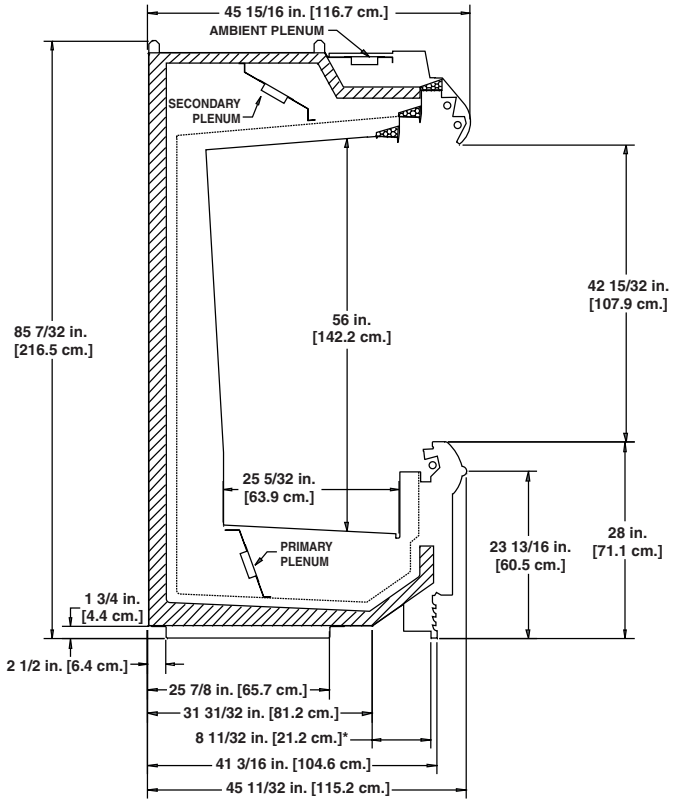
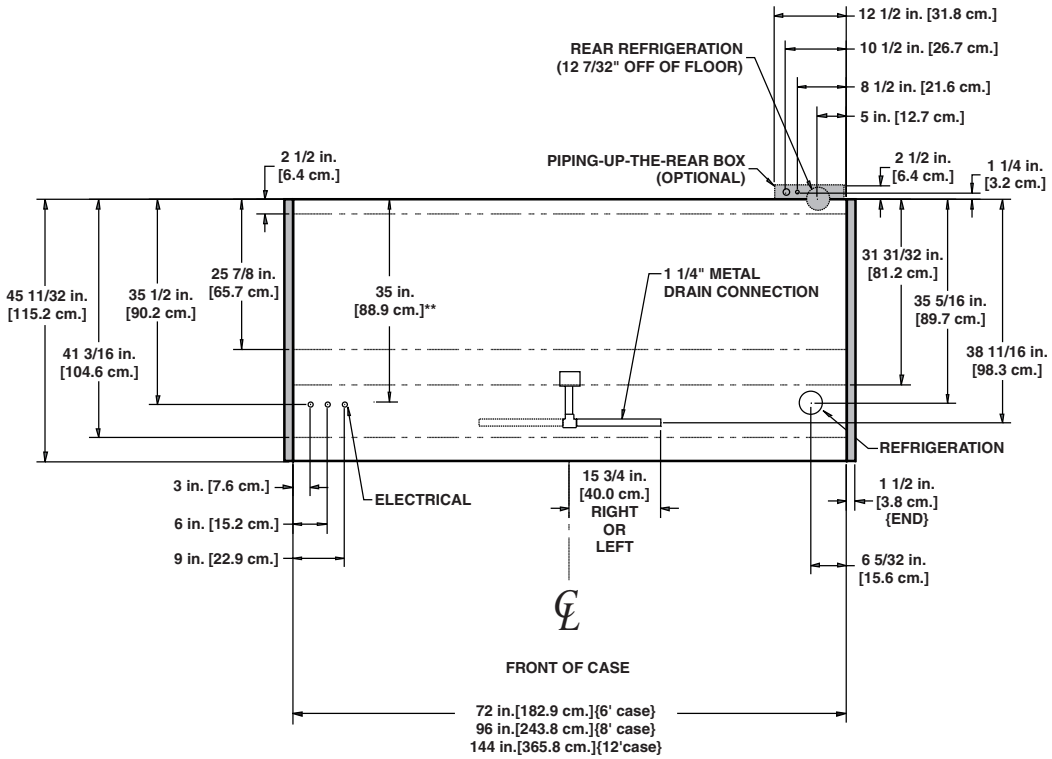




NOTES:

* STUB-UP AREA

** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 4" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 1 1/8", LIQUID LINE - 5/8"
- AVAILABLE SHELF SIZES: 18" & 22"

Narrow Multi-Deck Deli/Meat Merchandiser

ONHM - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONHM	6'	2	1.00	60	0.60	40	- - -[1]	- - -	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	- - -	- - -	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	- - -	- - -	5.77	1200	6.67	1600

[1] NOTE: --- not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONHM	6'	0.57	68	3.90	468
	8'	0.57	68	3.90	468
	12'	0.77	92	5.84	701

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ONHM	27"	1440	17	6-8	30	34	41	340
	31" & 33"	1340	17	6-8	30	34	41	340

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

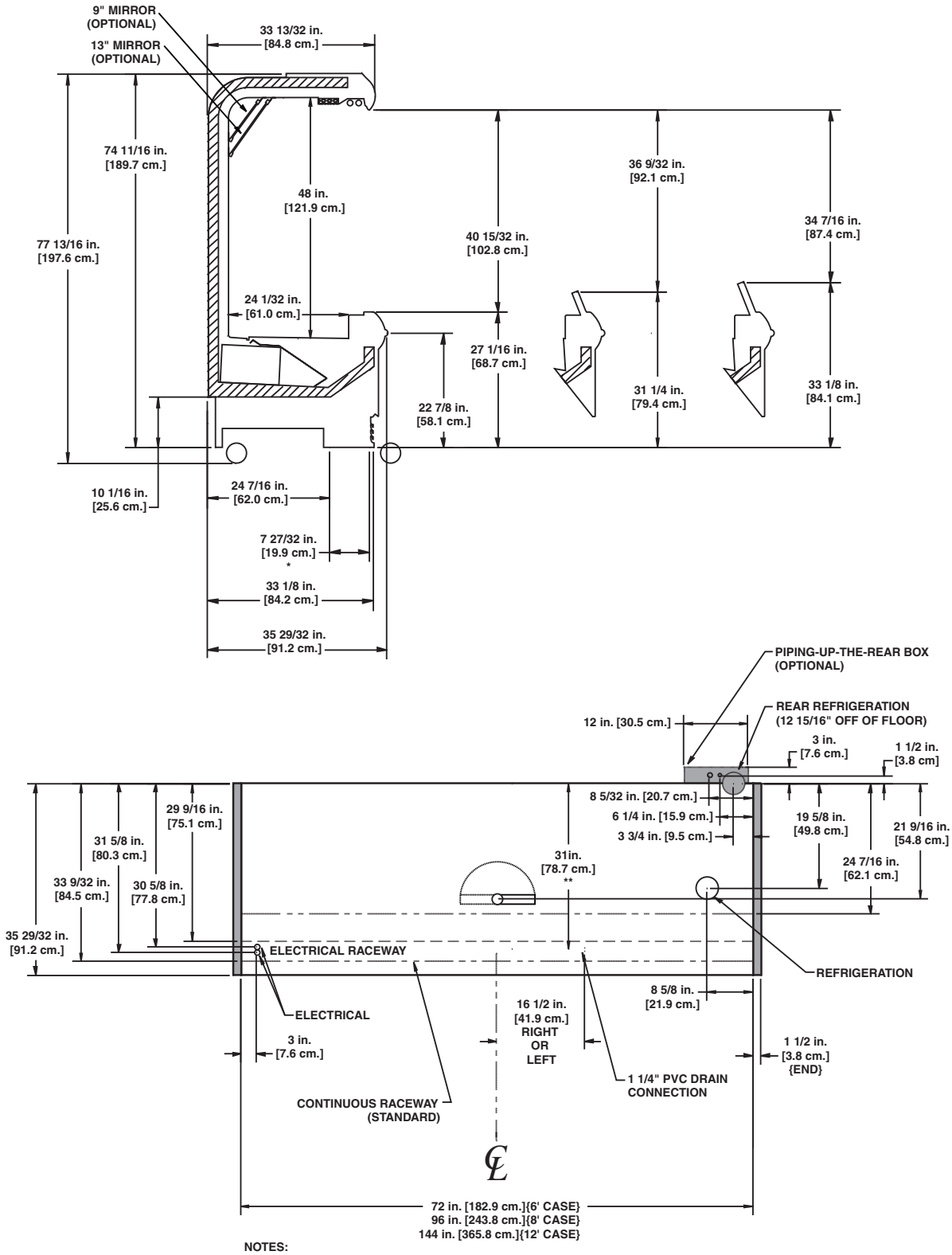
Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONHM	4	6 - 8	35	47	45	47	26	45	45	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.



NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", & 20"

Multi-Deck Deli/Meat Merchandiser

OHM - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OHM	6'	2	1.00	60	1.00	34	0.40	48	2.88	600	3.33	798
	8'	3	1.50	90	1.50	51	0.58	70	3.85	800	4.44	1065
	12'	4	2.00	120	2.00	69	0.83	100	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHM	6'	0.57	68	3.90	468
	8'	0.57	68	3.90	468
	12'	0.77	92	5.84	701

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OHM	27"	1475	12	6-8	25	33	35	350
	27"	1448	17	6-8	28	35	38	350
	31" & 33"	1341	17	6-8	28	34	37	350

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

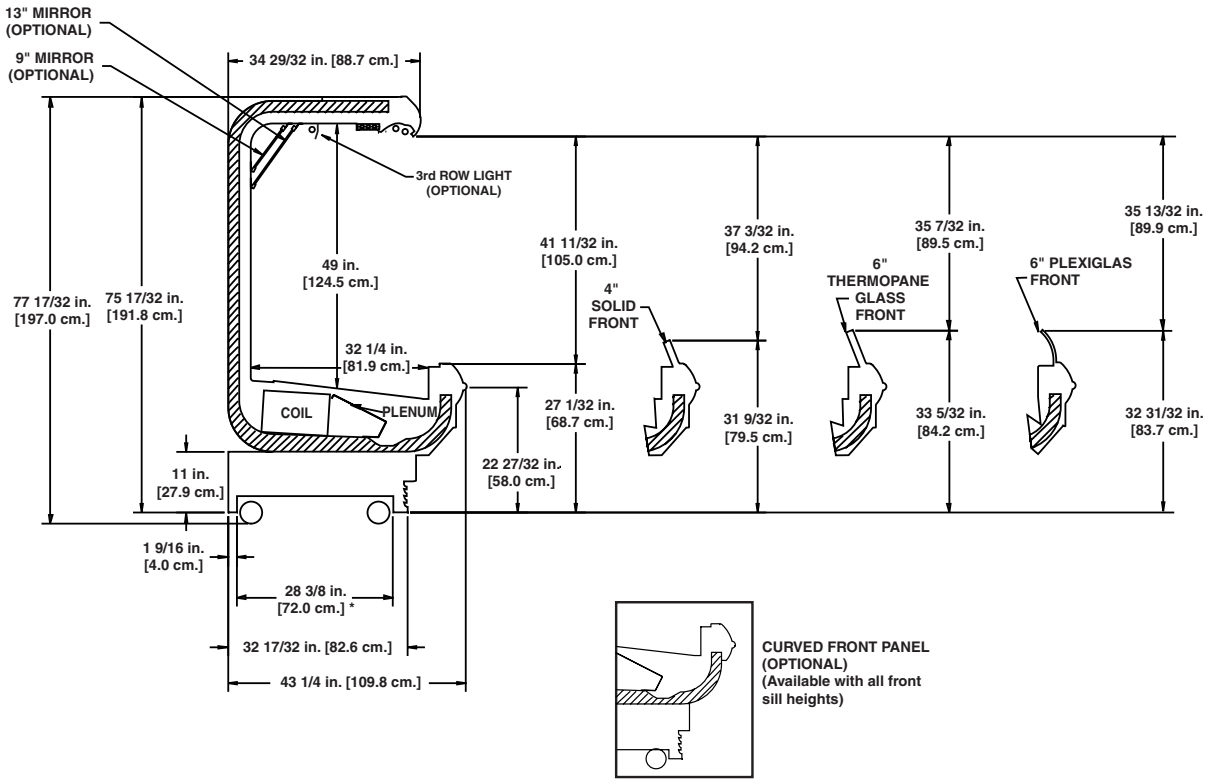
Defrost Controls

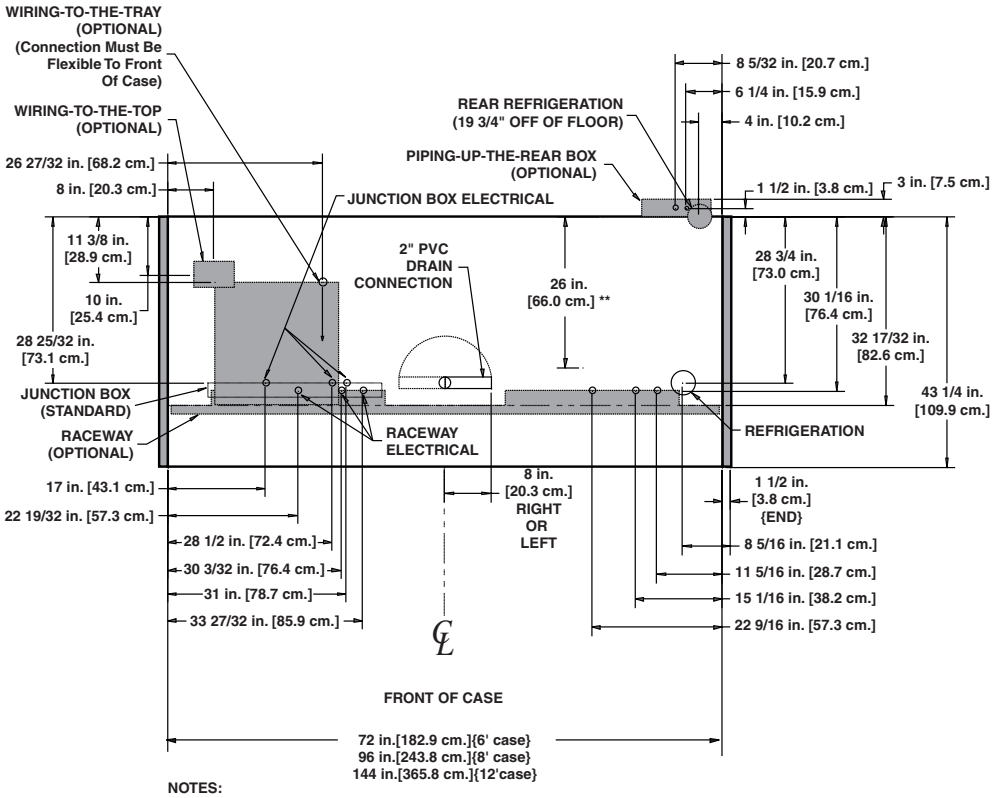
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OHM	3	6 - 8	35	47	45	47	26	45	45	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
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- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", & 20"

High Multi-Deck Deli/Meat Merchandiser

OHMH- 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OHMH	6'	3	1.50	90	0.90	60	0.80	96	2.88	600	3.33	798
	8'	4	2.00	120	1.20	80	1.15	138	3.85	800	4.44	1065
	12'	5	2.50	150	1.50	100	1.67	200	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts		Maximum Lighting 120 Volts	
		Amps	Watts	Amps	Watts
OHMH	6'	0.57	68	4.47	536
	8'	0.57	68	4.47	536
	12'	0.77	92	6.61	793

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OHMH	27"	1550	12	6-8	26	33	37	330
	27"	1435	17	6-8	29	36	41	330
	31" & 33"	1340	17	6-8	29	34	38	330

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

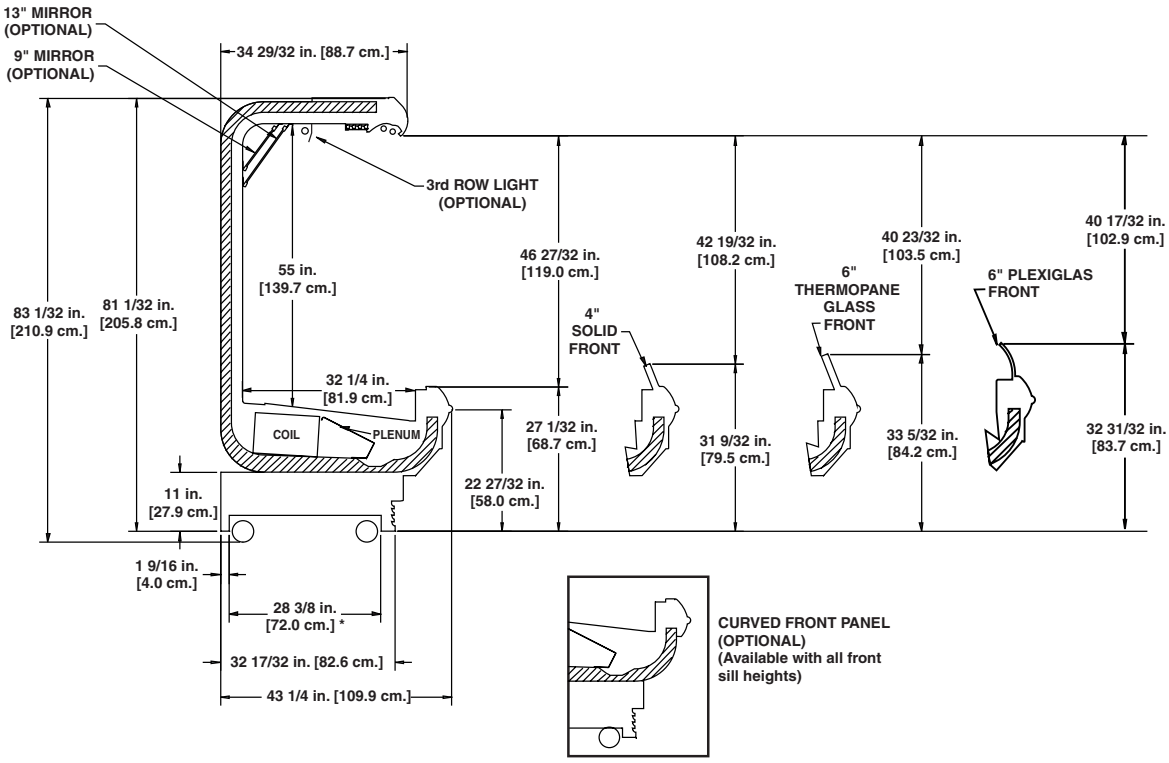
Defrost Controls

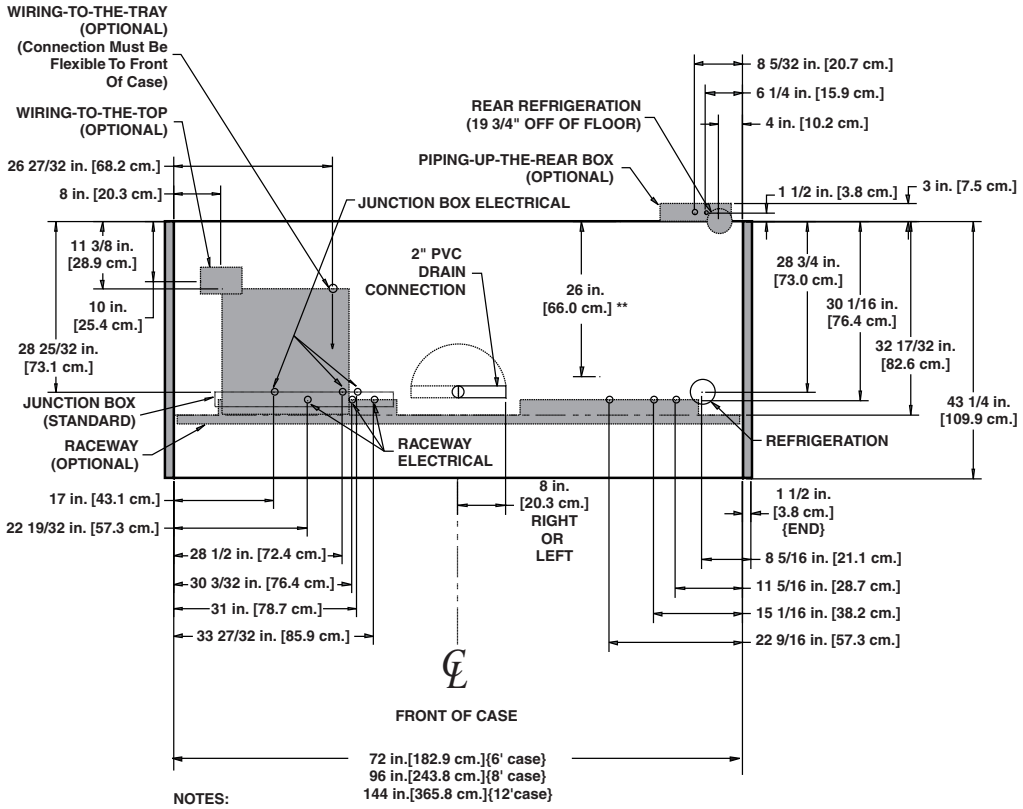
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OHMH	4	6 - 8	35	47	45	47	26	45	45	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", & 20"

Narrow Multi-Deck Produce Merchandiser

ONHP - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONHP	6'	2	1.00	60	0.60	40	- - -[1]	- - -	2.88	600	3.33	798
	8'	3	1.50	90	0.90	60	- - -	- - -	3.85	800	4.44	1065
	12'	4	2.00	120	1.20	80	- - -	- - -	5.77	1200	6.67	1600

[1] NOTE: --- not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONHP	6'	0.57	68	3.90	468
	8'	0.57	68	3.90	468
	12'	0.77	92	5.84	701

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft^2	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ONHP Cut Produce	27"	1310	22	6-8	32	38	45	360
ONHP Bulk Produce	27"	930	27	6-8	36	42	48	360

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

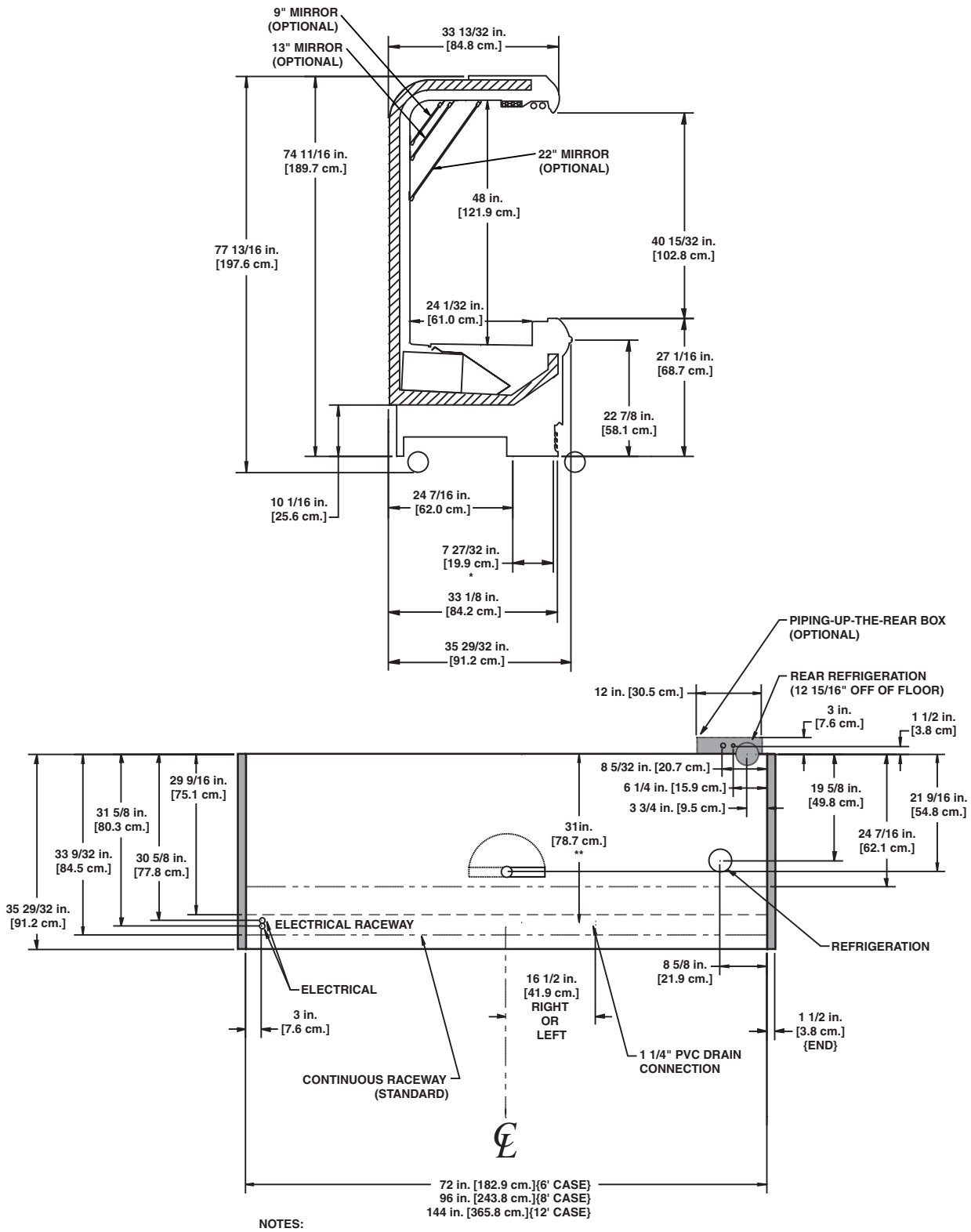
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONHP	3	6 - 8	35	47	45	47	- - -[4]	- - -	45	45

[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.



NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", & 20"

Multi-Deck Produce Merchandiser

OHP - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OHP	6'	2	1.00	60	0.64	34	0.40[1]	48	2.88	600	3.33	798
	8'	3	1.50	90	0.96	51	0.58[1]	70	3.85	800	4.44	1065
	12'	4	2.00	120	1.28	69	0.83[1]	100	5.77	1200	6.67	1600

[1] Anti-condensate heater data for reduced (cut produce) temperature option only.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHP	6'	0.57	68	3.90	468
	8'	0.57	68	3.90	468
	12'	0.77	92	5.84	701

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OHP Cut Produce	27"	1215	22	6-8	31	38	45	440
OHP Bulk Produce	27"	855	27	6-8	36	46	48	250

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

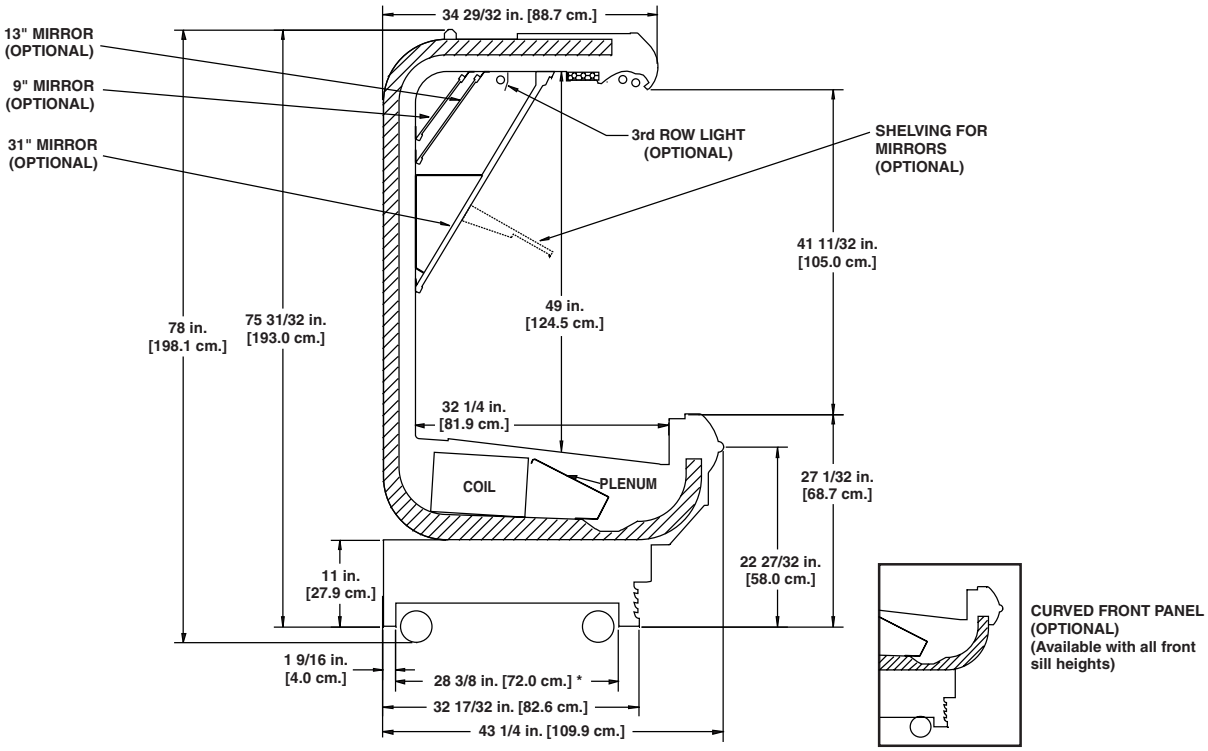
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OHP Cut Produce	3	6 - 8	24	47	45	47	20	45	30	45
OHP Bulk Produce	2	6 - 8	- - -[4]	- - -	45	47	- - -	- - -	56	40

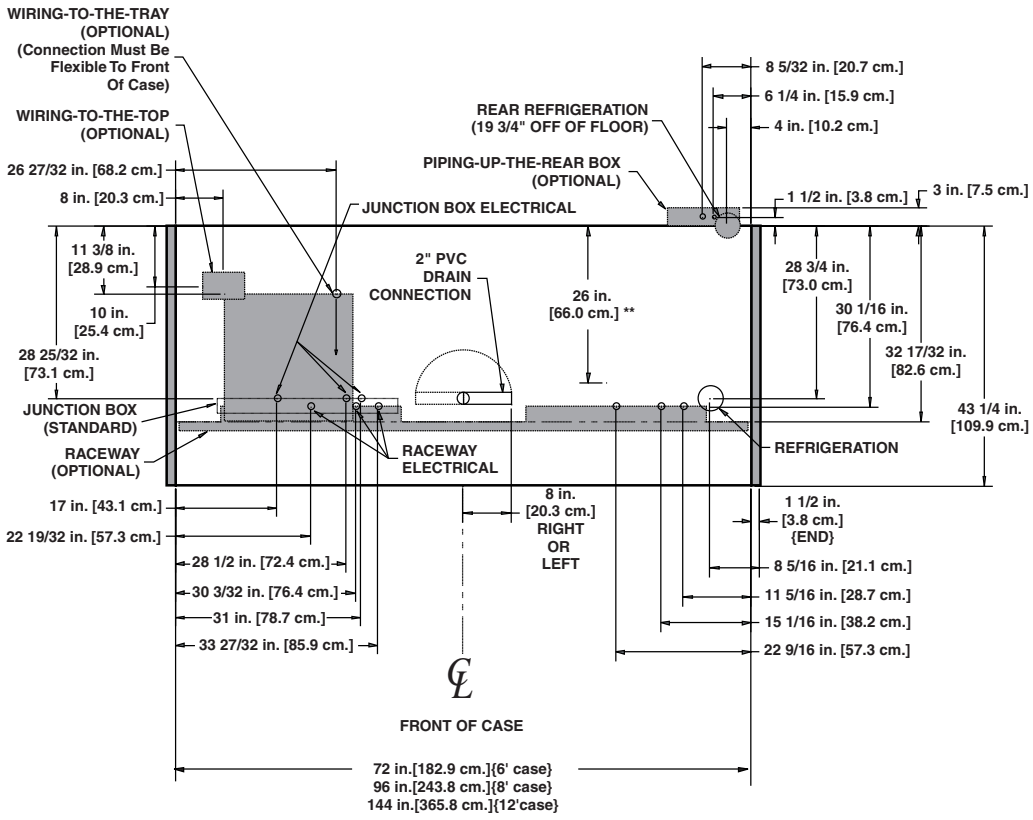
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", & 20"

High Multi-Deck Produce Merchandiser

OHPH- 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OHPH	6'	3	1.50	90	0.90	60	0.80	96	2.88	600	3.33	798
	8'	4	2.00	120	1.20	80	1.15	138	3.85	800	4.44	1065
	12'	5	2.50	150	1.50	100	1.67	200	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHPH	6'	0.57	68	4.47	536
	8'	0.57	68	4.47	536
	12'	0.77	92	6.61	793

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OHPH	27"	1460	17	6-8	30	37	45	315

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

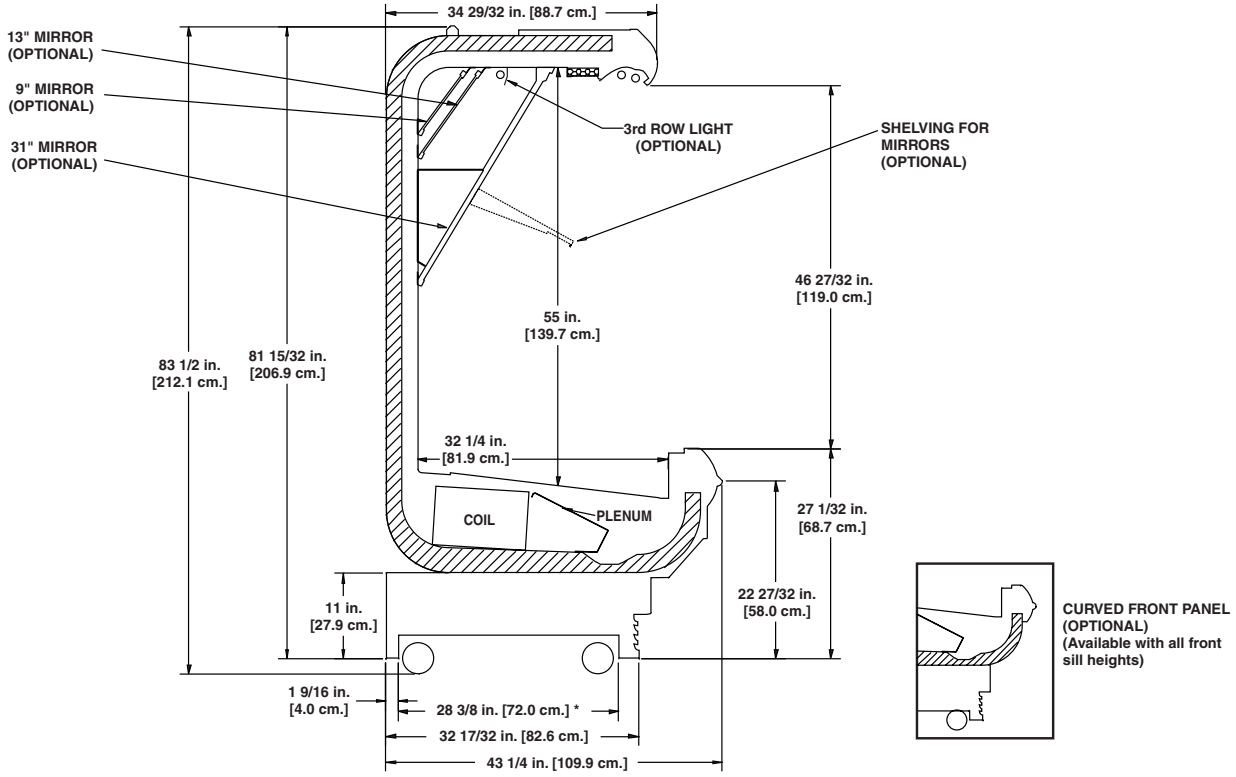
Defrost Controls

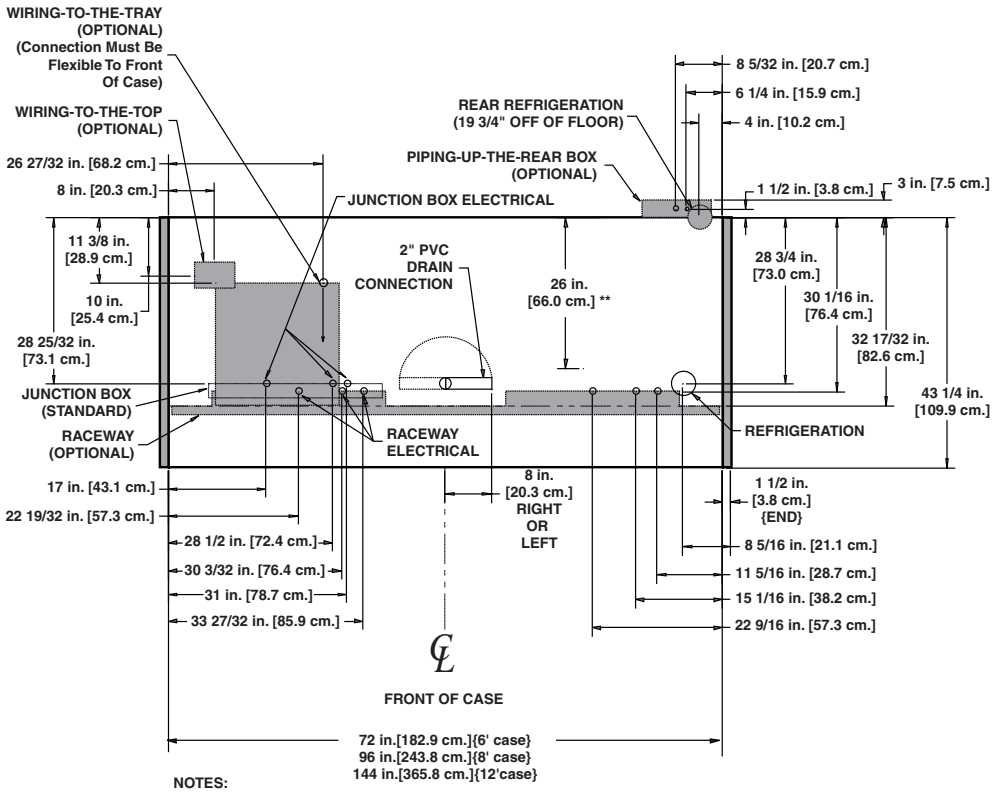
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OHPH	3	6 - 8	35	47	45	47	26	45	50	45

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", & 20"

Narrow Multi-Deck Produce/Dairy/Deli/Meat Merchandiser

ONU- 4'/47" & 6'/71"

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONU	4'/47"	2	1.00	60	1.00	34	- - -[1]	- - -	1.92	400	2.22	532
	6'/71"	3	1.50	90	1.50	51	- - -	- - -	2.88	600	3.33	798

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONU	4'/47"	0.57	68	2.06	247
	6'/71"	0.77	92	3.90	468

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ONU	21", 27"	1450	17	6-8	30	34	40	310

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

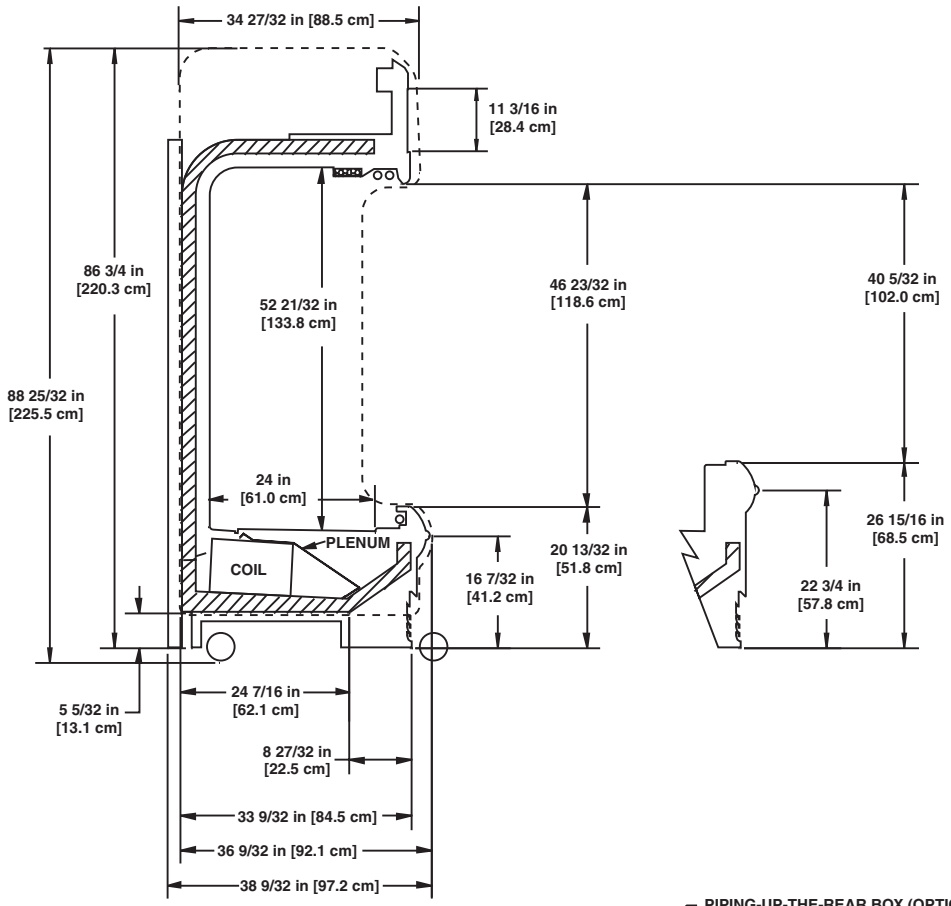
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONU	4	6 - 8	35	47	45[4]	47[4]	25	45	- - -	- - -

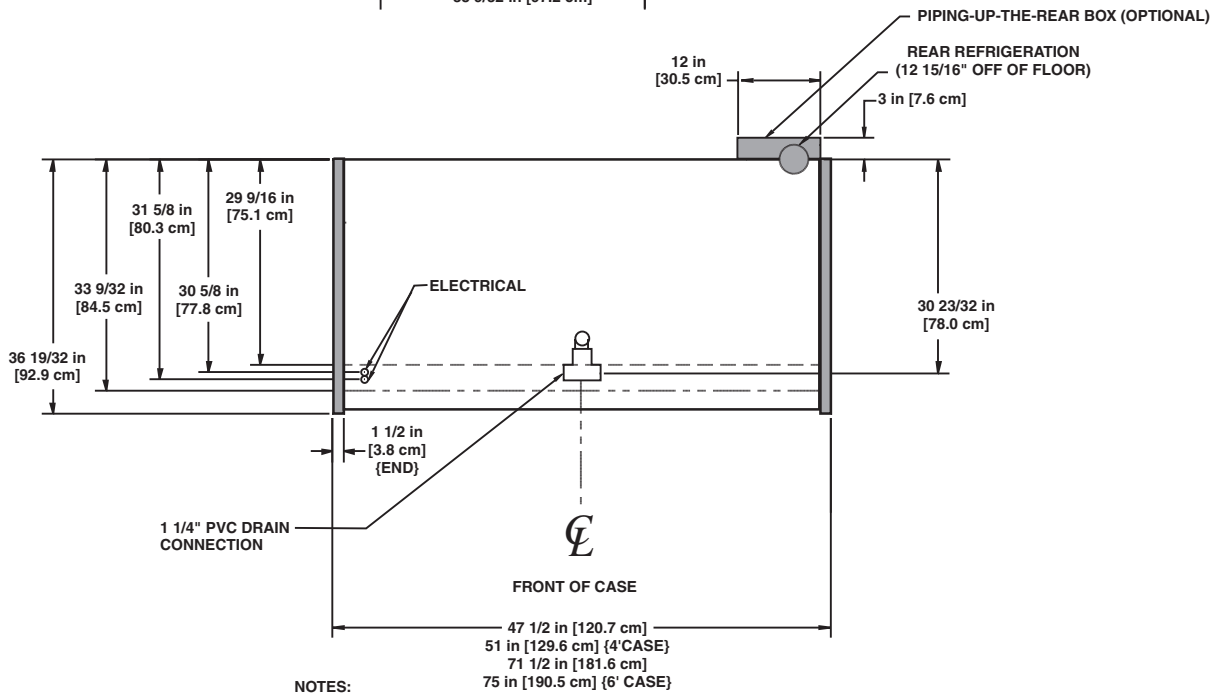
[4] Timed Off Defrost not recommended for Fresh Meat application.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

Roll-In Rear Load Dairy Merchandiser

ORDR - 8’ & 12’ dairy

Electrical Data

Model		Fans per Case		Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
		Discharge	Return	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ORDR	8’	3	4	2.95	157	1.29	104	- - -[1]	- - -	3.85	800	4.44	1066
	12’	4	6	4.16	220	1.82	147	- - -	- - -	5.77	1200	6.67	1600

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ORDR	8’	0.57	68	3.90	468
	12’	0.77	92	5.84	701

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ORDR[4]	13 13/16”	739	17	6-8	28	40	44	310

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

[4] Back-up coils with a capacity of 1666 BTUH/ft at a suction temperature of 20°F must be used for each case to refrigerate the area immediately behind the line-up to a depth of 10’. If the cooler is longer than the ORDR line-up and deeper than 10’, other coils are needed to refrigerate the balance of the cooler area. Each auxiliary coil should be centered on each case and set back a distance of 3’ to 5’ from the back of the ORDR

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ORDR	4	6 - 8	30	47	30	47	26	45	- - -	- - -

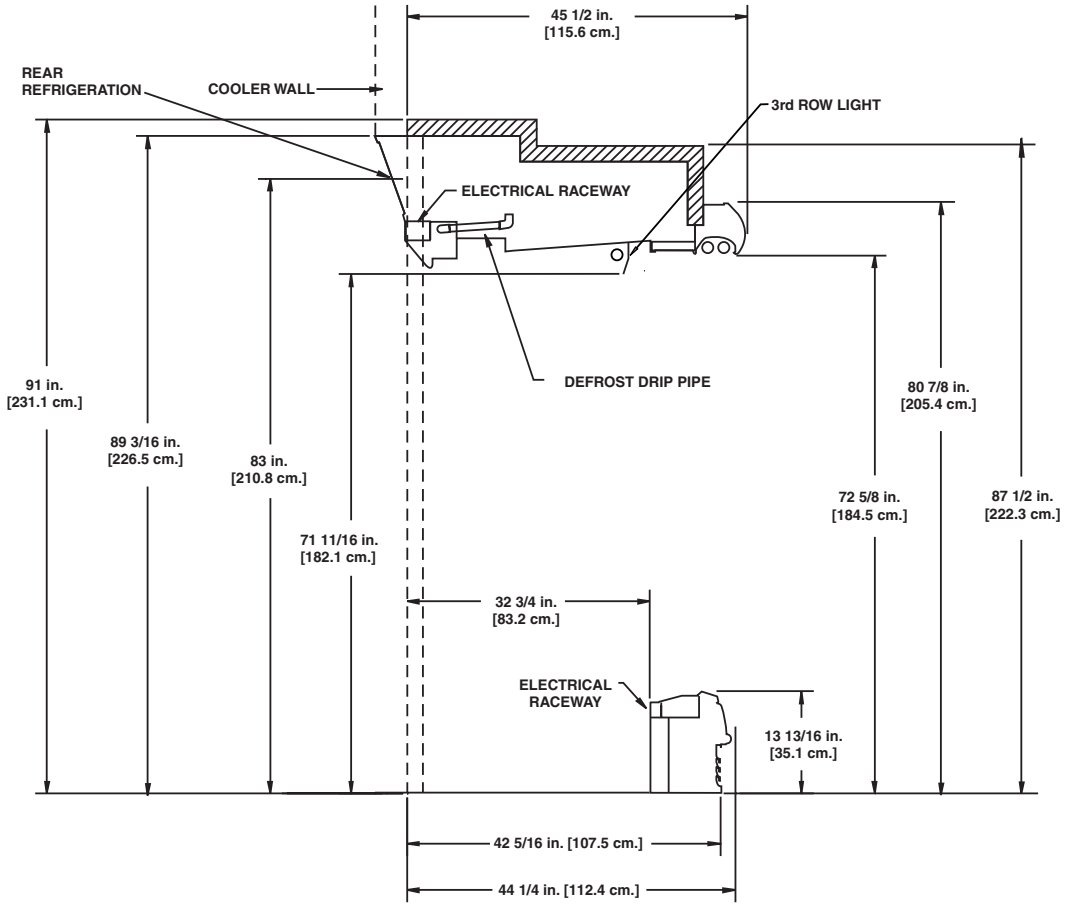
Medium Temperature Defrost Schedule

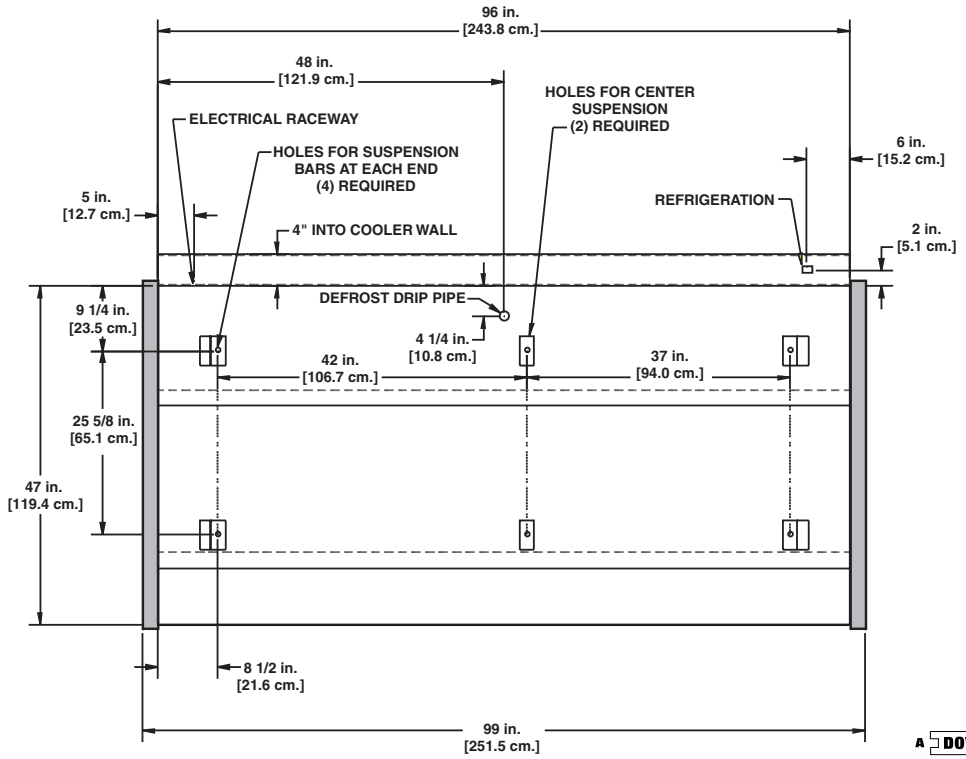
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

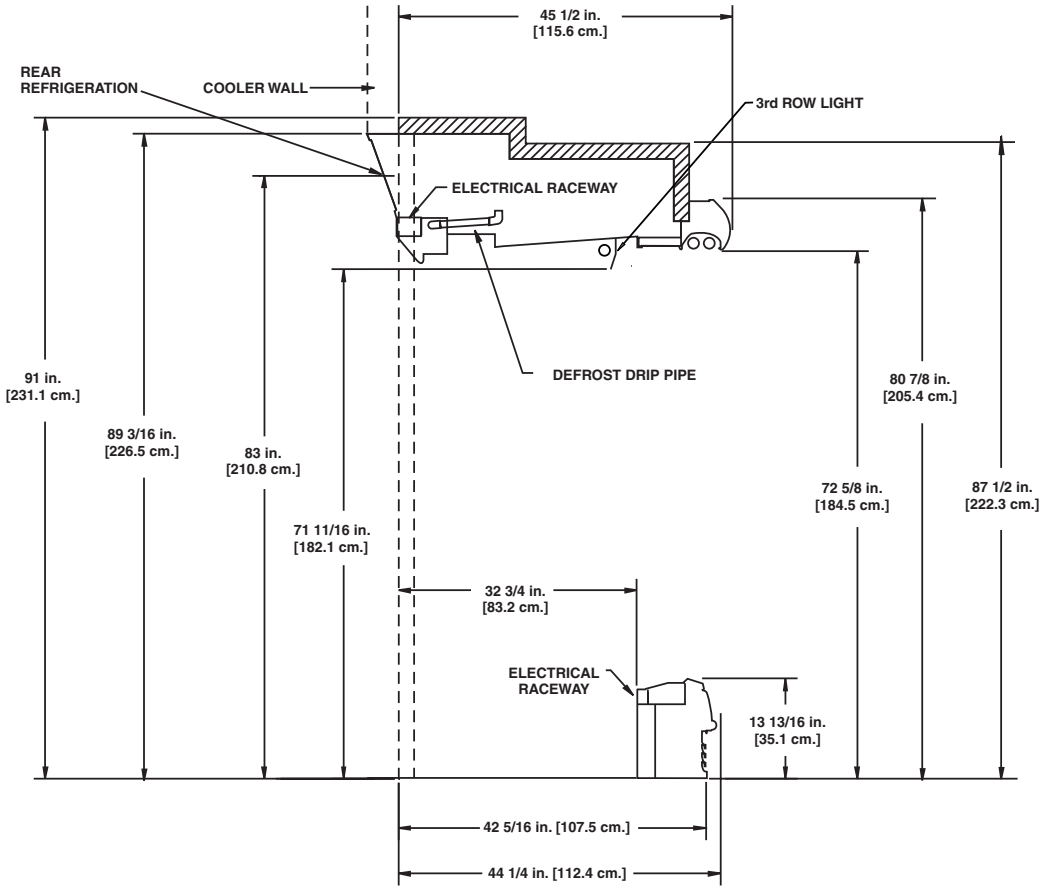
All measurements are taken per CRMA specifications.

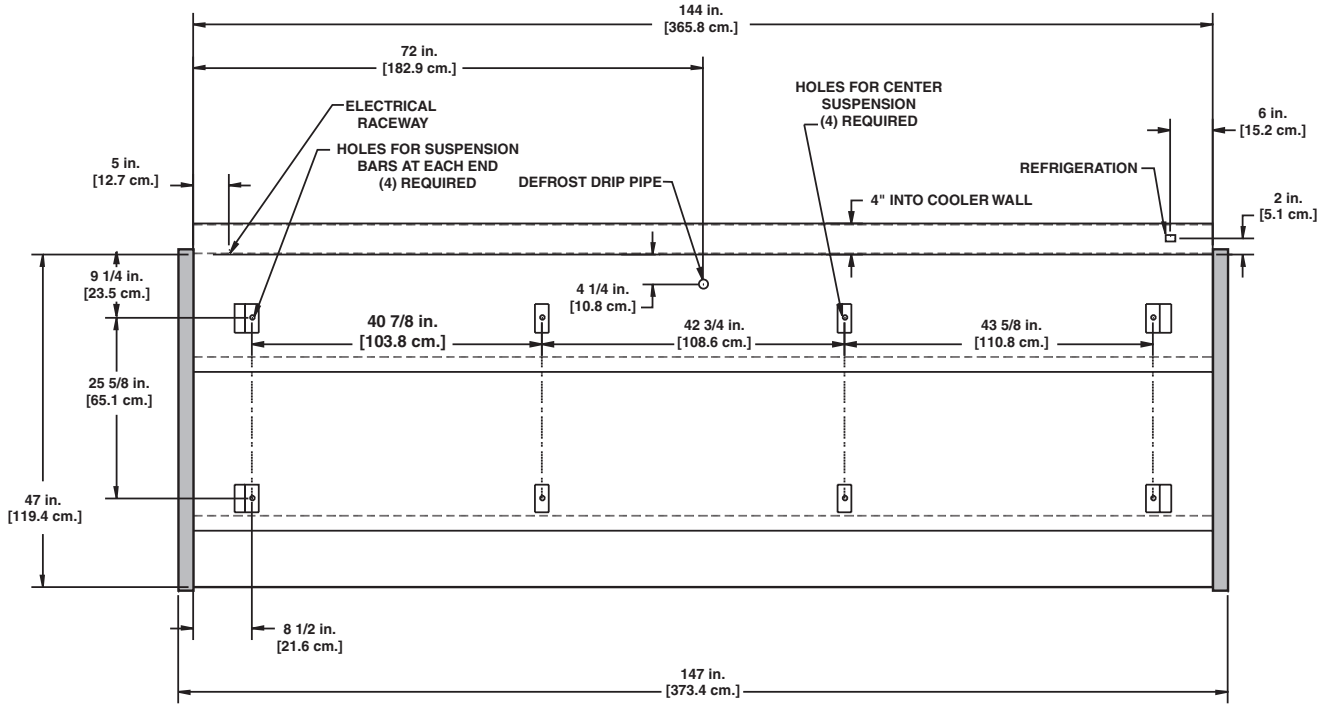
Hill PHOENIX EXCELLENCE™

A DOVER DIVERSIFIED COMPANY


45 1/2 in.
[115.6 cm.]
REAR
REFRIGERATION
COOLER WALL
3rd ROW LIGHT
ELECTRICAL RACEWAY
DEFROST DRIP PIPE
91 in.
[231.1 cm.]
89 3/16 in.
[226.5 cm.]
83 in.
[210.8 cm.]
71 11/16 in.
[182.1 cm.]
80 7/8 in.
[205.4 cm.]
72 5/8 in.
[184.5 cm.]
87 1/2 in.
[222.3 cm.]
32 3/4 in.
[83.2 cm.]
ELECTRICAL
RACEWAY
13 13/16 in.
[35.1 cm.]
42 5/16 in. [107.5 cm.]
44 1/4 in. [112.4 cm.]


96 in.
[243.8 cm.]
48 in.
[121.9 cm.]
HOLES FOR CENTER
SUSPENSION
(2) REQUIRED
ELECTRICAL RACEWAY
HOLES FOR SUSPENSION
BARS AT EACH END
(4) REQUIRED
6 in.
[15.2 cm.]
5 in.
[12.7 cm.]
REFRIGERATION
4" INTO COOLER WALL
2 in.
[5.1 cm.]
DEFROST DRIP PIPE
9 1/4 in.
[23.5 cm.]
4 1/4 in.
[10.8 cm.]
42 in.
[106.7 cm.]
37 in.
[94.0 cm.]
25 5/8 in.
[65.1 cm.]
47 in.
[119.4 cm.]
8 1/2 in.
[21.6 cm.]
99 in.
[251.5 cm.]


45 1/2 in.
[115.6 cm.]
REAR
REFRIGERATION
COOLER WALL
3rd ROW LIGHT
ELECTRICAL RACEWAY
DEFROST DRIP PIPE
91 in.
[231.1 cm.]
89 3/16 in.
[226.5 cm.]
83 in.
[210.8 cm.]
71 11/16 in.
[182.1 cm.]
80 7/8 in.
[205.4 cm.]
72 5/8 in.
[184.5 cm.]
87 1/2 in.
[222.3 cm.]
32 3/4 in.
[83.2 cm.]
ELECTRICAL
RACEWAY
13 13/16 in.
[35.1 cm.]
42 5/16 in. [107.5 cm.]
44 1/4 in. [112.4 cm.]


144 in.
[365.8 cm.]
72 in.
[182.9 cm.]
ELECTRICAL
RACEWAY
HOLES FOR SUSPENSION
BARS AT EACH END
(4) REQUIRED
DEFROST DRIP PIPE
HOLES FOR CENTER
SUSPENSION
(4) REQUIRED
6 in.
[15.2 cm.]
5 in.
[12.7 cm.]
REFRIGERATION
4" INTO COOLER WALL
2 in.
[5.1 cm.]
9 1/4 in.
[23.5 cm.]
4 1/4 in.
[10.8 cm.]
40 7/8 in.
[103.8 cm.]
42 3/4 in.
[108.6 cm.]
43 5/8 in.
[110.8 cm.]
25 5/8 in.
[65.1 cm.]
47 in.
[119.4 cm.]
8 1/2 in.
[21.6 cm.]
147 in.
[373.4 cm.]

Multi-Deck Deli Back Bar Merchandiser

BB- 6' & 8'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Auxiliary Fans (Optional) 120 Volts Amps	Auxiliary Fans (Optional) 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
BB	6'	4	1.80	68	0.60	44	1.60	92	- - -[1]	- - -	2.88	600	3.33	798
	8'	5	2.25	85	0.75	55	1.60	92	- - -	- - -	3.85	800	4.44	1065

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
BB	6'	0.57	68	2.76	331
	8'	0.57	68	2.76	331

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
BB	1290	17	6-8	32	36	45	325

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

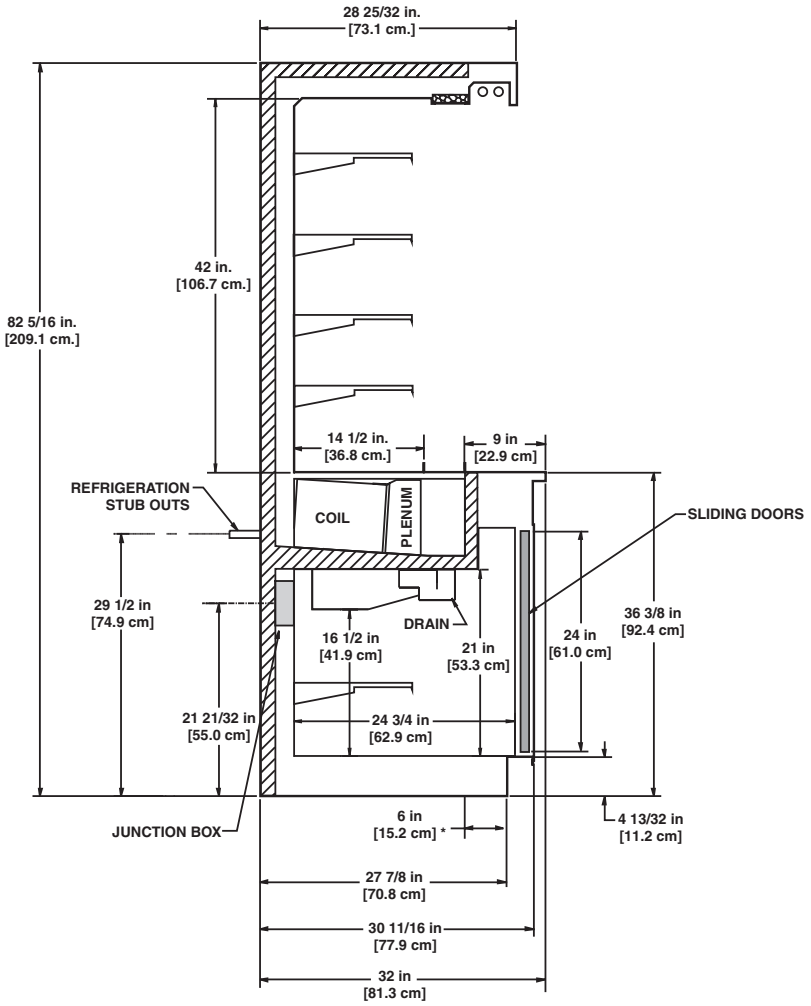
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
BB	4	6 - 8	30	47[4]	45	47[4]	- - -	- - -	45	45

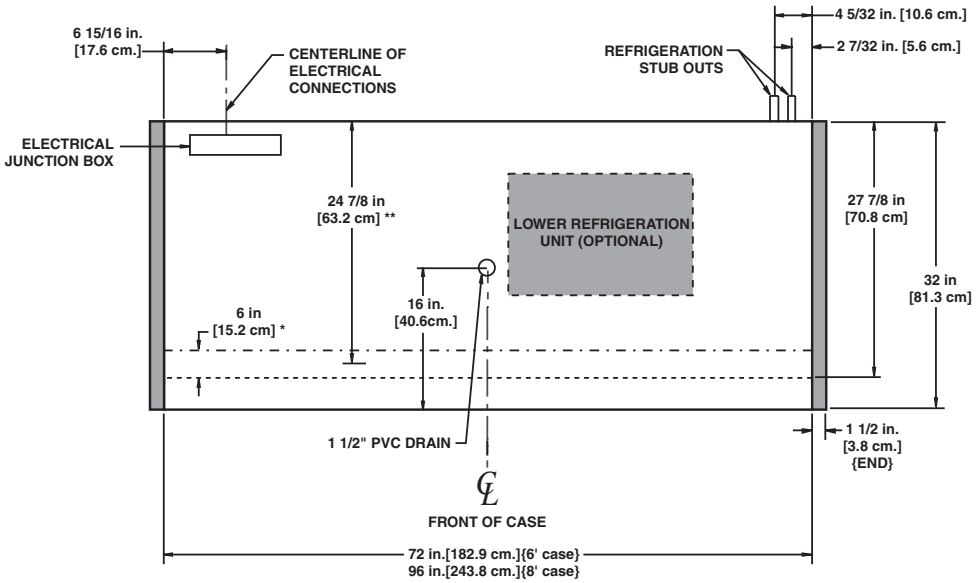
[4] Termination Temperature measured at the honeycomb.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- DIRECT EXPANSION REFRIGERATION LINES: SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- SECONDARY COOLANT REFRIGERATION LINES: SUCTION LINE - 7/8", LIQUID LINE - 7/8"
- AVAILABLE SHELF SIZES: UPPER SECTION 12" & 14"; LOWER SECTION 22"

Reach-in Door Merchandisers

Notes:

- *Average product temperatures are calculated as defined by ASHRAE* standards and should not be used to determine application.*
- *Cases meet FDA** *Food Code 1997 product temperature requirements (41°F or less) for hazardous foods when used for their prescribed applications.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*

* *American Society of Heating Refrigeration and Air Conditioning Engineers*

** *Food and Drug Administration*

Narrow Glass Door Reach-in Beverage Merchandiser

ONRB - 2, 3, 4, & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONRB	2-door	2	1.00	60	0.64	34	2.40	288	4.39	914	5.06	1215
	3-door	3	1.50	90	0.96	51	3.28	394	4.96	1032	5.71	1370
	4-door	4	2.00	120	1.28	69	4.33	520	6.51	1355	7.55	1813
	5-door	5	2.50	150	1.60	85	5.30	636	7.96	1655	9.17	2201

Lighting Data

Model		Typical per Light Row 120 Volts		Maximum Lighting 120 Volts	
		Amps	Watts	Amps	Watts
ONRB	2-door	NA[1]	NA	1.45	174
	3-door	NA	NA	1.94	233
	4-door	NA	NA	2.42	290
	5-door	NA	NA	2.91	349

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONRB[2]	900	22	6-8	32	35	35	460

[2] All data listed is for an ONRB configured with 20" shelves.

[3] BTUH's/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

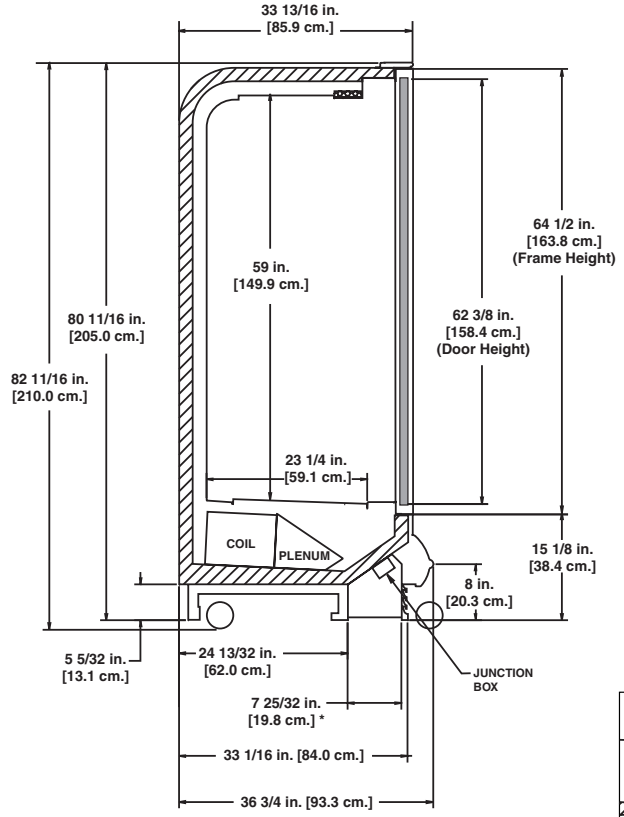
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONRB	1	6 - 8	30	47	45	47	24	45	- - -[5]	- - -

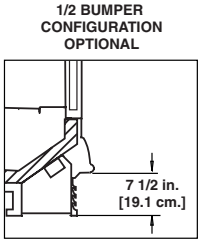
[5] NOTE: - - - not an option on this case model.

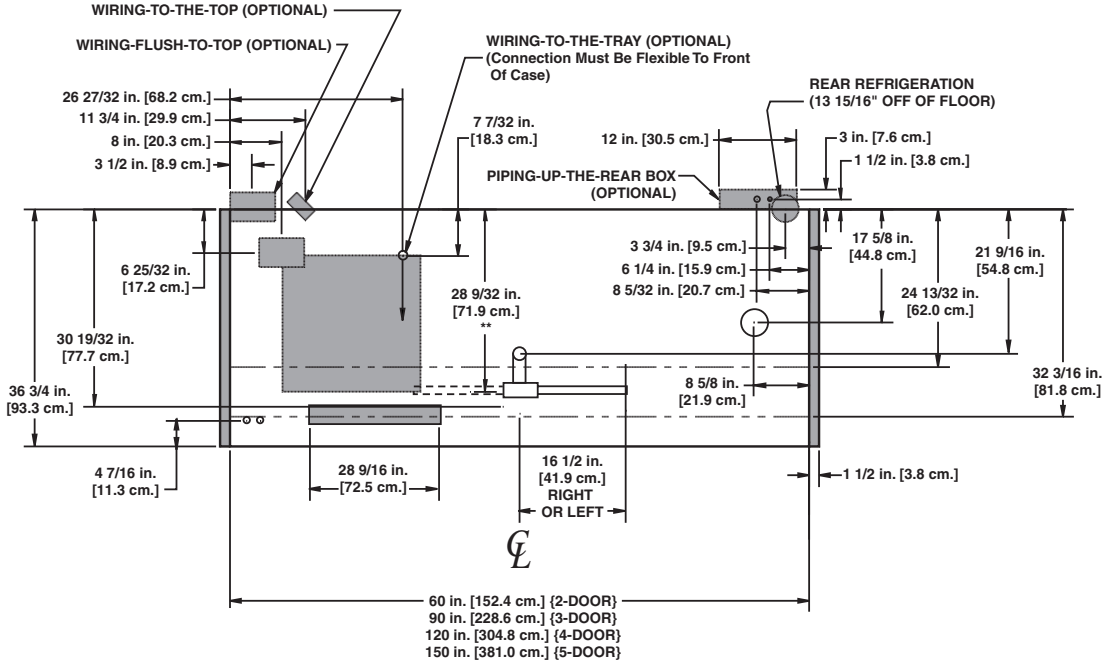
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.







NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", & 22"
  SOLID SHELVES 18", 20", & 22"

High Narrow Glass Door Reach-in Beverage Merchandiser

ONRBH - 2, 3, 4, & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONRBH	2-door	2	1.00	60	0.64	34	2.45	294	4.39	914	5.06	1215
	3-door	3	1.50	90	0.96	51	3.35	402	4.96	1032	5.71	1370
	4-door	4	2.00	120	1.28	69	4.42	530	6.51	1355	7.55	1813
	5-door	5	2.50	150	1.60	85	5.41	649	7.96	1655	9.17	2201

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONRBH	2-door	NA[1]	NA	1.45	174
	3-door	NA	NA	1.94	233
	4-door	NA	NA	2.42	290
	5-door	NA	NA	2.91	349

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONRBH[2]	900	22	6-8	32	35	35	405

[2] All data listed is for an ONRBH configured with 20" shelves.

[3] BTUH's/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

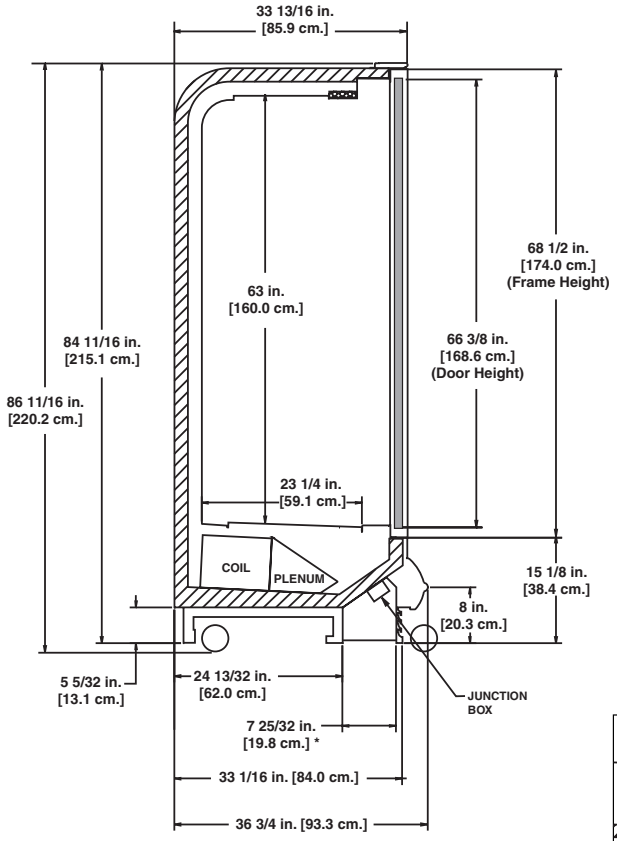
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONRBH	1	6 - 8	30	47	45	47	24	45	- - -[5]	- - -

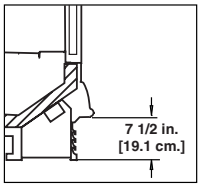
[5] NOTE: - - - not an option on this case model.

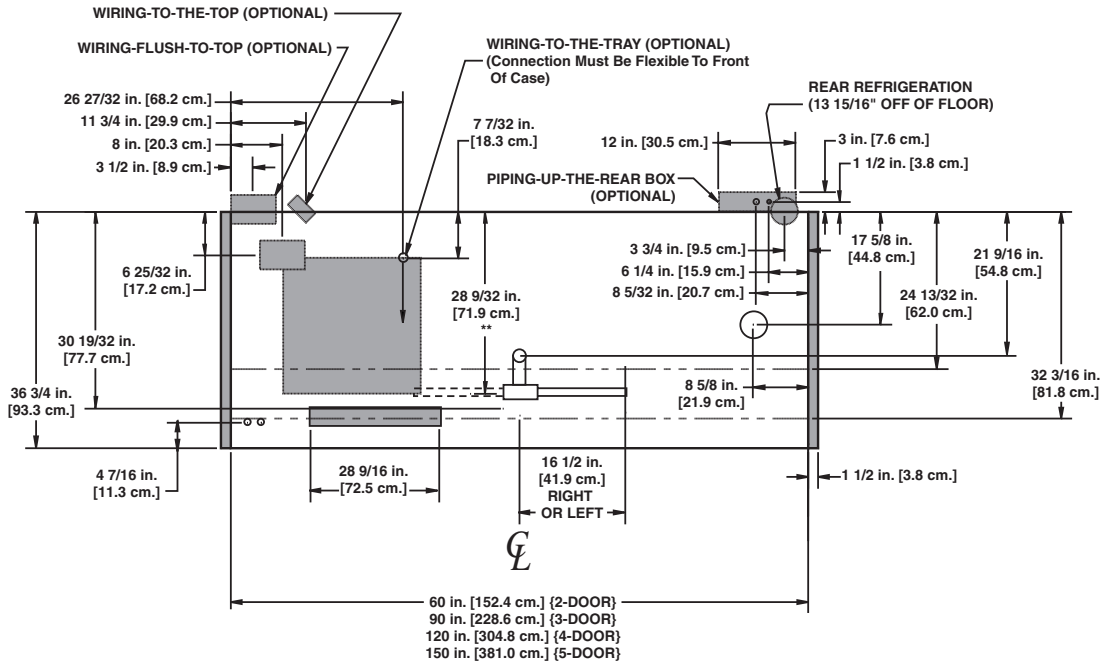
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.







NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", & 22"
  SOLID SHELVES 18", 20", & 22"

Glass Door Reach-in Beverage Merchandiser

ORB - 2, 3, 4, & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ORB	2-door	2	1.00	60	0.64	34	2.40	288	4.39	914	5.06	1215
	3-door	3	1.50	90	0.96	51	3.28	394	4.96	1032	5.71	1370
	4-door	4	2.00	120	1.28	69	4.33	520	6.51	1355	7.55	1813
	5-door	5	2.50	150	1.60	85	5.30	636	7.96	1655	9.17	2201

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ORB	2-door	NA[1]	NA	1.45	174
	3-door	NA	NA	1.94	233
	4-door	NA	NA	2.42	290
	5-door	NA	NA	2.91	349

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ORB	900	22	6-8	27	39	30	380

[2] BTUH's/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

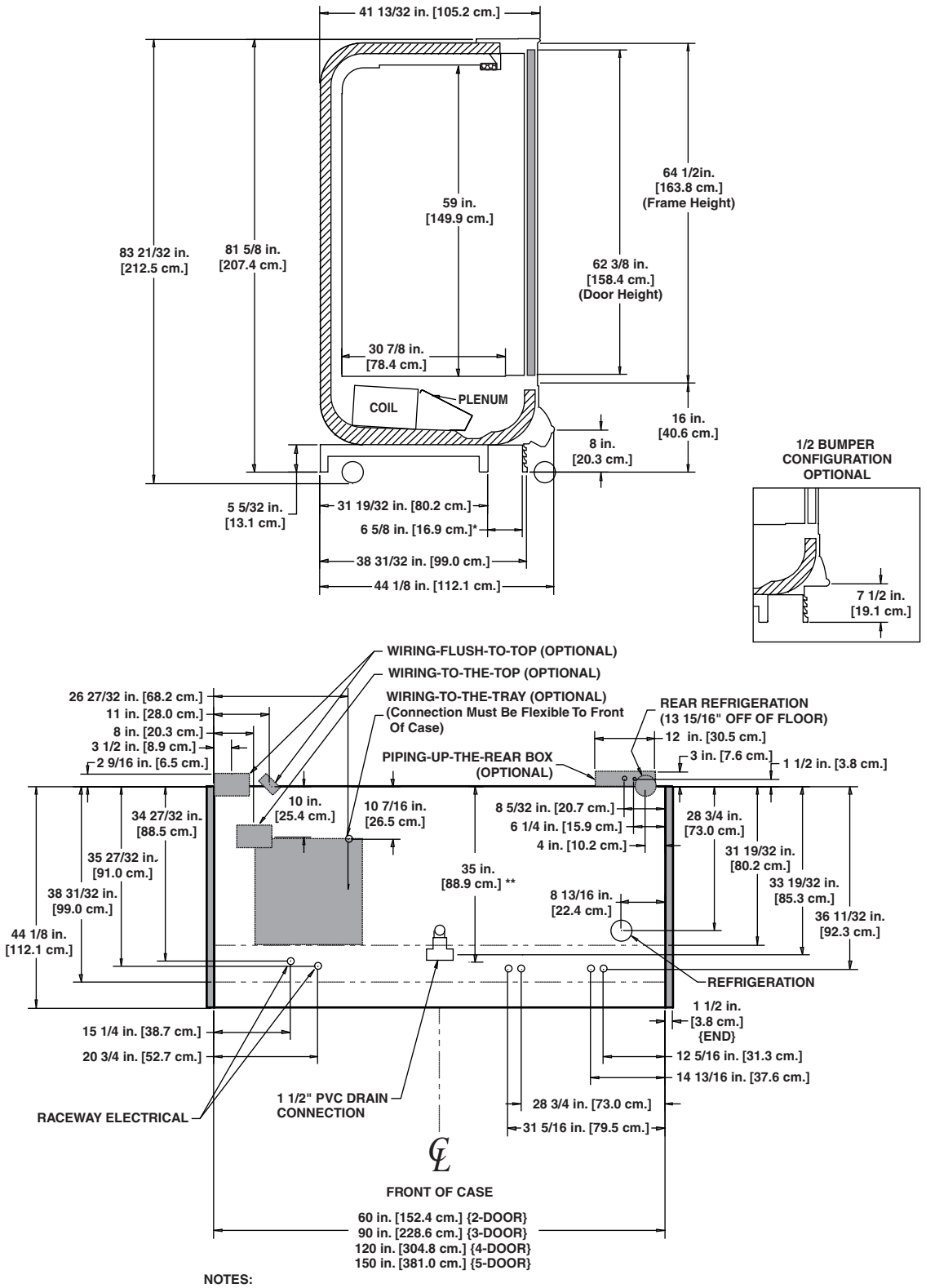
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ORB	1	6 - 8	30	47	45	47	24	45	- - -[4]	- - -

[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22", & 23 1/2" SOLID SHELVES 18", 20", 22", & 24"

High Glass Door Reach-in Beverage Merchandiser

ORBH - 2, 3, 4, & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ORBH	2-door	2	1.00	60	0.64	34	2.45	294	4.39	914	5.06	1215
	3-door	3	1.50	90	0.96	51	3.35	402	4.96	1032	5.71	1370
	4-door	4	2.00	120	1.28	69	4.42	530	6.51	1355	7.55	1813
	5-door	5	2.50	150	1.60	85	5.41	649	7.96	1655	9.17	2201

Lighting Data

Model		Typical per Light Row 120 Volts		Maximum Lighting 120 Volts	
		Amps	Watts	Amps	Watts
ORBH	2-door	NA[1]	NA	1.45	174
	3-door	NA	NA	1.94	233
	4-door	NA	NA	2.42	290
	5-door	NA	NA	2.91	349

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ORBH	900	22	6-8	27	39	30	280

[2] BTUH's/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

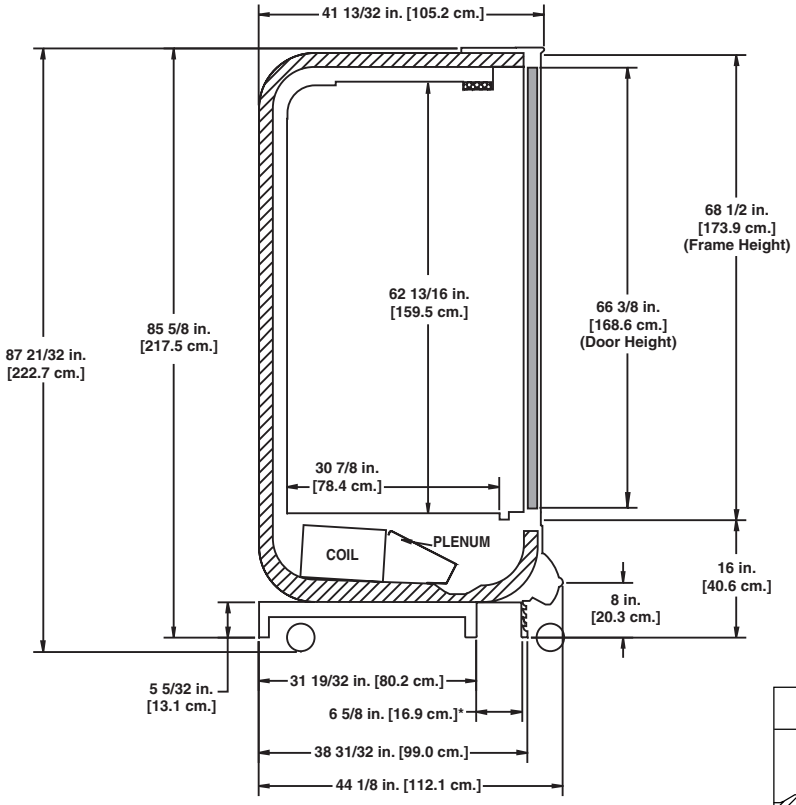
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ORBH	1	6 - 8	30	47	45	47	24	45	- - -[4]	- - -

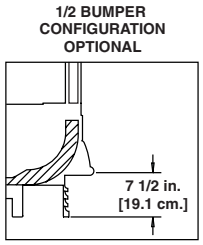
[4] NOTE: - - - not an option on this case model.

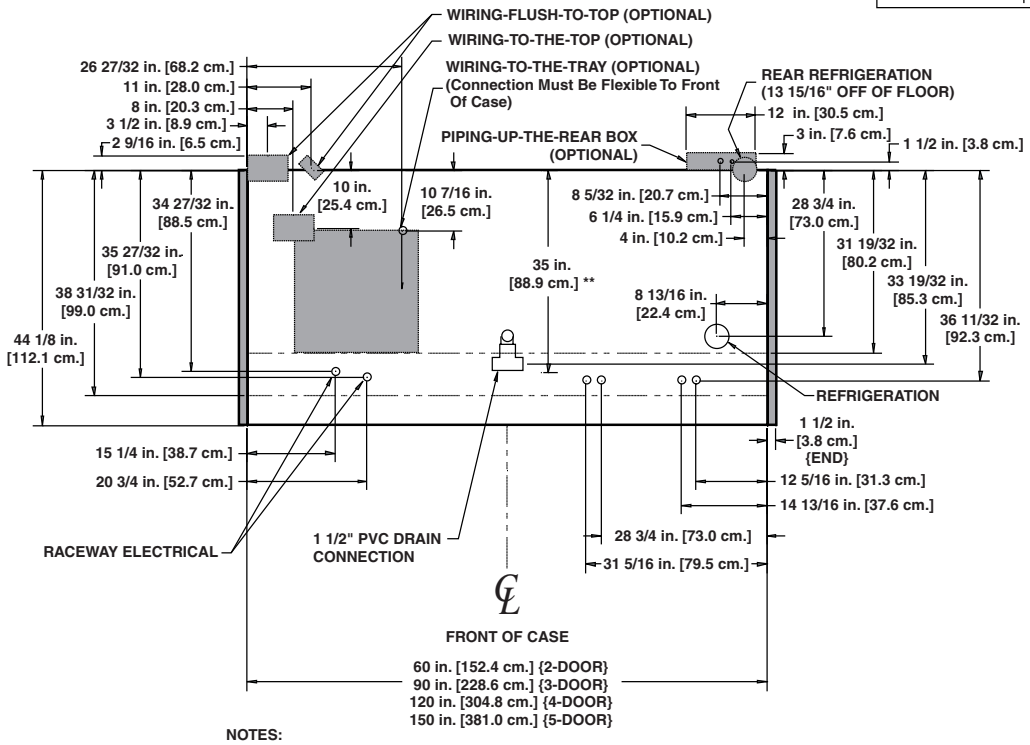
Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.







NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22", & 23 1/2"
  SOLID SHELVES 18", 20", 22", & 24"

Narrow Glass Door Reach-in Frozen Food/Ice Cream Merchandiser
ONRZ - 2, 3, 4, & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONRZ	2-door	2	1.00	60	0.64	34	3.82	458	7.61[1]	2742	8.77[1]	3645
	3-door	3	1.50	90	0.96	51	5.31	637	8.59[1]	3096	9.89[1]	4110
	4-door	4	2.00	120	1.28	69	6.93	832	11.28[1]	4065	13.08[1]	5439
	5-door	5	2.50	150	1.60	85	8.56	1027	13.78[1]	4965	15.88[1]	6603

[1] Note: 3 phase load. Figure given is maximum amps per phase.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONRZ	2-door	NA[2]	NA	1.45	174
	3-door	NA	NA	1.94	233
	4-door	NA	NA	2.42	290
	5-door	NA	NA	2.91	349

[2] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[5]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ONRZ[3] - F[4]	1500	-13	3-5	-2	0	2	460
ONRZ[3] - C[4]	1600	-23	3-5	-12	-10	-8	460

[3] All data listed is for an ONRZ configured with 20" shelves.

[4] F = Frozen food, C = Ice cream.

[5] BTUH's/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[6] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONRZ	1	13 - 15	46	73[7]	- - -[8]	- - -	24	60	- - -	- - -

[7] For cases equipped with CPC case controllers use bi-metallic defrost controls with a setting of 73º F.

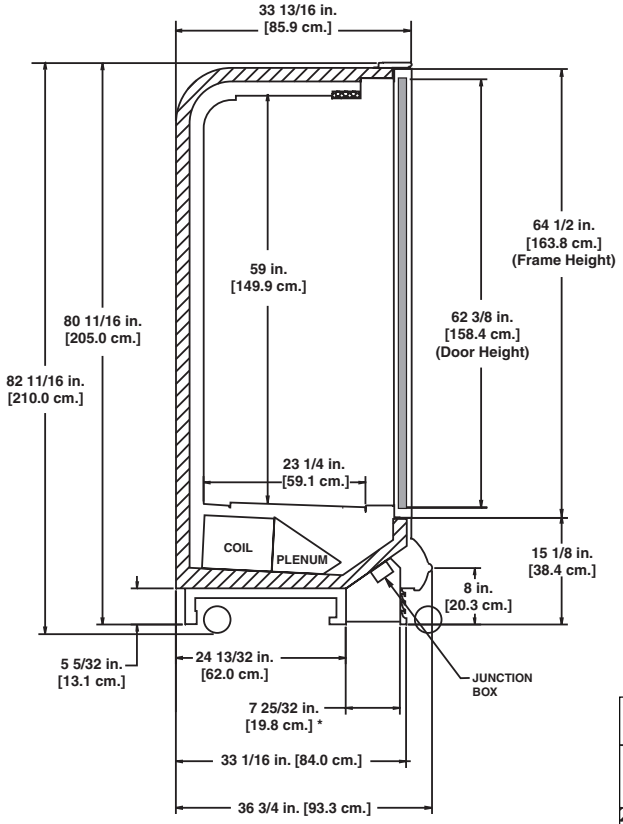
[8] NOTE: - - - not an option on this case model.

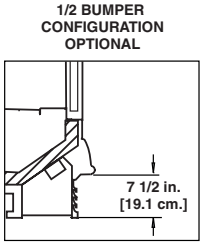
Low Temperature Defrost Schedule

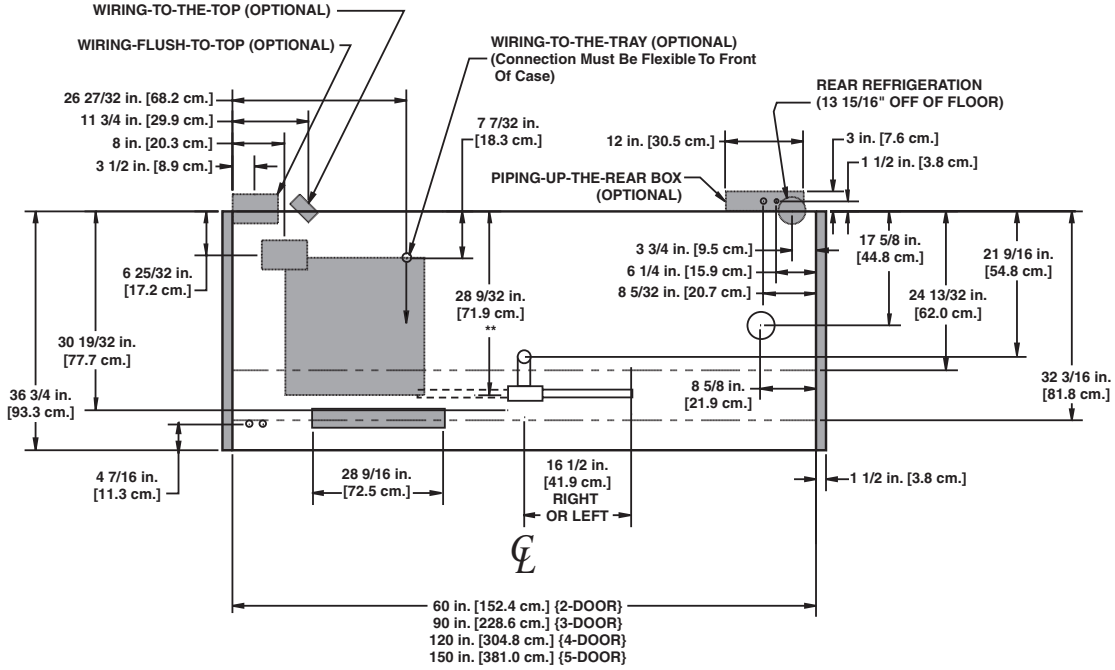
No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.







NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", & 22"
  SOLID SHELVES 18", 20", & 22"

High Narrow Glass Door Reach-in Frozen Food/Ice Cream Merchandiser
ONRZH - 2, 3, 4, & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONRZH	2-door	2	1.00	60	0.64	34	3.84	457	7.61[1]	2742	8.77[1]	3645
	3-door	3	1.50	90	0.96	51	5.40	648	8.59[1]	3096	9.89[1]	4110
	4-door	4	2.00	120	1.28	69	6.97	836	11.28[1]	4065	13.08[1]	5439
	5-door	5	2.50	150	1.60	85	8.64	1037	13.78[1]	4965	15.88[1]	6603

[1] Note: 3 phase load. Figure given is maximum amps per phase.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONRZH	2-door	NA[2]	NA	1.45	174
	3-door	NA	NA	1.94	233
	4-door	NA	NA	2.42	290
	5-door	NA	NA	2.91	349

[2] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[5]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ONRZH[3] - F[4]	1500	-13	3-5	-8	0	-4	405
ONRZH[3] - C[4]	1600	-23	3-5	-12	-8	-4	405

[3] All data listed is for an ONRZH configured with 20" shelves.

[4] F = Frozen food, C = Ice cream.

[5] BTUH's/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[6] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONRZH	1	13 - 15	46	73[7]	- - -[8]	- - -	24	60	- - -	- - -

[7] For cases equipped with CPC case controllers use bi-metallic defrost controls with a setting of 73º F.

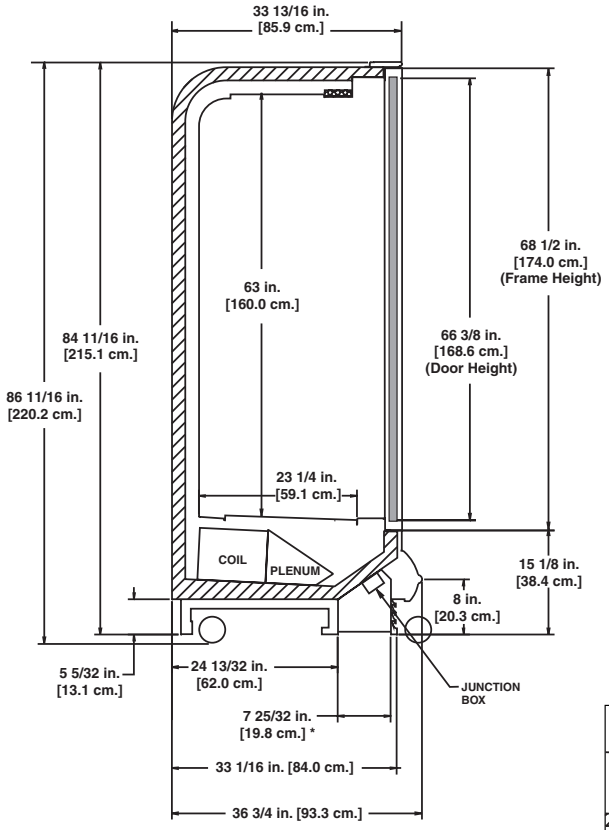
[8] NOTE: - - - not an option on this case model.

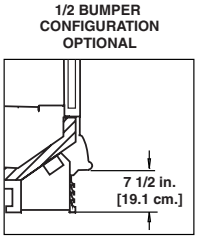
Low Temperature Defrost Schedule

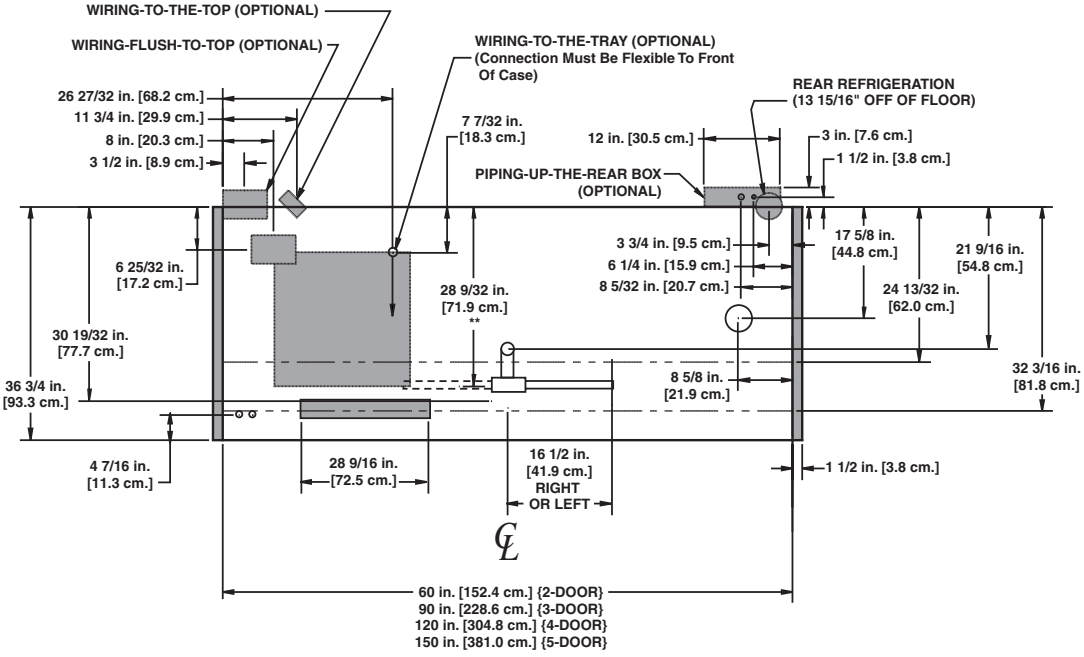
No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.







NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", & 22"
  SOLID SHELVES 18", 20", & 22"

Glass Door Reach-in Frozen Food/Ice Cream Merchandiser

ORZ - 2, 3, 4, & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ORZ	2-door	2	1.00	60	0.64	34	3.82	458	7.61[1]	2742	8.77[1]	3645
	3-door	3	1.50	90	0.96	51	5.31	637	8.59[1]	3096	9.89[1]	4110
	4-door	4	2.00	120	1.28	69	6.93	832	11.28[1]	4065	13.08[1]	5439
	5-door	5	2.50	150	1.60	85	8.56	1027	13.78[1]	4965	15.88[1]	6603

[1] Note: 3 phase load. Figure given is maximum amps per phase.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ORZ	2-door	NA[2]	NA	1.45	174
	3-door	NA	NA	1.94	233
	4-door	NA	NA	2.42	290
	5-door	NA	NA	2.91	349

[2] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[4]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ORZ - F[3]	1400	-13	3-5	-8	0	-5	380
ORZ - C[3]	1600	-23	3-5	-12	-3	-10	380

[3] F = Frozen food, C = Ice cream.

[4] BTUH's/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[5] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ORZ	1	13 - 15	46	73[6]	- - -[7]	- - -	24	60	- - -	- - -

[6] For cases equipped with CPC case controllers use bi-metallic defrost controls with a setting of 73º F.

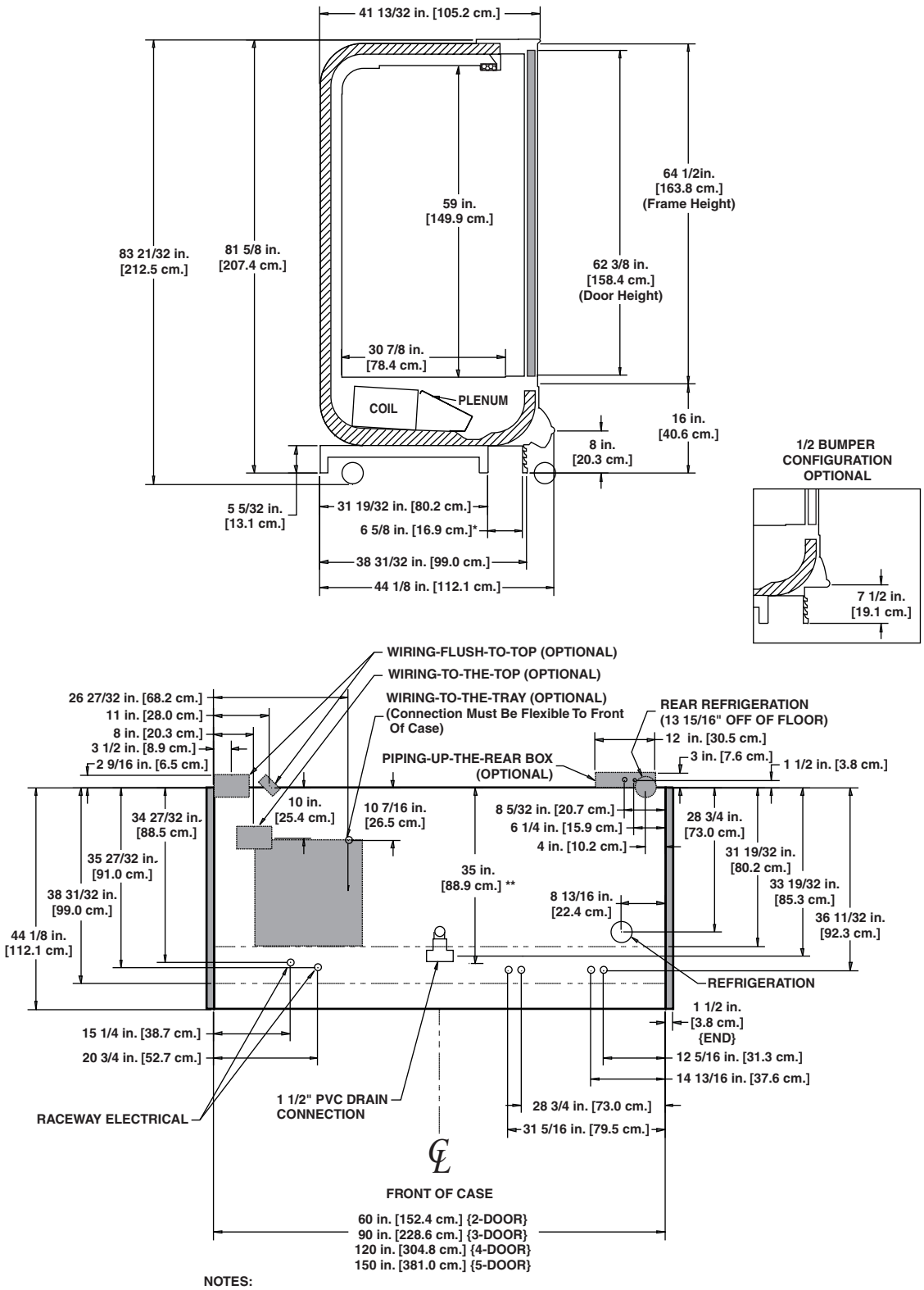
[7] NOTE: - - - not an option on this case model.

Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.



NOTES:

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22", & 23 1/2"
  SOLID SHELVES 18", 20", 22", & 24"

High Glass Door Reach-in Frozen Food/Ice Cream Merchandiser

ORZH - 2, 3, 4, & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ORZH	2-door	2	1.00	60	0.64	34	3.84	457	7.61[1]	2742	8.77[1]	3645
	3-door	3	1.50	90	0.96	51	5.40	648	8.59[1]	3096	9.89[1]	4110
	4-door	4	2.00	120	1.28	69	6.97	836	11.28[1]	4065	13.08[1]	5439
	5-door	5	2.50	150	1.60	85	8.64	1037	13.78[1]	4965	15.88[1]	6603

[1] Note: 3 phase load. Figure given is maximum amps per phase.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ORZH	2-door	NA[2]	NA	1.45	174
	3-door	NA	NA	1.94	233
	4-door	NA	NA	2.42	290
	5-door	NA	NA	2.91	349

[2] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[4]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ORZH - F[3]	1500	-13	3-5	-8	0	-4	405
ORZH - C[3]	1600	-23	3-5	-12	-8	-4	405

[3] F = Frozen food, C = Ice cream.

[4] BTUH's/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[5] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ORZH	1	13 - 15	46	73[6]	- - -[7]	- - -	24	60	- - -	- - -

[6] For cases equipped with CPC case controllers use bi-metallic defrost controls with a setting of 73º F.

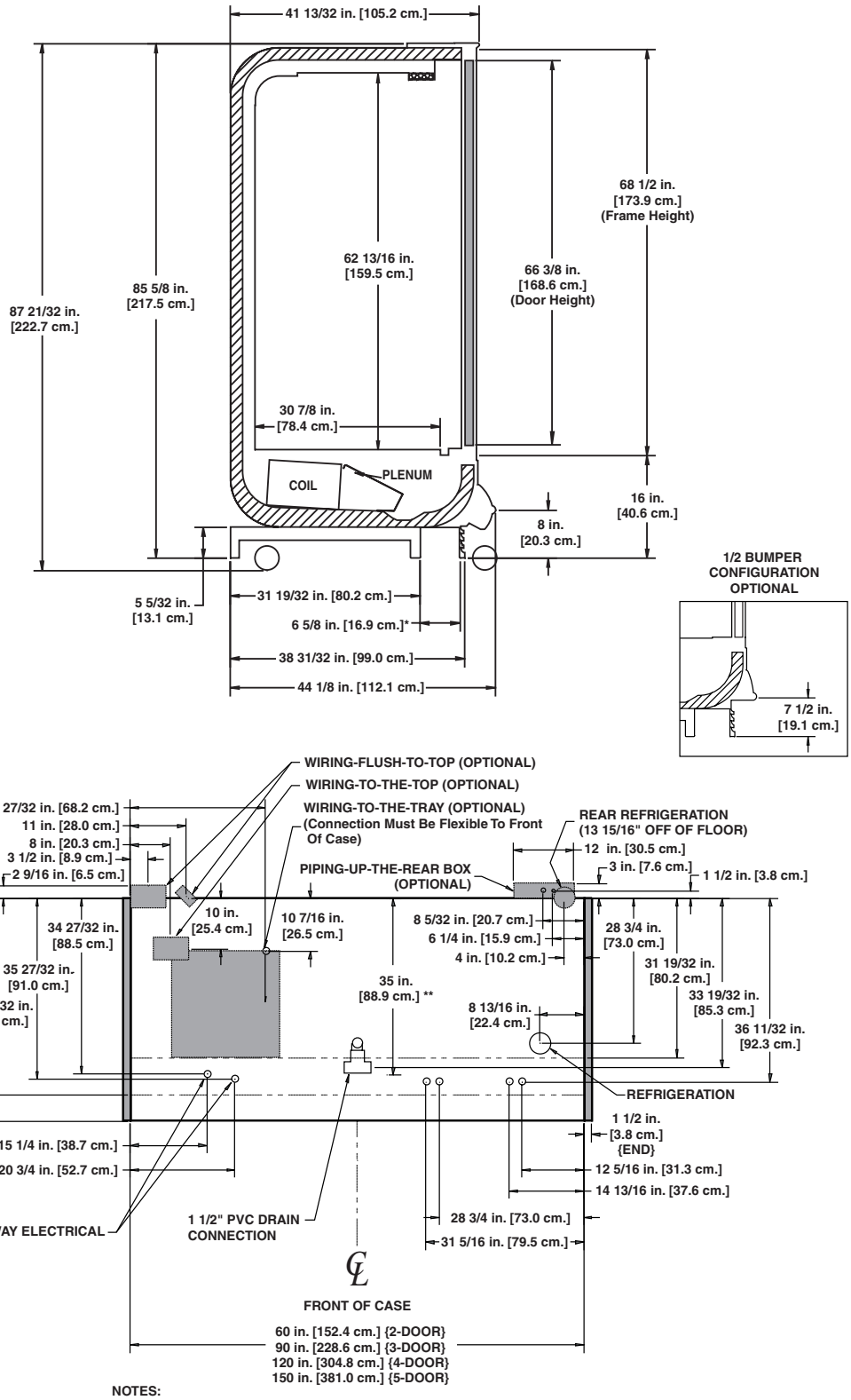
[7] NOTE: - - - not an option on this case model.

Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL (WHEN THE CASE IS PIPED TO THE REAR A 3" TO 4" GAP MAY BE REQUIRED)
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22", & 23 1/2"
  SOLID SHELVES 18", 20", 22", & 24"

Glass Door Reach-in Crown End Frozen Food/Ice Cream Merchandiser
OREZ

Electrical Data

Model	Fans per Case	Standard Fans		High Efficiency Fans		Anti-Condensate Heaters		Defrost Heaters			
		120 Volts		120 Volts		120 Volts		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OREZ	3	1.50	90	0.96	51	6.52	782	5.00[1]	1800	5.77[1]	2394

[1] Note: 3 phase load. Figure given is maximum amps per phase.

Lighting Data

Model	Typical per Light Row		Maximum Lighting	
	120 Volts		120 Volts	
	Amps	Watts	Amps	Watts
OREZ	NA[2]	NA	2.91	349

[2] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[4]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OREZ - F[3]	1768	-13	3-5	2	6	7	350
OREZ - C[3]	1811	-23	3-5	-6	-2	-1	340

[3] F = Frozen food, C = Ice cream.

[4] BTUH's/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[5] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OREZ-F	1	13 - 15	55	73[6]	- - -[7]	- - -	26	60	- - -	- - -
OREZ-C	1	13 - 15	75	73[6]	- - -	- - -	26	60	- - -	- - -

[6] For cases equipped with CPC case controllers use bi-metallic defrost controls with a setting of 73º F.

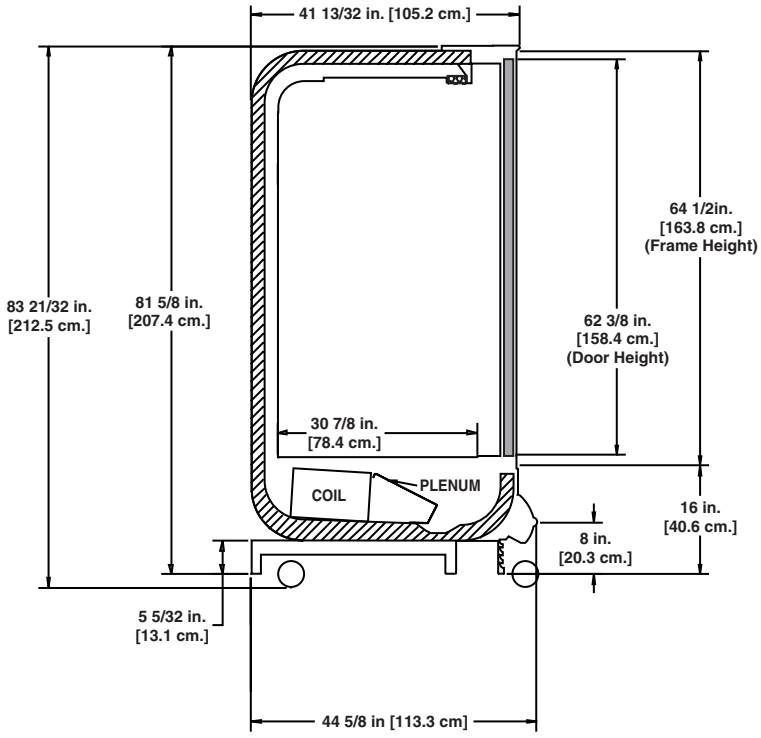
[7] NOTE: - - - not an option on this case model.

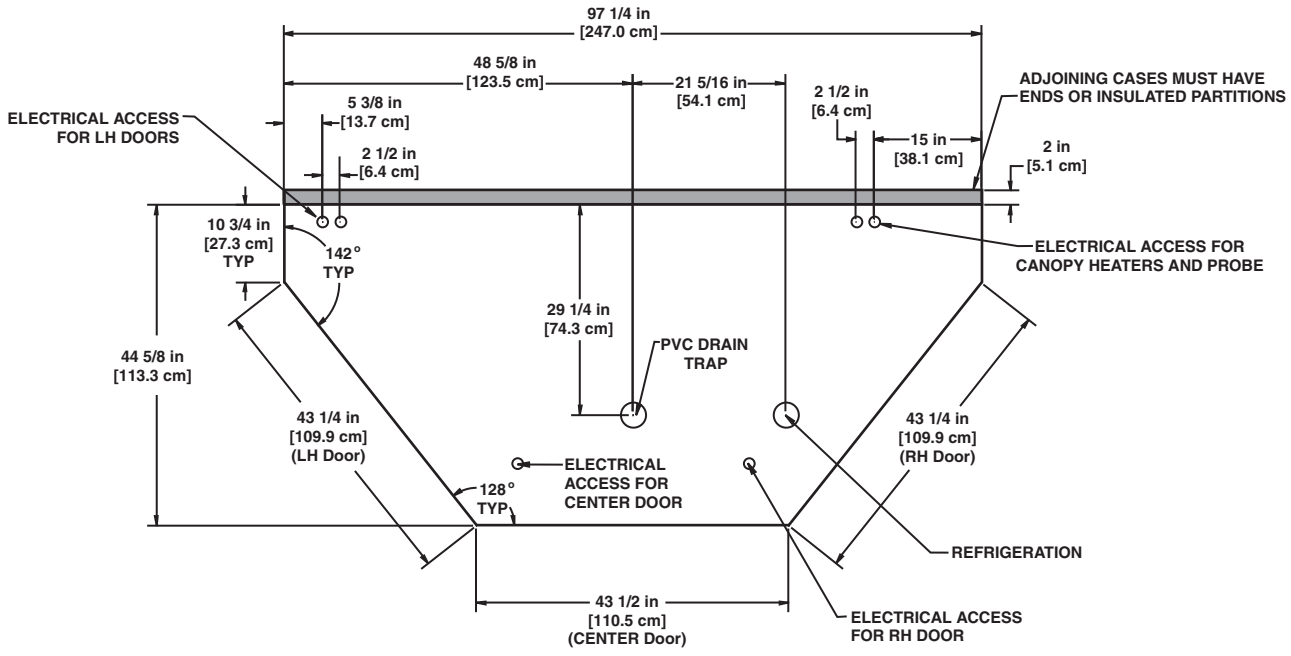
Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZE: 23 1/2" WIRE SHELVES

Single Deck Island Merchandisers

Notes:

- *Average product temperatures are calculated as defined by ASHRAE* standards and should not be used to determine application.*
- *Cases meet FDA** Food Code 1997 product temperature requirements (41°F or less) for hazardous foods when used for their prescribed applications.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*

* *American Society of Heating Refrigeration and Air Conditioning Engineers*

** *Food and Drug Administration*

Narrow Island Deli/Meat Merchandiser

ONIM - 8' & 12' double wraparound ends
ONIMB - 8' & 12' single wraparound end

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONIM	8'	6	2.70	102	0.90	66	0.82	98	4.34	902	5.00	1200
	12'	8	3.60	136	1.20	88	1.08	130	7.22	1502	8.33	2000
ONIMB	8'	6	2.70	102	0.90	66	0.75	90	4.34	902	5.00	1200
	12	8	3.60	136	1.20	88	1.17	140	7.22	1502	8.33	2000

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONIM	8'	NA[1]	NA	1.26	151
	12'	NA	NA	1.46	175
ONIMB	8'	NA	NA	1.26	151
	12'	NA	NA	1.46	175

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ONIM/ONIMB Meat	885[4]	12	6-8	25	33	34	180
ONIM/ONIMB Deli	860[5]	17	6-8	28	36	37	180

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

[4] ONIM (meat): +400 BTUH per wraparound end.

[5] ONIM (deli): +250 BTUH per wraparound end.

Defrost Controls

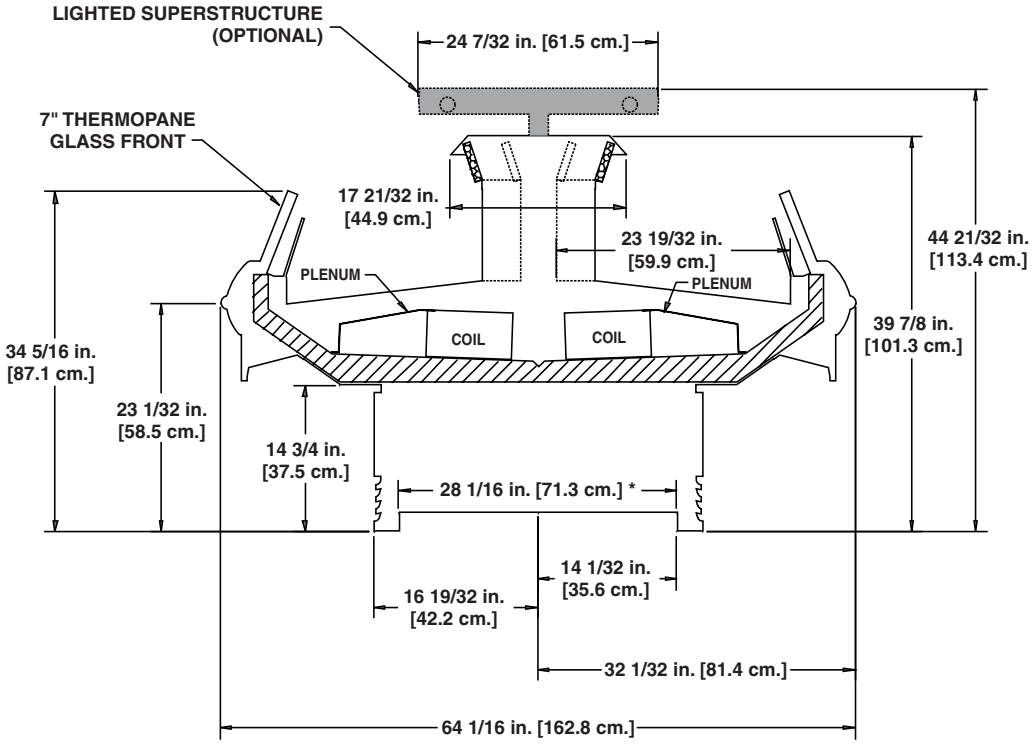
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONIM/ONIMB	3	6 - 8	35	47	45	47	26	45	- - -[6]	- - -

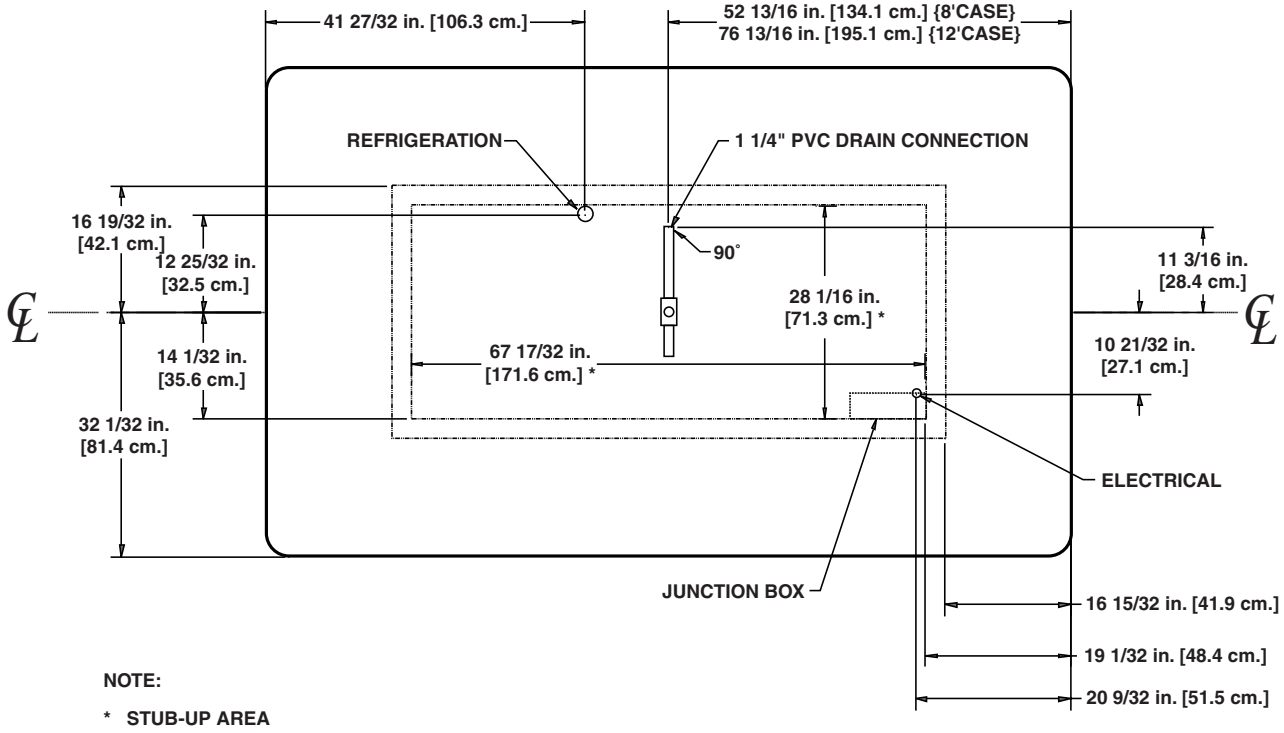
[6] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

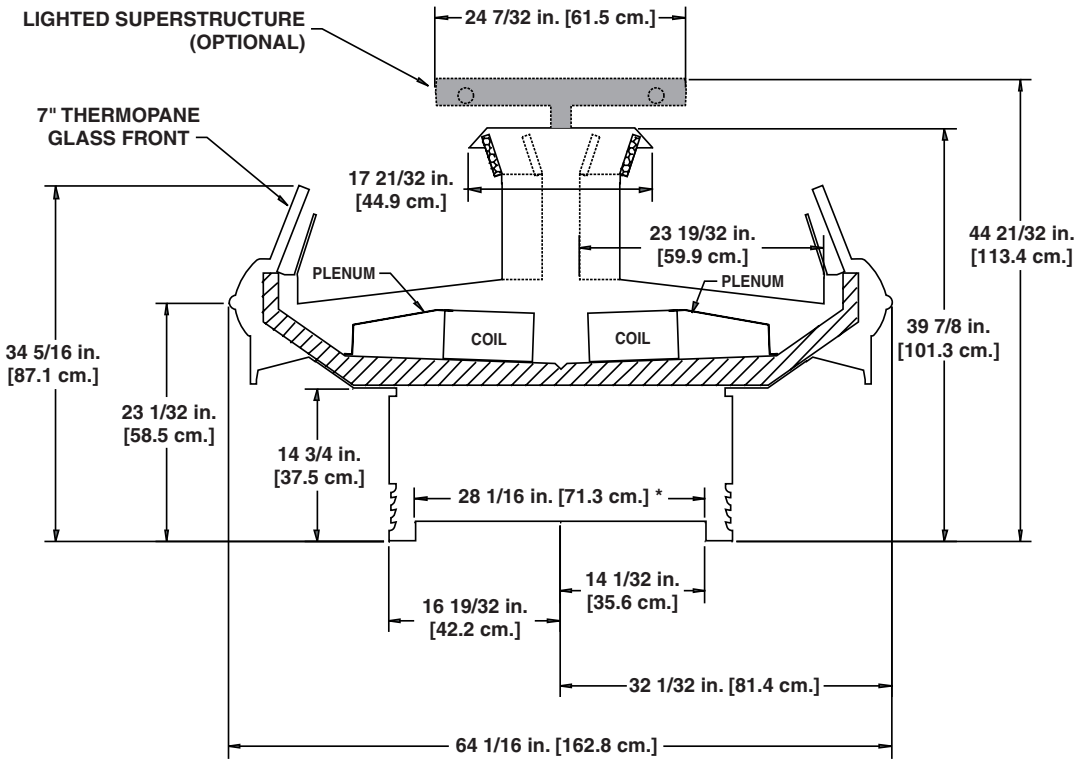
All measurements are taken per CRMA specifications.

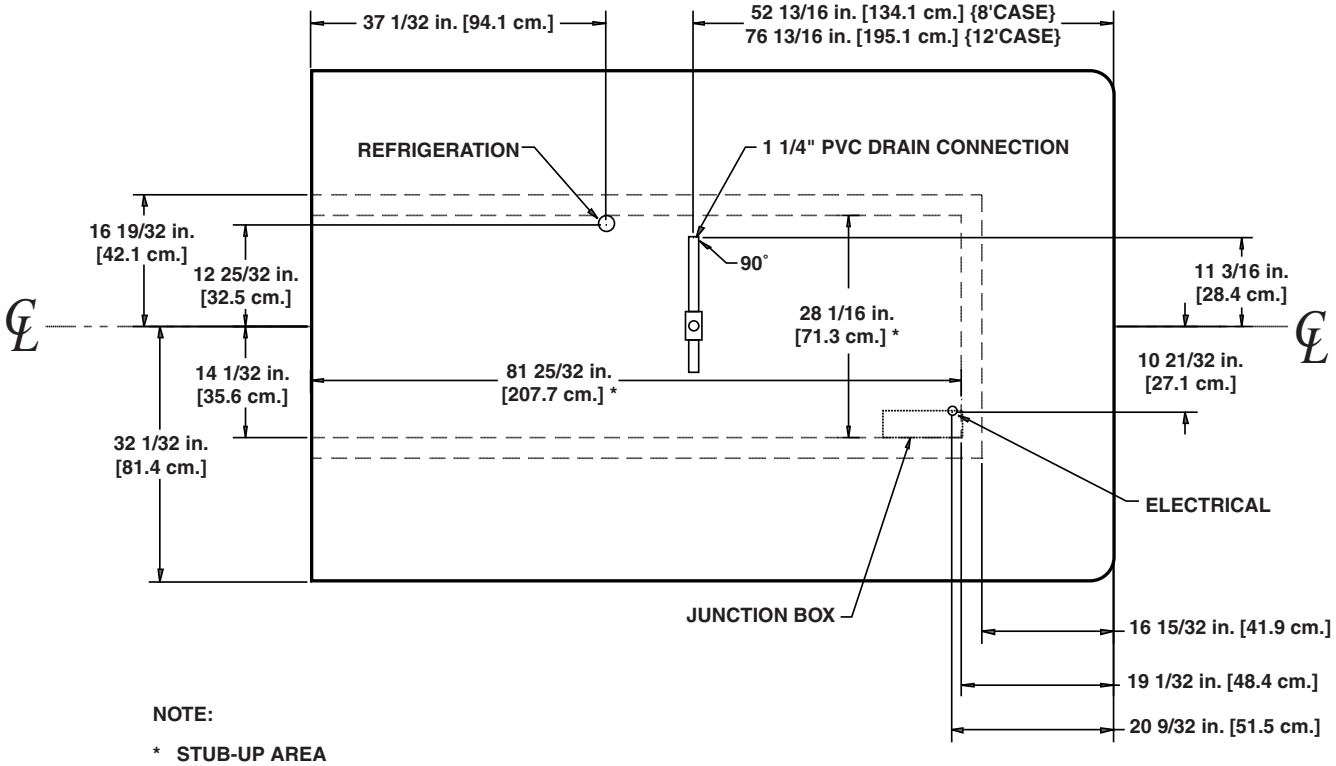




NOTE:

* STUB-UP AREA





NOTE:

* STUB-UP AREA

Wide Island Deli/Meat Merchandiser

OIM - 8’ & 12’ double wraparound ends
OIMB - 6’, 8’ & 12’ single wraparound end
OIMBB - 8’ double joint ends

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OIM	8’	6	2.70	102	0.90	66	0.82	98	4.34	902	5.00	1200
	12’	8	3.60	136	1.20	88	1.08	130	7.22	1502	8.33	2000
OIMB	6’	4	1.80	76	0.60	44	0.57	68	3.25	676	3.75	900
	8’	6	2.70	102	0.90	66	0.75	90	4.34	902	5.00	1200
	12’	8	3.60	136	1.20	88	1.17	140	7.22	1502	8.33	2000
OIMBB	8’	6	2.70	102	0.90	66	0.92	110	4.34	902	5.00	1200

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OIM	8’	NA[1]	NA	5.04	605
	12’	NA	NA	6.50	780
OIMB	6’	NA	NA	3.15	378
	8’	NA	NA	4.41	529
	12’	NA	NA	5.87	704
OIMBB	8’	NA	NA	3.78	454

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OIM/OIMB/OIMBB Meat	770[4]	12	6-8	26	34	31	140
OIM/OIMB/OIMBB Deli	560[5]	17	6-8	28	36	33	140

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

[4] OIM (meat): +400 BTUH per wraparound end.

[5] OIM (deli): +250 BTUH per wraparound end.

Defrost Controls

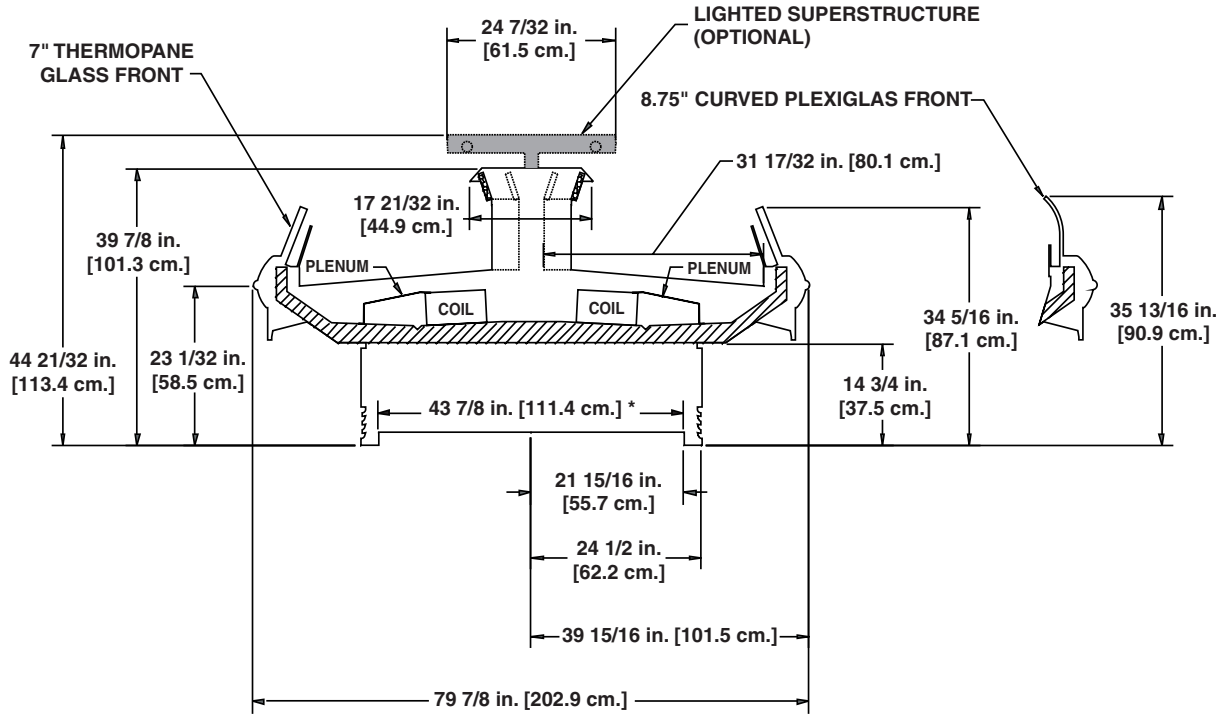
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OIM/OIMB/OIMBB	3	6 - 8	40	47	45	47	26	45	- - -[6]	- - -

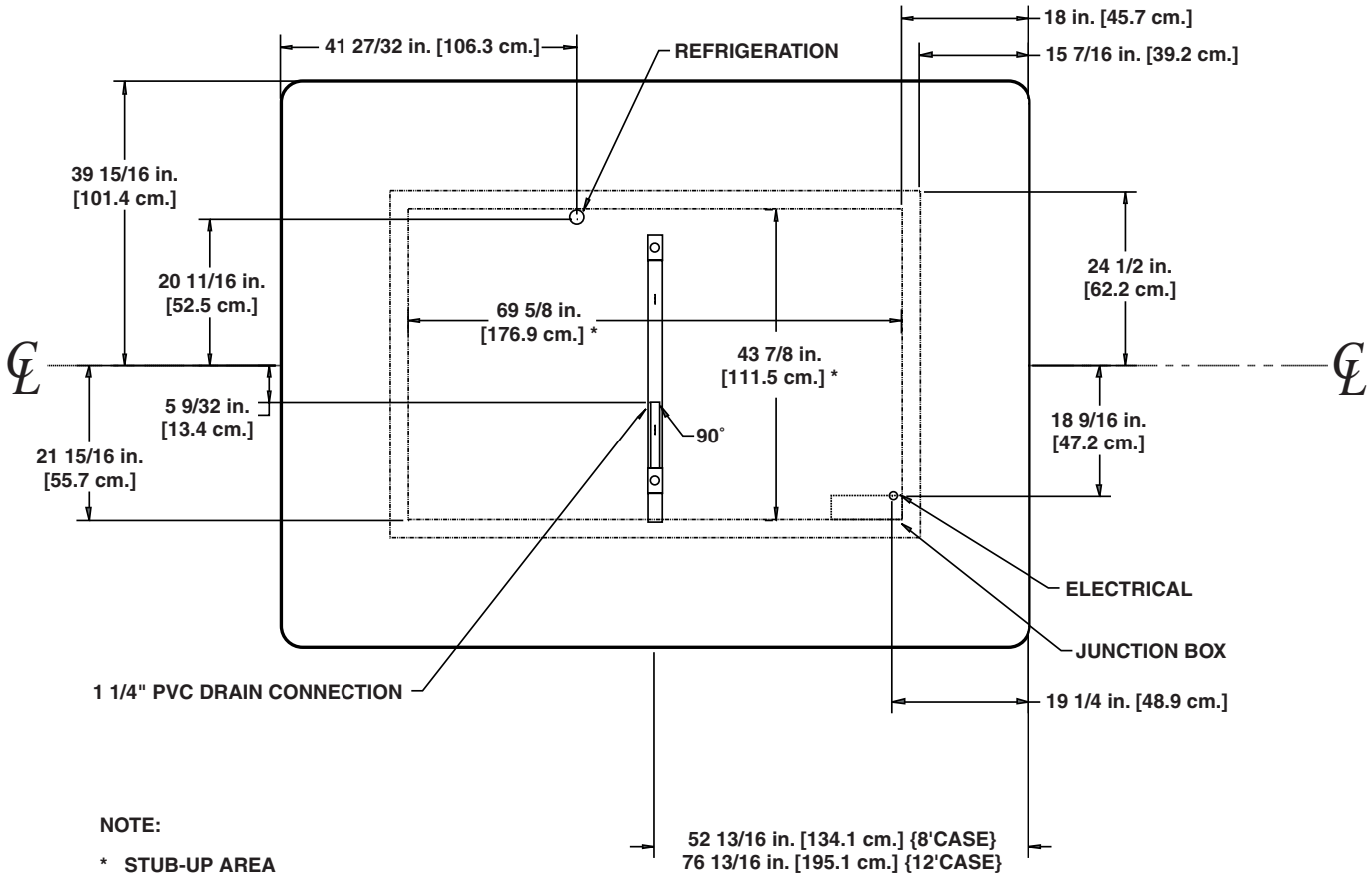
[6] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

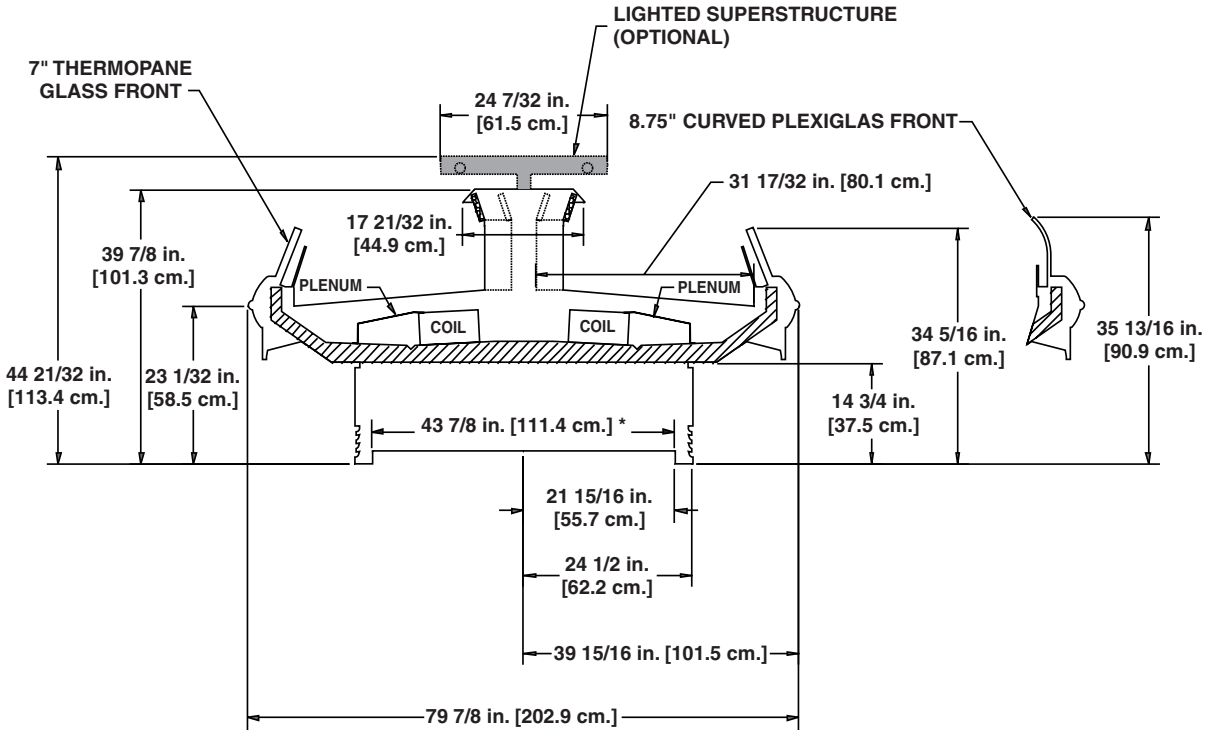
All measurements taken per CRMA specifications.

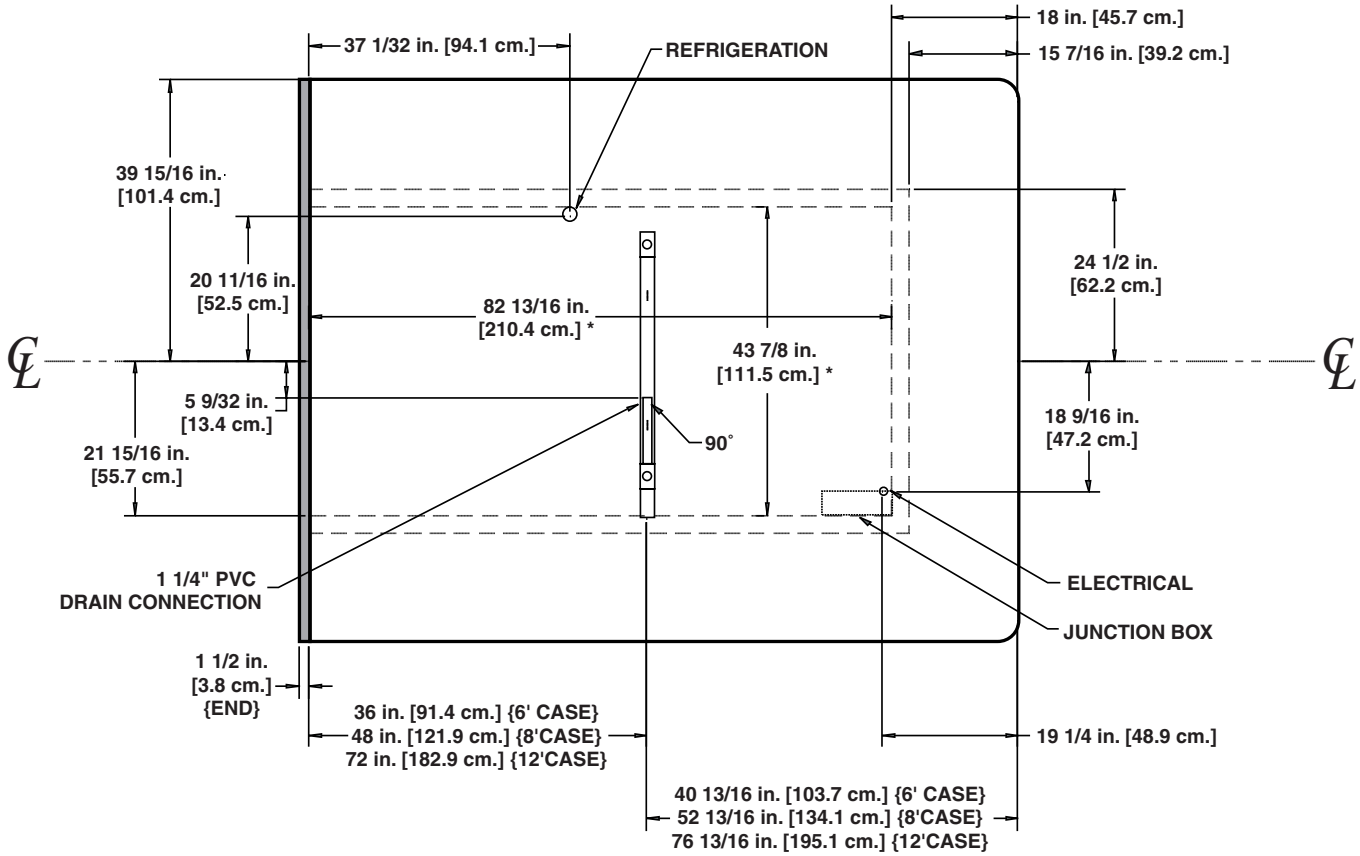




NOTE:

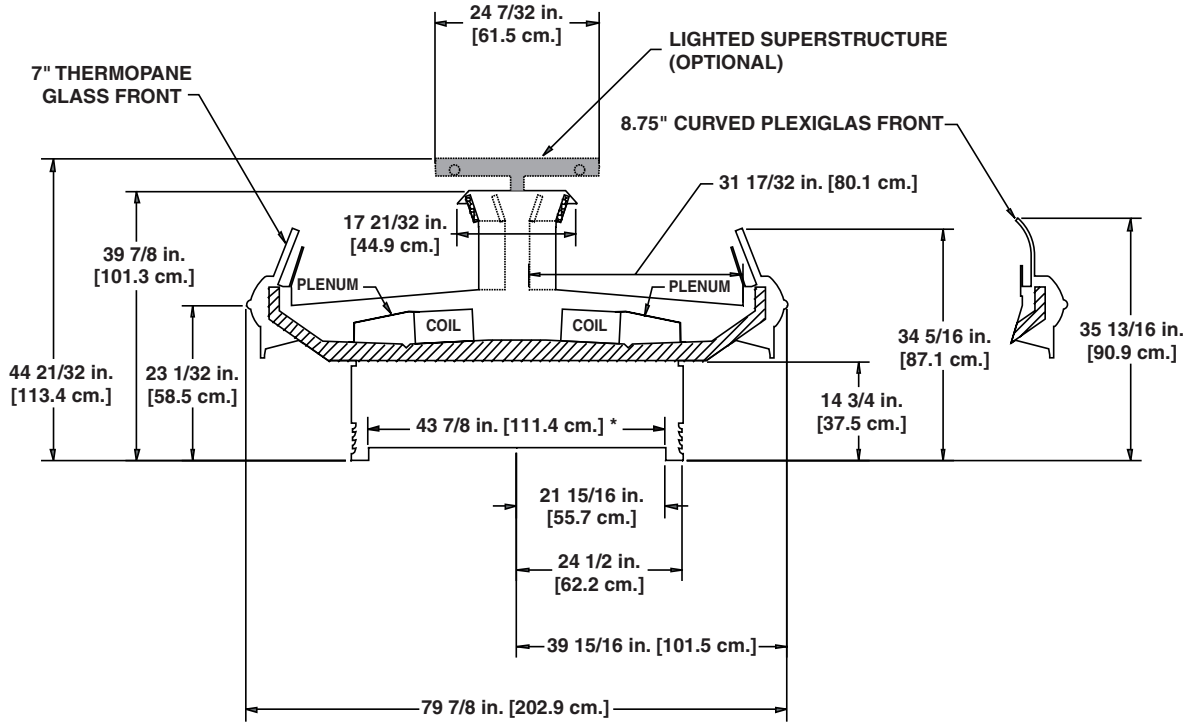
* STUB-UP AREA

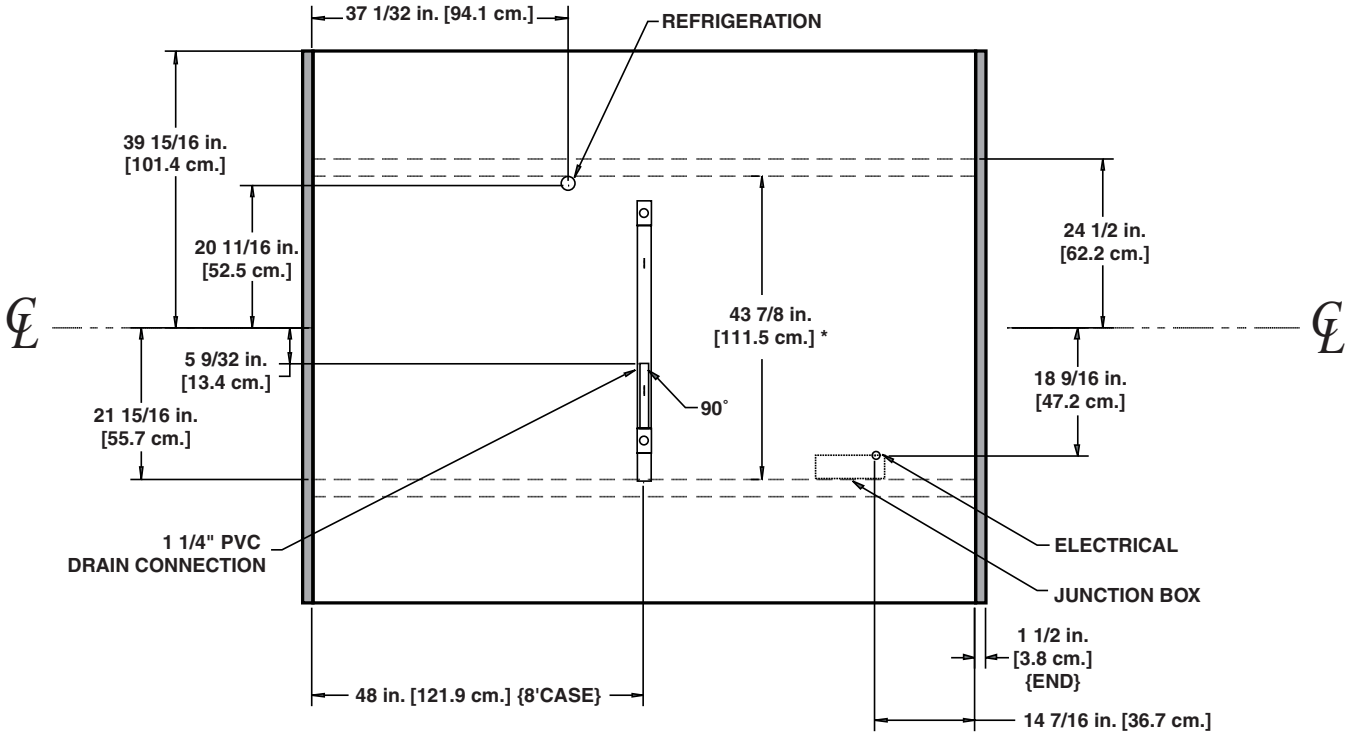




NOTE:

* STUB-UP AREA





NOTE:

* STUB-UP AREA

Wide Island Bulk Produce Merchandiser

OIP - 8' & 12' wide island double wraparound end
OIPB - 6', 8', 10' & 12' wide island single wraparound end
OIPBB - 8' & 12' wide island double joint

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OIP	8'	6	2.70	102	0.90	66	0.23	28	- - -[1]	- - -	- - -	- - -
	12'	8	3.60	136	1.20	88	0.55	66	- - -	- - -	- - -	- - -
OIPB	6'	4	1.80	76	0.60	44	0.31	37	- - -	- - -	- - -	- - -
	8'	6	2.70	102	0.90	66	0.46	55	- - -	- - -	- - -	- - -
	10'	6	2.70	102	0.90	66	0.66	79	- - -	- - -	- - -	- - -
	12'	8	3.60	136	1.20	88	0.78	94	- - -	- - -	- - -	- - -
OIPBB	8'	6	2.70	102	0.90	66	0.84	101	- - -	- - -	- - -	- - -
	12'	8	3.60	136	1.20	88	1.26	151	- - -	- - -	- - -	- - -

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OIP	8'	NA[2]	NA	3.78	454
	12'	NA	NA	5.04	605
OIPB	6'	NA	NA	1.89	227
	8'	NA	NA	3.15	378
	10'	NA	NA	- - -	- - -
	12'	NA	NA	4.41	529
OIPBB	8'	NA	NA	2.52	302
	12'	NA	NA	3.78	454

[2] Not applicable.

Guidelines & Control Settings

Model	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OIP/OIPB/OIPBB	650[5]	22	6-8	34	40	48	140

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

[5] OIP: +600 BTUH per wraparound end.

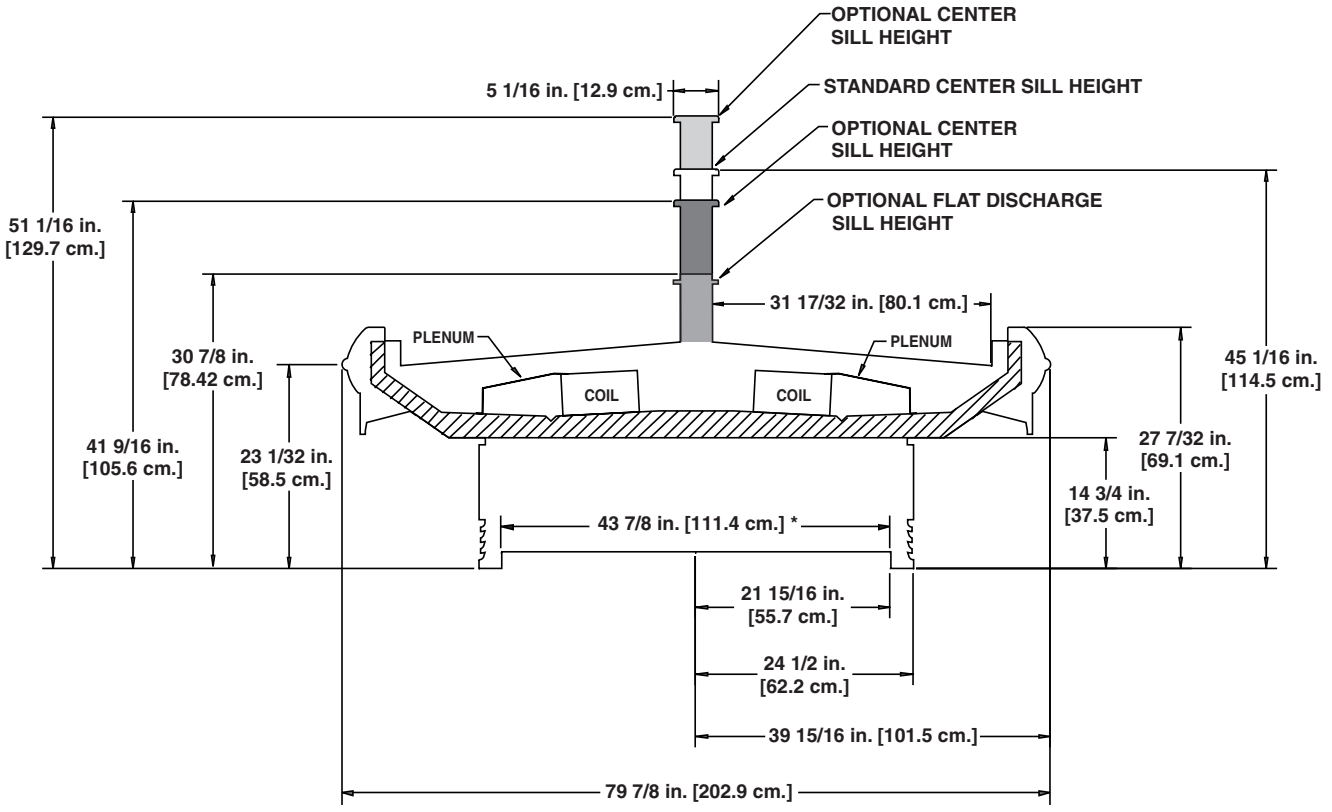
Defrost Controls

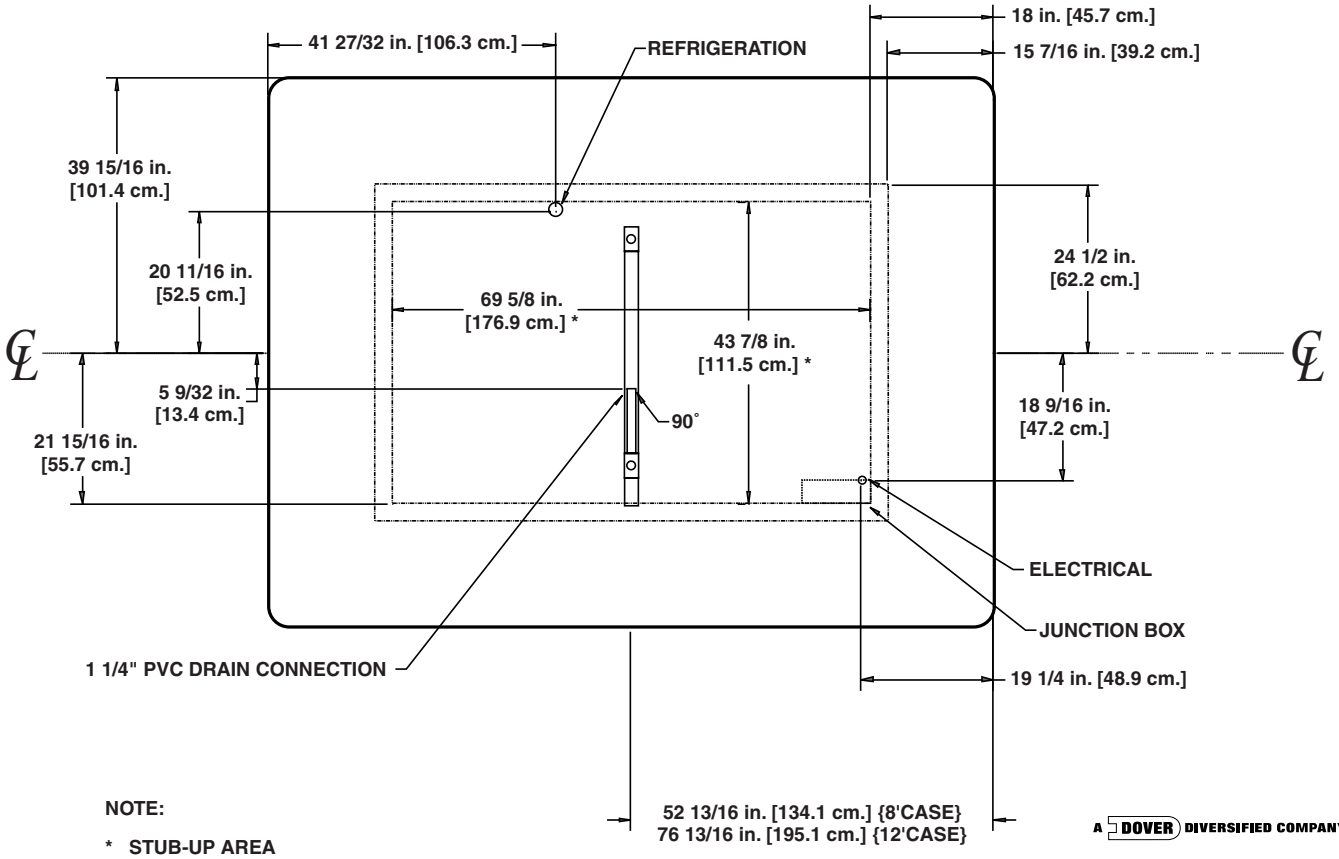
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OIP/OIPB/OIPBB	3	6 - 8	- - -	- - -	44	38	- - -	- - -	- - -	- - -

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

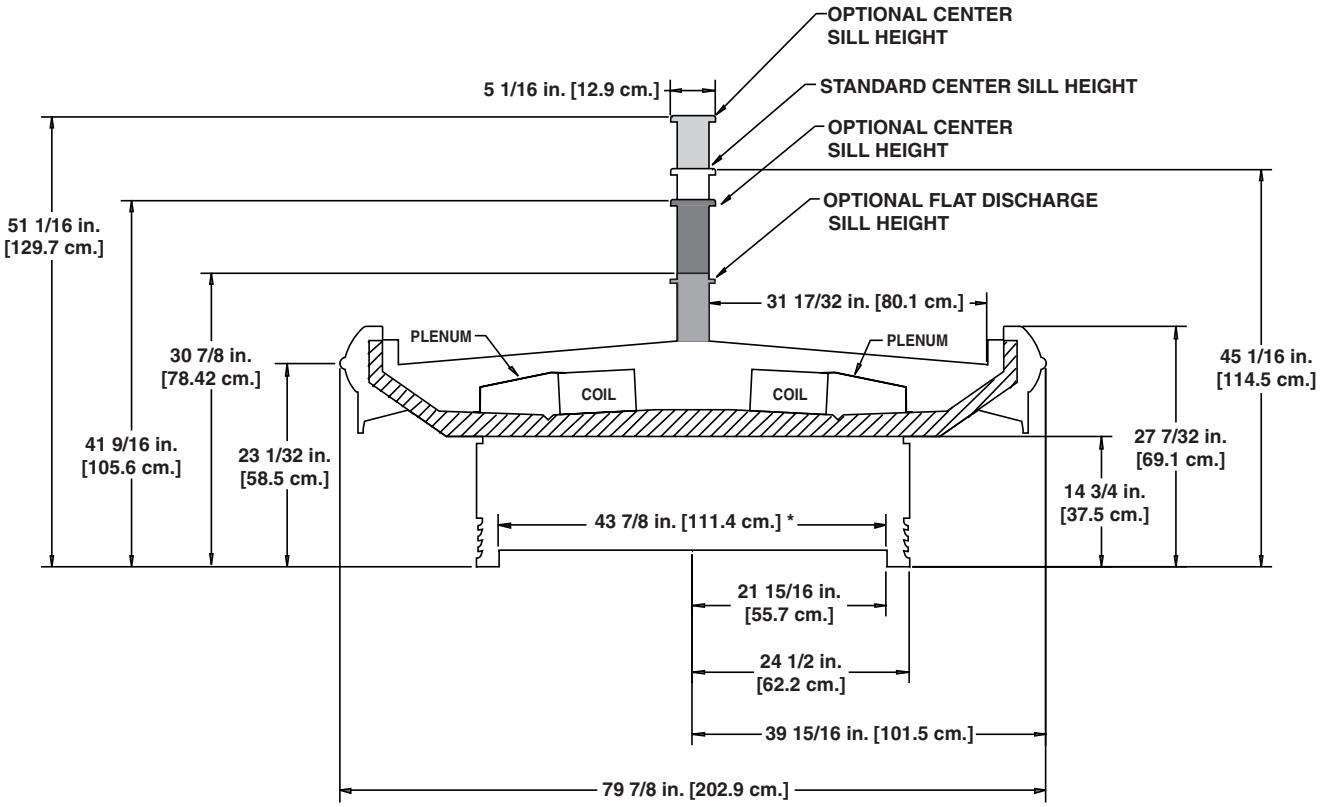
All measurements are taken per CRMA specifications.

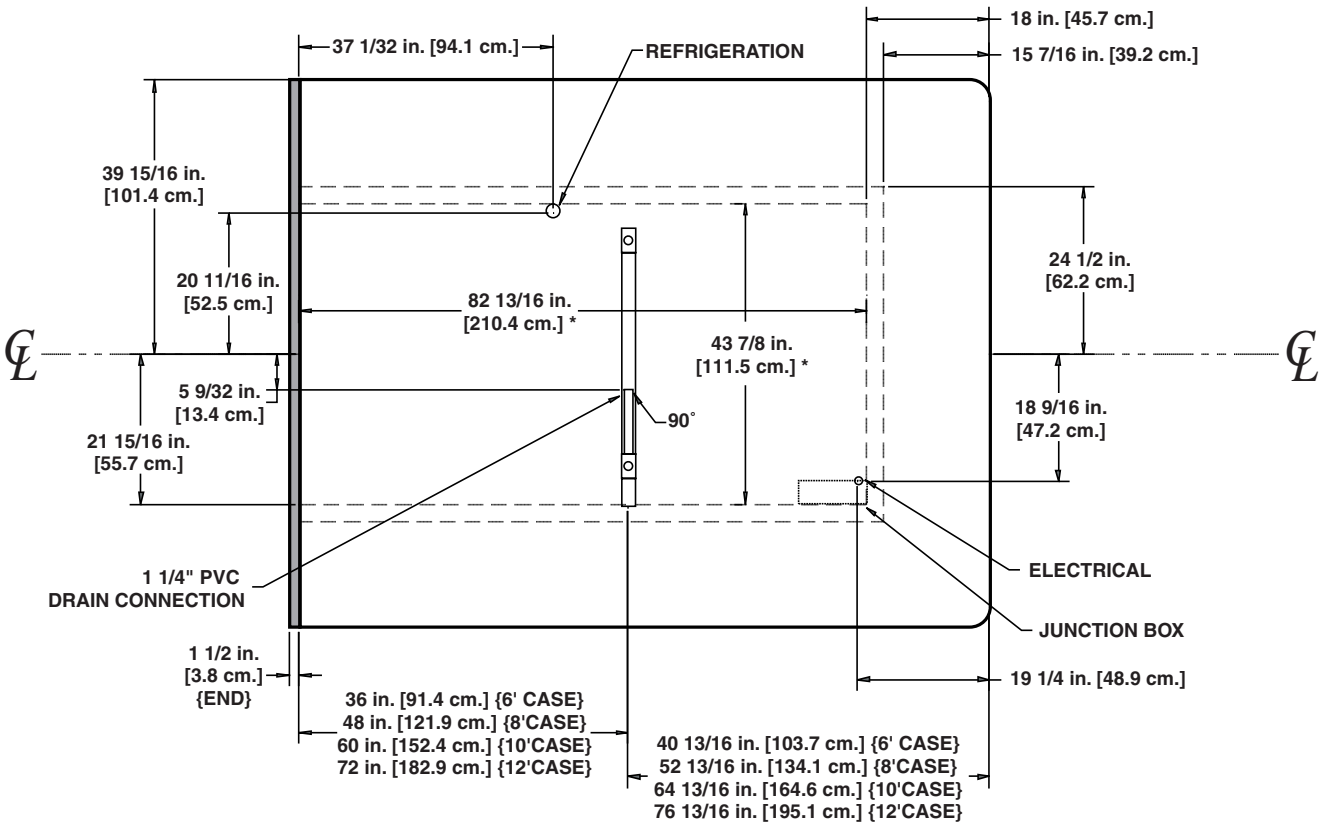




NOTE:

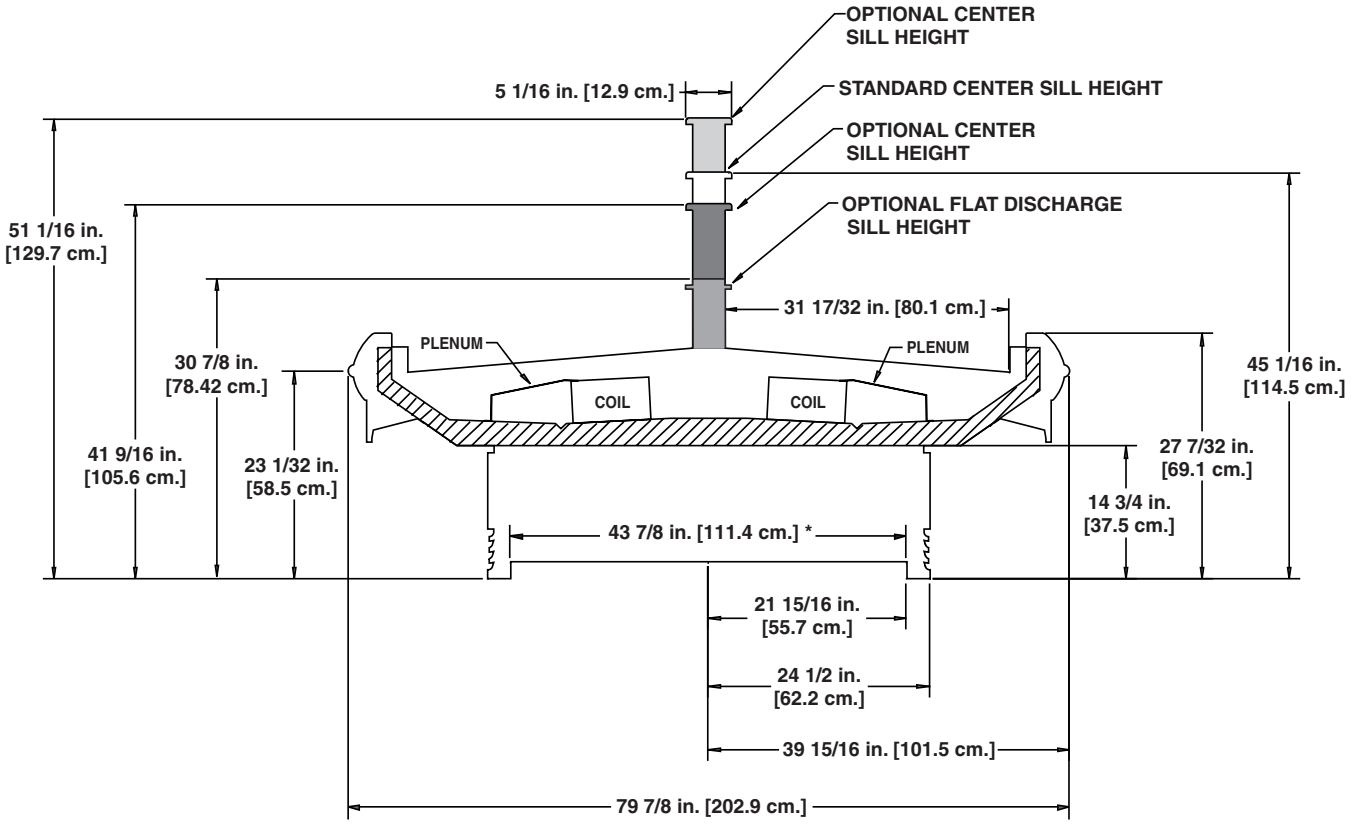
* STUB-UP AREA

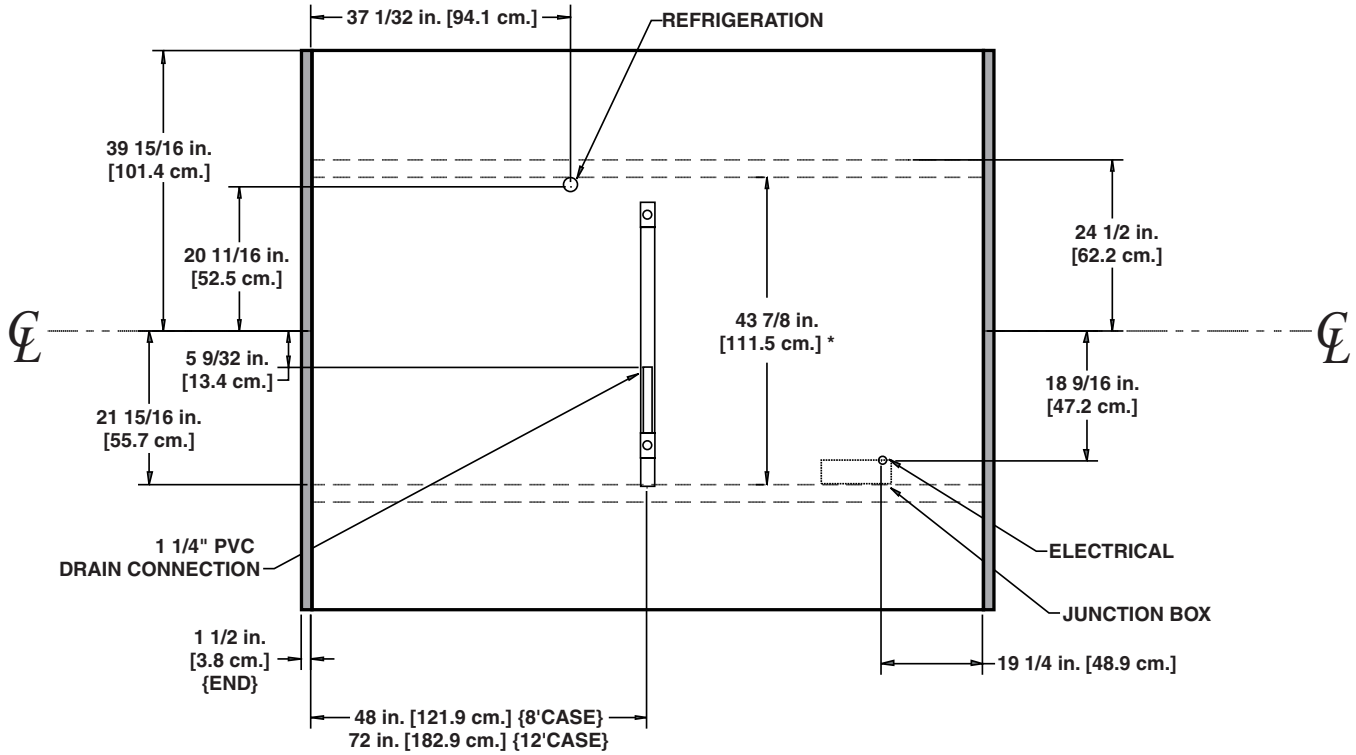




NOTE:

* STUB-UP AREA





NOTE:

* STUB-UP AREA

Narrow Island Frozen Food/Ice Cream Merchandiser

ONIZ - 8' & 12' standard front
ONIZG - 8' & 12' glass front

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts	Drain Heaters 120 Volts Amps	Drain Heaters 120 Volts Watts
ONIZ	F-8'[1]	2	0.90	34	0.30	22	1.46	175	7.69	1600	8.88	2130	0.13	15
	F-12'	3	1.35	51	0.45	33	1.87	224	11.54	2400	13.31	3195	0.13	15
	C-8'	2	0.90	34	0.30	22	1.46	175	15.38	3200	17.75	4260	0.13	15
	C-12'	3	1.35	51	0.45	33	1.87	224	23.08	4800	26.63	6390	0.13	15
ONIZG	F-8'	2	0.90	34	0.30	22	3.12	374	7.69	1600	8.88	2130	0.13	15
	F-12'	3	1.35	51	0.45	33	3.40	408	11.54	2400	13.31	3195	0.13	15
	C-8'	2	0.90	34	0.30	22	3.12	374	15.38	3200	17.75	4260	0.13	15
	C-12'	3	1.35	51	0.45	33	3.40	408	23.08	4800	26.63	6390	0.13	15

[1] F = Frozen food, C = Ice cream.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONIZ/ONIZG	8'	- - -[2]	- - -	- - -	- - -
	12'	- - -	- - -	- - -	- - -

[2] NOTE: - - - not an option on this case model.

Guidelines & Control Settings

Model	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONIZ/ONIZG-F	369	-23	3-5	-12	-1	0	180
ONIZ/ONIZG-C	412	-33	3-5	-22	-11	-9	180

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

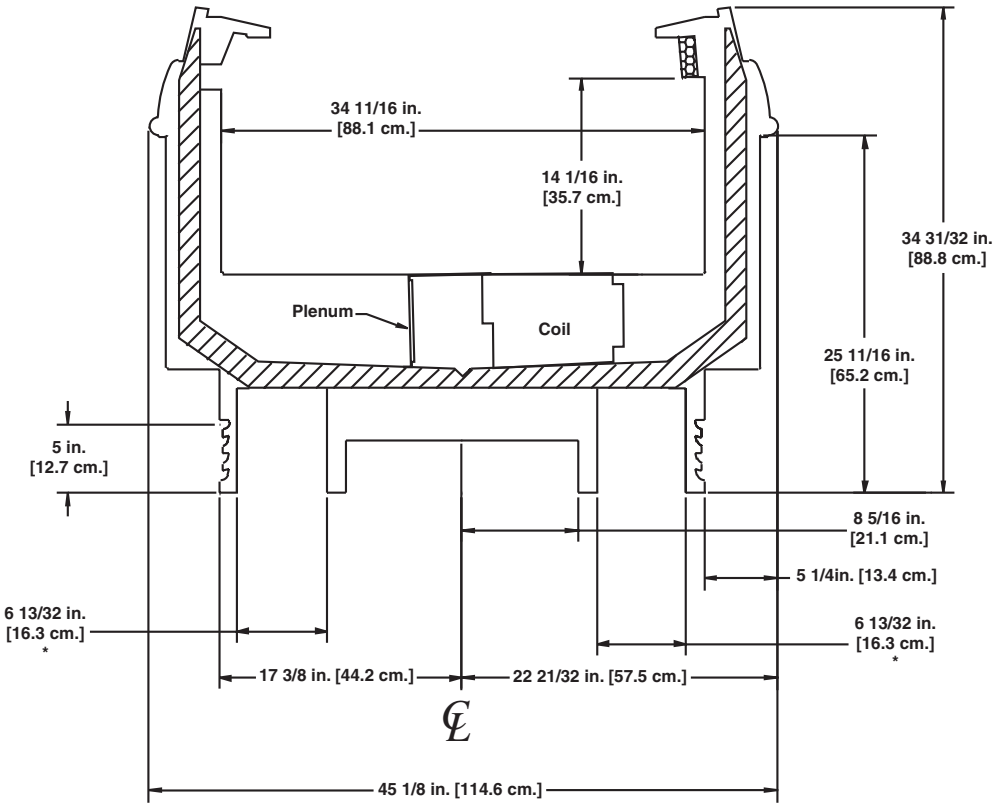
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONIZ/ONIZG	1	13 - 15	48	47	- - -	- - -	20	60	- - -	- - -

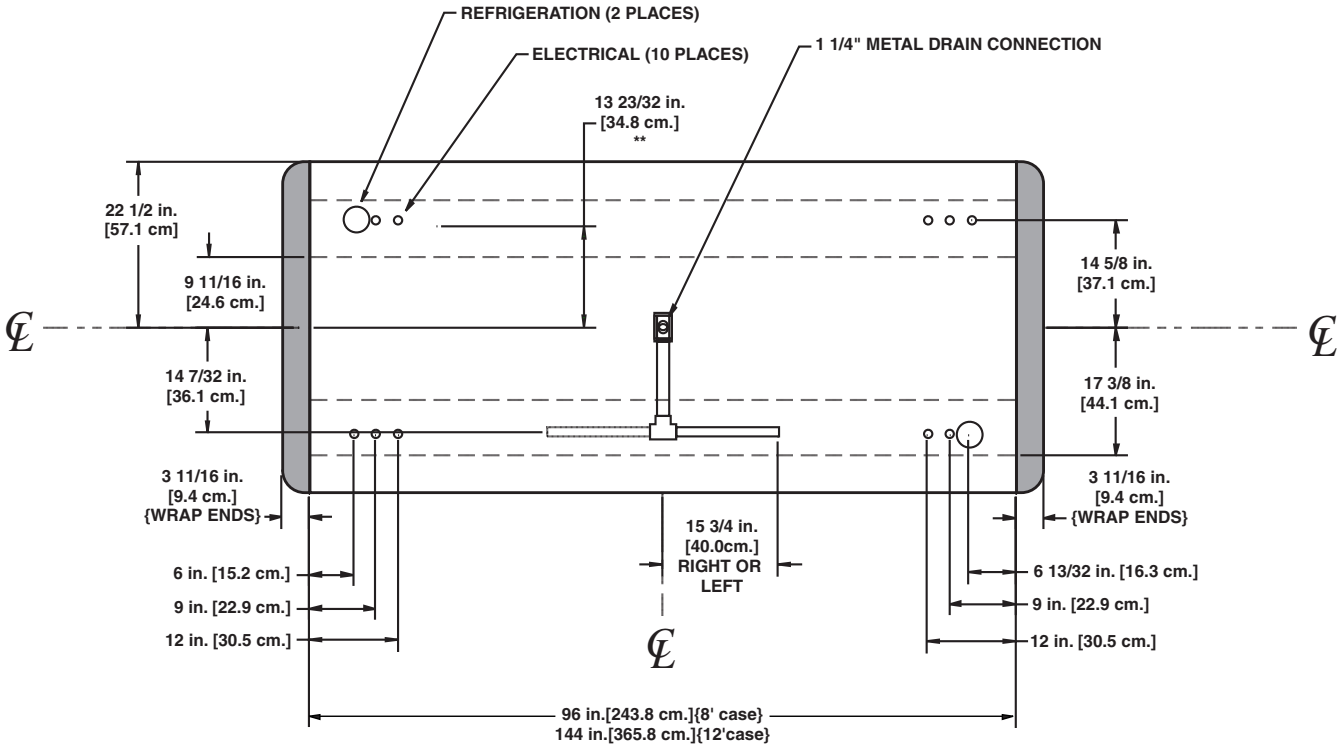
Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

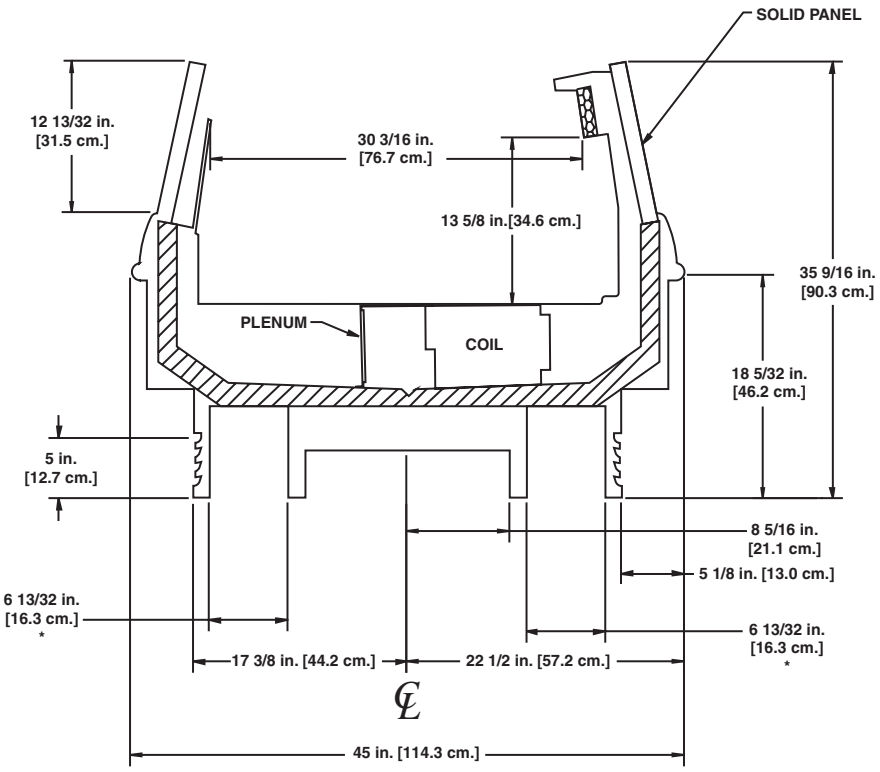
All measurements are taken per CRMA specifications.

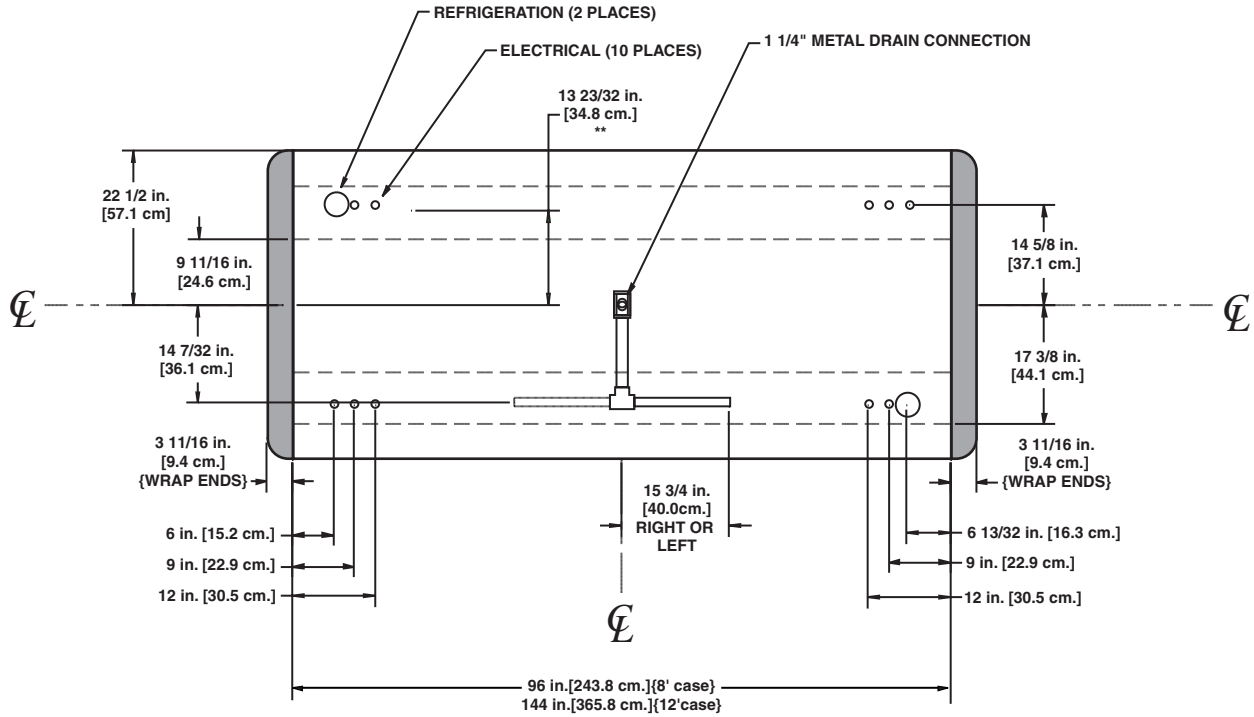




NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• THREE SIDES OF THE ONIZ(G) ARE THERMOPANE GLASS.
THE REMAINING SIDE IS AN INSULATED SOLID PANEL.

Island Frozen Food Merchandiser

OIZ - 8' & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts	Drain Heaters 120 Volts Amps	Drain Heaters 120 Volts Watts
OIZ	8'	3	1.35	51	0.45	33	1.31	157	15.38	3200	17.75	4260	0.13	15
	12'	4	1.80	68	0.60	44	1.99	239	23.08	4800	26.63	6390	0.13	15

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OIZ	8'	- - -[1]	- - -	- - -	- - -
	12'	- - -	- - -	- - -	- - -

[1] NOTE: - - - not an option on this case model.

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OIZ[4]	520	-24	3-5	-12	-3	-4	200

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

[4] Not intended for Frozen Juice application

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OIZ	1	13 - 15	45	47	- - -	- - -	20	60	- - -	- - -

Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.

Hill PHOENIX EXCELLENCE™

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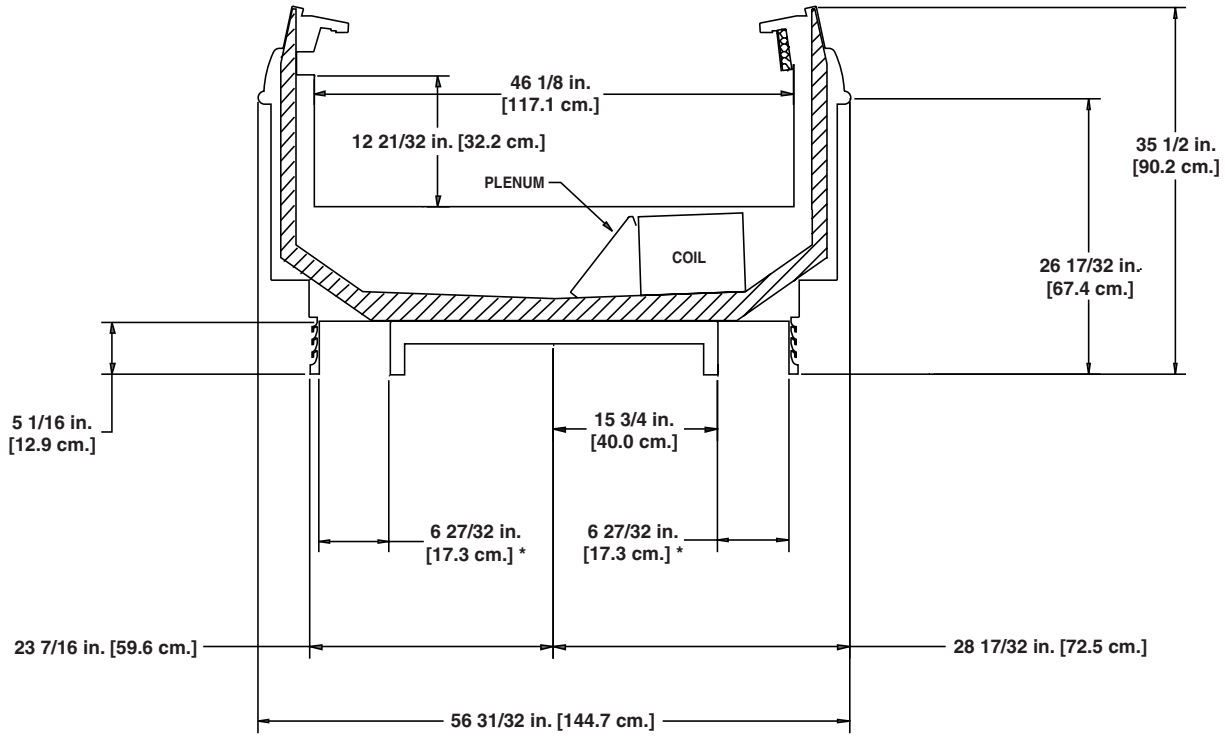
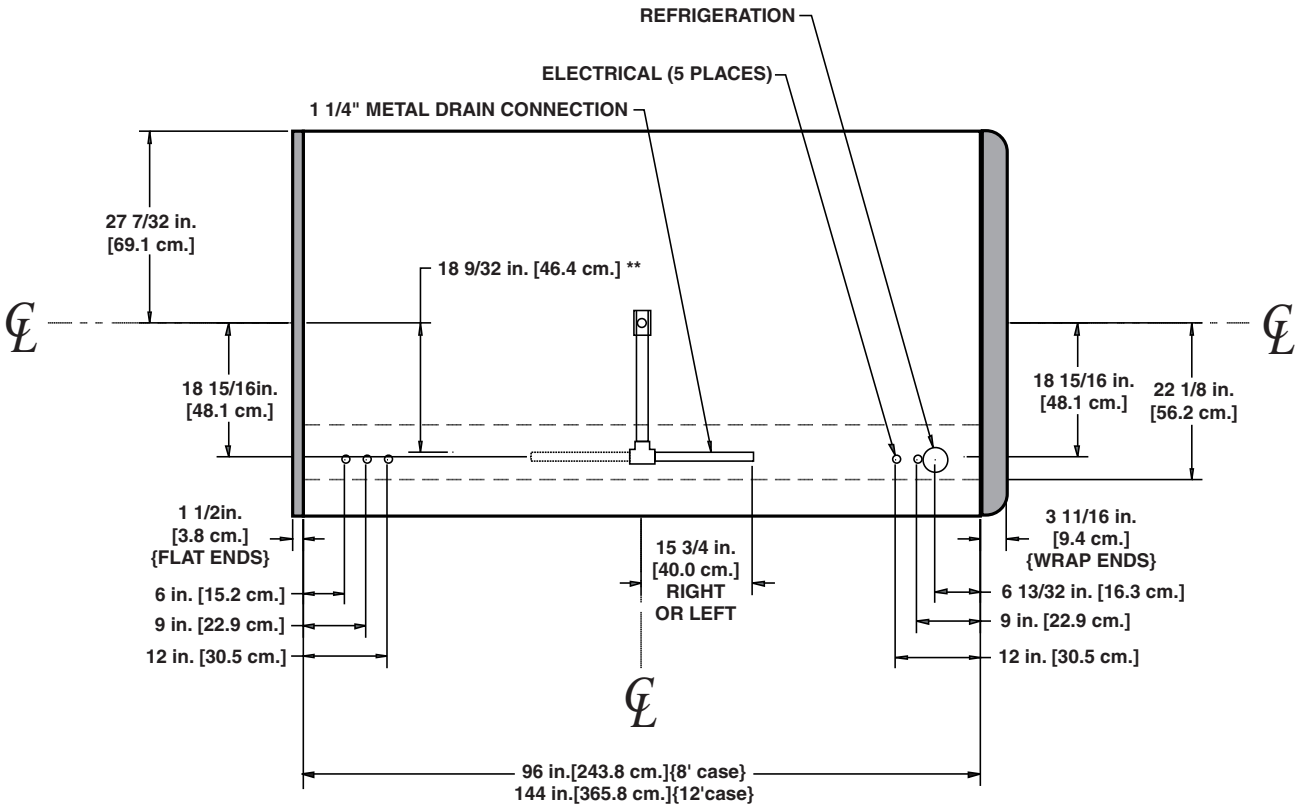




NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

Wide Island Frozen Food/Ice Cream Merchandiser

OWIZ - 8' & 12' standard front
OWIZG - 8' & 12' glass front

Electrical Data

Model		Fans per Case	Standard Fan 120 Volts Amps	Standard Fan 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts	Drain Heaters 120 Volts Amps	Drain Heaters 120 Volts Watts
OWIZ	F-8'[1]	4	1.80	68	0.60	44	3.19[2]	383	7.69[3]	1600	8.88[3]	2130	0.26	30
	F-12'	6	2.70	102	0.90	66	4.81[2]	577	11.54[3]	2400	13.31[3]	3195	0.26	30
	C-8'	4	1.80	68	0.60	44	3.19[2]	383	11.54[3]	2400	13.31[3]	3195	0.26	30
	C-12'	6	2.70	102	0.90	66	4.81[2]	577	17.31[3]	3600	19.98[3]	4795	0.26	30
OWIZG	F-8'[1]	4	1.80	68	0.60	44	4.58[2]	550	7.69[3]	1600	8.88[3]	2130	0.26	30
	F-12'	6	2.70	102	0.90	66	6.68[2]	802	11.54[3]	2400	13.31[3]	3195	0.26	30
	C-8'	4	1.80	68	0.60	44	4.58[2]	550	11.54[3]	2400	13.31[3]	3195	0.26	30
	C-12'	6	2.70	102	0.90	66	6.68[2]	802	17.31[3]	3600	19.98[3]	4795	0.26	30

[1] F = frozen food, C = ice cream.

[2] Anti-Condensate heater data for No Wrap End configuration. For solid fronts add 0.28 amps per wrap end. For glass fronts add 0.68 amps per wrap end.

[3] Defrost data for one side of case only.

Lighting Data[4]

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OWIZ/	8'	1.14	137	4.56	547
OWIZG	12'	1.71	205	6.84	821

[4] Lighting is for cases with superstructures.

Guidelines & Control Settings

Model	BTUH/ft[5]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
OWIZ - F	600	-18	3-5	-10	0	0	180
OWIZ - C	700	-33	3-5	-20	-4	-12	180
OWIZG - F	600	-18	3-5	-12	0	0	180
OWIZG - C	700	-33	3-5	-20	-4	-12	180

[5] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[6] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OWIZ/OWIZG	1	13 - 15	60	49	- - -[7]	- - -	20	60	- - -	- - -

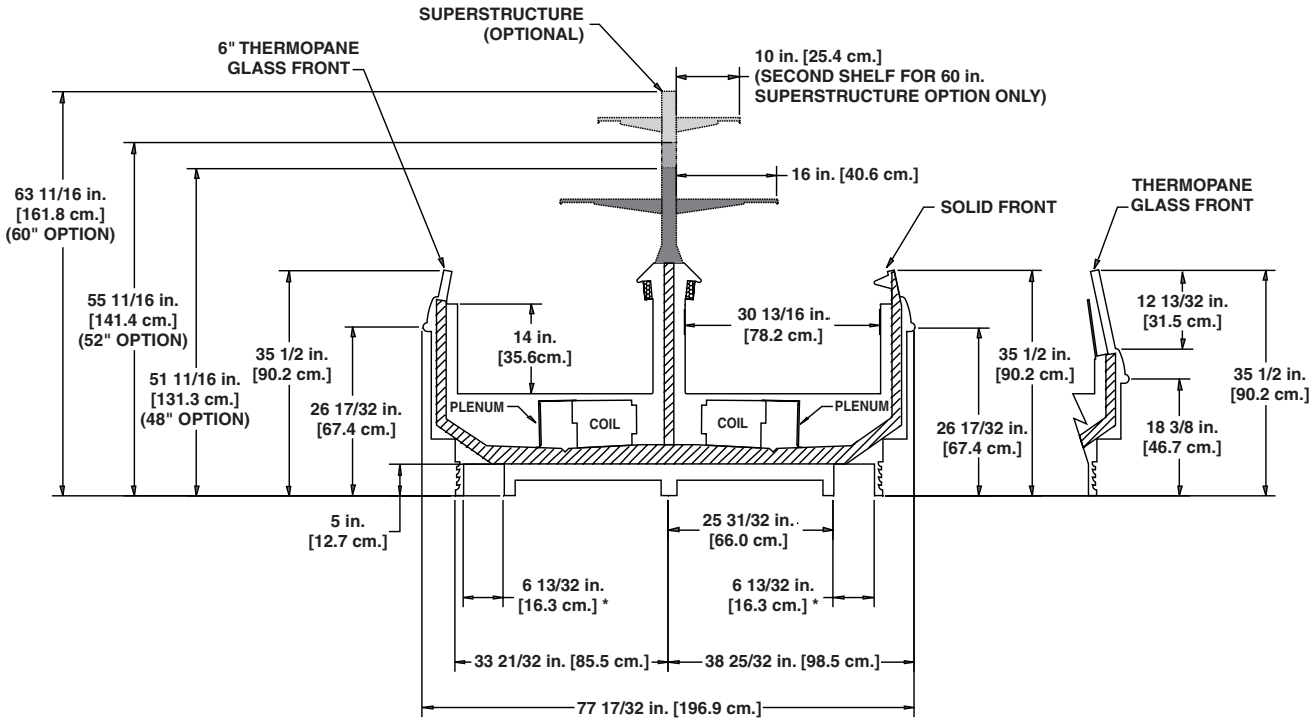
[7] NOTE: - - - not an option on this case model.

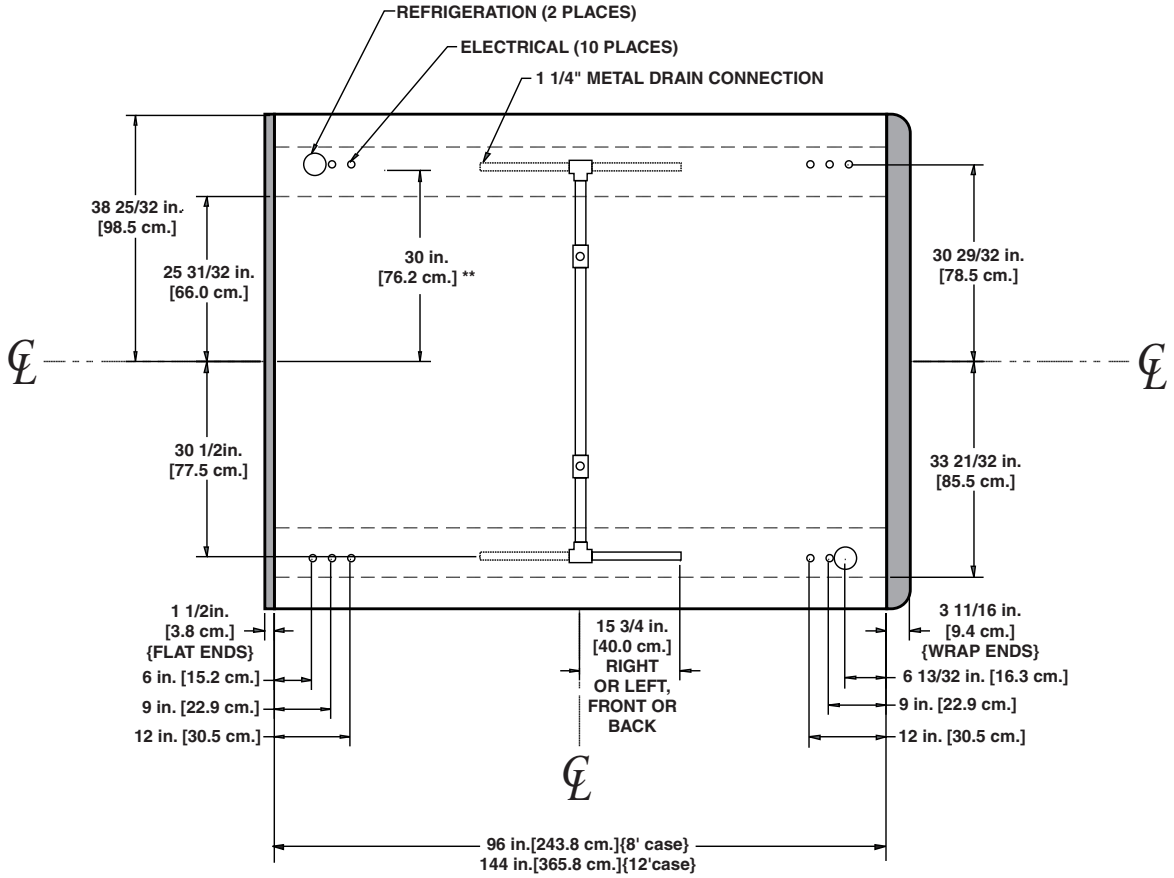
Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

Wide Island End Cap Frozen Food/Ice Cream Merchandiser

OWEZ - standard front
OWEZG - glass front

Electrical Data

Model		Fans per Case	Standard Fan 120 Volts Amps	Standard Fan 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts	Drain Heaters 120 Volts Amps	Drain Heaters 120 Volts Watts
OWEZ	F[1]	2	0.90	34	0.30	22	1.56	187	5.77	1200	6.65	1596	0.13	15
	C	2	0.90	34	0.30	22	1.56	187	8.65	1800	9.98	2394	0.13	15
OWEZG	F	2	0.90	34	0.30	22	2.46	295	5.77	1200	6.65	1596	0.13	15
	C	2	0.90	34	0.30	22	2.46	295	8.65	1800	9.98	2394	0.13	15

[1] F = Frozen food, C = Ice cream

Lighting Data

Model	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OWEZ/	- - -[2]	- - -	- - -	- - -
OWEZG	- - -	- - -	- - -	- - -

[2] NOTE: - - - not an option on this case model.

Guidelines & Control Settings

Model	BTUH/cs[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OWEZ - F	2700	-18	3-5	-12	0	0	200
OWEZ - C	3300	-33	3-5	-22	-1	-12	200
OWEZG - F	2700	-18	3-5	-12	0	0	200
OWEZG - C	3300	-33	3-5	-22	-1	-12	200

[3] BTUH's/case listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

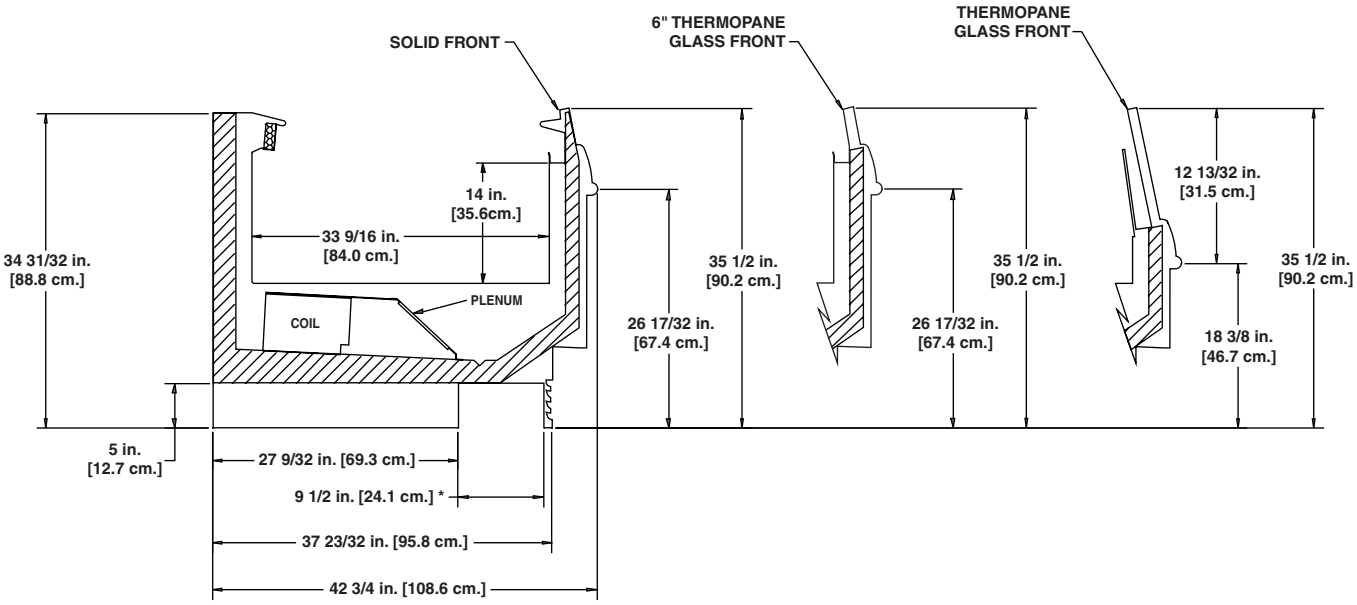
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OWEZ/OWEZG	1	13 - 15	60	49	- - -	- - -	20	60	- - -	- - -

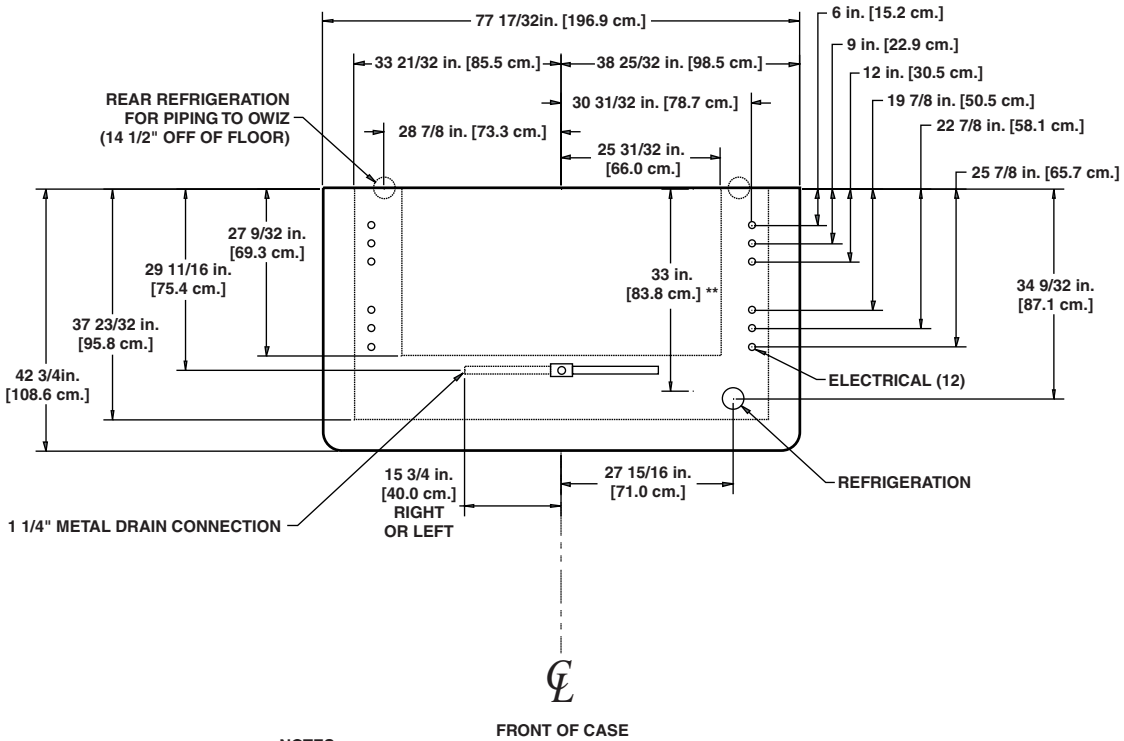
Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

Multi-Deck Island Merchandisers

Notes:

- *Average product temperatures are calculated as defined by ASHRAE* standards and should not be used to determine application.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*

* *American Society of Heating Refrigeration and Air Conditioning Engineers*

Wide Island Multi-Deck Cheese Merchandiser

O3IC - 8’ & 12’ double wraparound end
O3ICB - 6’, 8’, & 12’ single wraparound end

Electrical Data

Model		Fans per Case	Standard Fan 120 Volts Amps	Standard Fan 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O3IC	8’	6	2.70	102	0.90	66	0.82	98	4.34	902	5.00	1200
	12’	8	3.60	136	1.20	88	1.08	130	7.22	1502	8.33	2000
O3ICB	6’	4	1.80	68	0.60	44	0.57	68	3.25	676	3.75	900
	8’	6	2.70	102	0.90	66	0.75	90	4.34	902	5.00	1200
	12’	8	3.60	136	1.20	88	1.17	140	7.22	1502	8.33	2000

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3IC	8’	NA[1]	NA	5.71	546
	12’	NA	NA	7.46	779
O3ICB	6’	NA	NA	3.50	363
	8’	NA	NA	4.76	514
	12’	NA	NA	6.02	665

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O3IC/O3ICB	1150[4]	17	6-8	29	37	48	160

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

[4] Add 700 BTUH per wrap end.

Defrost Controls

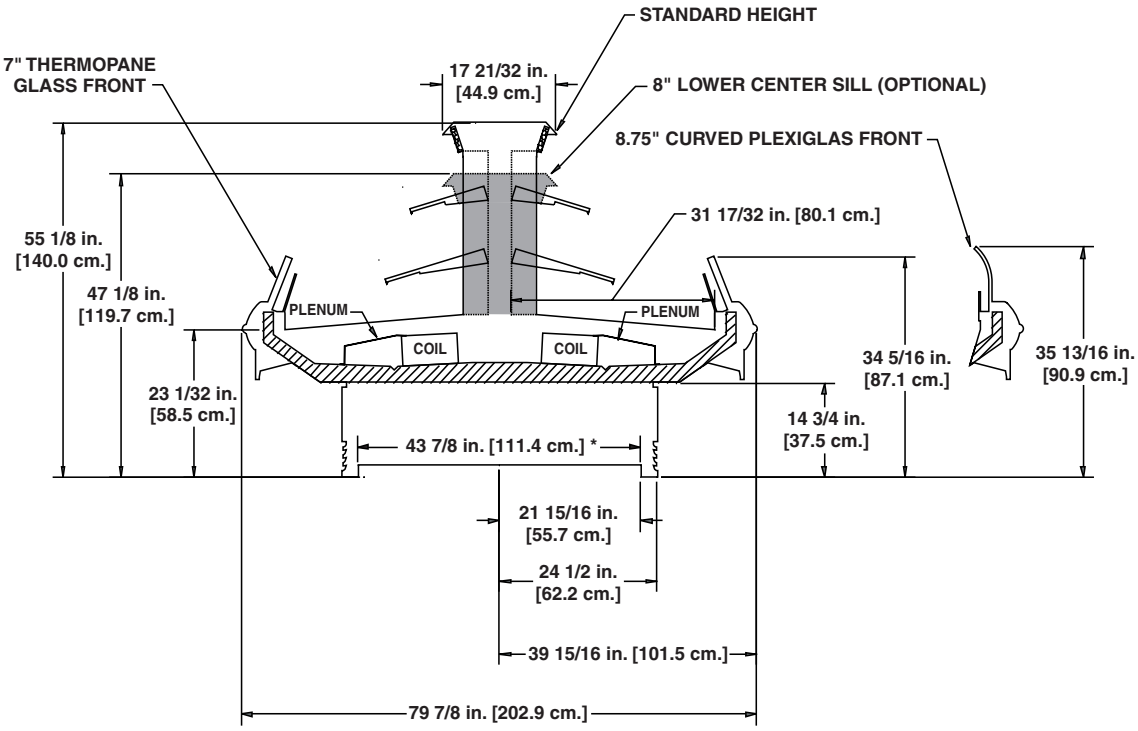
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3IC/O3ICB	4	6 - 8	30	47	- - -[5]	- - -	26	45	- - -	- - -

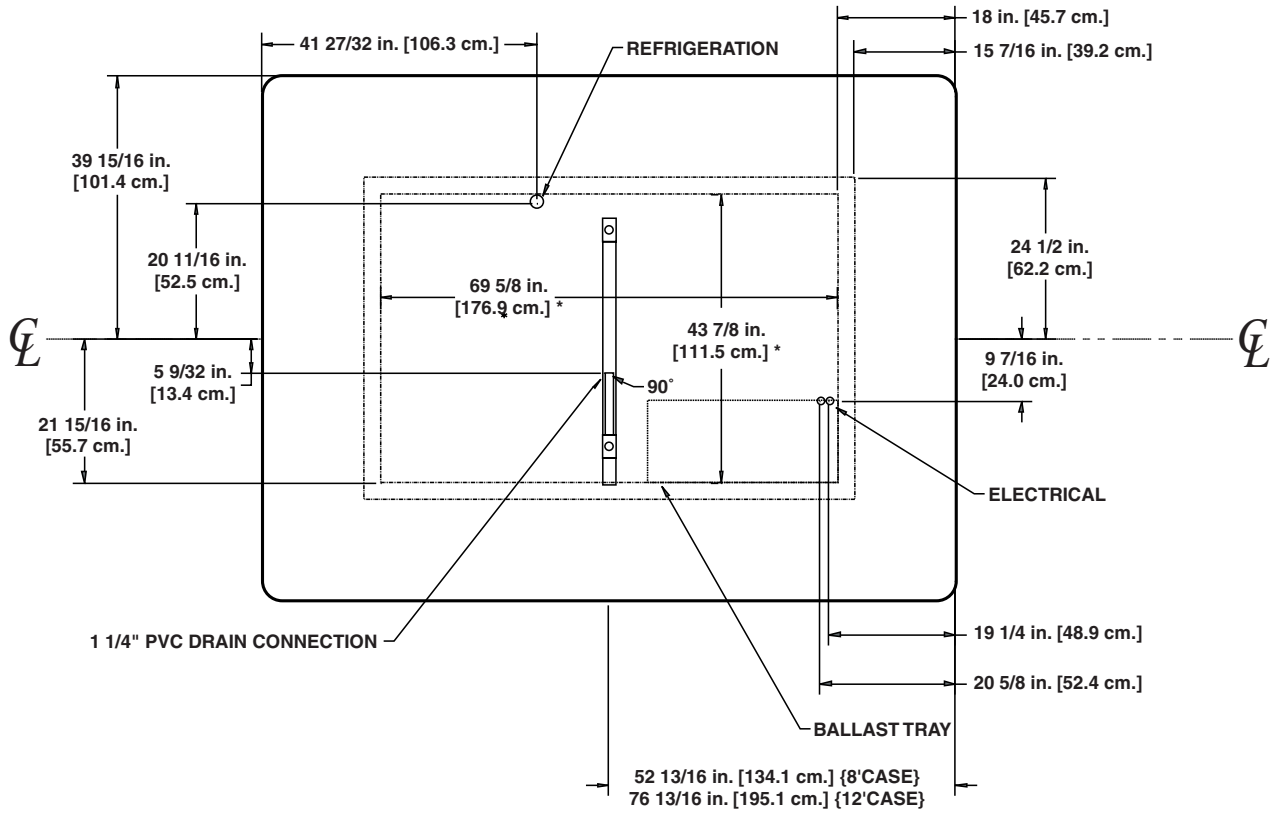
[5] NOTE: --- not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

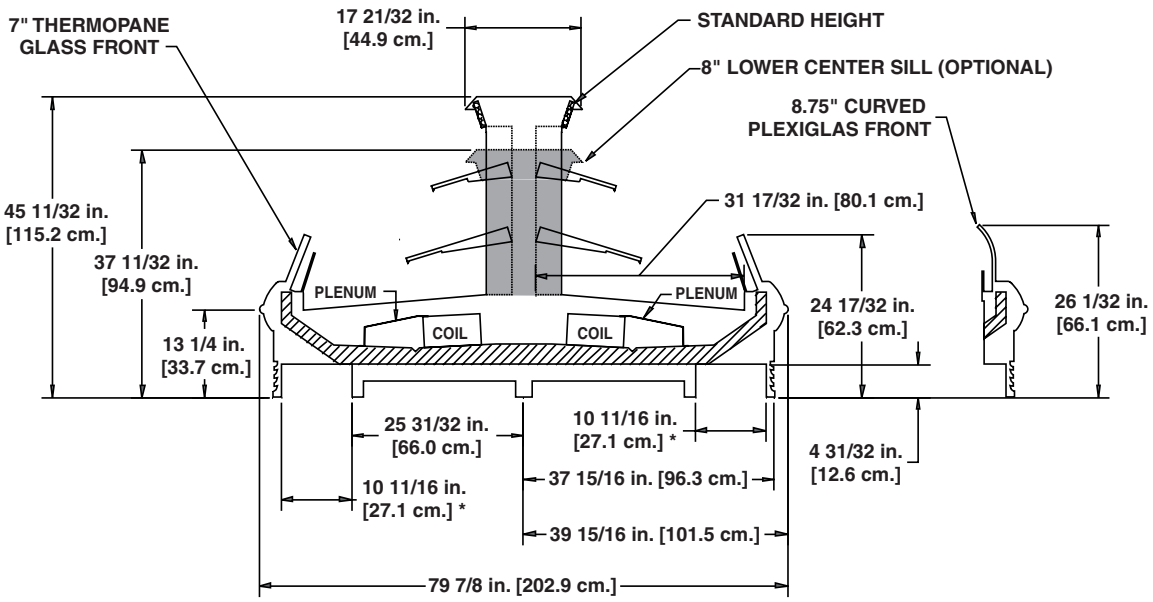


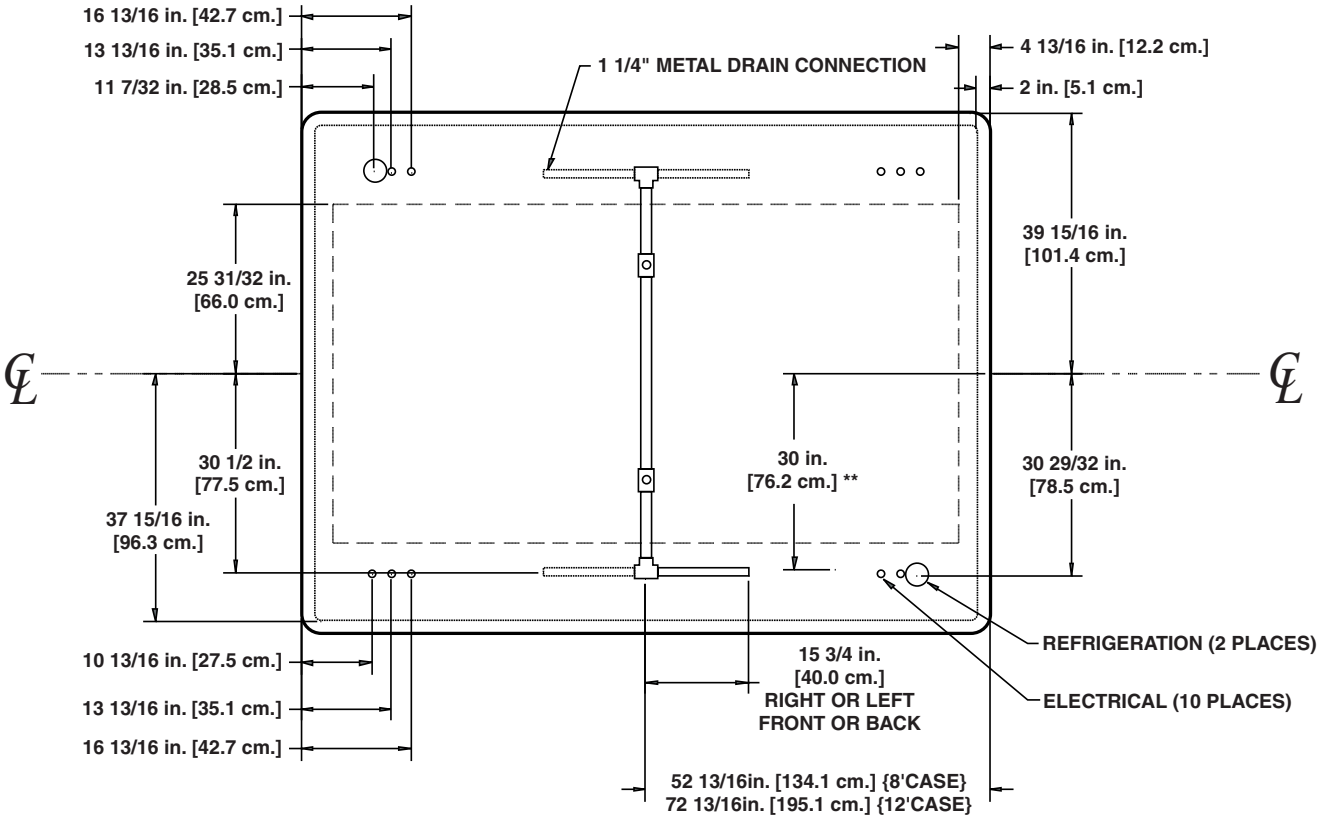


NOTES:

* STUB-UP AREA

• AVAILABLE SHELF SIZES: 12" & 16"

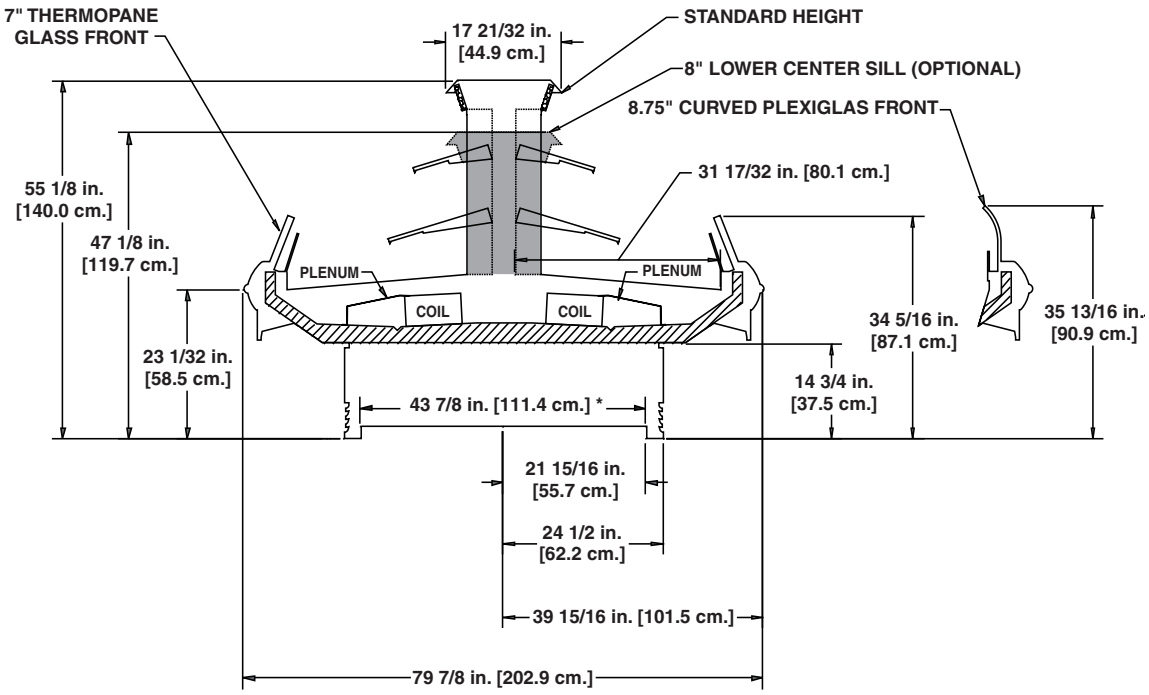


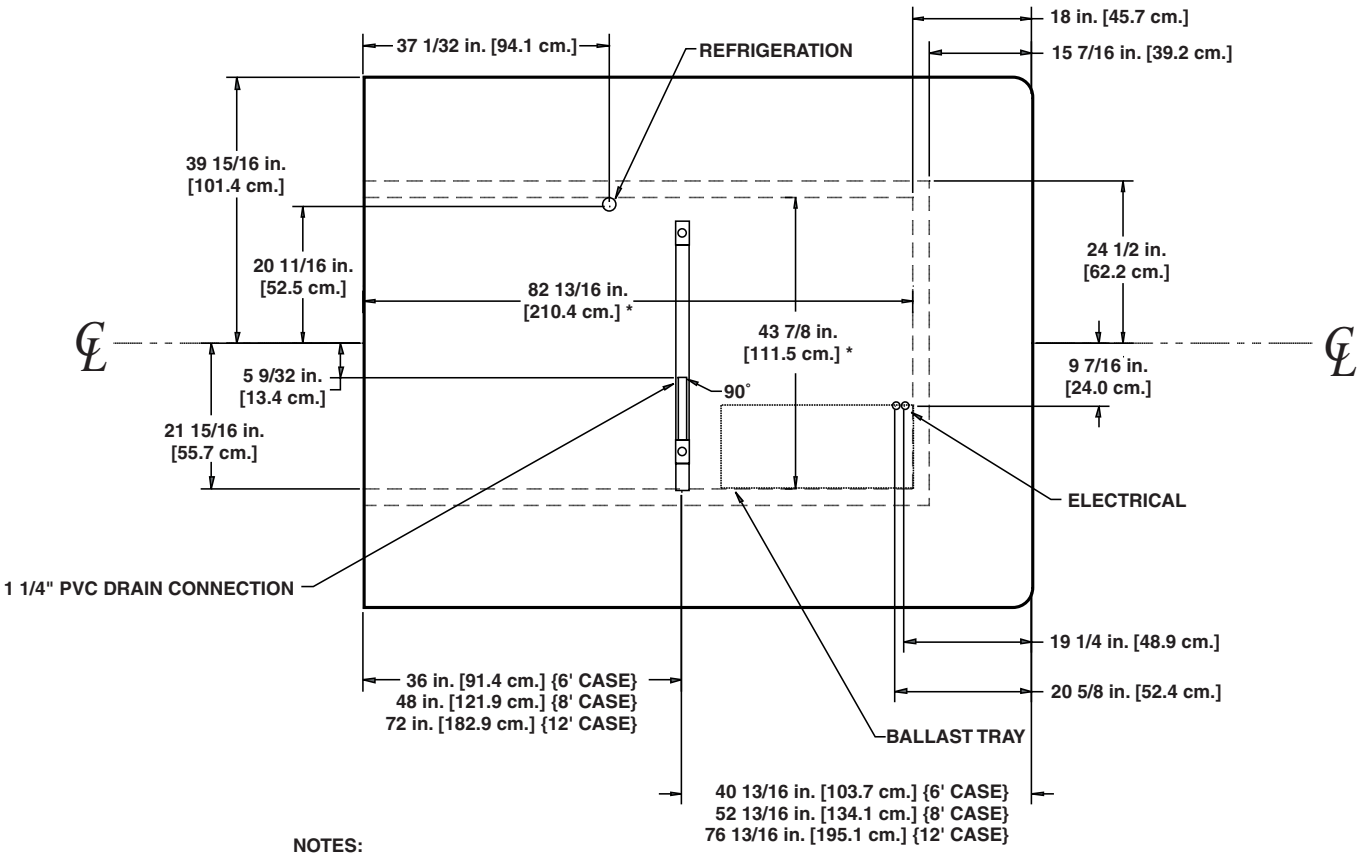


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- AVAILABLE SHELF SIZES: 12" & 16"

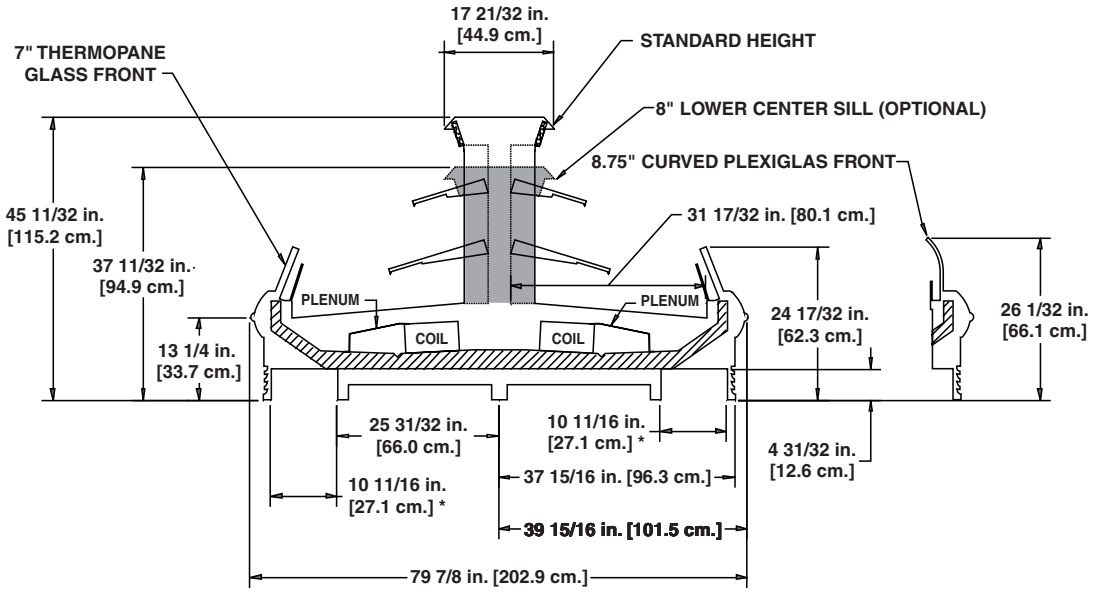


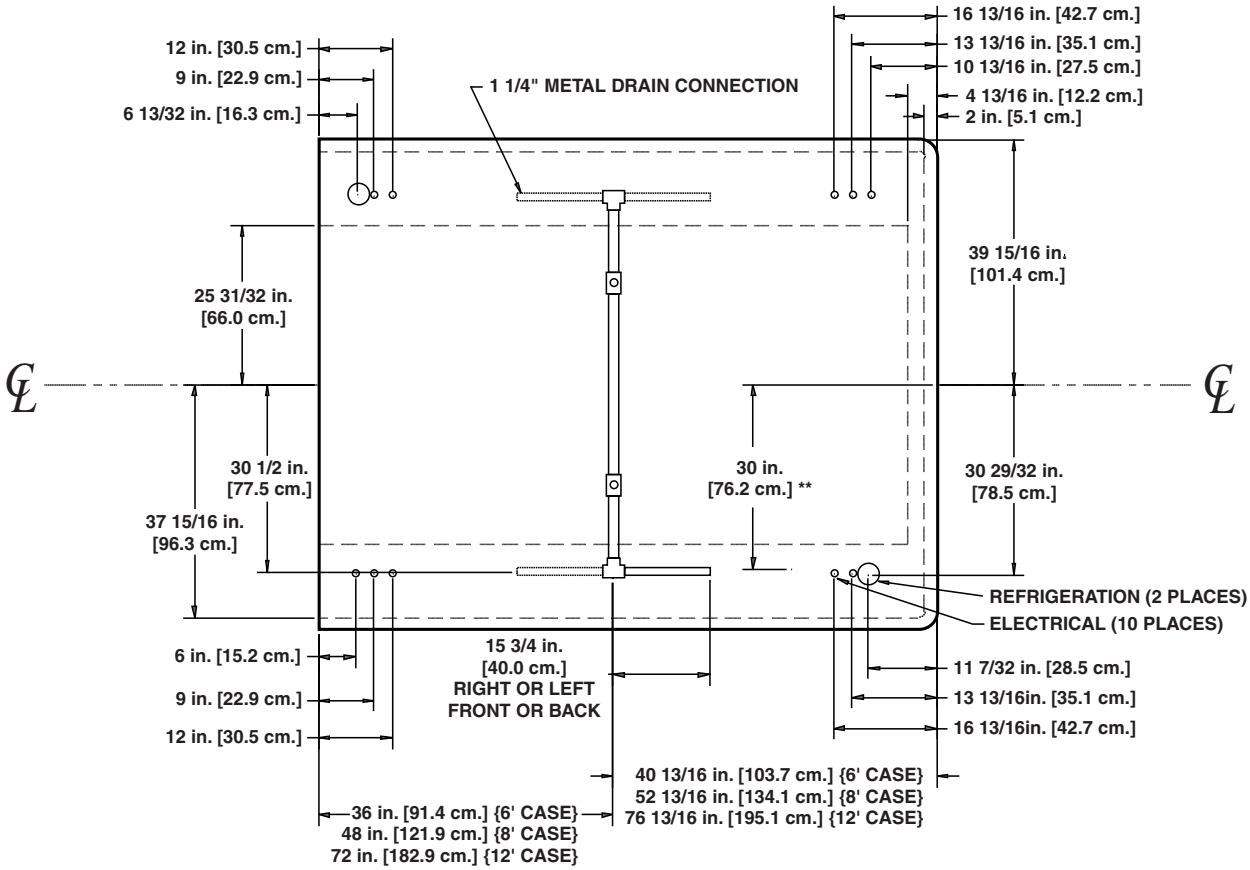


NOTES:

* STUB-UP AREA

• AVAILABLE SHELF SIZES: 12" & 16"





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• AVAILABLE SHELF SIZES: 12" & 16"

Wide Island Multi-Deck Deli/Meat Merchandiser

O3IM - 8’ & 12’ double wraparound end
O3IMB - 8’ single wraparound end

Electrical Data

Model		Fans per Case	Standard Fan 120 Volts Amps	Standard Fan 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O3IM	8’	6	3.00	180	1.8	120	0.67	80	7.70	1600	8.88	2130
	12’	8	4.00	240	2.4	160	1.06	127	11.54	2400	13.32	3200
O3IMB	8’	6	3.00	180	1.8	120	1.77	212	7.70	1600	8.88	2130

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3IM	8’	NA[1]	NA	1.88	226
	12’	NA	NA	2.80	336
O3IMB	8’	NA	NA	2.02	242

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O3IM	1527	17	6-8	28	32	38	270
O3IMB	1548	17	6-8	28	32	38	270

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

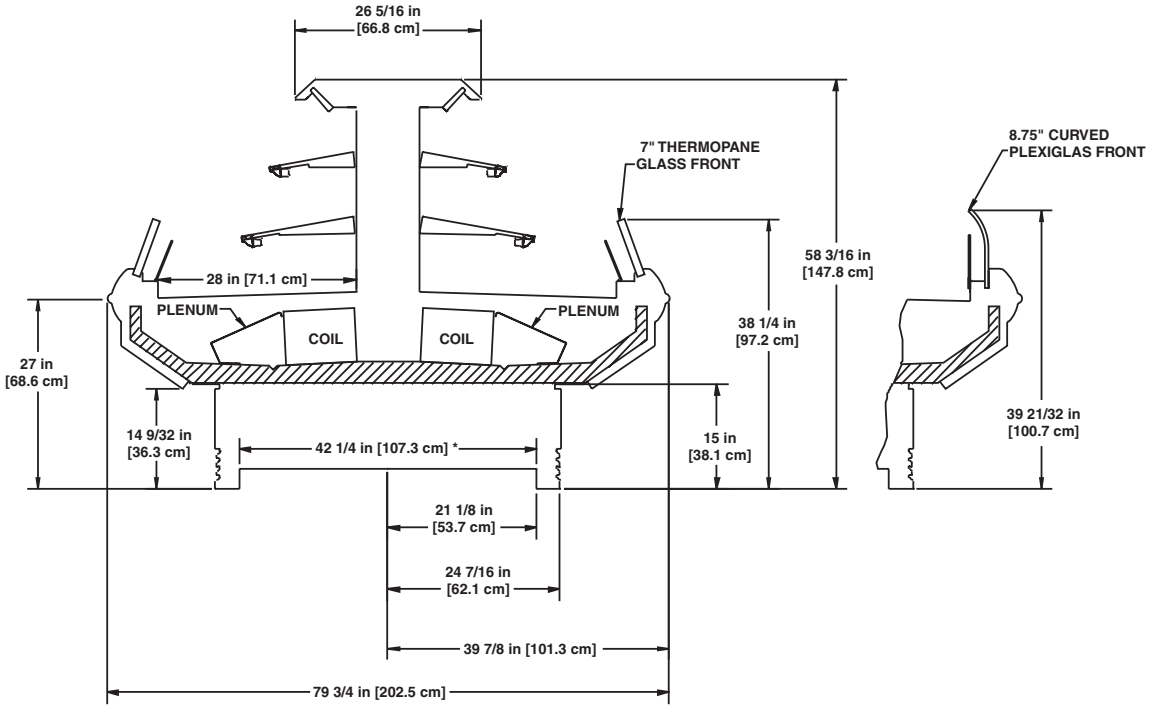
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3IM/O3IMB	3	6 - 8	30	47	- - -[5]	- - -	26	45	- - -	- - -

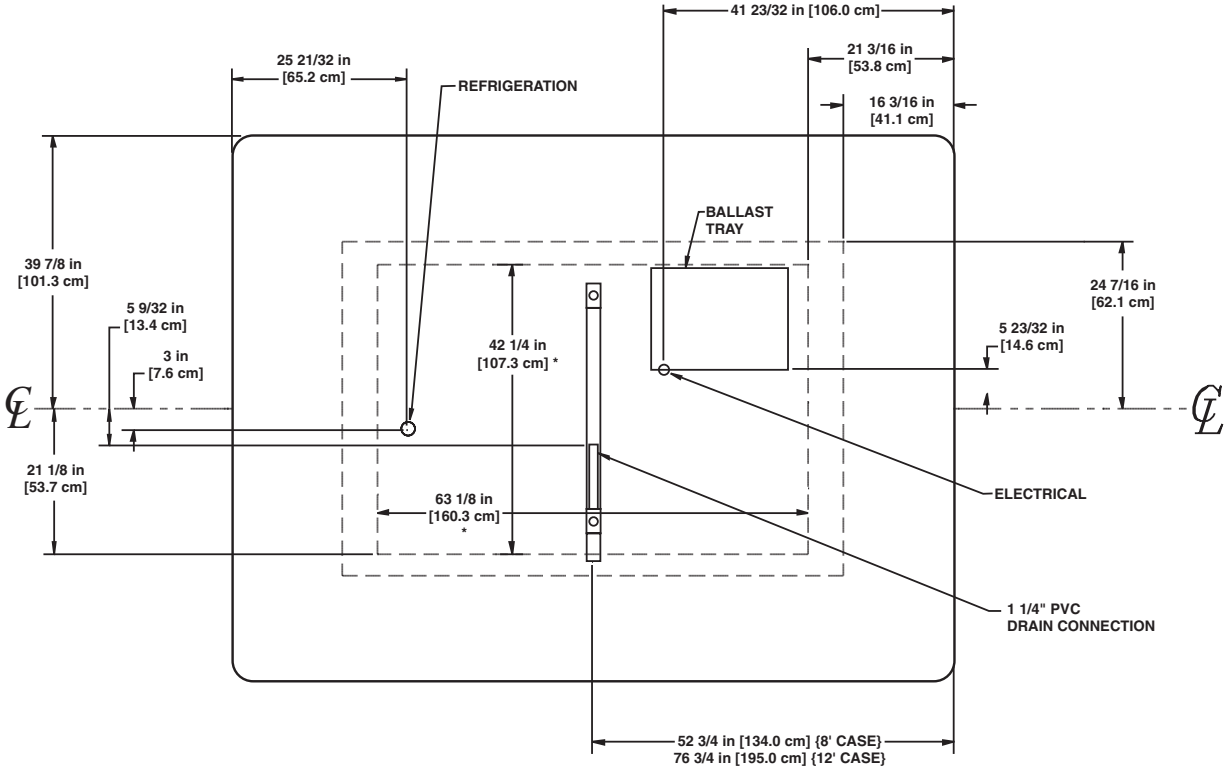
[5] NOTE: --- not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

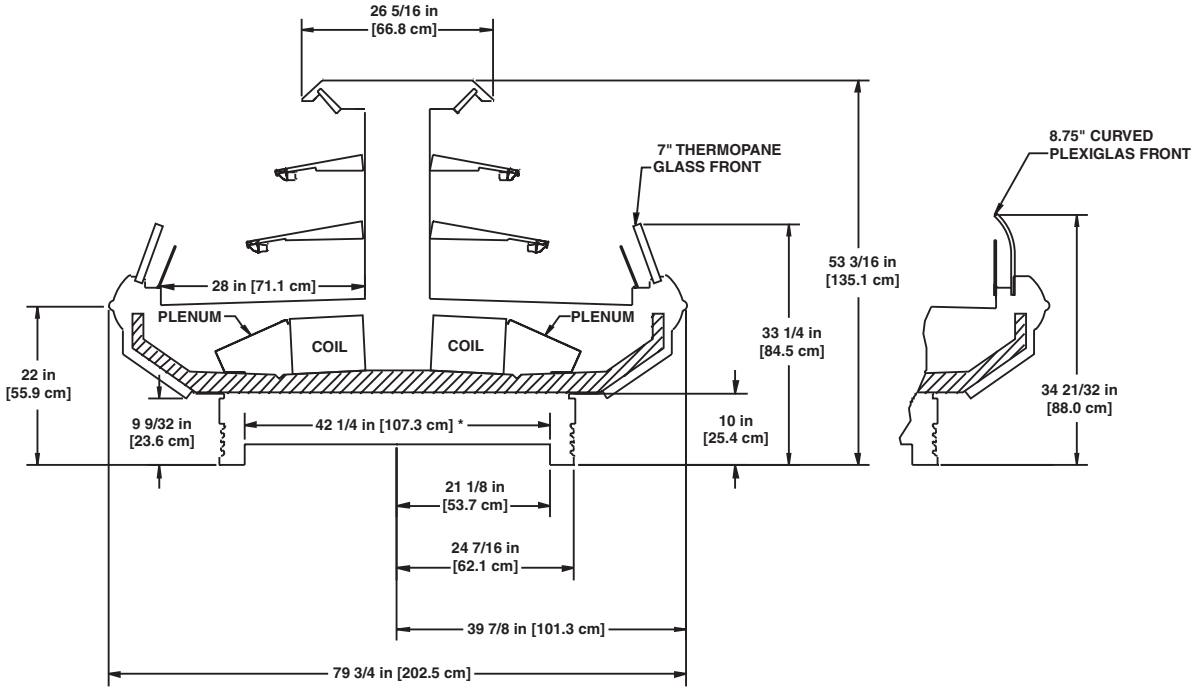


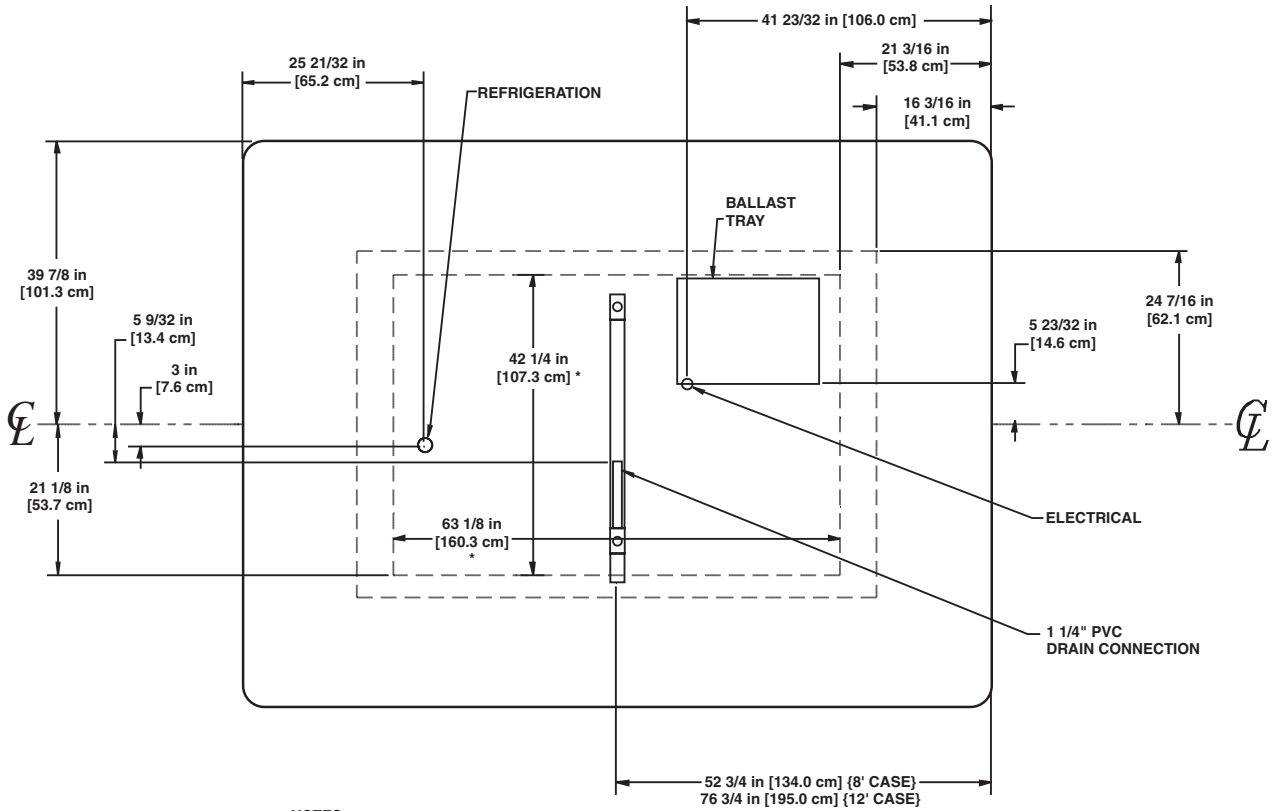


NOTES:

* STUB-UP AREA

• AVAILABLE SHELF SIZES: 12" & 16"

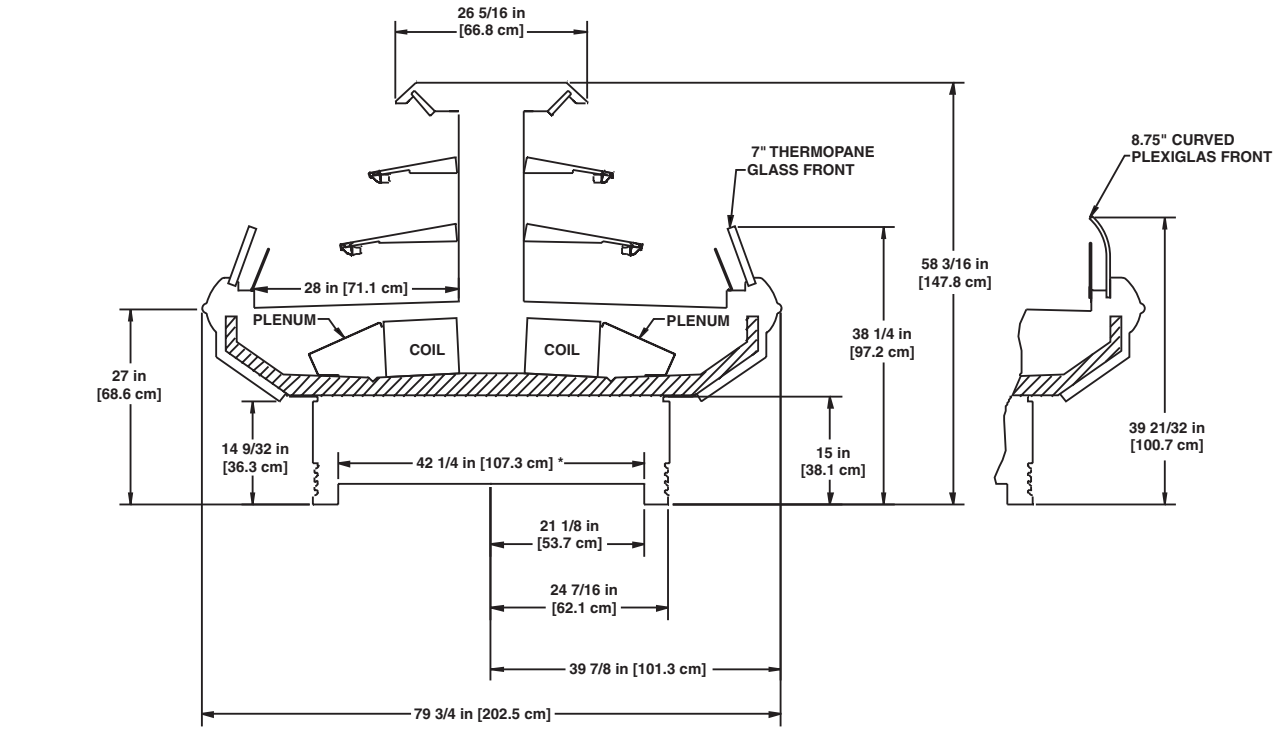


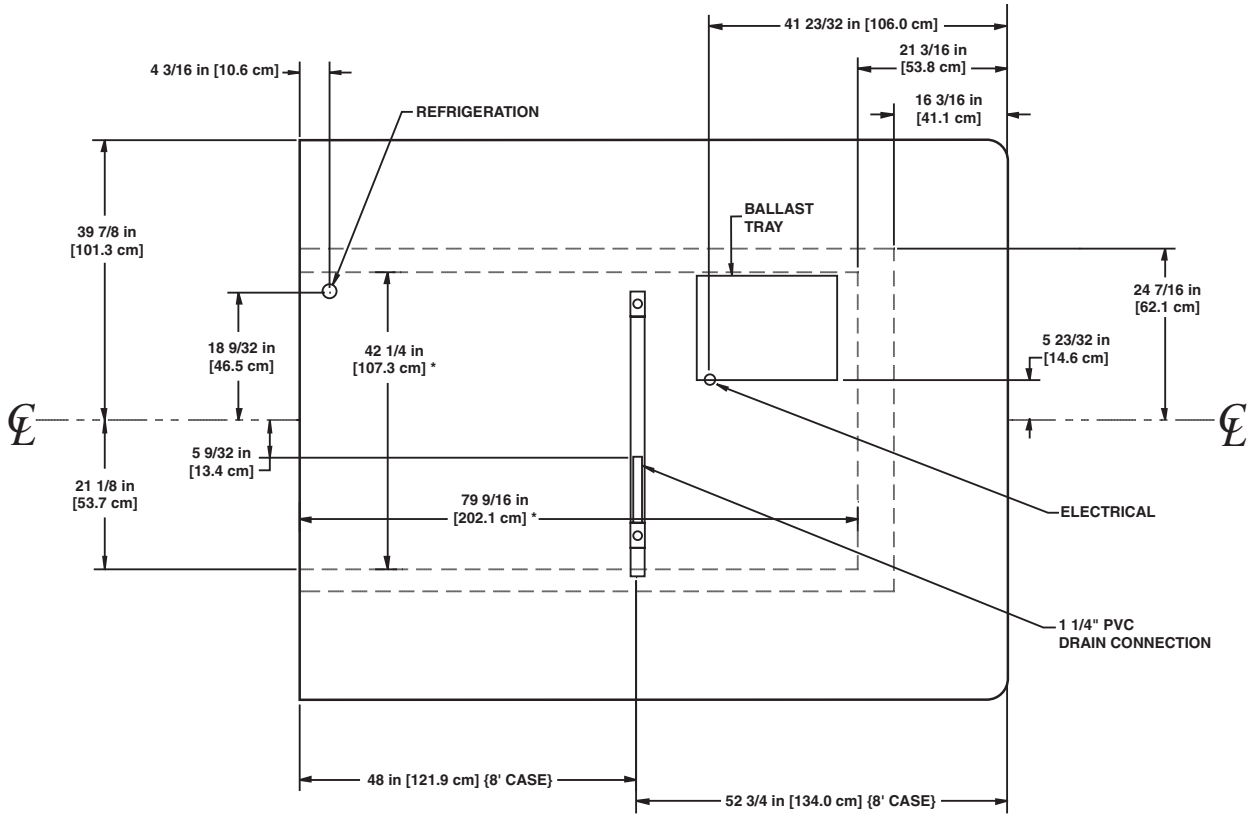


NOTES:

* STUB-UP AREA

• AVAILABLE SHELF SIZES: 12" & 16"

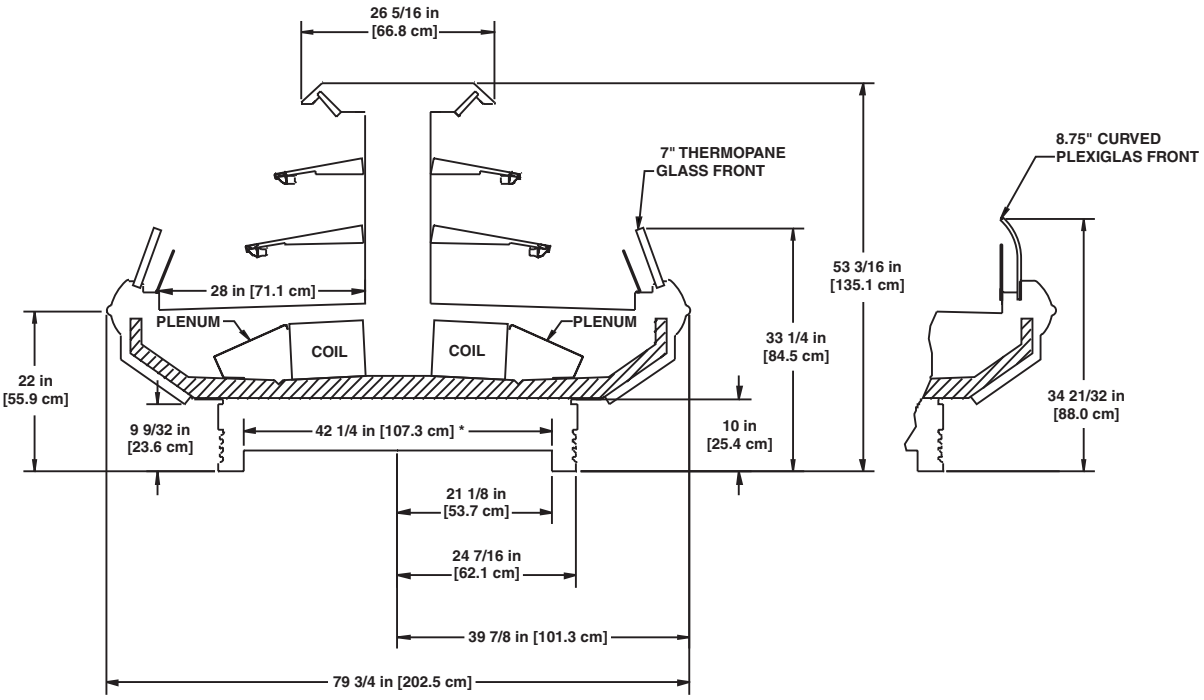


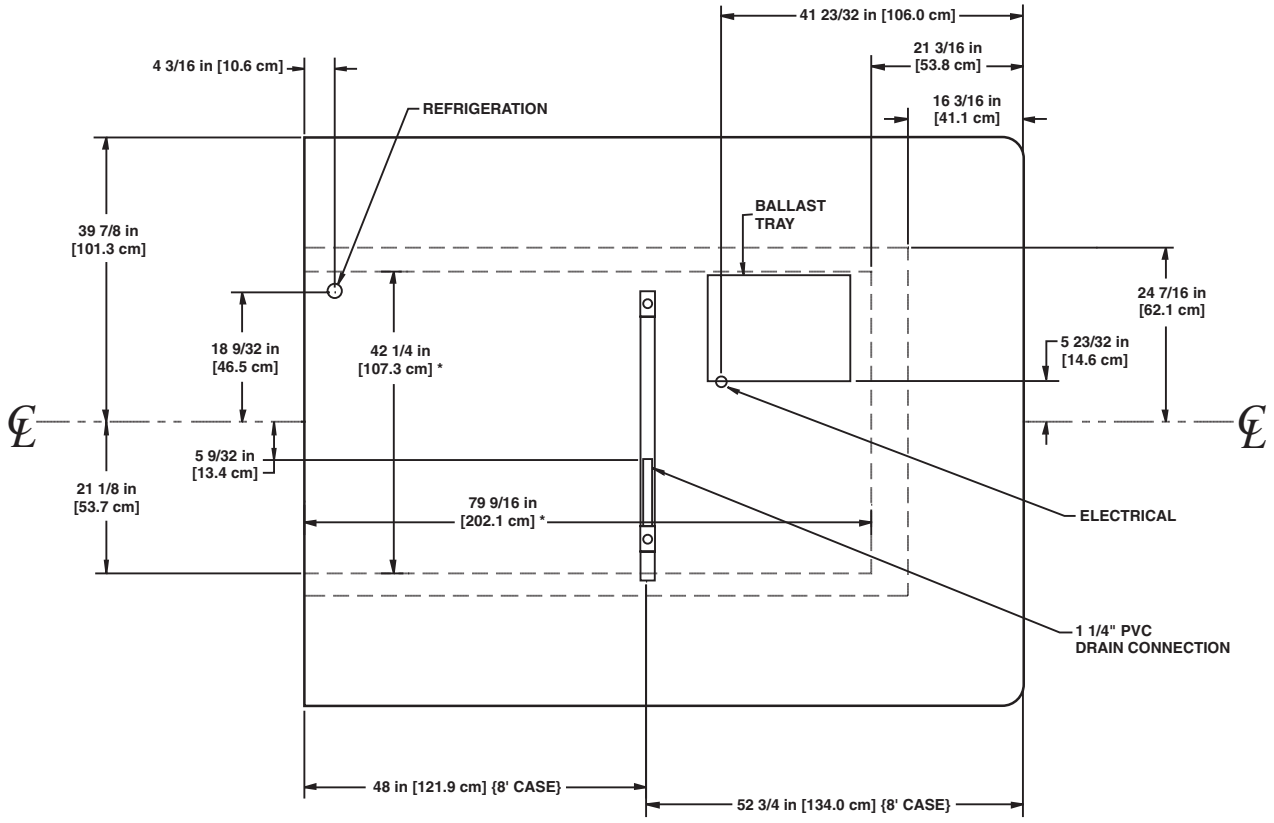


NOTES:

* STUB-UP AREA

• AVAILABLE SHELF SIZES: 12" & 16"





NOTES:

* STUB-UP AREA

• AVAILABLE SHELF SIZES: 12" & 16"

Wide Island Multi-Deck Produce Merchandiser

O3IP - 8' & 12' wide island double wraparound end
O3IPB - 8' & 12' wide island single wraparound end

Electrical Data

Model		Fans per Case	Standard Fan 120 Volts Amps	Standard Fan 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
O3IP	8'	6	2.70	102	0.90	66	0.82	98	- - -[1]	- - -	- - -	- - -
	12'	8	3.60	136	1.20	88	1.08	130	- - -	- - -	- - -	- - -
O3IPB	8'	6	2.70	102	0.90	66	0.75	90	- - -	- - -	- - -	- - -
	12'	8	3.60	136	1.20	88	1.17	140	- - -	- - -	- - -	- - -

[1] NOTE: --- not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3IP	8'	NA[2]	NA	5.71	546
	12'	NA	NA	7.46	779
O3IPB	8'	NA	NA	4.76	514
	12'	NA	NA	6.02	665

[2] Not applicable.

Guidelines & Control Settings

Model	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3IP/O3IPB	1050[5]	22	6-8	34	41	48	160

[3] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] Average discharge air velocity at peak of defrost.

[5] Add 650 BTUH per wrap end.

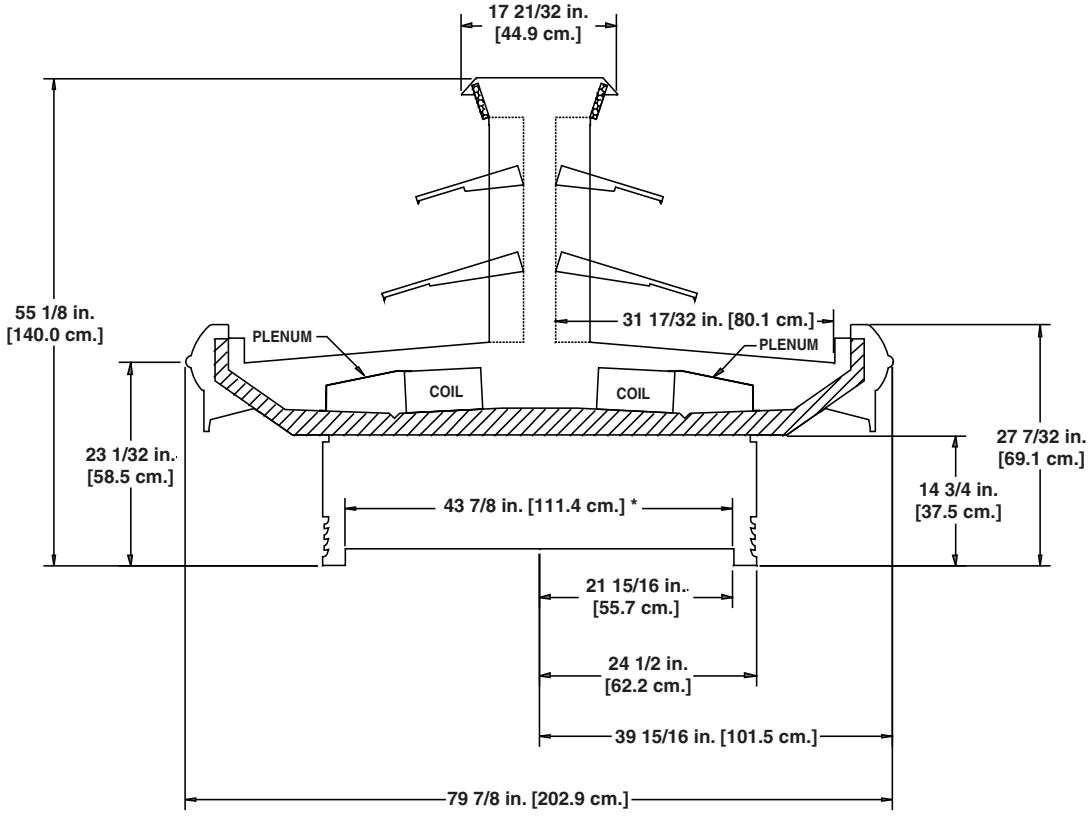
Defrost Controls

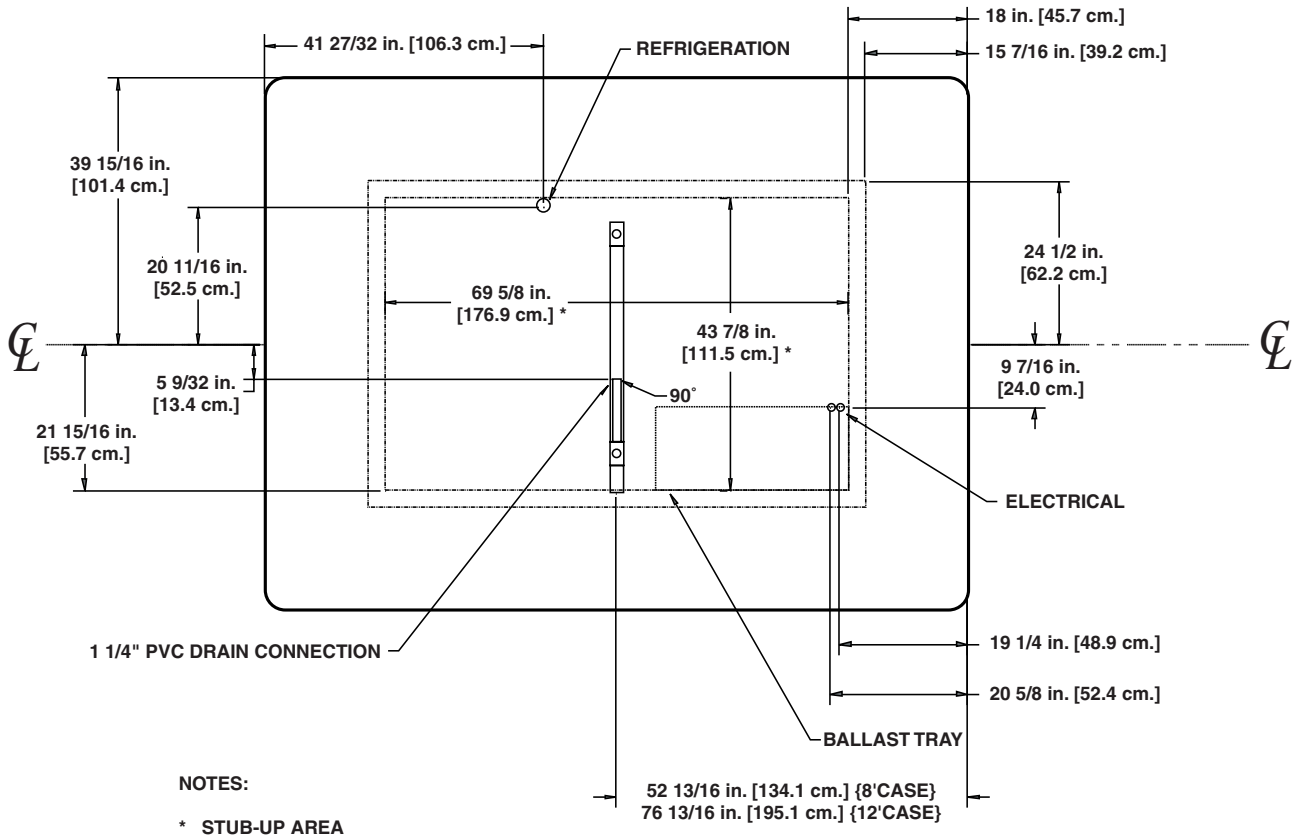
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3IP/O3IPB	4	6 - 8	- - -	- - -	44	38	- - -	- - -	- - -	- - -

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

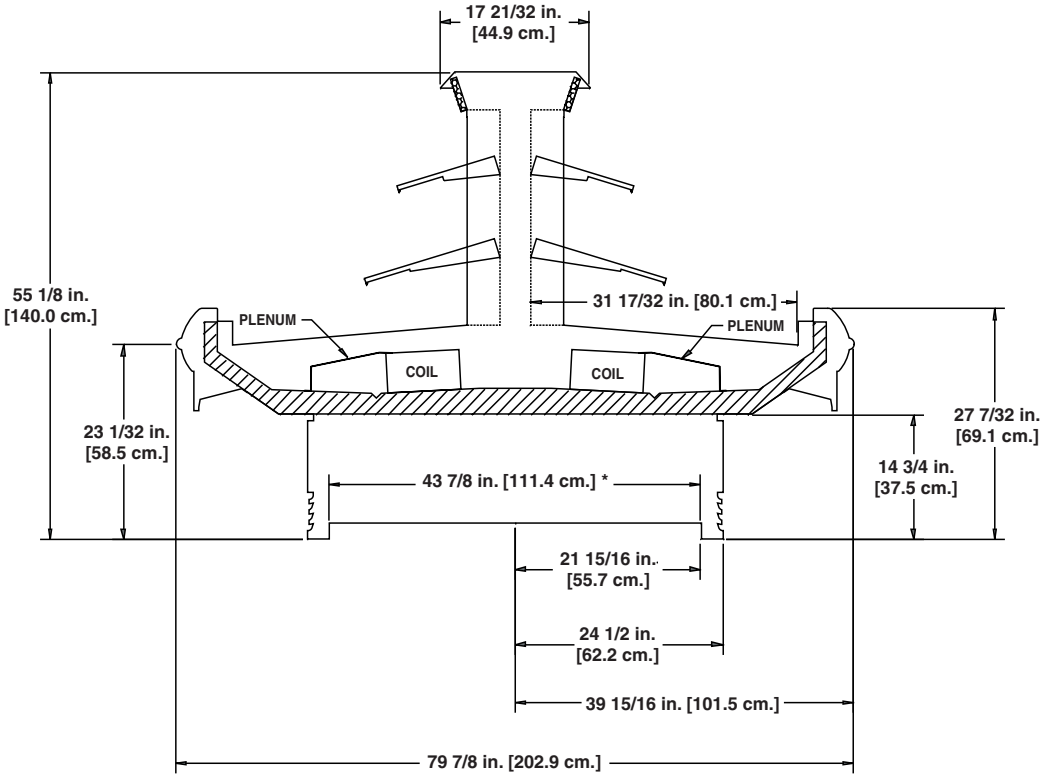


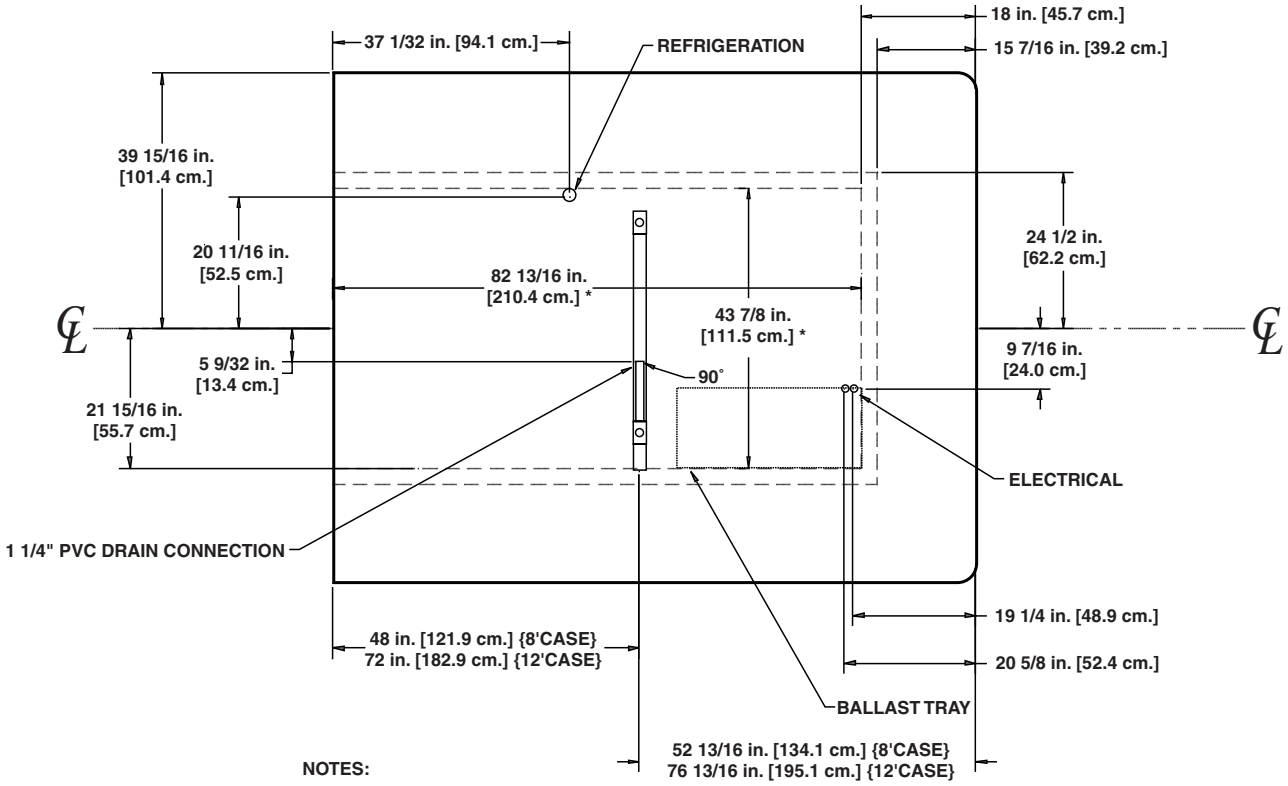


NOTES:

* STUB-UP AREA

• AVAILABLE SHELF SIZES: 12" & 16"





NOTES:

* STUB-UP AREA

• AVAILABLE SHELF SIZES: 12" & 16"

Service Merchandisers

Notes:

- *Average product temperatures are calculated as defined by ASHRAE* standards and should not be used to determine application.*
- *Cases meet FDA** Food Code 1997 product temperature requirements (41°F or less) for hazardous foods when used for their prescribed applications.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*

* *American Society of Heating Refrigeration and Air Conditioning Engineers*

** *Food and Drug Administration*

American Style Curved Glass Service Deli Merchandiser

OSA - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters[1] 120 Volts Amps	Anti-Condensate Heaters[1] 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OSA	4'	2	0.90	34	0.30	22	0.17	20	1.92	400	2.22	532
	6'	2	0.90	34	0.30	22	0.42	50	2.88	600	3.33	798
	8'	3	1.35	51	0.45	33	0.97	116	3.85	800	4.44	1065
	12'	4	1.80	68	0.60	44	1.50	180	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OSA	4'	0.57	68	1.71	205
	6'	0.57	68	2.41	289
	8'	0.57	68	2.41	289
	12'	0.77	92	3.85	462

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSA w/ Shelf Lights	320	22	6-8	30	37	39	235
OSA w/o Shelf Lights	290	22	6-8	30	35	39	235

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OSA	2	6 - 8	35	50	75[3]	50[3]	20	45	- - -[4]	- - -

[3] Not recommended on this model due to long defrost time.

[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

Hill PHOENIX EXCELLENCE™

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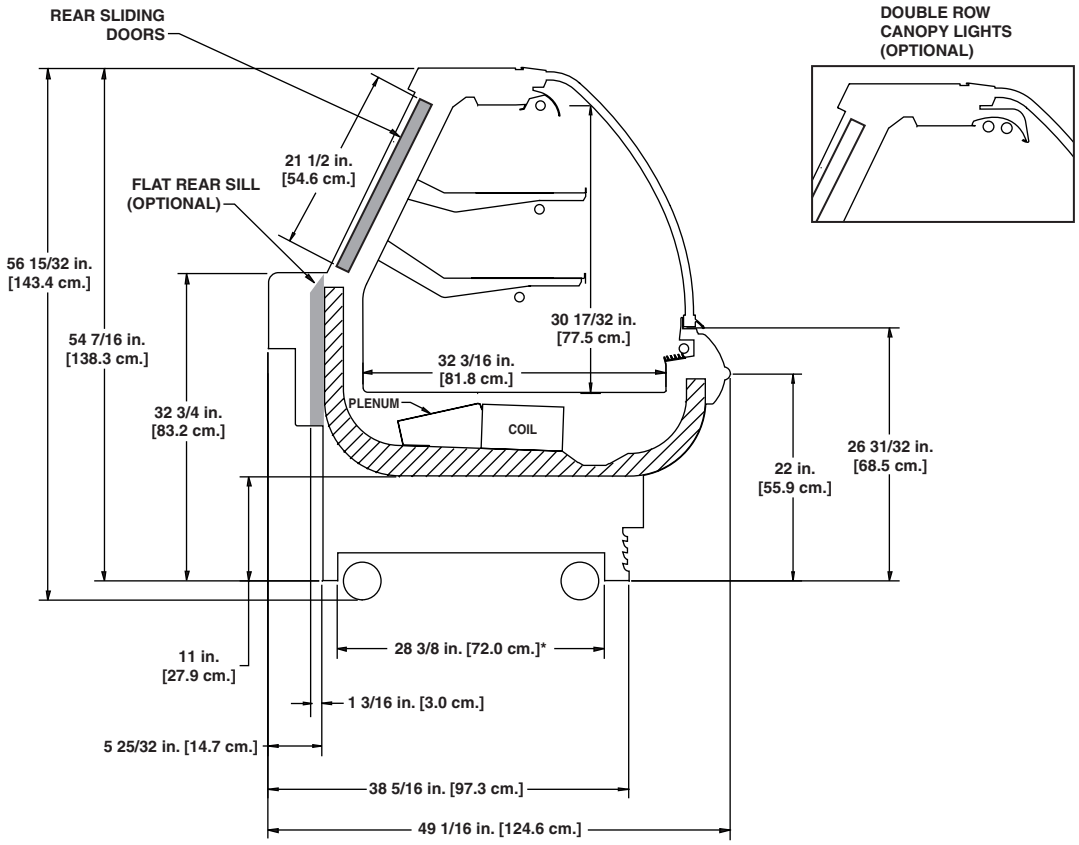
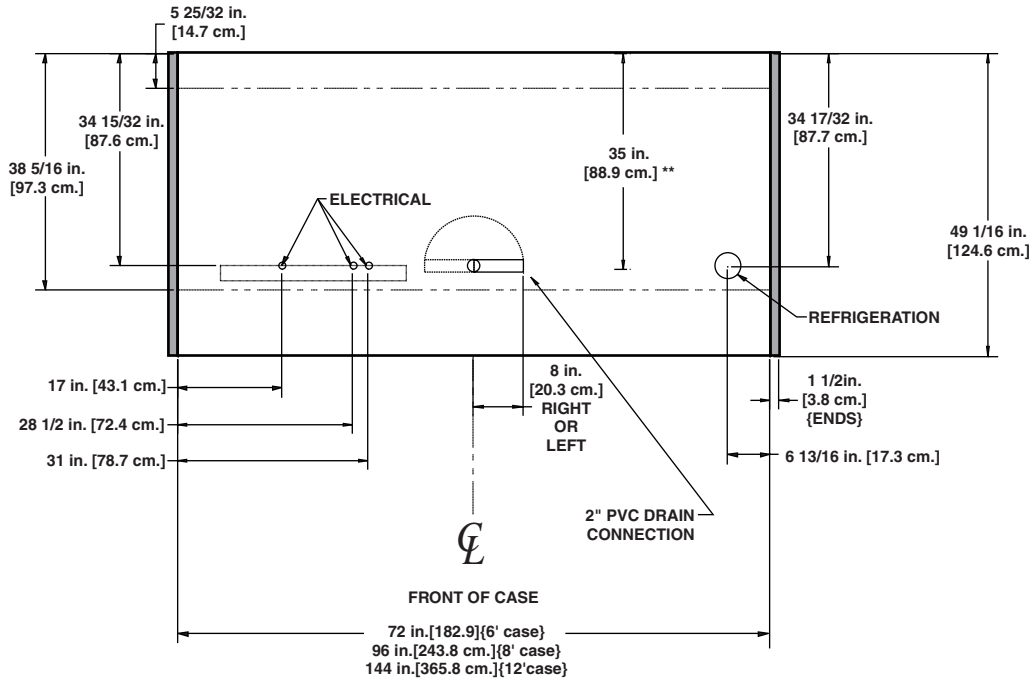
All measurements are taken per CRMA specifications.

OSA
(11" BASEFRAME)

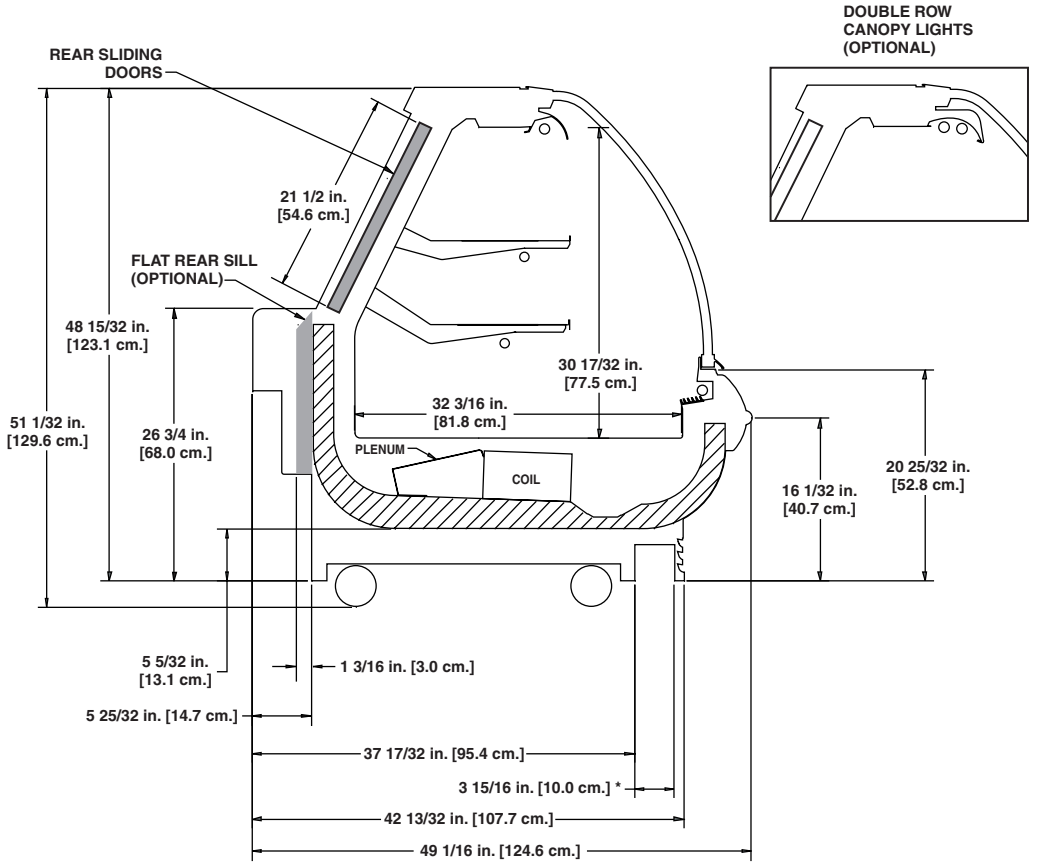


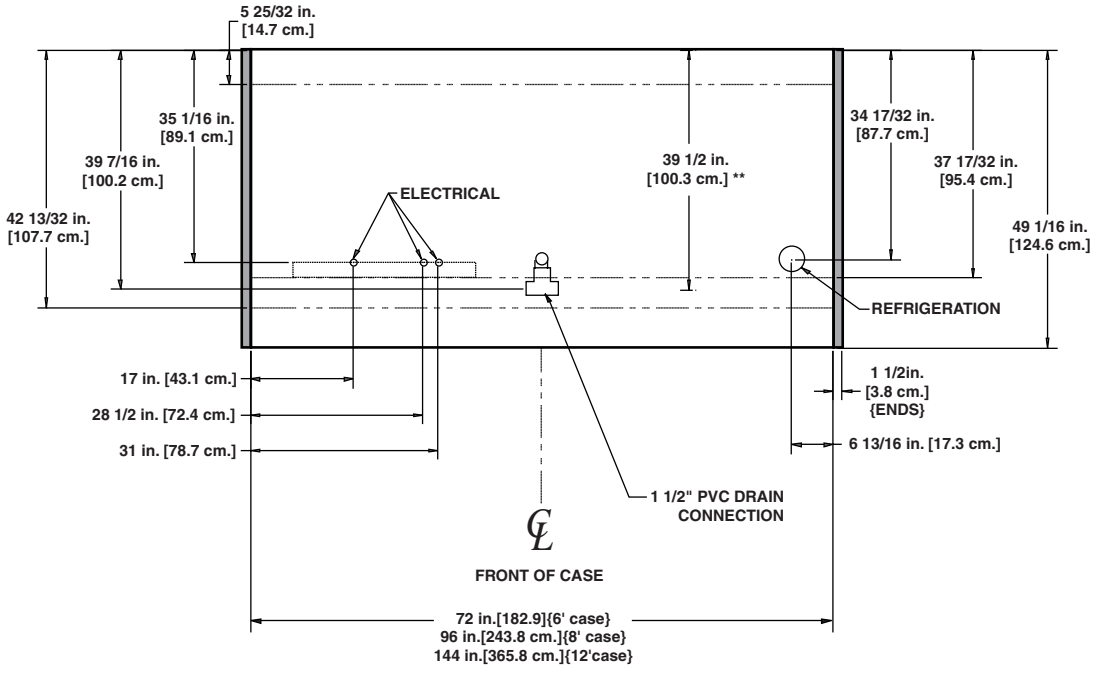


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12"

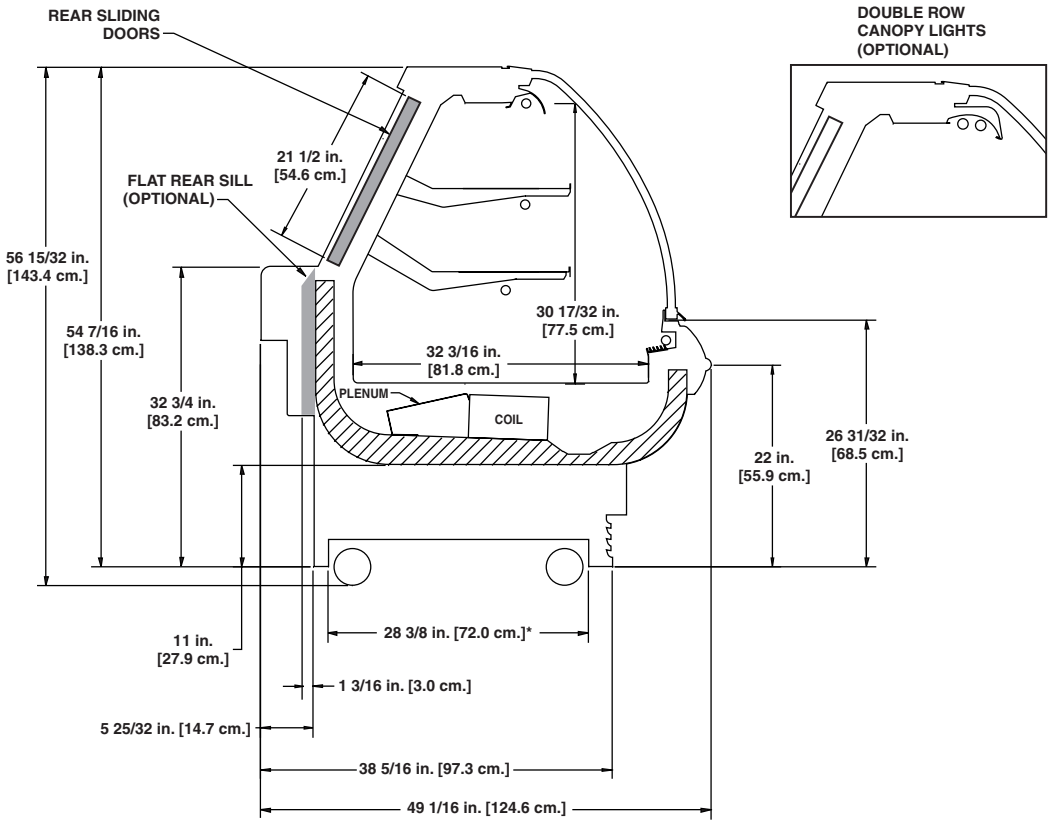


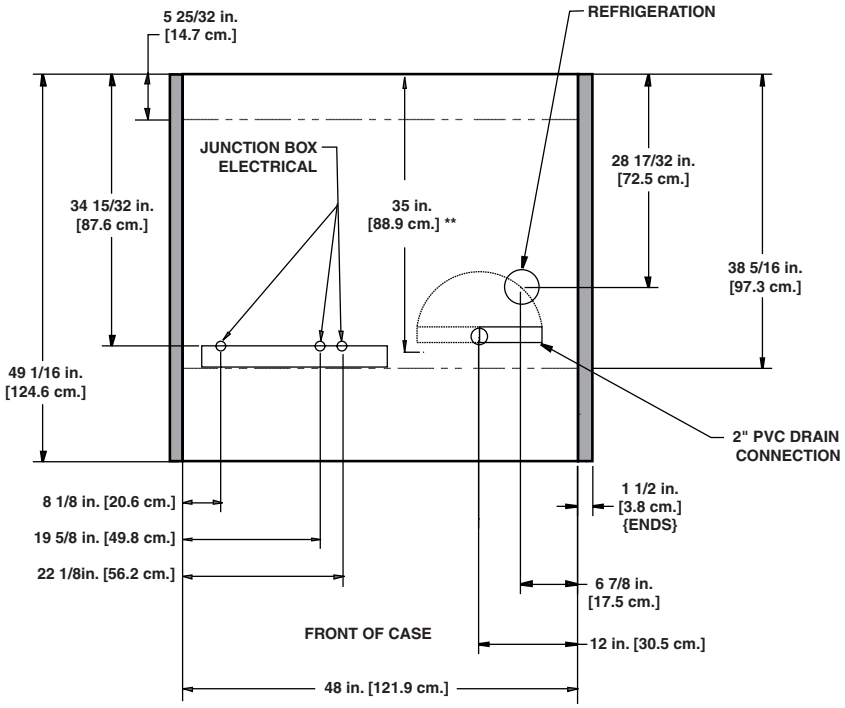


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12"





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12"

American Style Vertical Glass Service Deli Merchandiser

OSM - 8' & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OSM	8'	3	1.35	51	0.45	33	0.97	116	3.85	800	4.44	1065
	12'	4	1.80	68	0.60	44	1.50	180	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OSM	8'	0.57	68	2.06	247
	12'	0.77	92	3.08	370

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSM	320	22	6-8	30	37	39	235

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OSM	2	6 - 8	35	50	75[3]	50[3]	20	45	- - -[4]	- - -

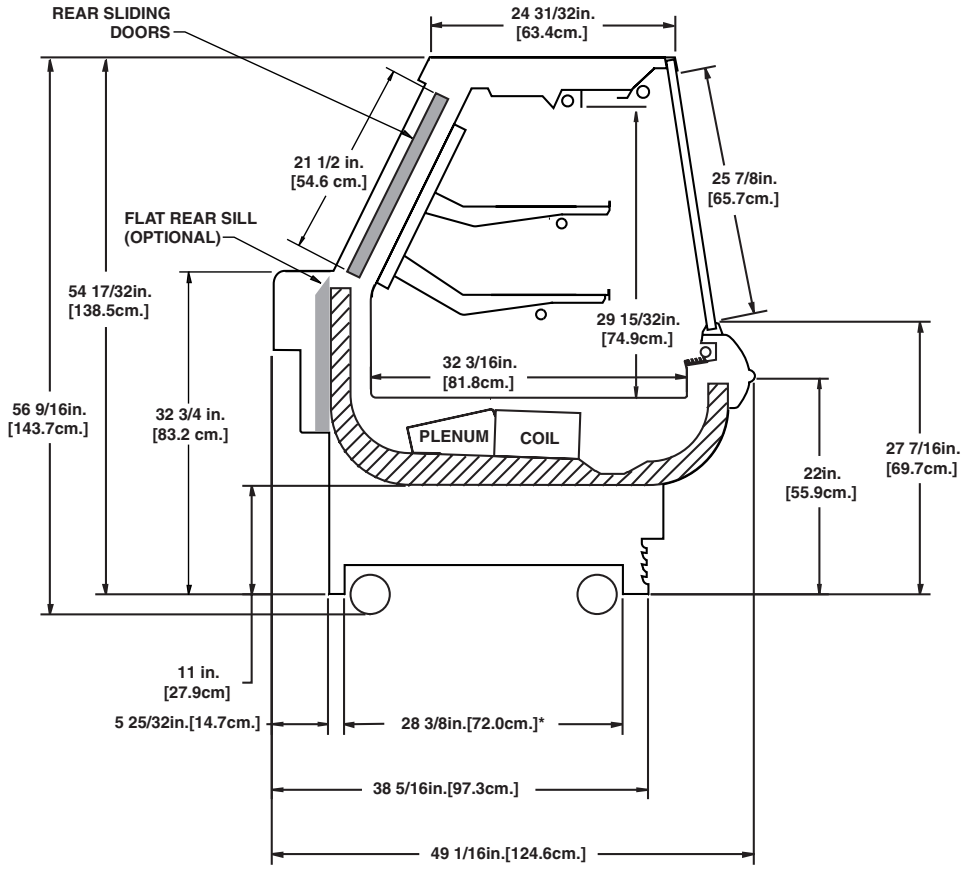
[3] Not recommended on this model due to long defrost time.

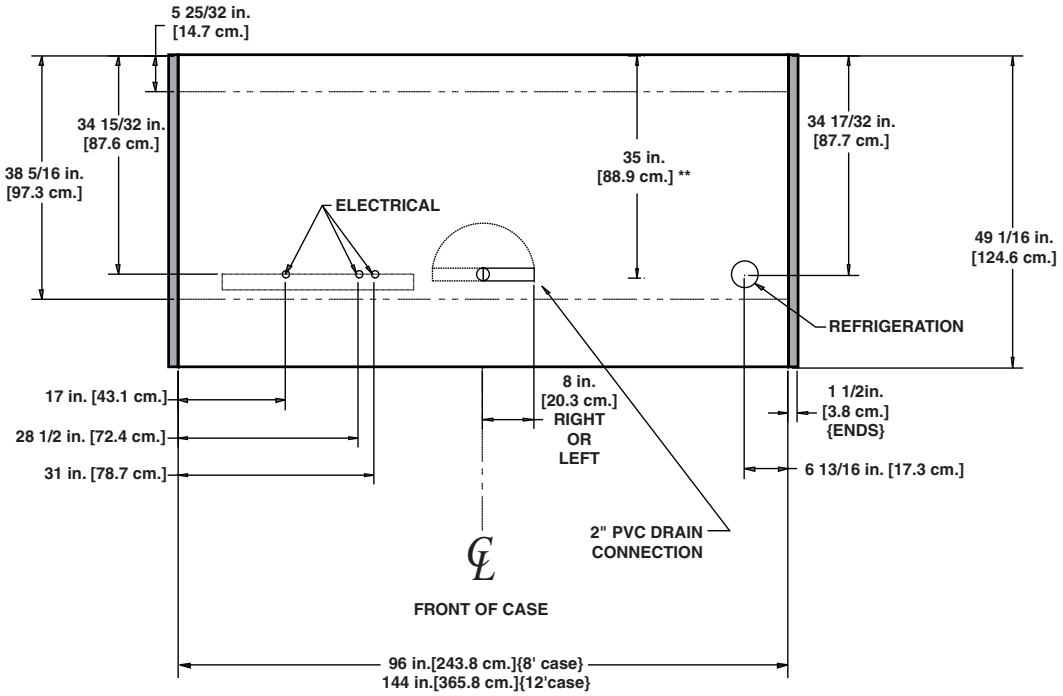
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

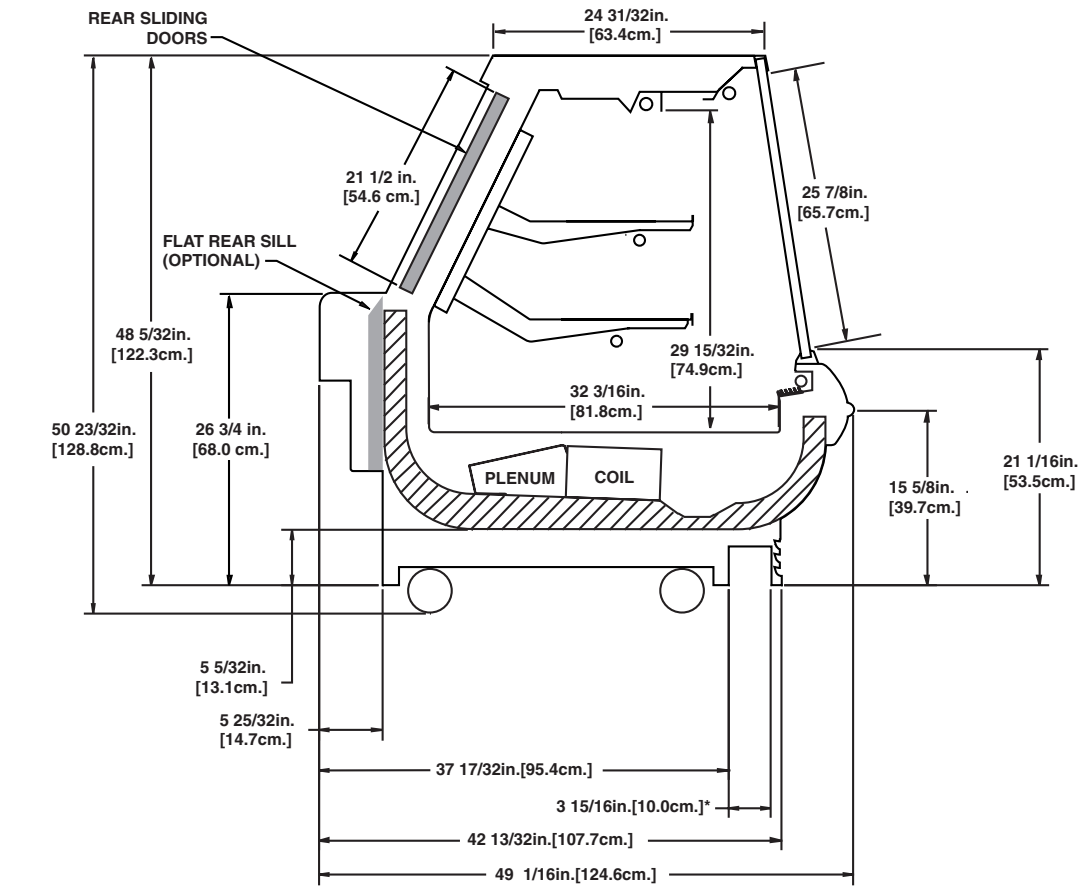


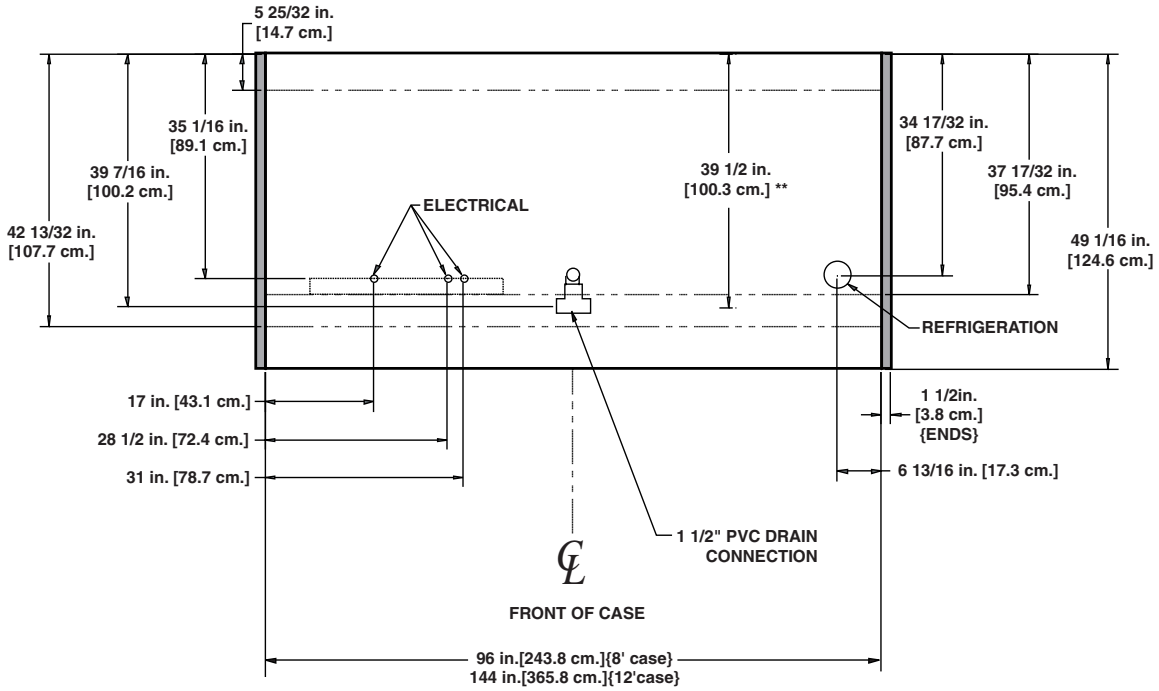


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12"





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12"

American Style Curved Glass Service Deli/Meat/Seafood Gravity Coil Merchandiser

OSAG - 4', 6', 8' & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters[1] 120 Volts Amps	Anti-Condensate Heaters[1] 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OSAG	4'	2	0.90	34	0.30	22	0.17	20	- - -[1]	- - -	- - -	- - -
	6'	2	0.90	34	0.30	22	0.42	50	- - -	- - -	- - -	- - -
	8'	3	1.35	51	0.45	33	0.97	116	- - -	- - -	- - -	- - -
	12'	4	1.80	68	0.60	44	1.50	180	- - -	- - -	- - -	- - -

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OSAG	4'	057	68	1.14	137
	6'	0.57	68	1.49	179
	8'	0.57	68	1.49	179
	12'	0.77	92	2.31	277

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OSAG[4]	270	12	6-8	21-31	37	38	125

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

[4] If the OSAG is piped to a suction header lower than 10°F an EPR with a suction stop solenoid is required. A liquid line solenoid alone does not allow the case to cycle properly. The thermostat probe should be located on the inlet of the top coil. The cut out point should be set to 12°F and the cut in point should be set so that refrigeration starts as soon as the top coil ice starts to drip.

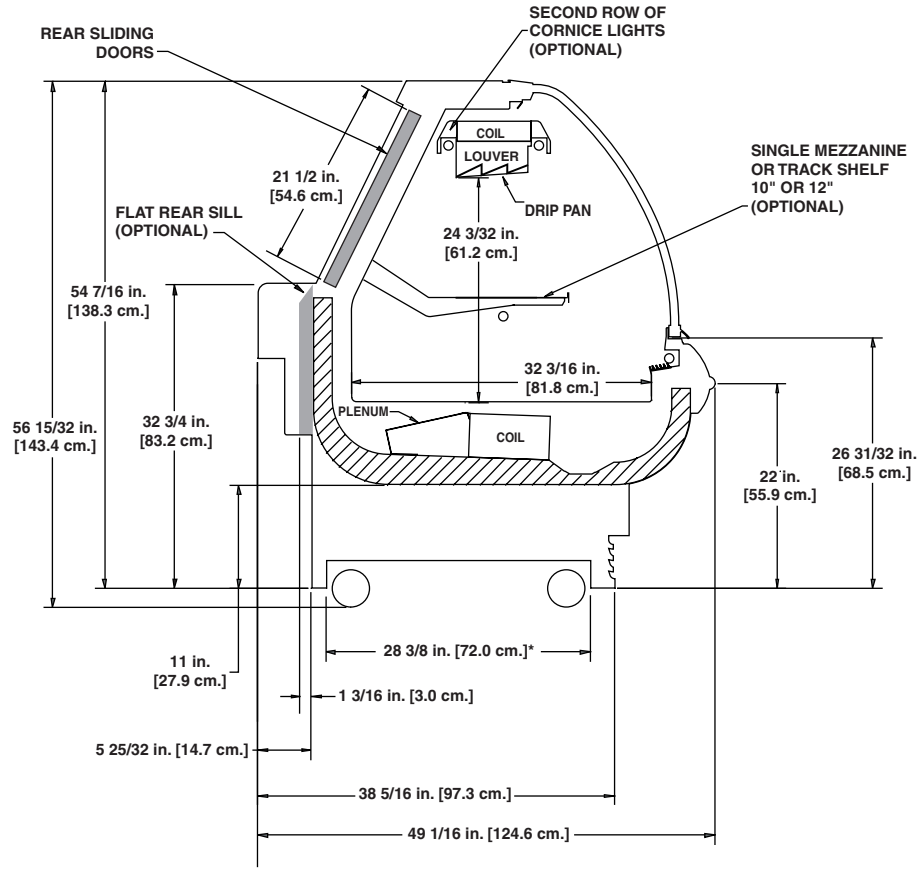
Defrost Controls

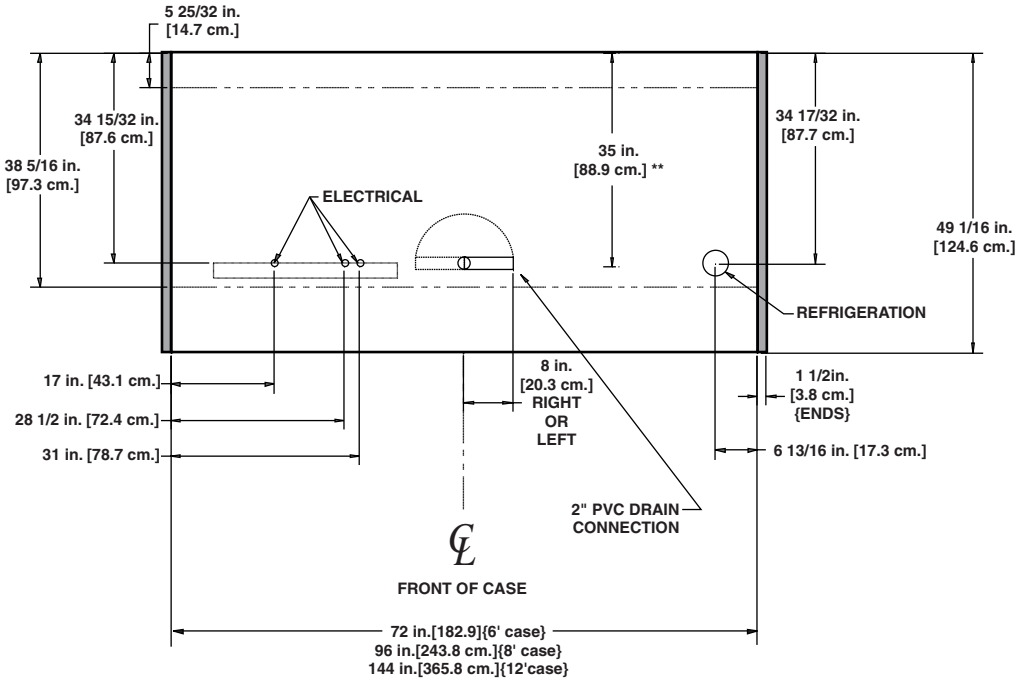
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OSAG	2	6 - 8	- - -	- - -	65	46	- - -	- - -	- - -	- - -

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

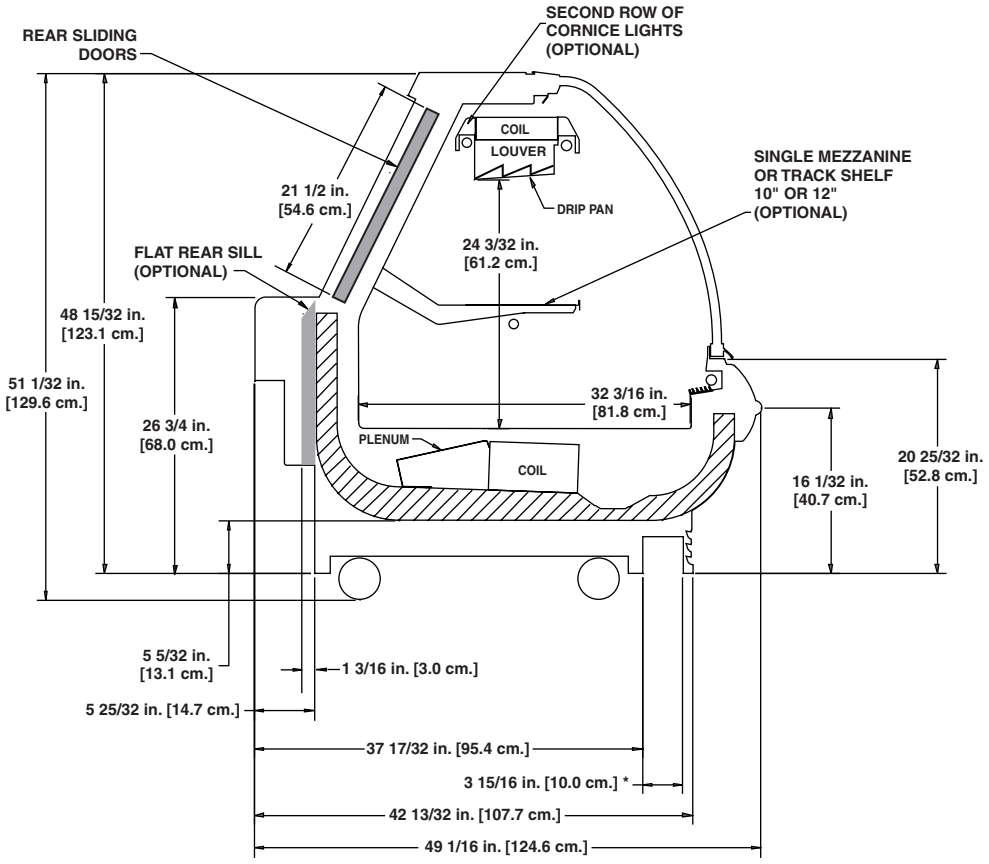


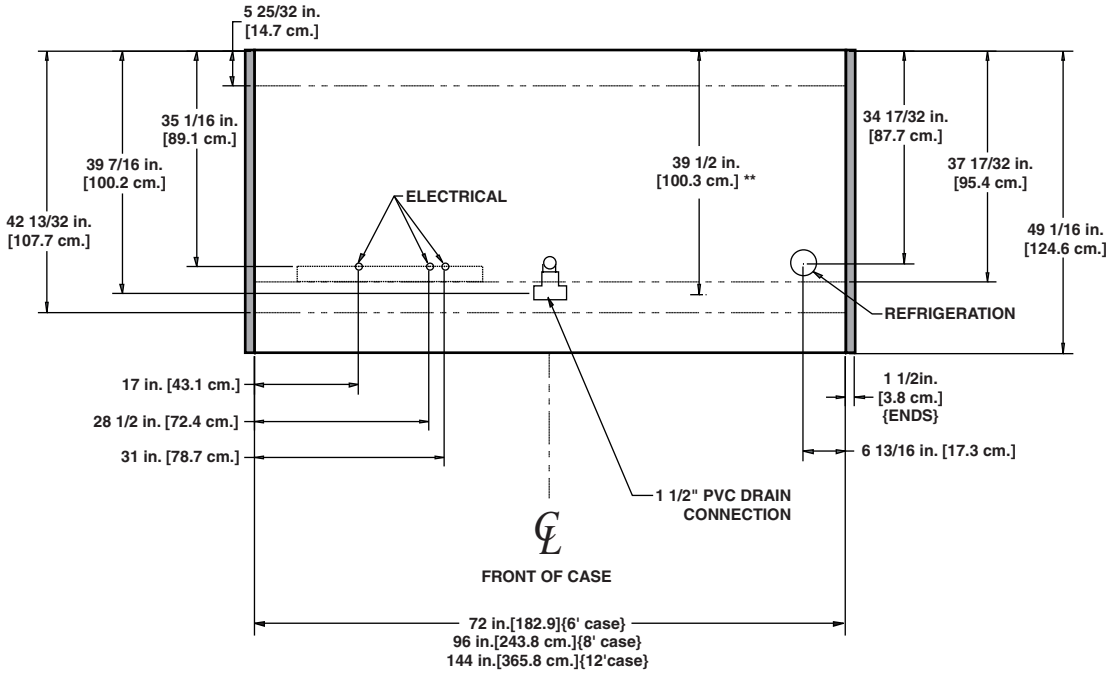


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SERPENTINE COIL AVAILABLE FOR FISH/SEAFOOD APPLICATION ONLY
- AVAILABLE SHELF SIZES: 10" & 12" (SINGLE ROW OF SHELVES PER CASE)





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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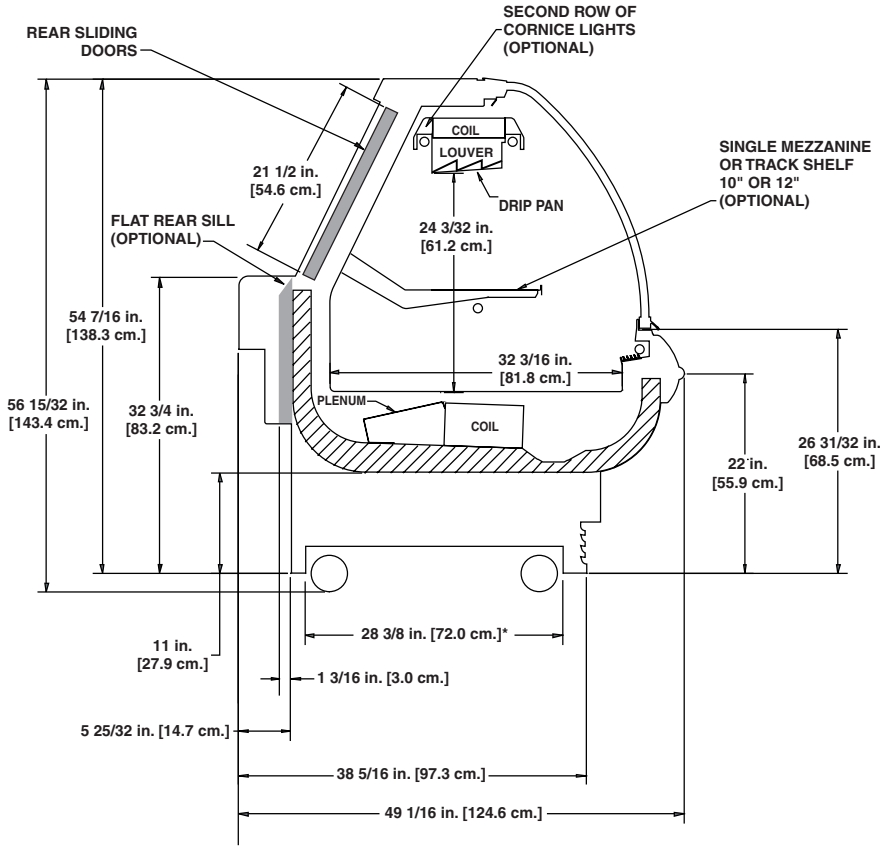
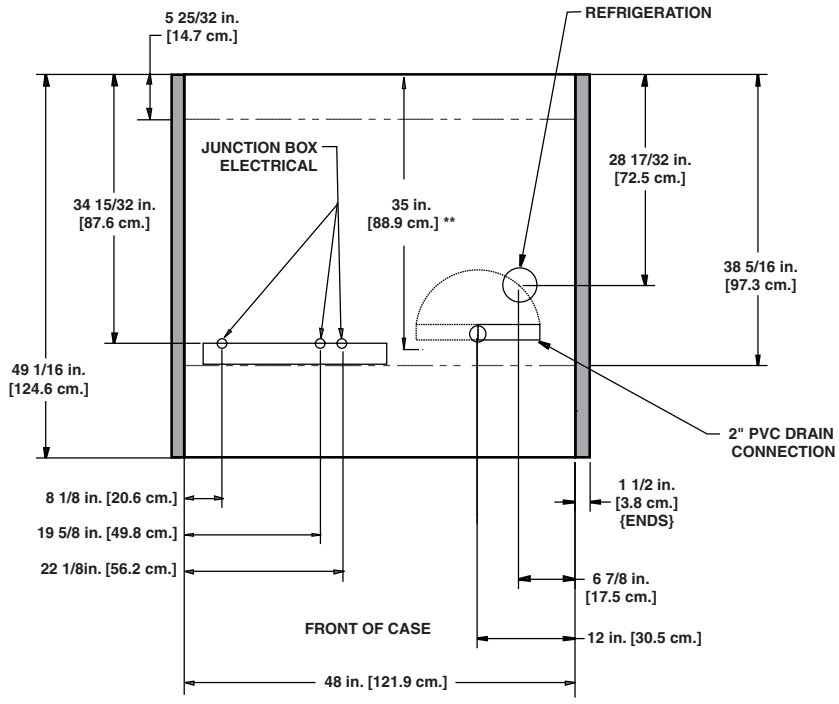
- AVAILABLE SHELF SIZES: 10" & 12" (SINGLE ROW OF SHELVES PER CASE)





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SERPENTINE COIL AVAILABLE FOR FISH/SEAFOOD APPLICATION ONLY
- AVAILABLE SHELF SIZES: 10" & 12" (SINGLE ROW OF SHELVES PER CASE)

American Style Vertical Glass Service Deli/Meat/Seafood Gravity Coil Merchandiser

OGM - 8' & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OGM	8'	0	- - -[1]	- - -	- - -	- - -	0.97	116	- - -	- - -	- - -	- - -
	12'	0	- - -	- - -	- - -	- - -	1.50	180	- - -	- - -	- - -	- - -

[1] NOTE: - - - not an option on this case model.

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OGM	8'	0.57	68	2.06	247
	12'	0.77	92	3.08	370

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OGM	226	17	6-8	NA[3]	35	NA	NA

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Not applicable

[4] Average discharge air velocity at peak of defrost.

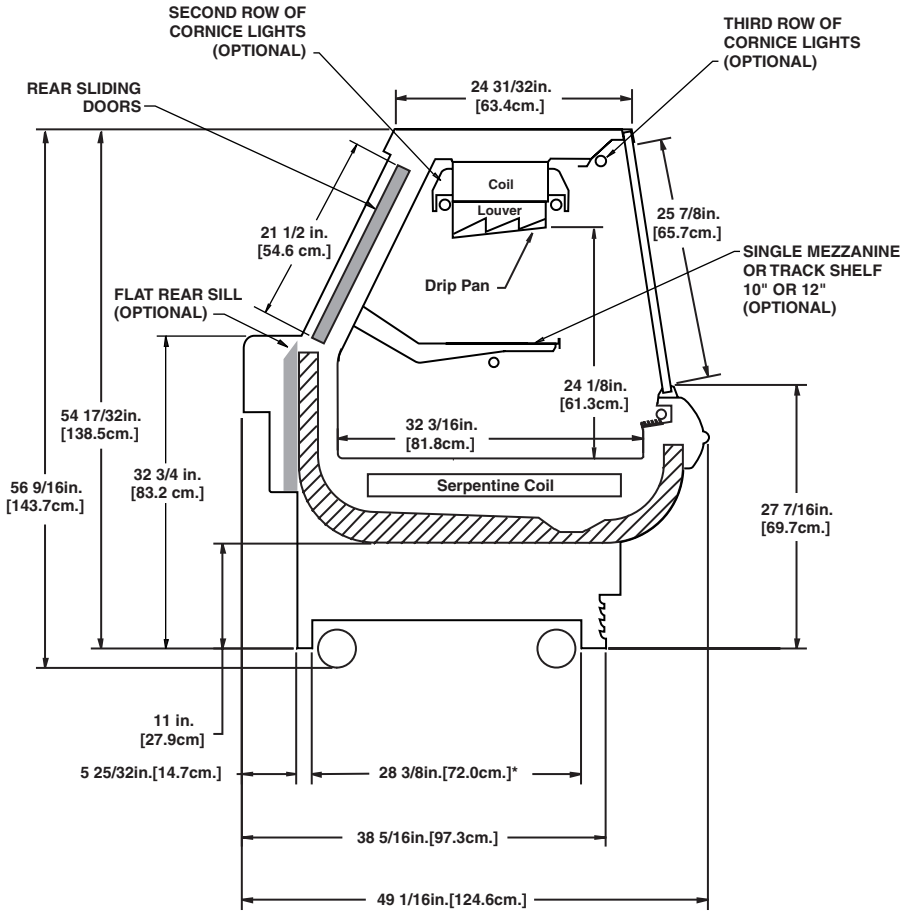
Defrost Controls

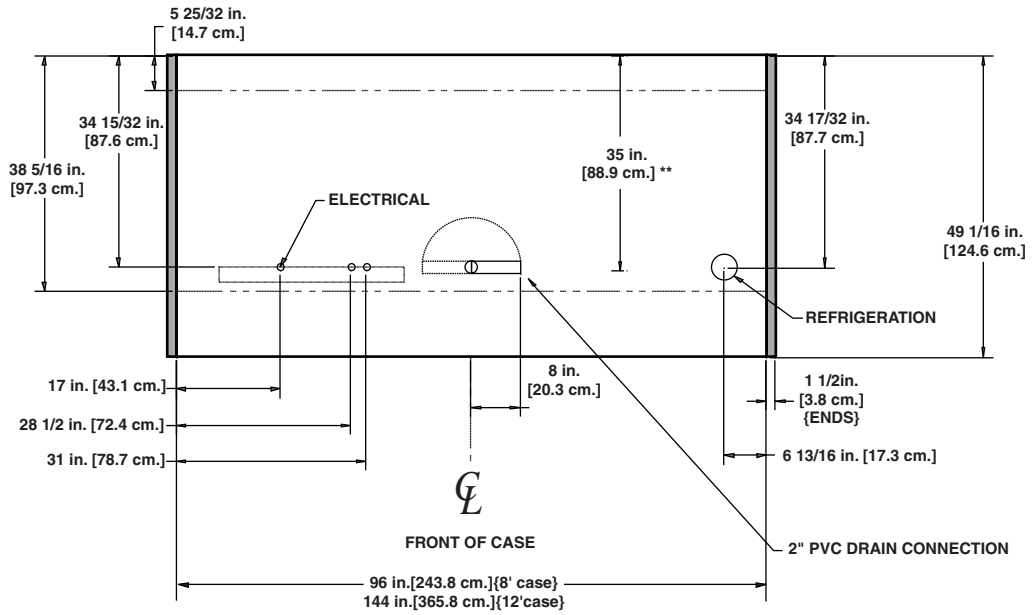
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OGM	2	6 - 8	- - -	- - -	65	46	- - -	- - -	- - -	- - -

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

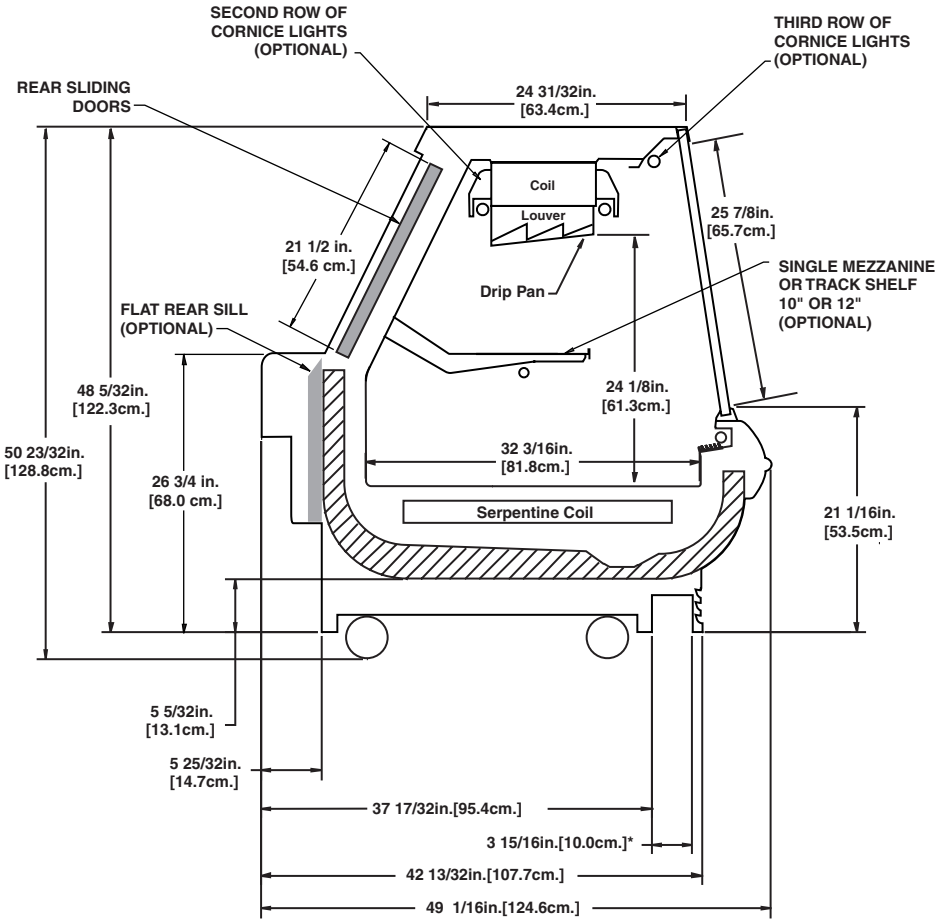


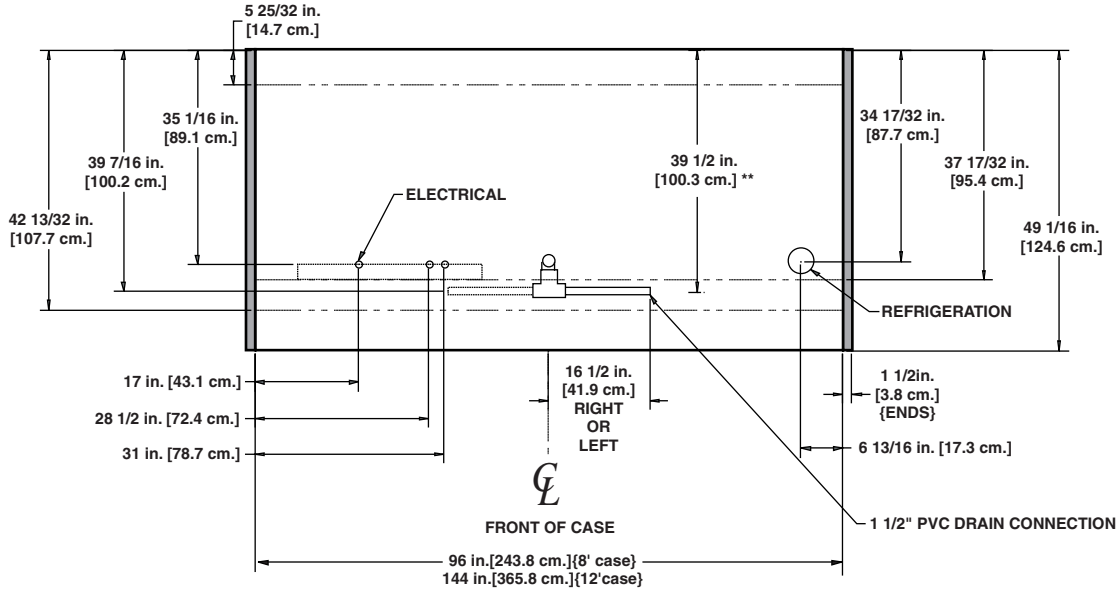


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12" (SINGLE ROW OF SHELVES PER CASE)





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12" (SINGLE ROW OF SHELVES PER CASE)

International Style Service Deli/Meat/Seafood Merchandiser

OSI - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OSI	4'	2	0.90	34	0.30	22	0.55	66	1.92	400	2.22	532
	6'	2	0.90	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.35	51	0.45	33	1.22	146	3.85	800	4.44	1065
	12'	4	1.80	68	0.60	44	1.88	226	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OSI	4'	0.57	68	1.14	137
	6'	0.57	68	1.43	172
	8'	0.57	68	1.49	179
	12'	0.77	92	2.31	277

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSI[3]	350	22	6-8	31	36	38	175

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

[3] Humidification system required on this case when used for Fresh Meat application

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OSI	3	6 - 8	30	47	60[4]	47[4]	26	45	- - -[5]	- - -

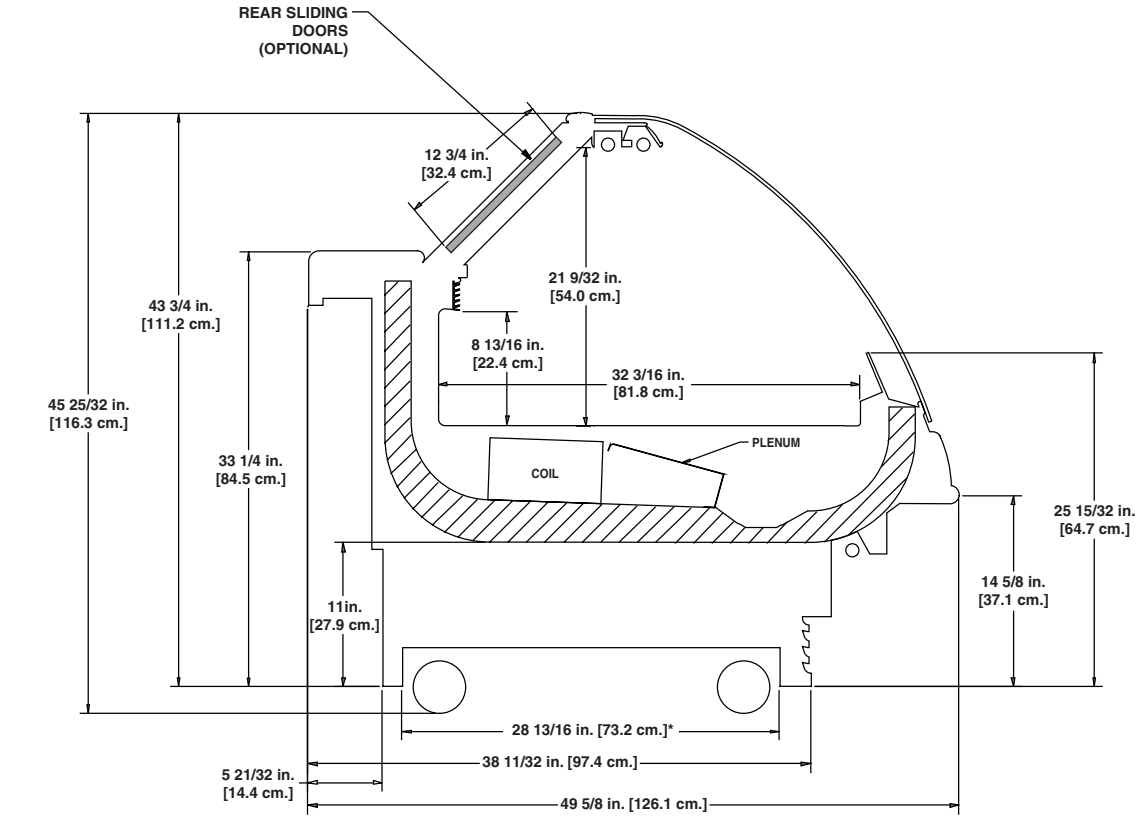
[4] Not recommended on this model due to long defrost time.

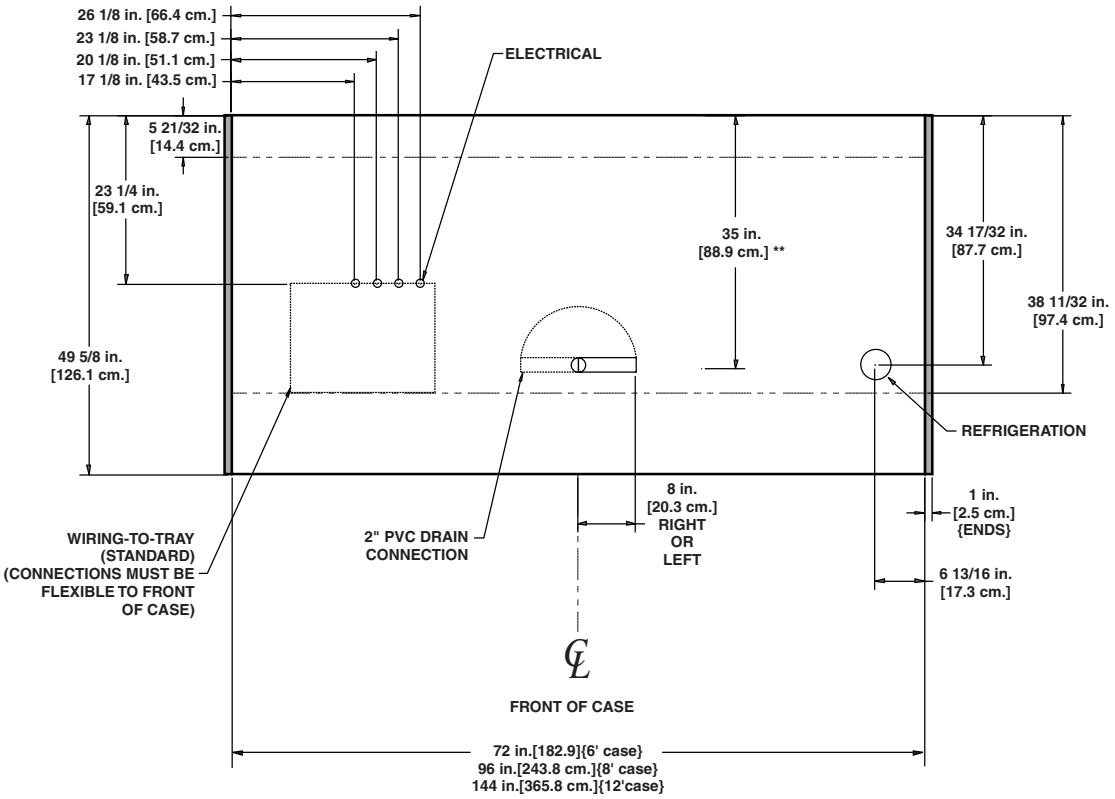
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

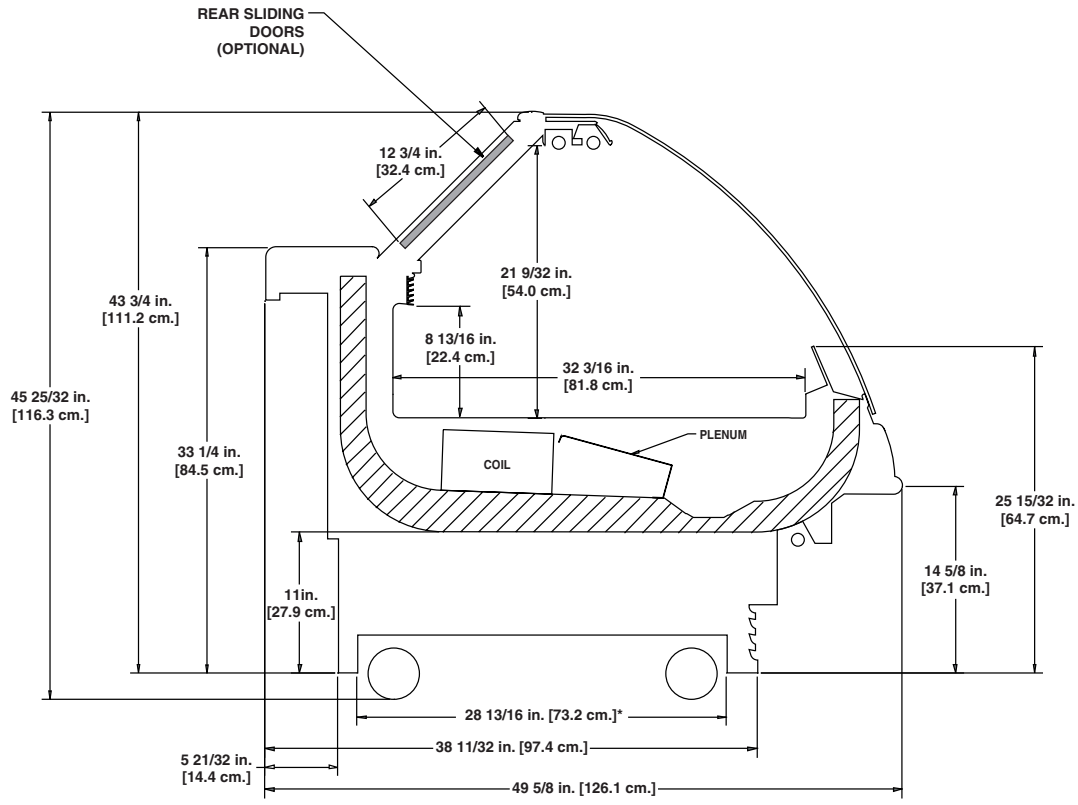


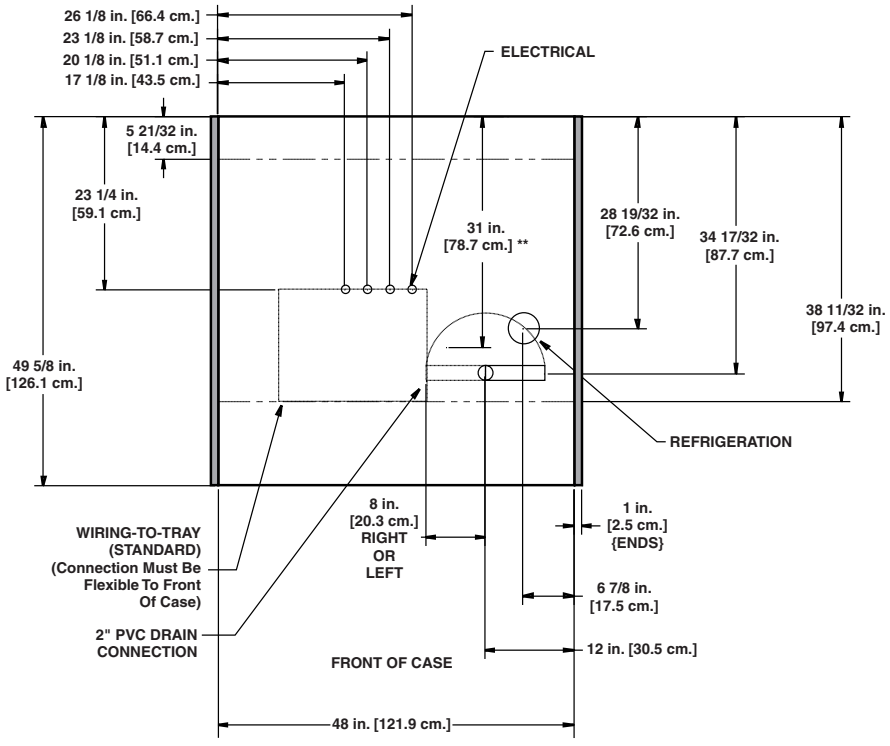


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT





NOTES:

* STUB-UP AREA

** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

Wide International Style Service Deli/Meat/Seafood Merchandiser

OWSI - 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OWSI	6'	2	0.90	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.35	51	0.45	33	1.22	146	3.85	800	4.44	1065
	12'	4	1.80	68	0.60	44	1.88	226	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OWSI	6'	0.57	68	1.43	172
	8'	0.57	68	1.49	179
	12'	0.77	92	2.31	277

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OWSI[3]	450	22	6-8	31	36	38	175

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

[3] Humidification system required on this case when used for Fresh Meat application

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OWSI	3	6 - 8	30	47	60[4]	47[4]	26	45	- - -[5]	- - -

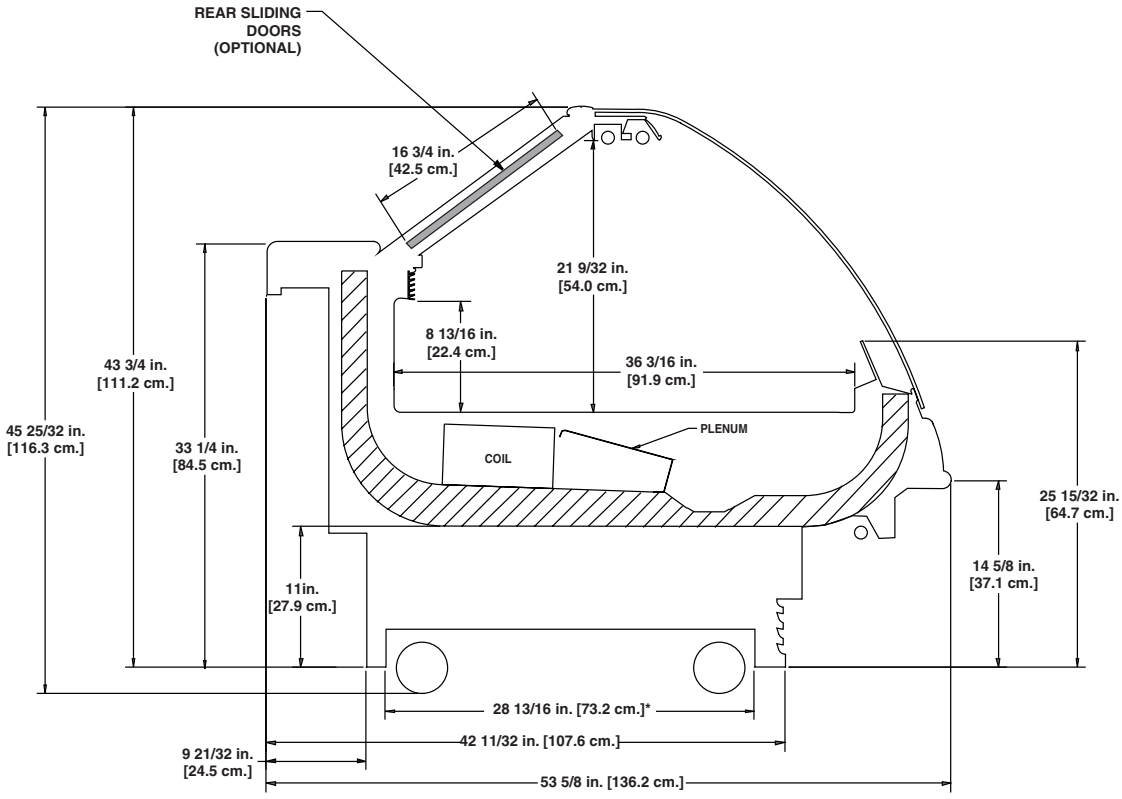
[4] Not recommended on this model due to long defrost time.

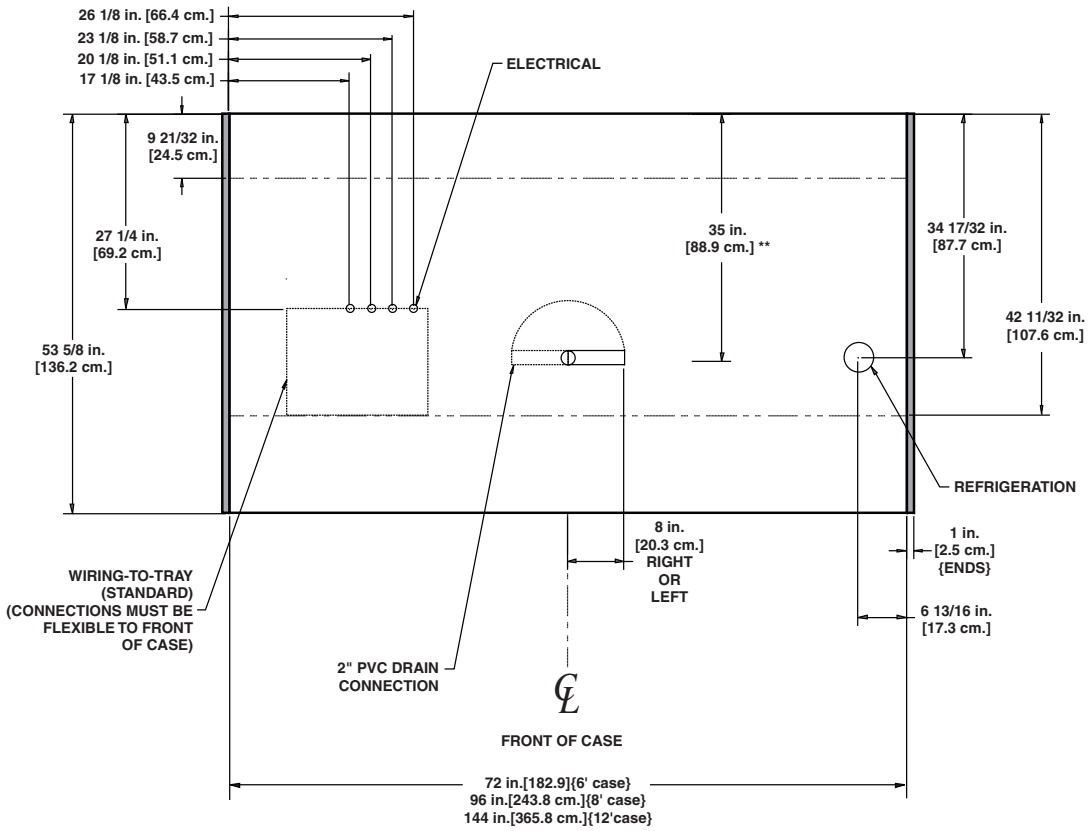
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

International Style Flat Glass Service Deli/Meat/Seafood Merchandiser

OSIF - 4', 6', 8', & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
OSIF	4'	2	0.90	34	0.30	22	0.55	66	1.92	400	2.22	532
	6'	2	0.90	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.35	51	0.45	33	1.22	146	3.85	800	4.44	1065
	12'	4	1.80	68	0.60	44	1.88	226	5.77	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OSIF	4'	0.57	68	1.14	137
	6'	0.57	68	1.43	172
	8'	0.57	68	1.49	179
	12'	0.77	92	2.31	277

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSIF[3]	350	22	6-8	31	36	38	175

[1] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[2] Average discharge air velocity at peak of defrost.

[3] Humidification system required on this case when used for Fresh Meat application

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OSIF	3	6 - 8	30	47	60[4]	47[4]	26	45	- - -[5]	- - -

[4] Not recommended on this model due to long defrost time.

[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
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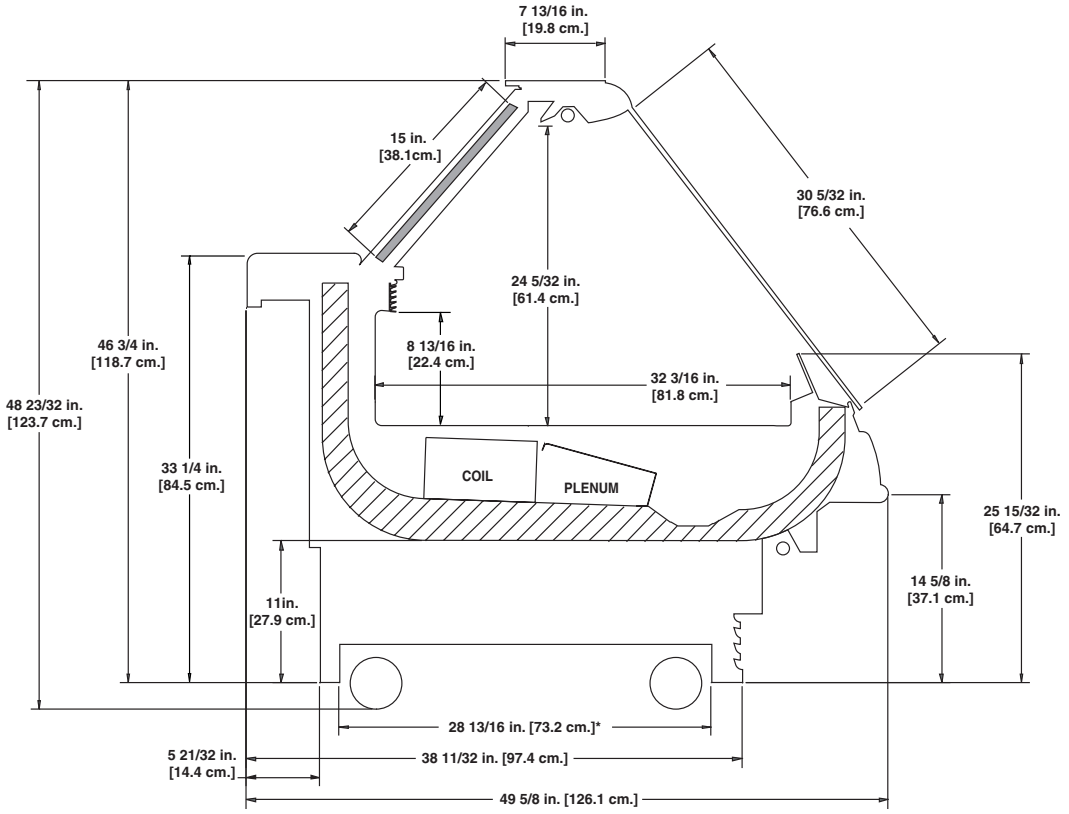
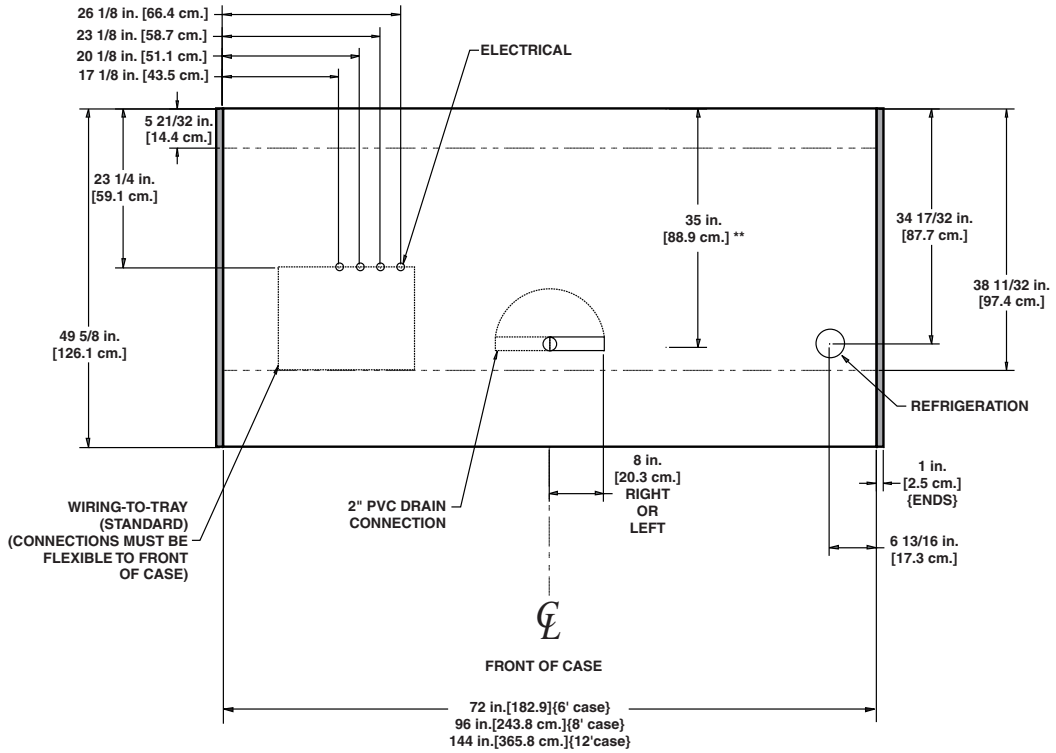
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

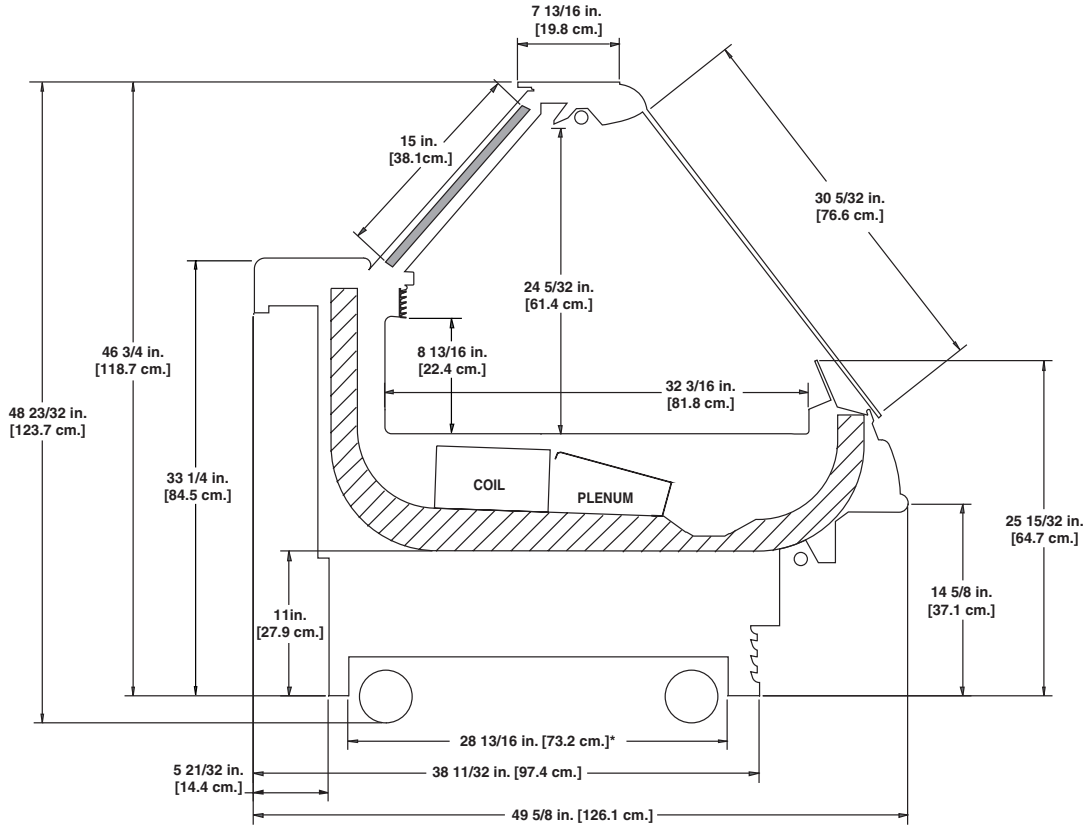


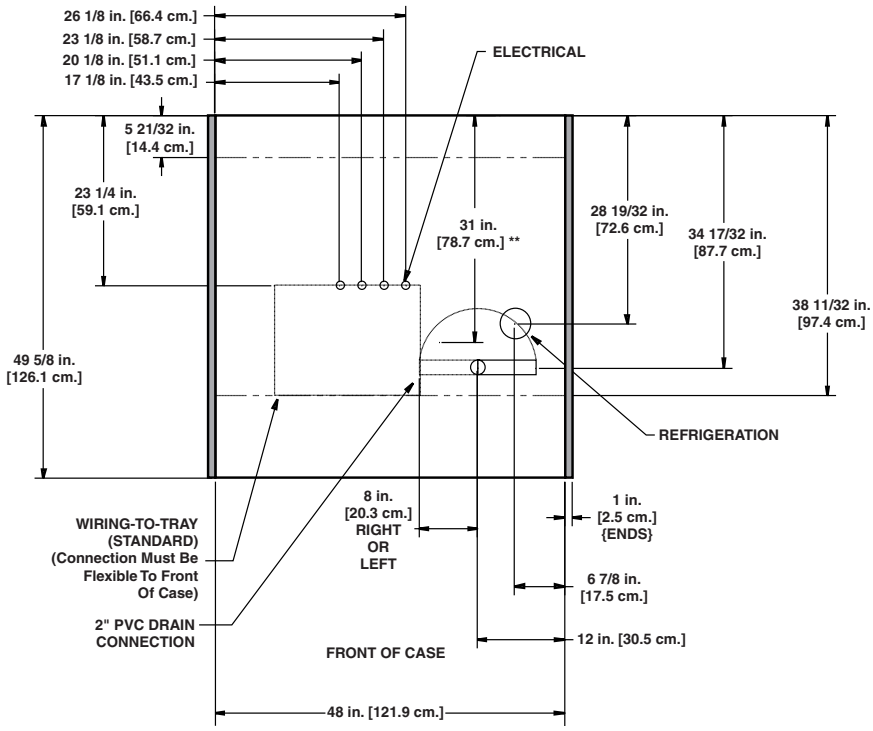


NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT





NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

Flat Glass Service Deli Merchandiser

OLF - 4', 8', & 12'

Electrical Data

Model		Fans per Case		Ambient Fans[1]		Standard Fans		High Efficiency Fans		Anti-Condensate Heaters		Defrost Heaters			
				120 Volts		120 Volts		120 Volts		120 Volts		208 Volts		220 Volts	
		Pri.	Amb.	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OLF	4'	2	2	0.30	11	0.90	34	0.30	22	0.38	47	1.92	400	2.22	532
	8'	3	4	0.60	22	1.35	51	0.45	33	0.97	116	3.85	800	4.44	1065
	12'	4	6	0.90	33	1.80	68	0.60	44	1.49	179	5.77	1200	6.67	1600

[1] Ambient fans are standard equipment for this case model. The primary fans can either be standard or high efficiency.

Lighting Data

Model		Typical per Light Row		Maximum Lighting	
		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts
OLF	4'	0.57	68	1.49	179
	8'	0.57	68	2.41	289
	12'	0.77	92	3.85	462

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OLF	431	17	6-8	27	33	34	363

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OLF	2	6 - 8	35	47	50[4]	47[4]	- - -[5]	- - -	- - -	- - -

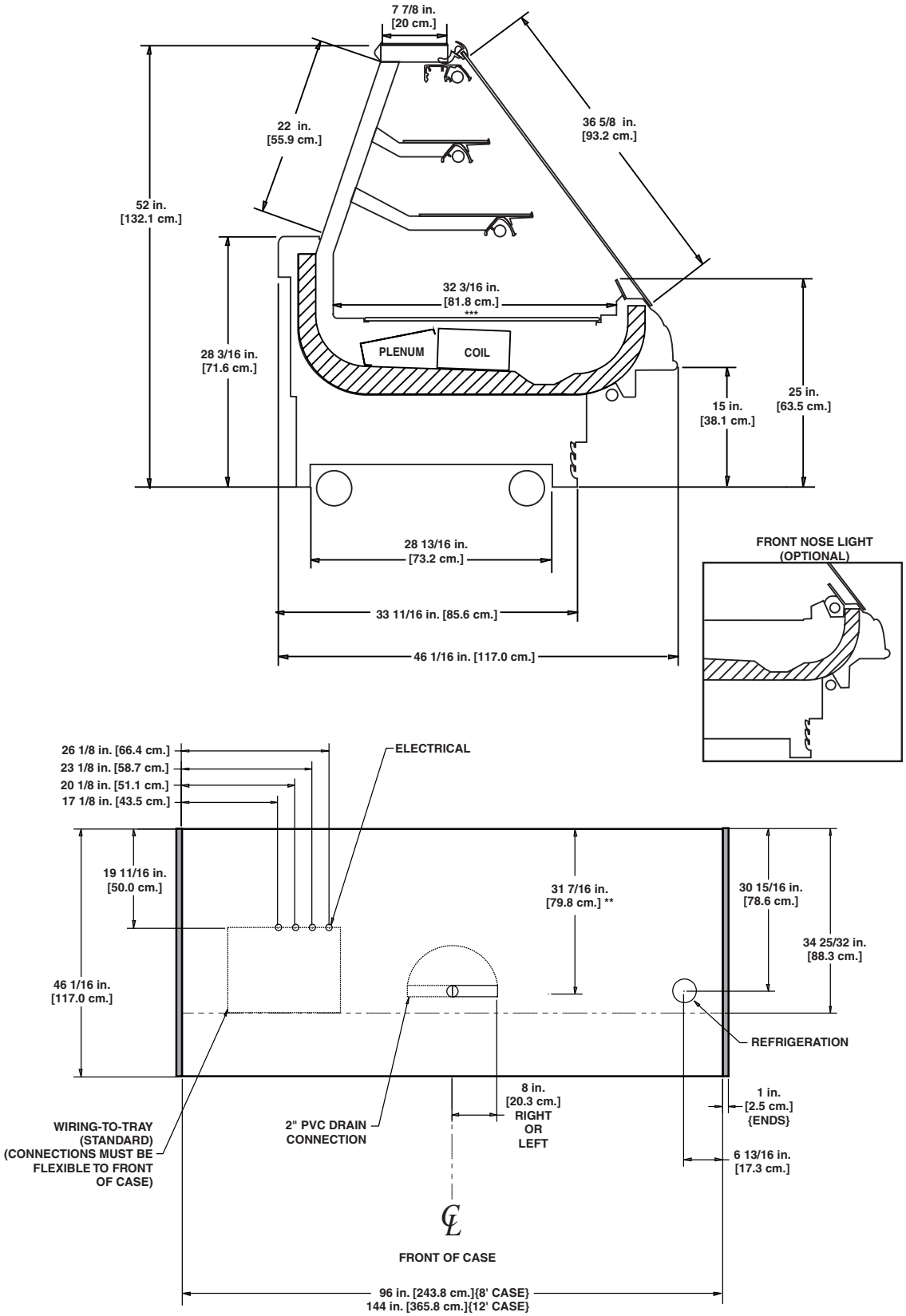
[4] Not recommended on this model due to long defrost time.

[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

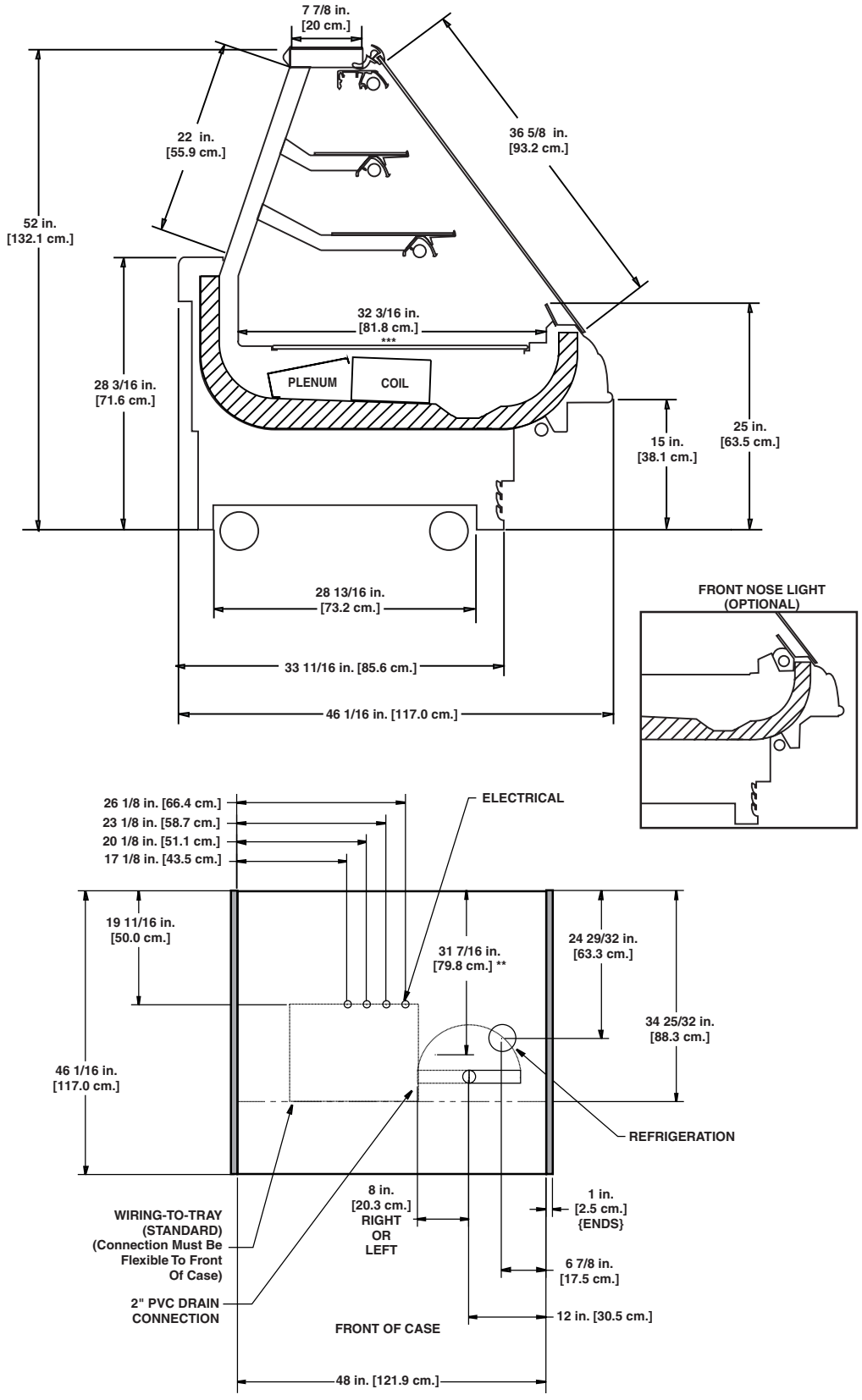
All measurements are taken per CRMA specifications.



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
*** WHEN CASE IS EQUIPPED WITH A NOSE LIGHT THE INTERIOR WIDTH IS 29 19/32 in

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12"



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
*** WHEN CASE IS EQUIPPED WITH A NOSE LIGHT THE INTERIOR WIDTH IS 29 19/32 in

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12"

Flat Glass Service Deli Gravity Coil Merchandiser

OLFG - 4', 8', & 12'

Electrical Data

Model		Fans per Case		Ambient Fans[1]		Standard Fans		High Efficiency Fans		Anti-Condensate Heaters		Defrost Heaters			
				120 Volts		120 Volts		120 Volts		120 Volts		208 Volts		220 Volts	
		Pri.	Amb.	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OLFG	4'	2	2	0.30	11	0.90	34	0.30	22	3.33	400	1.92	400	2.22	532
	8'	3	4	0.60	22	1.35	51	0.45	33	6.66	800	3.85	800	4.44	1065
	12'	4	6	0.90	33	1.80	68	0.60	44	10.00	1200	5.77	1200	6.67	1600

[1] Ambient fans are standard equipment for this case model. The primary fans can either be standard or high efficiency.

Lighting Data

Model		Typical per Light Row		Maximum Lighting	
		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts
OLFG	4'	0.57	68	2.06	247
	8'	0.57	68	2.98	358
	12'	0.77	92	4.62	554

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OLFG[4]	275	12	6-8	31	35	38	125

[2] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] Average discharge air velocity at peak of defrost.

[4] If the OLFG is piped to a suction header lower than 10°F an EPR with a suction stop solenoid is required. A liquid line solenoid alone does not allow the case to cycle properly. The thermostat probe should be located on the inlet of the top coil. The cut out point should be set to 12°F and the cut in point should be set so that refrigeration starts as soon as the top coil ice starts to drip.

Defrost Controls

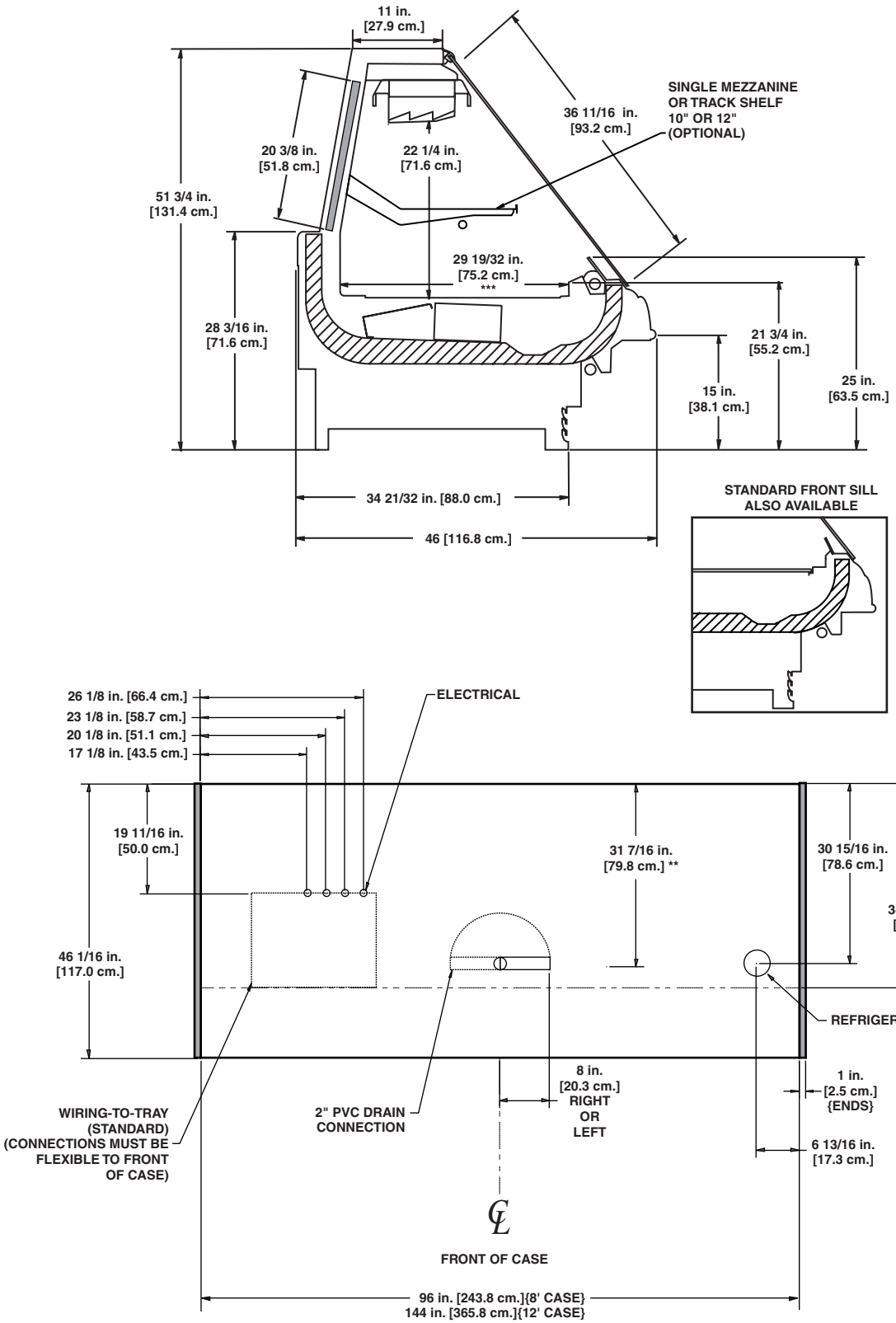
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OLFG	2	6 - 8	35	47	65	47	- - -[5]	- - -	- - -	- - -

[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

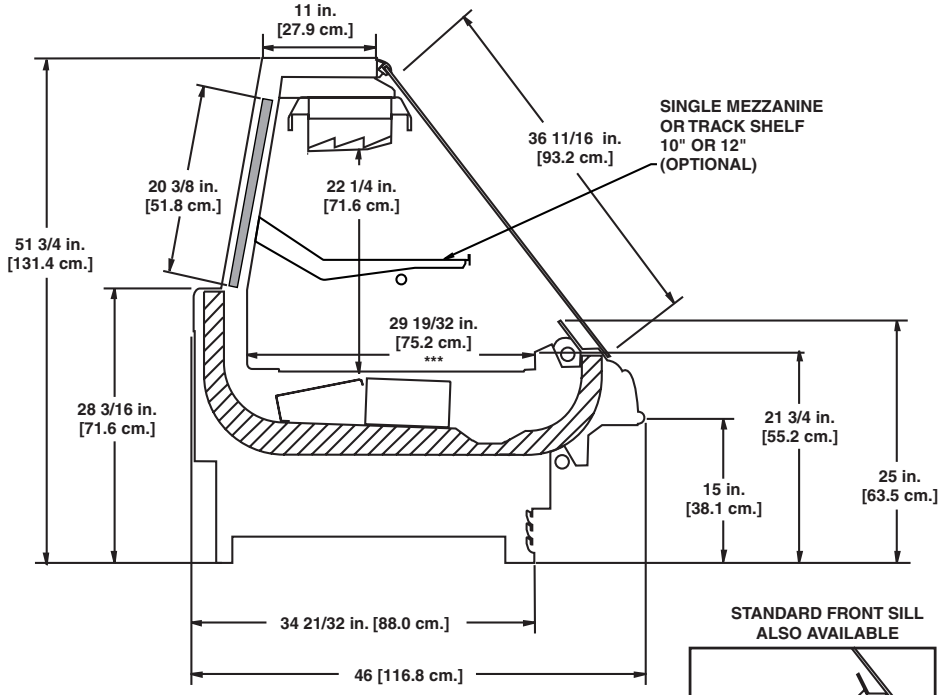
All measurements are taken per CRMA specifications.

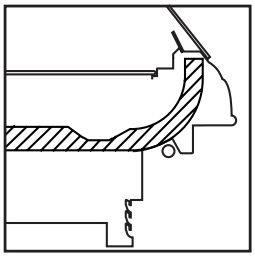


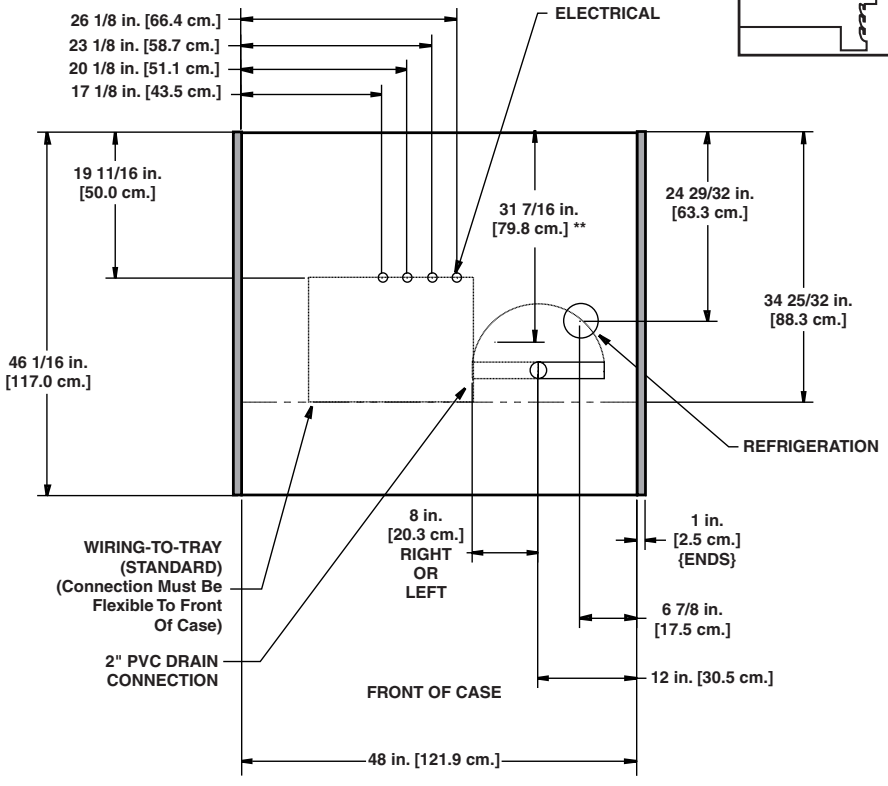
NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
*** WHEN CASE IS NOT EQUIPPED WITH A NOSE LIGHT THE INTERIOR WIDTH IS 32 3/16 in

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12"







NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
*** WHEN CASE IS NOT EQUIPPED WITH A NOSE LIGHT THE INTERIOR WIDTH IS 32 3/16 in

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 12"

American Style Curved Glass Service Hot Foods Merchandiser

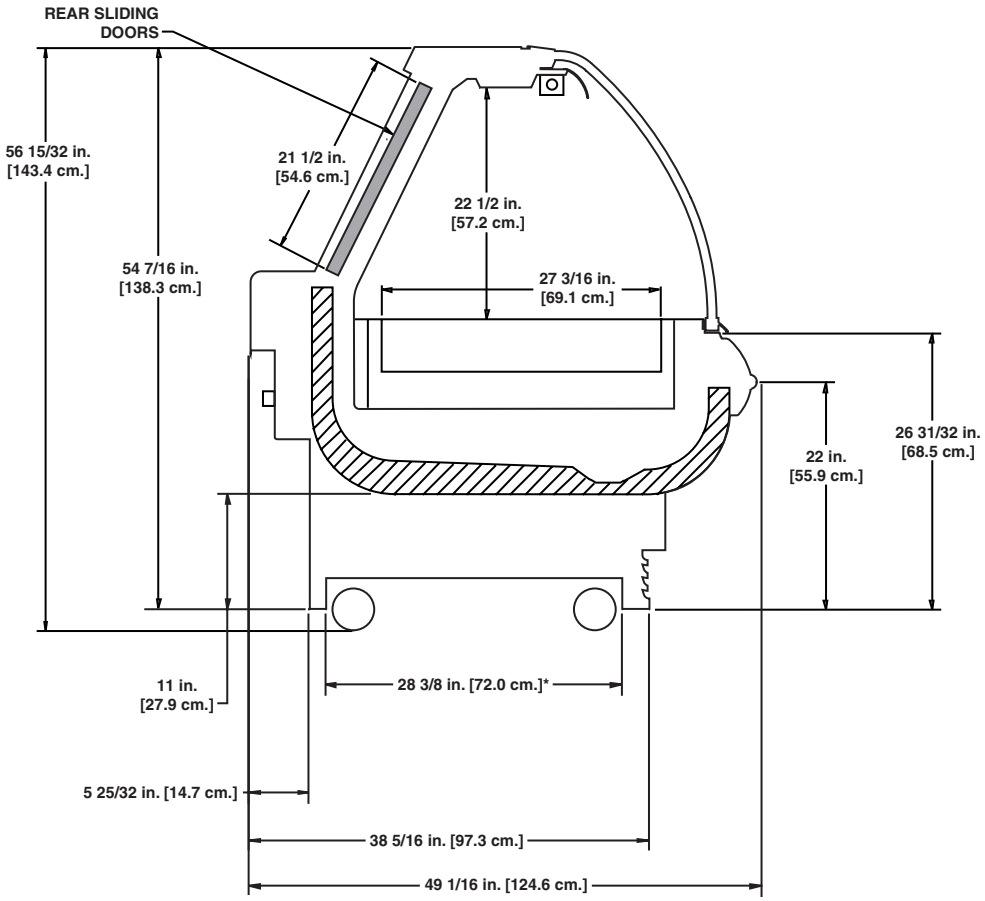
OSAH - 4', 6', 8', & 12'

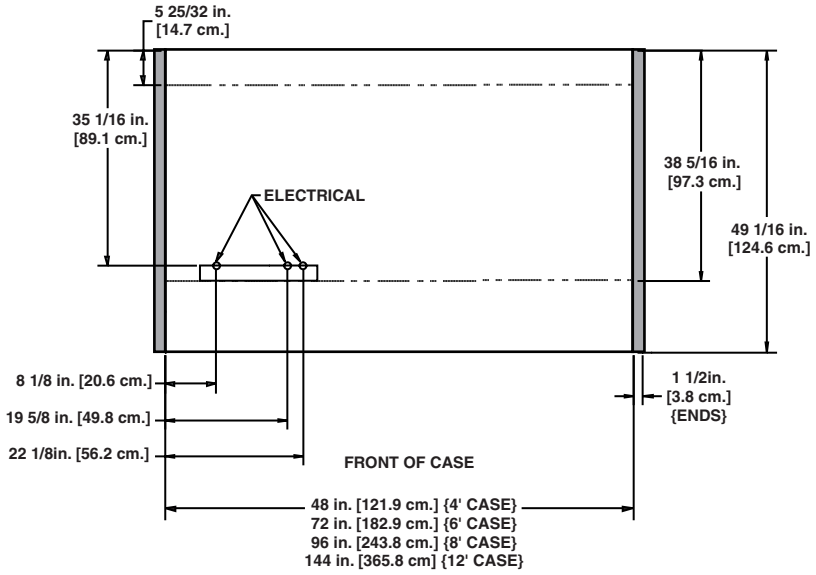
Electrical Data (Domestic)

Model		Number of Hot Wells	Single Phase						Three Phase					
			208 Volts			220 Volts			208 Volts			220 Volts		
			Amps	Watts	Breaker	Amps	Watts	Breaker	Amps	Watts	Breaker	Amps	Watts	Breaker
OSAH	4'	3	16	3300	20	17.1	3800	25	10.0	3300	15	10.7	3800	15
	6'	5	25.3	5600	35	28.6	6300	40	15.8	5600	20	17.6	6300	25
	8'	7	36.9	7700	50	41.6	8700	55	23.7	7700	30	26.7	8700	35
	12'	10	50.6	11200	70	57.2	12600	80	31.6	11200	40	35.2	12600	50

Electrical Data (European)

Model		Number of Hot Wells	Single Phase			Three Phase		
			220 Volts			220/380 Volts		
			Amps	Watts	Breaker	Amps	Watts	Breaker
OSAH	4'	3	17.1	3800	25	- - -	- - -	- - -
	6'	5	- - -	- - -	- - -	10.2	6300	15
	8'	7	- - -	- - -	- - -	15.3	8700	20
	12'	10	- - -	- - -	- - -	20.4	12600	30

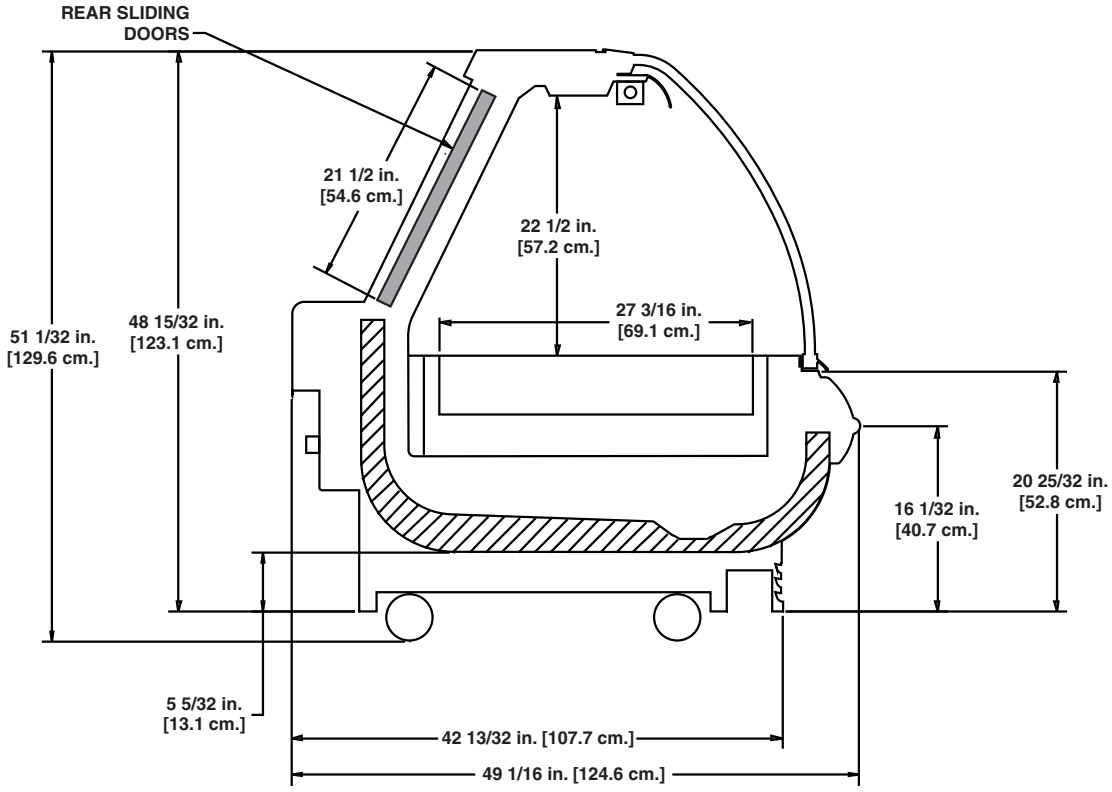


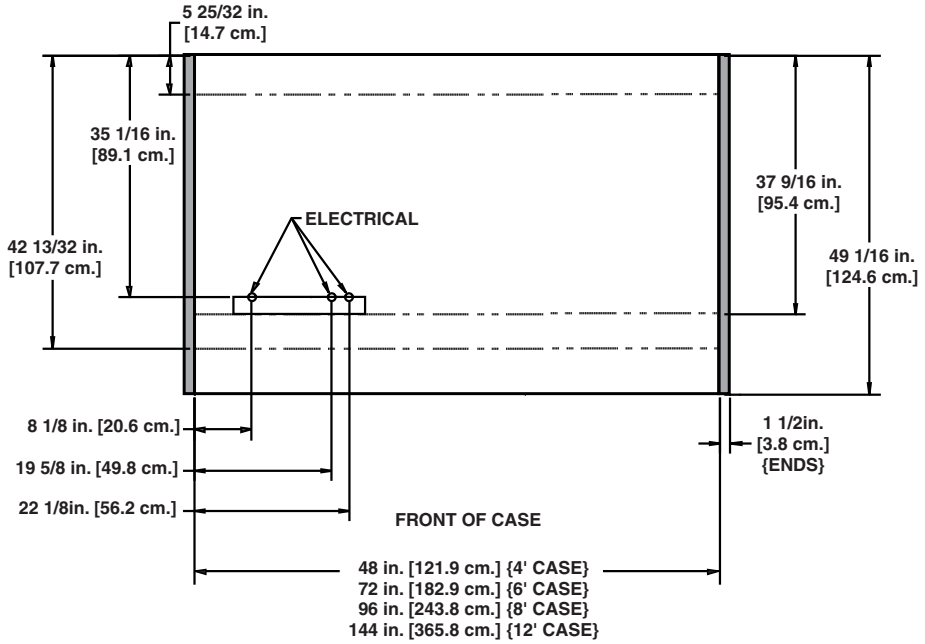


NOTES:

* STUB-UP AREA

• ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT





NOTES:

* STUB-UP AREA

• ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

International Style Service Hot Foods Merchandiser

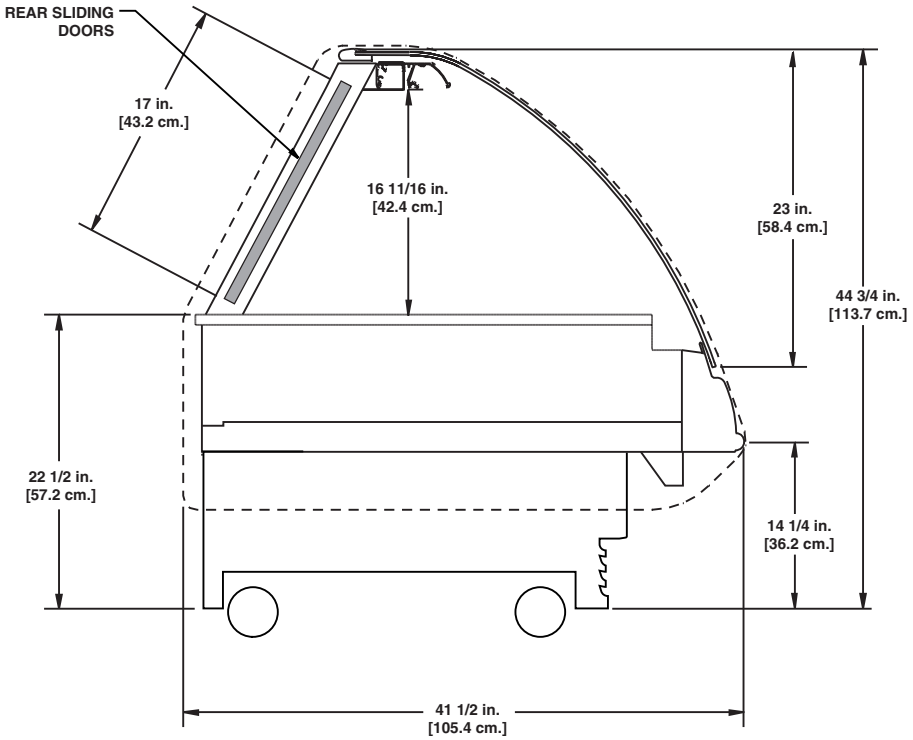
OSIH - 4', 6', & 8'

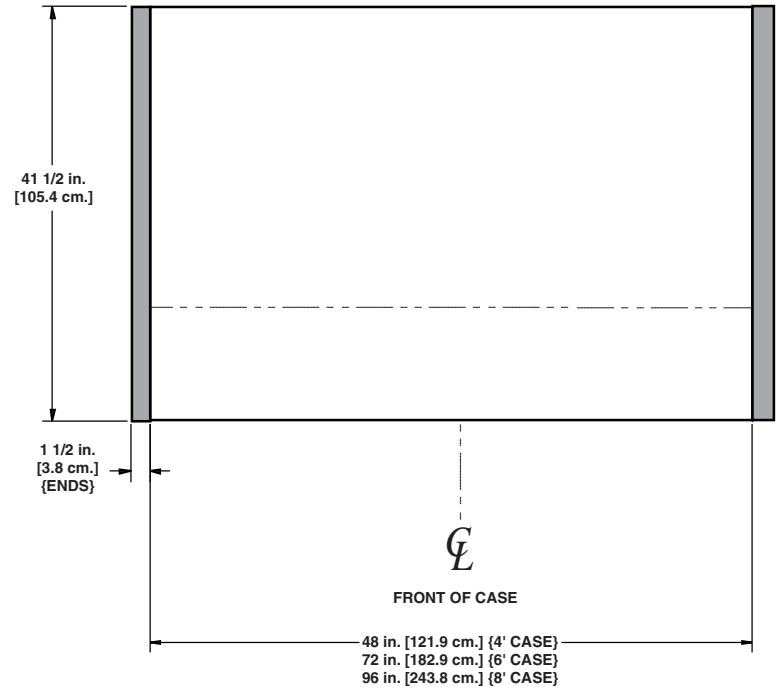
Electrical Data (Domestic)

Model		Number of Hot Wells	Single Phase						Three Phase					
			208 Volts			220 Volts			208 Volts			220 Volts		
			Amps	Watts	Breaker	Amps	Watts	Breaker	Amps	Watts	Breaker	Amps	Watts	Breaker
OSIH	4'	3	16	3300	20	17.1	3800	25	10.0	3300	15	10.7	3800	15
	6'	5	25.3	5600	35	28.6	6300	40	15.8	5600	20	17.6	6300	25
	8'	7	36.9	7700	50	41.6	8700	55	23.7	7700	30	26.7	8700	35

Electrical Data (European)

Model		Number of Hot Wells	Single Phase			Three Phase		
			220 Volts			380 Volts		
			Amps	Watts	Breaker	Amps	Watts	Breaker
OSIH	4'	3	17.1	3800	25	- - -	- - -	- - -
	6'	5	- - -	- - -	- - -	10.2	6300	15
	8'	7	- - -	- - -	- - -	15.3	8700	20





NOTE:

ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

Self-Contained Merchandisers

Notes:

- *Average product temperatures are calculated as defined by ASHRAE* standards and should not be used to determine application.*
- *Cases meet FDA** Food Code 1997 product temperature requirements (41°F or less) for hazardous foods when used for their prescribed applications.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*

* *American Society of Heating Refrigeration and Air Conditioning Engineers*

** *Food and Drug Administration*

Single Deck Self-Contained Mobile Deli Merchandiser
MDCA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
MDCA-4'	120	1	60	NEMA L5-20	10 ft

Guidelines & Control Settings

Model	Front Sill Height	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
MDCA-4'	26"-31"	16.6	52	6-8	25	35	36	

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
MDCA-4'	115	1	60	1/3	7.4	29.8	R404A	3.5	45	500	162

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

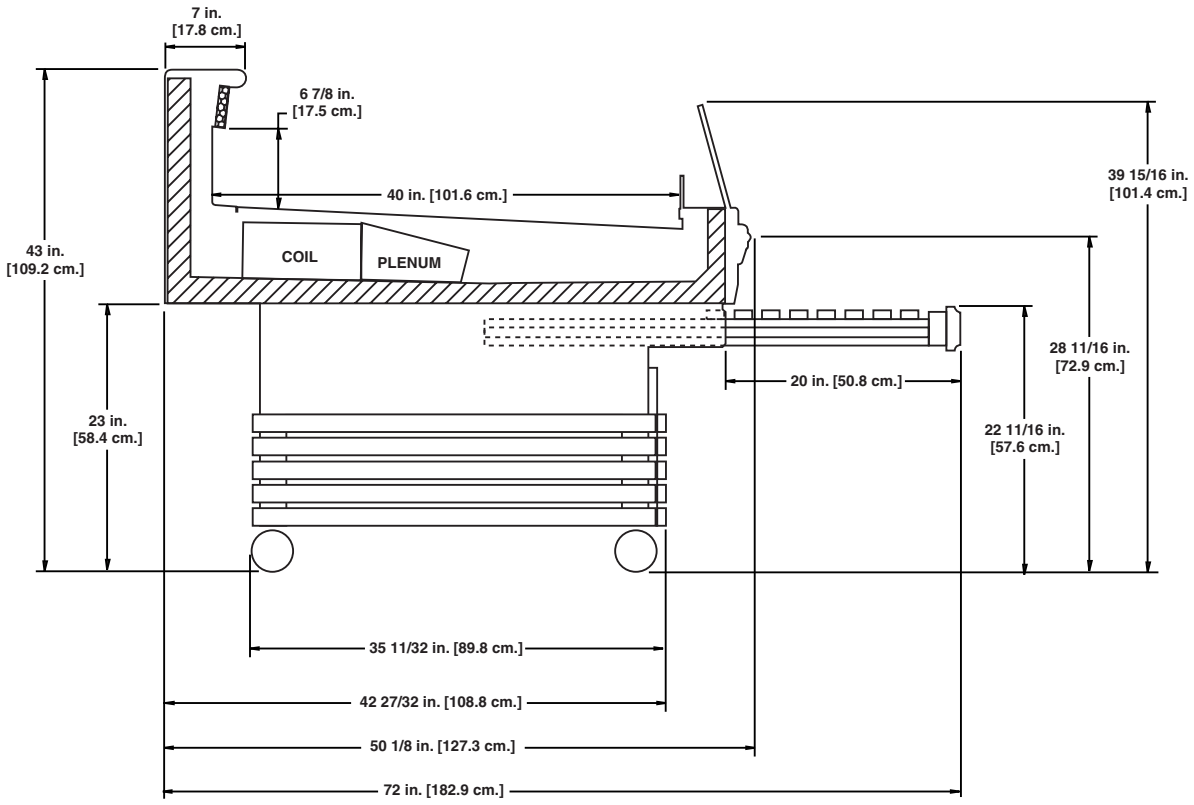
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
MDCA-4'	4	35	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

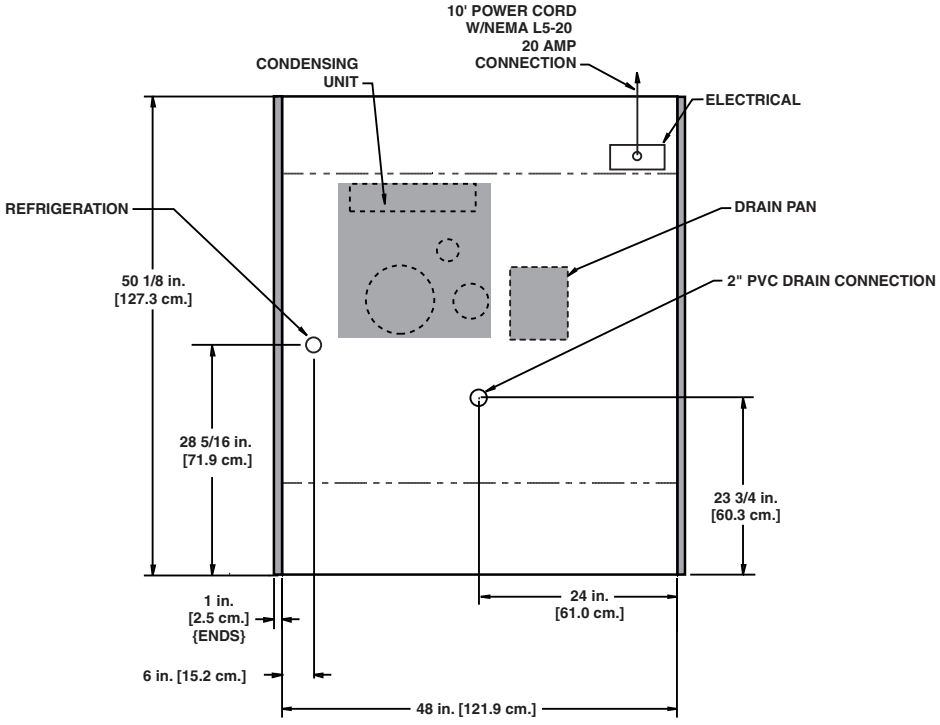
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- CASE BASEFRAME ALLOWS OVERALL HEIGHT TO BE LOWERED AS MUCH AS 6" IN 1" INCREMENTS

Single Deck Self-Contained Mobile Deli/Meat Merchandiser
MMCA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
MMCA-4'	120	1	60	NEMA L5-20	10 ft

Guidelines & Control Settings

Model	Front Sill Height	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
MMCA-4'	35"	17.2	49	6-8	24	32	35	180

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
MMCA-4'	115	1	60	1/3	7.4	29.8	R404A	3.5	45	500	162

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

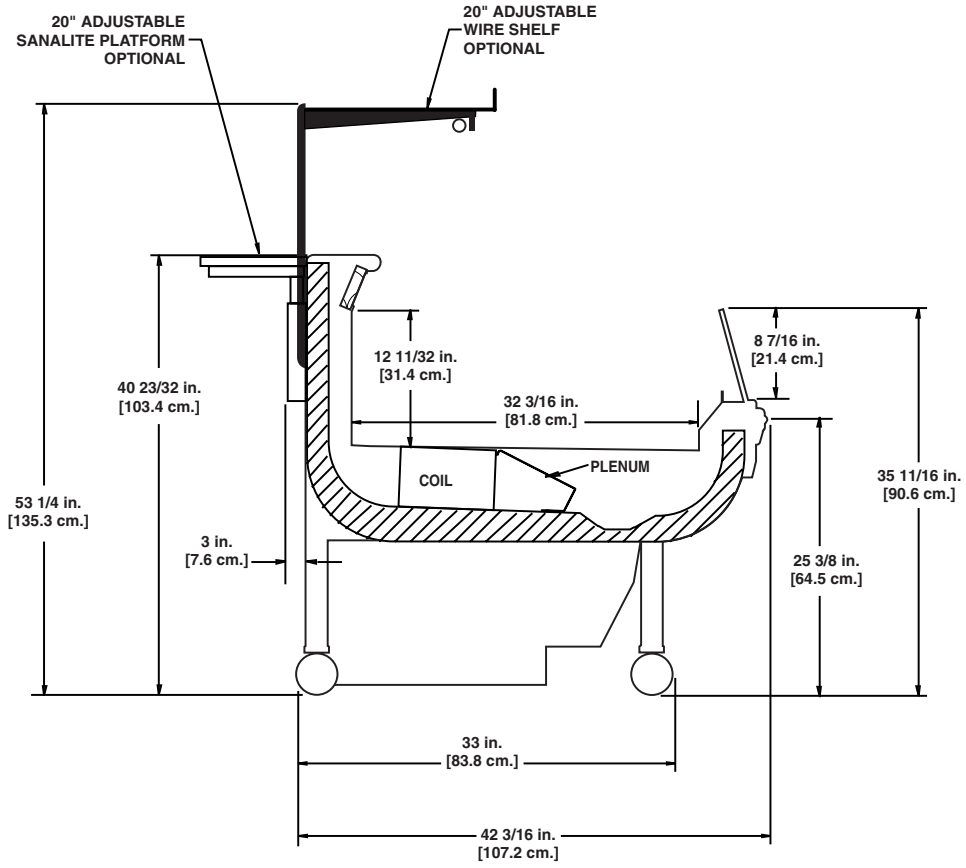
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
MMCA-4'	3	35	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

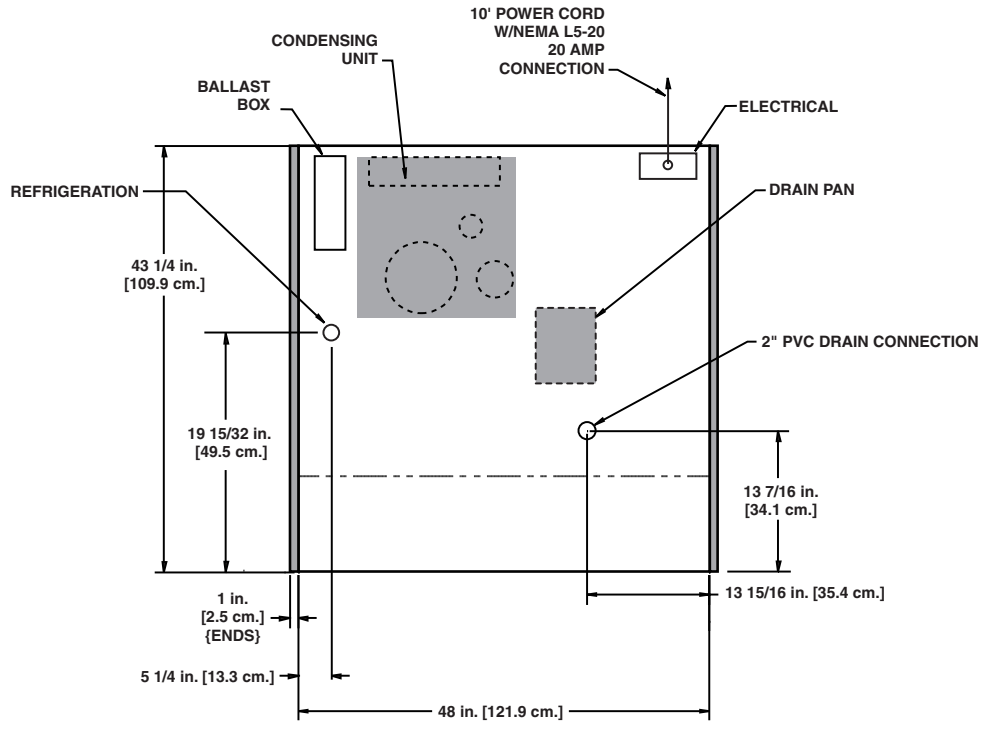
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





FRONT OF CASE

NOTE:

ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

Single Deck Produce Self-Contained Merchandiser

OPA - 6', 8', & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
OPA	6'	120	1	60	2 wire + ground	12.5	20
	8'	120	1	60	2 wire + ground	17.6	25
	12'	120	1	60	2 wire + ground	21.2	30

Electrical Data

			Standard Fans		Condenser Fan		Anti-Condensate Heaters		Defrost Heaters		Drain Heater	
		Fans per Case	120 Volts		208 Volts		120 Volts		120 Volts		120 Volts	
Model			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OPA	6'	2	1.00	60	0.36	33	0.20	24	5.00	600	4.17	500
	8'	2	1.00	60	0.58	44	0.25	30	6.67	800	4.17	500
	12'	3	1.50	90	1.40	101	0.38	46	10.00	1200	4.17	500

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OPA-6'		19.9	6-8	30	36	45	210
OPA-8'		19.9	6-8	30	36	45	210
OPA-12'		19.9	6-8	30	30	45	210

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
OPA-6'	120	1	60	1/4	5.4	34	R134A		0	440	162
OPA-8'	120	1	60	1/2	9.3	36	R134A		0	440	162
OPA-12'	120	1	60	1/2	11	51	R134A		0	440	162

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

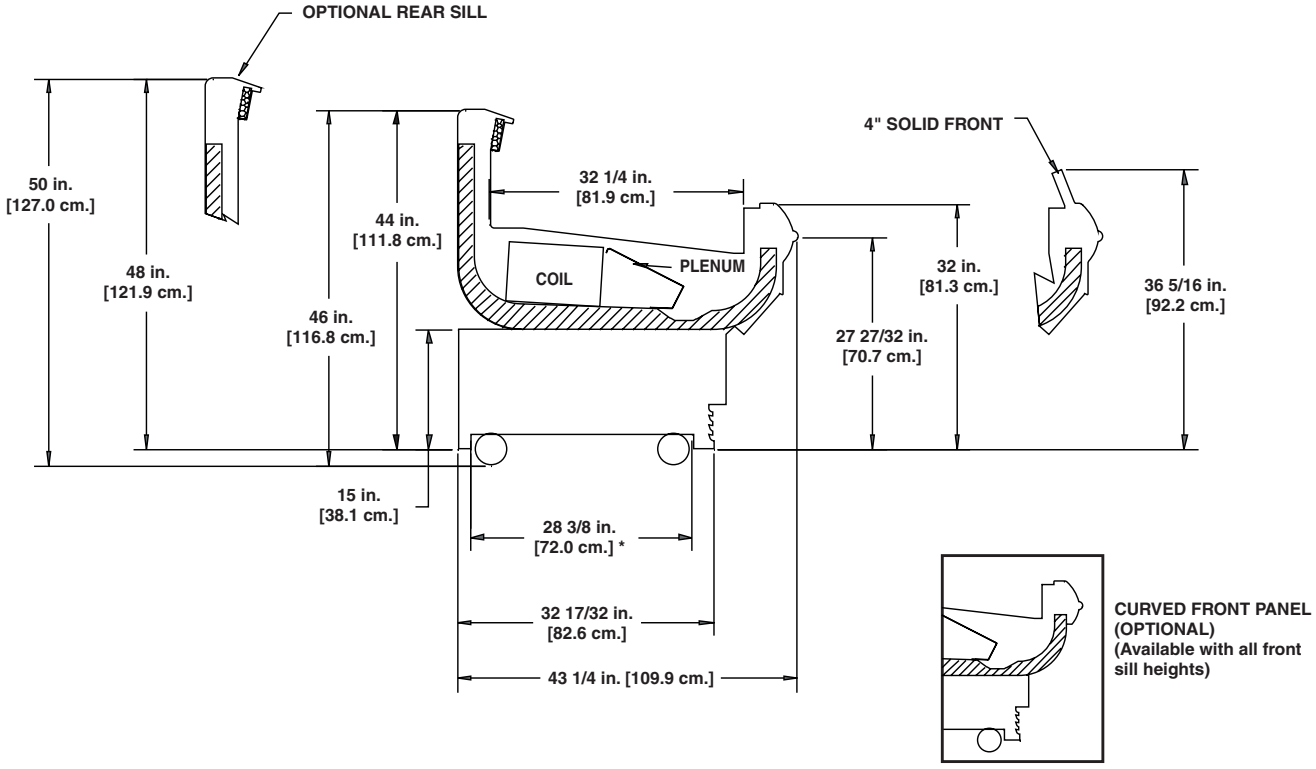
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OPA	2	40	47	60	47	- - -[4]	- - -	- - -	- - -

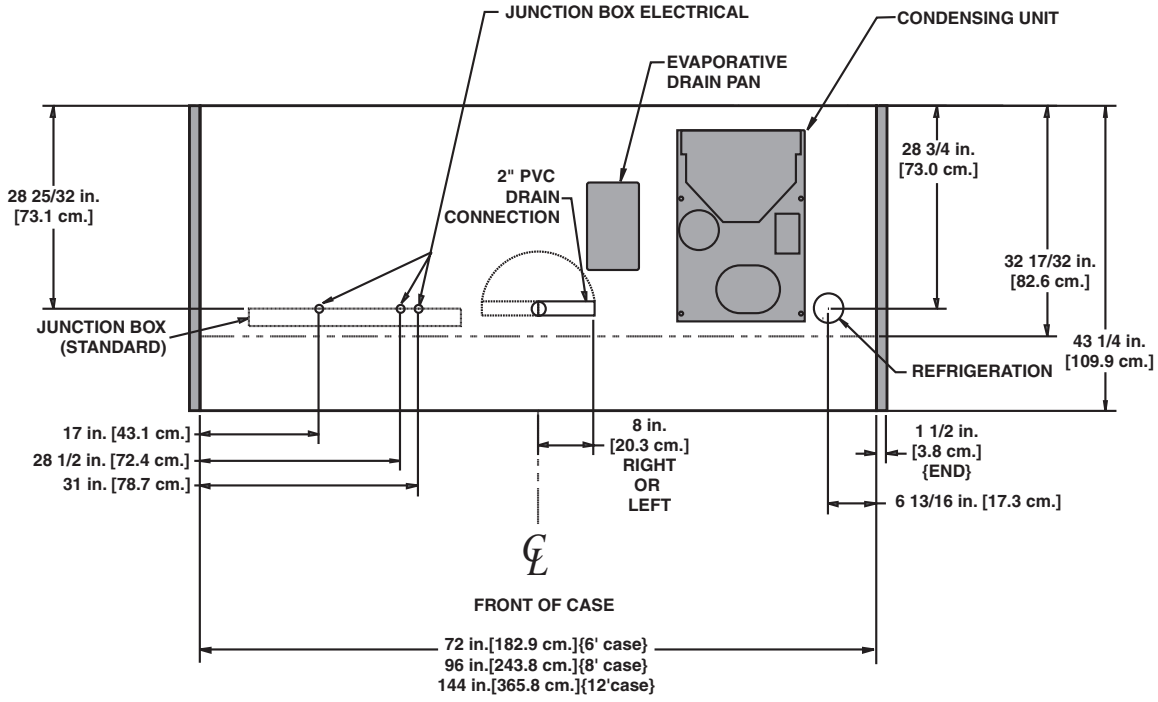
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.


OPTIONAL REAR SILL
50 in.
[127.0 cm.]
48 in.
[121.9 cm.]
44 in.
[111.8 cm.]
46 in.
[116.8 cm.]
15 in.
[38.1 cm.]
32 1/4 in.
[81.9 cm.]
COIL
PLENUM
4" SOLID FRONT
32 in.
[81.3 cm.]
27 27/32 in.
[70.7 cm.]
36 5/16 in.
[92.2 cm.]
28 3/8 in.
[72.0 cm.] *
32 17/32 in.
[82.6 cm.]
43 1/4 in. [109.9 cm.]
CURVED FRONT PANEL
(OPTIONAL)
(Available with all front
sill heights)


JUNCTION BOX ELECTRICAL
CONDENSING UNIT
EVAPORATIVE
DRAIN PAN
28 25/32 in.
[73.1 cm.]
2" PVC
DRAIN
CONNECTION
28 3/4 in.
[73.0 cm.]
32 17/32 in.
[82.6 cm.]
JUNCTION BOX
(STANDARD)
43 1/4 in.
[109.9 cm.]
REFRIGERATION
17 in. [43.1 cm.]
28 1/2 in. [72.4 cm.]
31 in. [78.7 cm.]
8 in.
[20.3 cm.]
RIGHT
OR
LEFT
1 1/2 in.
[3.8 cm.]
{END}
6 13/16 in. [17.3 cm.]
FRONT OF CASE
72 in.[182.9 cm.]{6' case}
96 in.[243.8 cm.]{8' case}
144 in.[365.8 cm.]{12'case}

International Style Self-Contained Mobile Deli/Meat/Seafood Merchandiser
OSIOA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOA-4'	120	1	60	NEMA 5L20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIOA-4'	14.1	12-14	6-8	26	33	34	182

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
OSIOA-4'	115	1	60	1/2	10.4	48.0	R134A	3.25	45	440	162

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

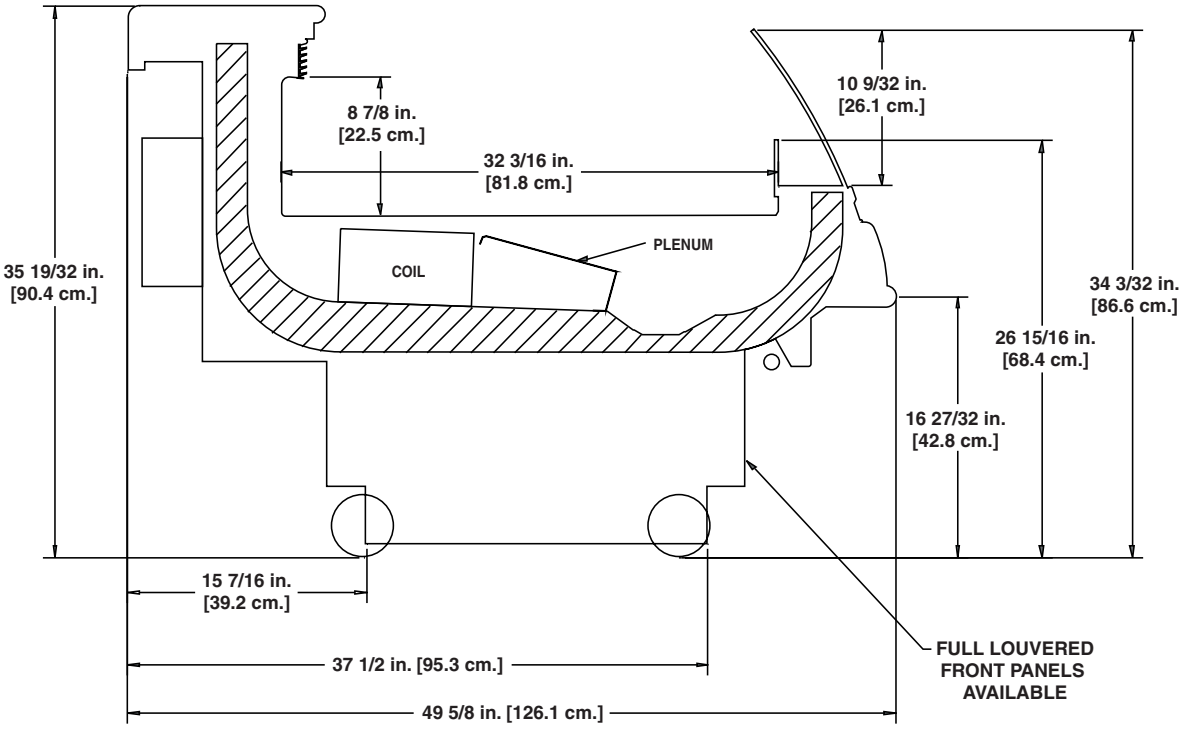
Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOA-4'	4	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

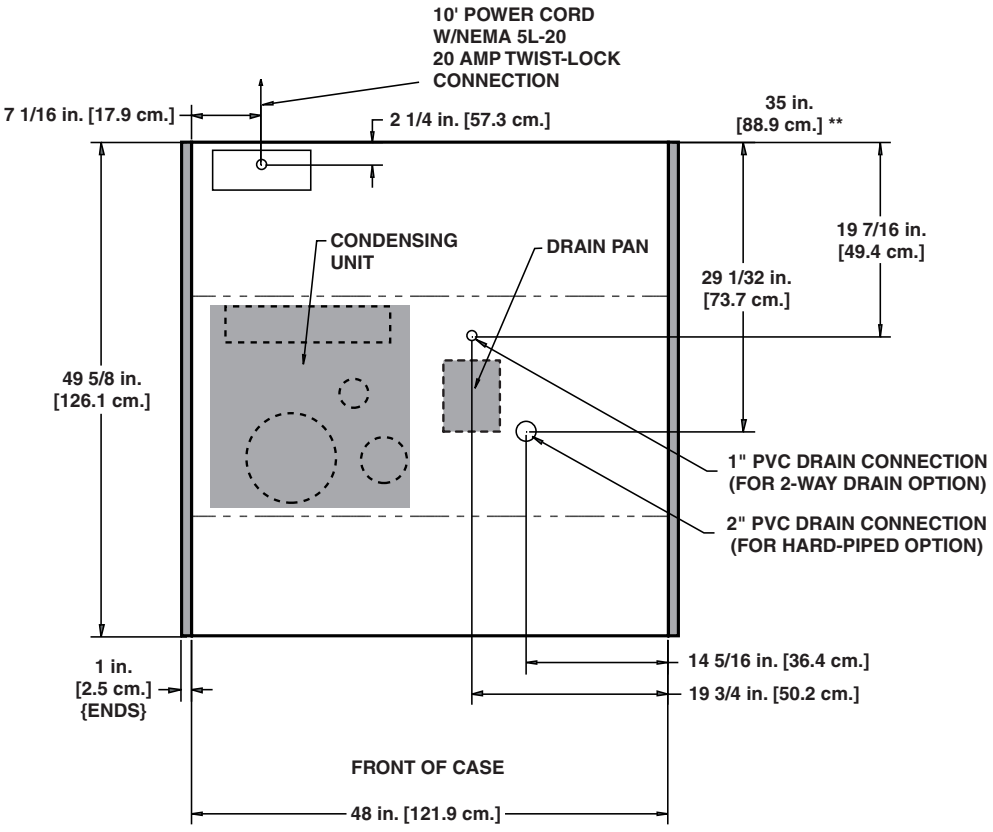
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTE:

ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

International Style Self-Contained Mobile Deli/Meat/Seafood Prep Merchandiser

OSIOPA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOPA-4'	120	1	60	NEMA 5L20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIOPA-4' deli	13.6	20	6-8	34	38	36	200
OSIOPA-4' meat	18.0	16	6-8	32	34	36	200

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
OSIOPA-4'	120	1	60	1/3	7.2	29.0	134A	2.25	45	440	162

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

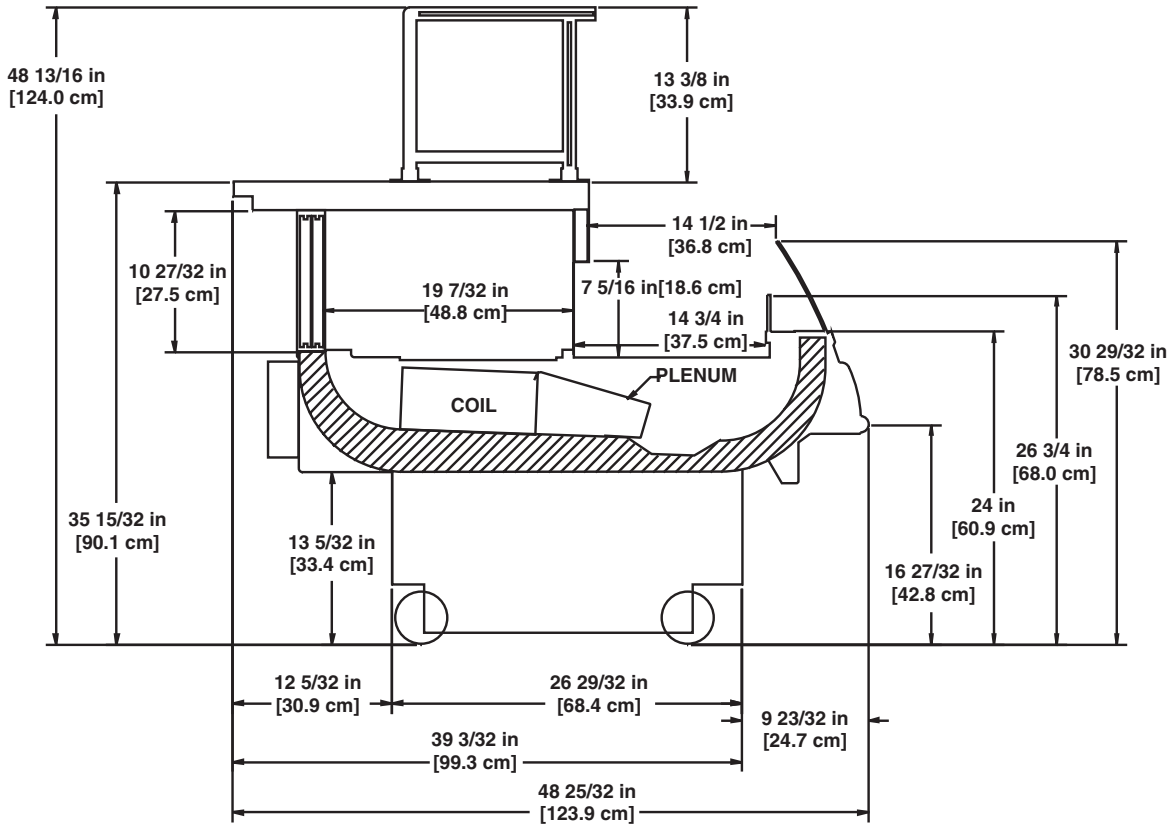
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOPA-4'	2	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

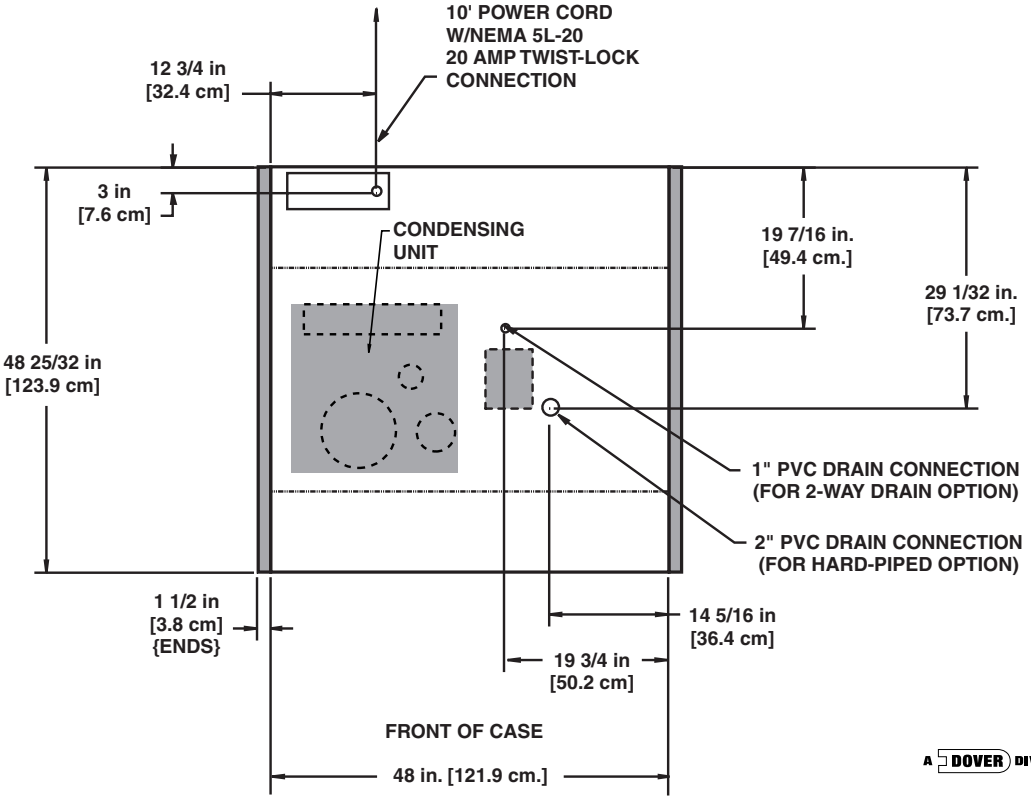
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.


48 13/16 in
[124.0 cm]
13 3/8 in
[33.9 cm]
14 1/2 in
[36.8 cm]
10 27/32 in
[27.5 cm]
19 7/32 in
[48.8 cm]
7 5/16 in[18.6 cm]
14 3/4 in
[37.5 cm]
30 29/32 in
[78.5 cm]
PLENUM
COIL
26 3/4 in
[68.0 cm]
24 in
[60.9 cm]
35 15/32 in
[90.1 cm]
13 5/32 in
[33.4 cm]
16 27/32 in
[42.8 cm]
12 5/32 in
[30.9 cm]
26 29/32 in
[68.4 cm]
9 23/32 in
[24.7 cm]
39 3/32 in
[99.3 cm]
48 25/32 in
[123.9 cm]


10' POWER CORD
W/NEMA 5L-20
20 AMP TWIST-LOCK
CONNECTION
12 3/4 in
[32.4 cm]
3 in
[7.6 cm]
CONDENSING
UNIT
19 7/16 in.
[49.4 cm.]
29 1/32 in.
[73.7 cm.]
48 25/32 in
[123.9 cm]
1" PVC DRAIN CONNECTION
(FOR 2-WAY DRAIN OPTION)
2" PVC DRAIN CONNECTION
(FOR HARD-PIPED OPTION)
1 1/2 in
[3.8 cm]
{ENDS}
14 5/16 in
[36.4 cm]
19 3/4 in
[50.2 cm]
FRONT OF CASE
48 in. [121.9 cm.]

International Style Self-Contained Mobile Dual Temp. Merchandiser
OSIOZA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOZA-4'	120	1	60	NEMA 5L30	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIOZA-4'	25.0	12-14	3-4	-24	-6	-10	220

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
OSIOZA-4'	115	1	60	3/4	10.9	85.5	R404A	3.75	0	440	162

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOZA-4'	2	47	45	- - -[4]	- - -	- - -	- - -	- - -	- - -

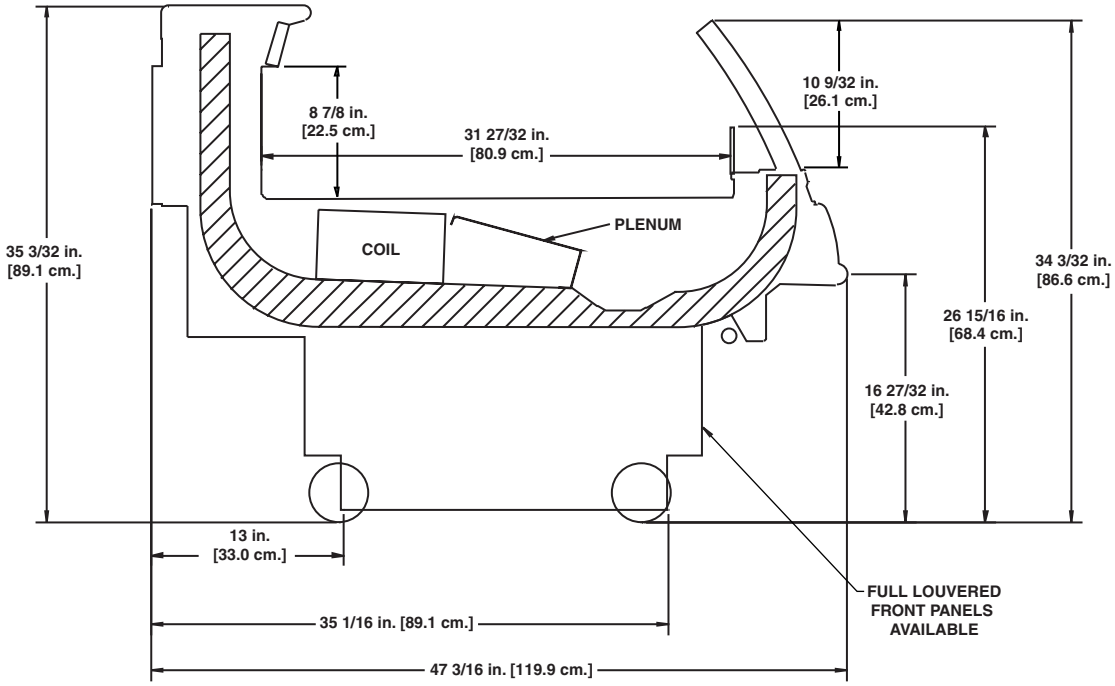
[4] NOTE: - - - not an option on this case model.

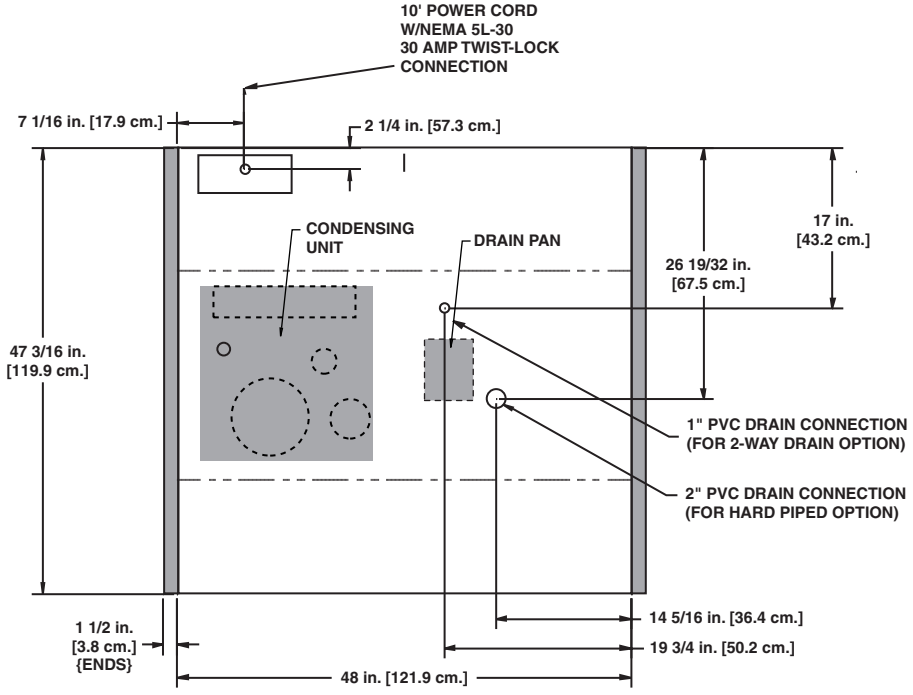
Low Temperature Defrost Schedule

No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.





FRONT OF CASE

NOTE:

ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

Single Deck Self-Contained Mobile Boxed Produce Merchandiser
UPA-8'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
UPA-8'	120	1	60	NEMA L5-30	6'

Guidelines & Control Settings

Model	Front Sill Height	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
UPA-8'	38"	37	20	6-8	32	38	42	275

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
UPA-8'	115	1	60	1/2	12.9	66.3	R134A	4.0	25	440	162

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
UPA-8'	3	- - -[4]	- - -	45	45	- - -	- - -	- - -	- - -

[4] NOTE: - - - not an option on this case model.

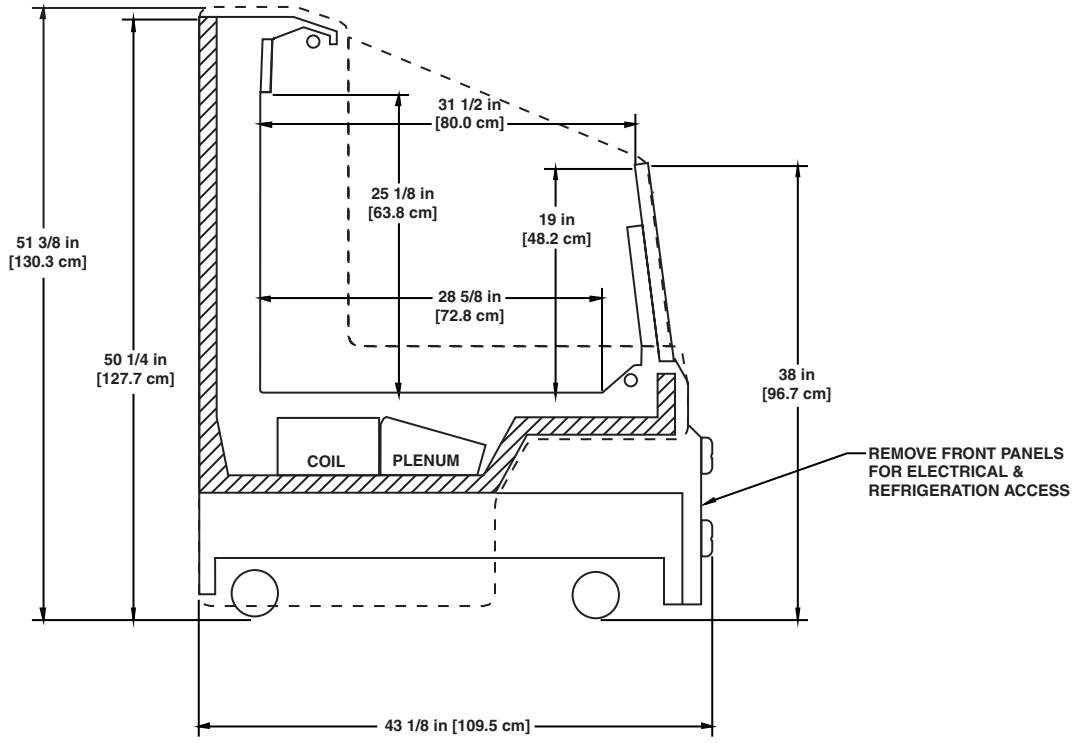
Medium Temperature Defrost Schedule

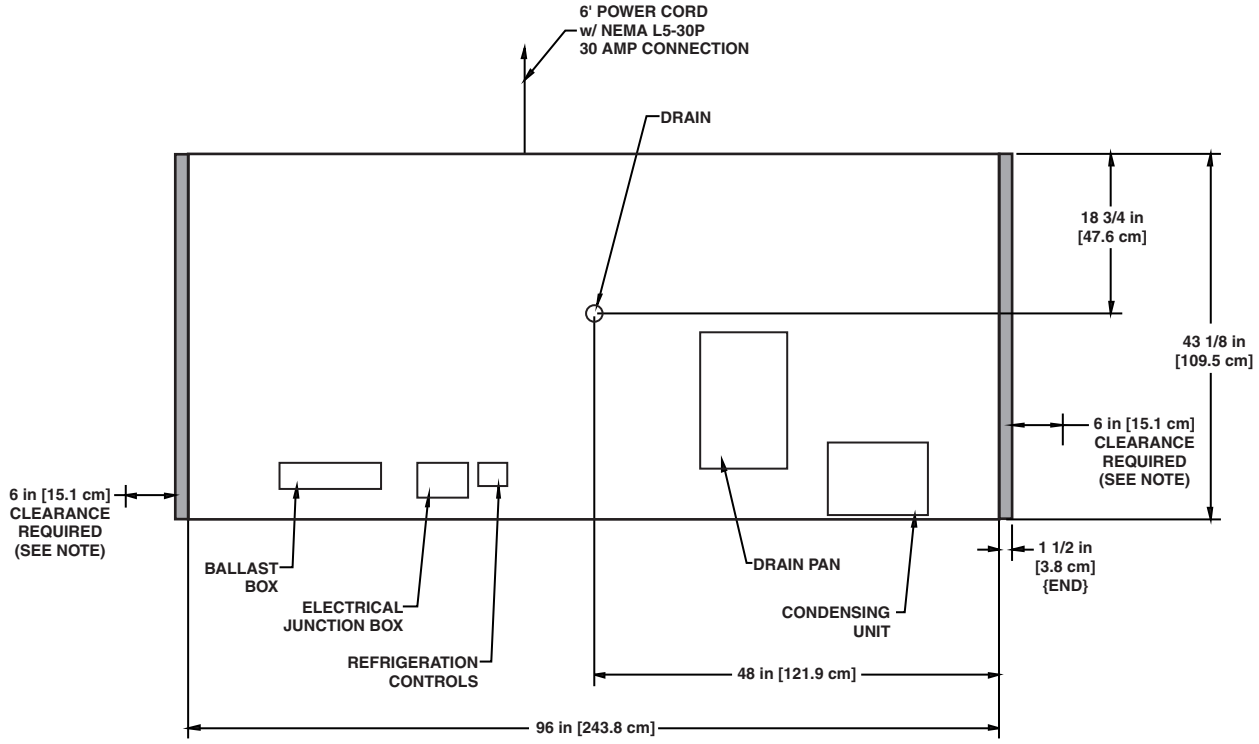
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

Hill PHOENIX EXCELLENCE™

A DOVER DIVERSIFIED COMPANY





FRONT OF CASE

NOTES:

CASE CLEARANCE: MINIMUM 6" BOTH ENDS

Multi-Deck Self-Contained Mobile Produce/Dairy/Deli/Meat Merchandiser
O2.5UMA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
O2.5UMA-4'	120	1	60	NEMA 5L20	10 ft

Guidelines & Control Settings

Model	Front Sill Height	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
O2.5UMA-4' Produce	27"[1]	32.3	12-14	6-8	29-30	37	40-42	228
Deli	31"	30.2	12-14	6-8	25-27	35	39-41	230
Meat	33"	30.3	12-14	6-8	25-26	34	36-38	226

[1] Note: when ordering the 27" front a 4" piece of straight plexiglass must be placed in front of the return air baffle.

[2] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[3] (amps)	LRA[4] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
O2.5UMA-4'	115	1	60	1/2	12.9	66.3	R134A	3.6	25	440	162

[3] RLA - Running Load Amps.

[4] LRA - Locked Rotor Amps.

Defrost Controls

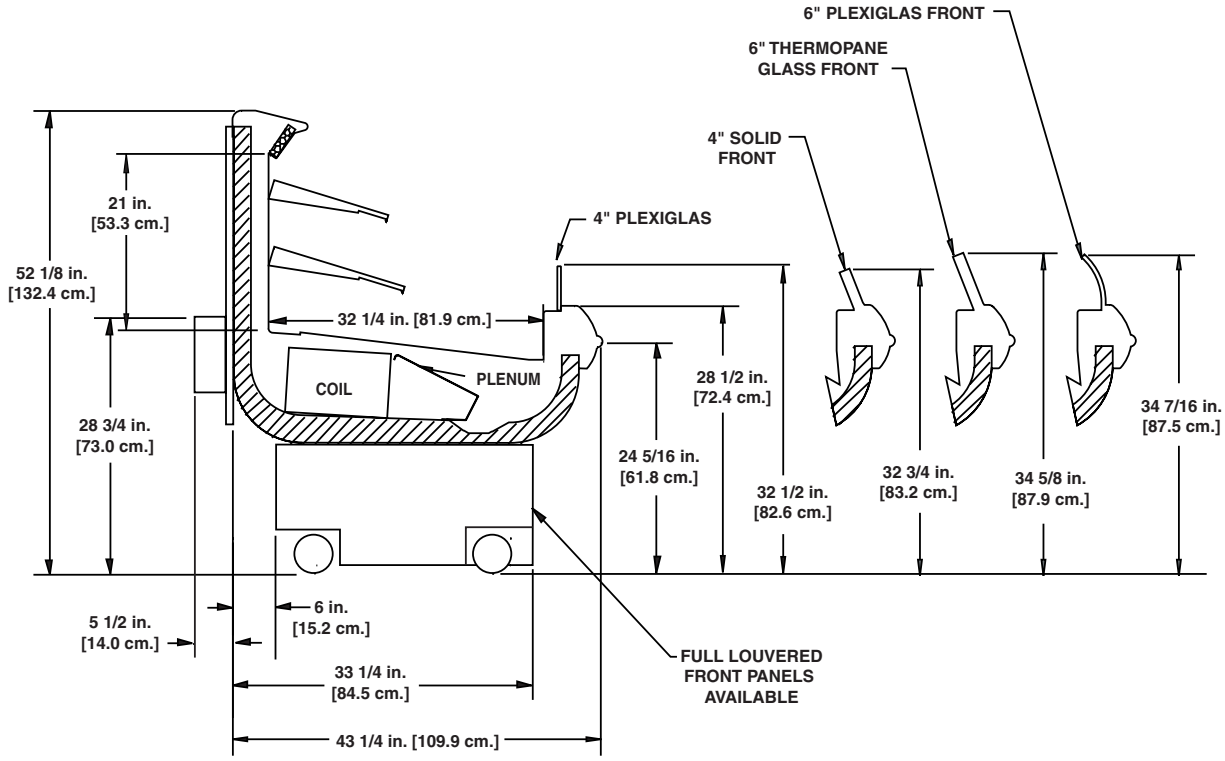
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O2.5UMA-4'	3	40	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

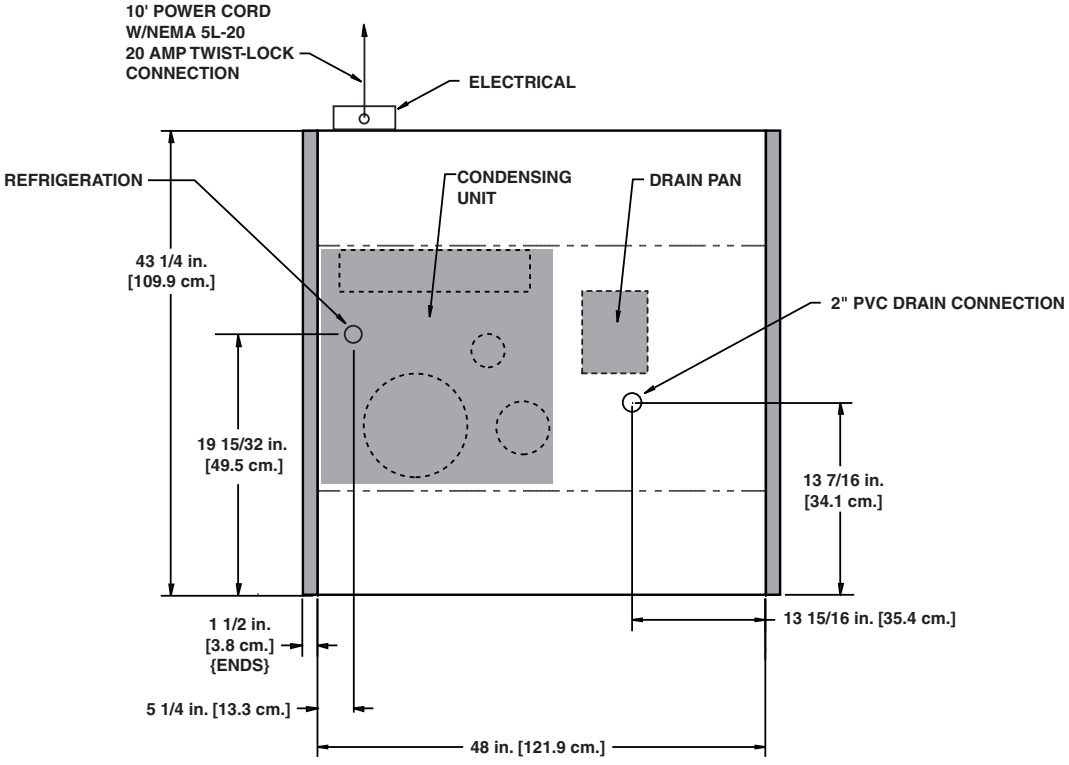
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10", 12", 14", & 16"

Multi-Deck Self-Contained Mobile Produce/Dairy/Deli/Meat Merchandiser
O3UMA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
O3UMA-4'	120	1	60	NEMA 5L20	10 ft

Guidelines & Control Settings

Model	Front Sill Height	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
O3UMA-4'	31"	32.1	12-14	6-8	26	32	35	230

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[3] (amps)	LRA[4] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
O3UMA-4'	115	1	60	1/2	12.9	66.3	134A	3.6	25	440	162

[3] RLA - Running Load Amps.

[4] LRA - Locked Rotor Amps.

Defrost Controls

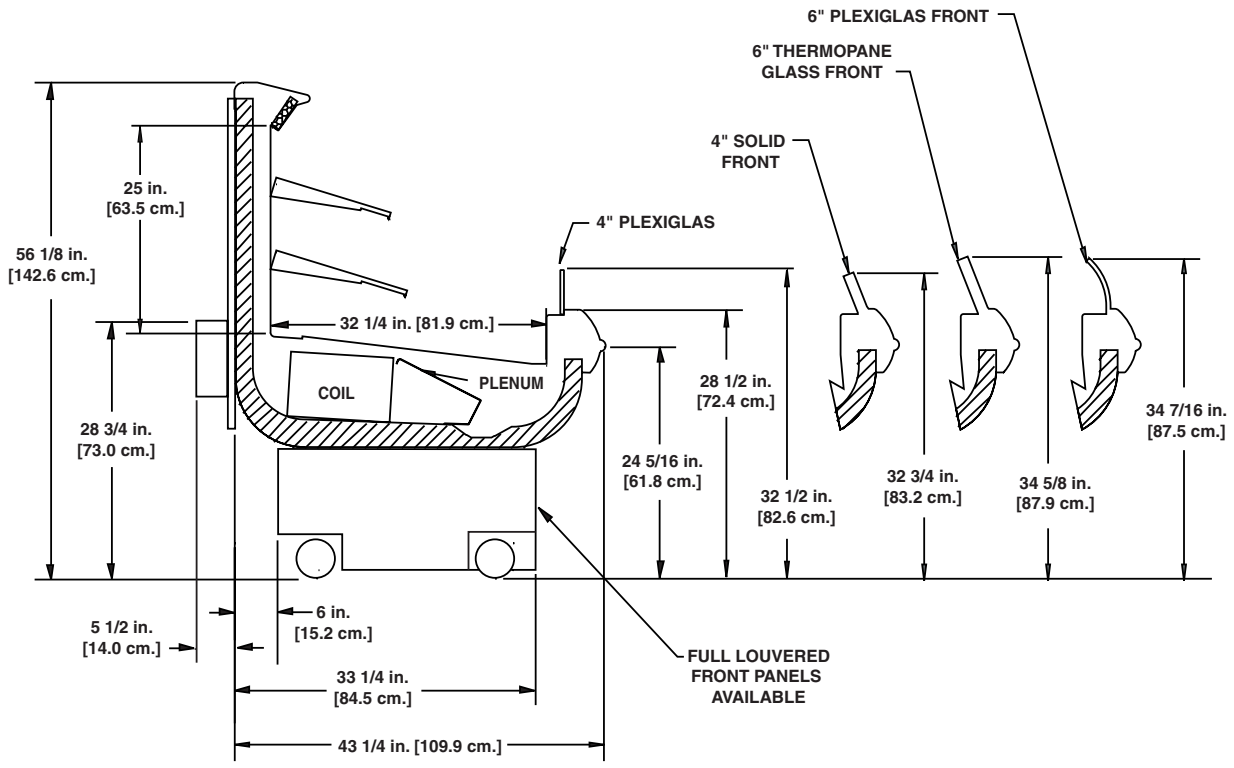
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O3UMA-4'	3	40	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

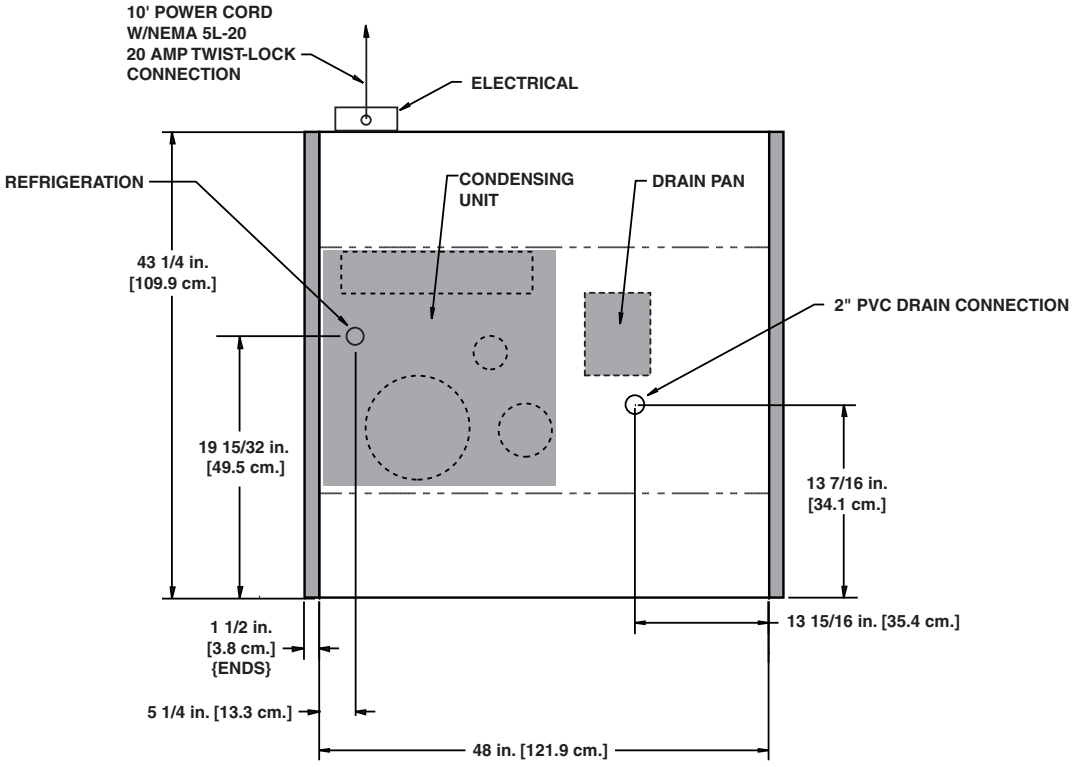
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10", 12", 14", & 16"

Multi-Deck Self-Contained Produce/Dairy/Deli Merchandiser

O5DMA - 4', 6', & 8'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
O5DMA	4'	208/230	1	60	3 wire + ground	24.8	30
	6'	208/230	1	60	3 wire + ground	28.5	40
	8'	208/230	1	60	3 wire + ground	30.9	40

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		Condenser Fan 208 Volts		Drain Pump 120 Volts		Evap. Pan Heater 240 Volts		Maximum Lights 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O5DMA	4'	2	1.00	60	0.85	130	1.10	132	7.21	1500	2.63	316
	6'	2	1.00	60	1.10	111	1.10	132	7.21	1500	4.47	536
	8'	3	1.50	90	1.10	111	1.10	132	7.21	1500	4.47	536

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
O5DMA-4'		52	6-8	30	35	44	250
O5DMA-6'		52	6-8	30	35	44	250
O5DMA-8'		52	6-8	30	35	44	250

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
O5DMA-4'	208	1	60	1	9.6	51	404A	4.5	45	500	174
O5DMA-6'	208	1	60	1 3/4	10.9	56	404A		45	500	174
O5DMA-8'	208	1	60	2	12.4	61	404A		45	500	174

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

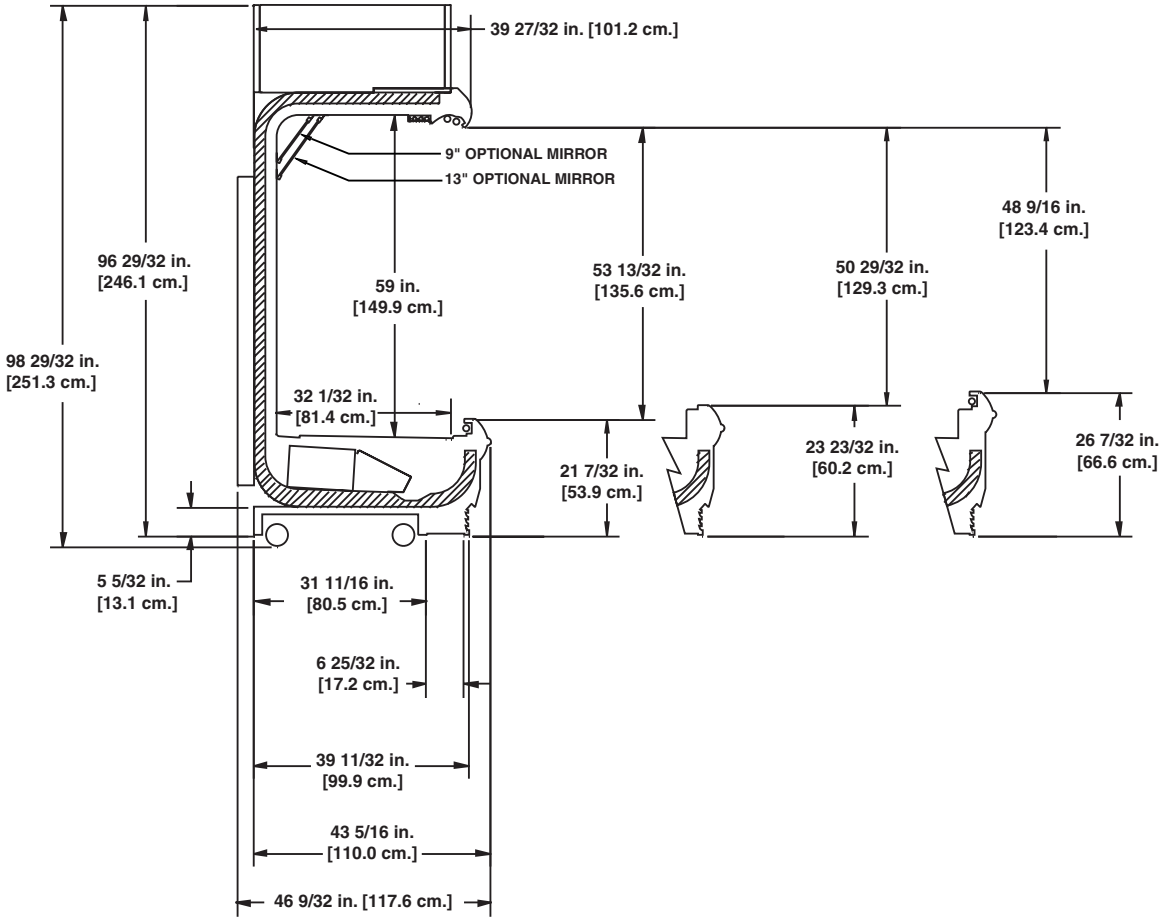
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O5DMA	3	- - - [4]	- - -	42	47	- - -	- - -	- - -	- - -

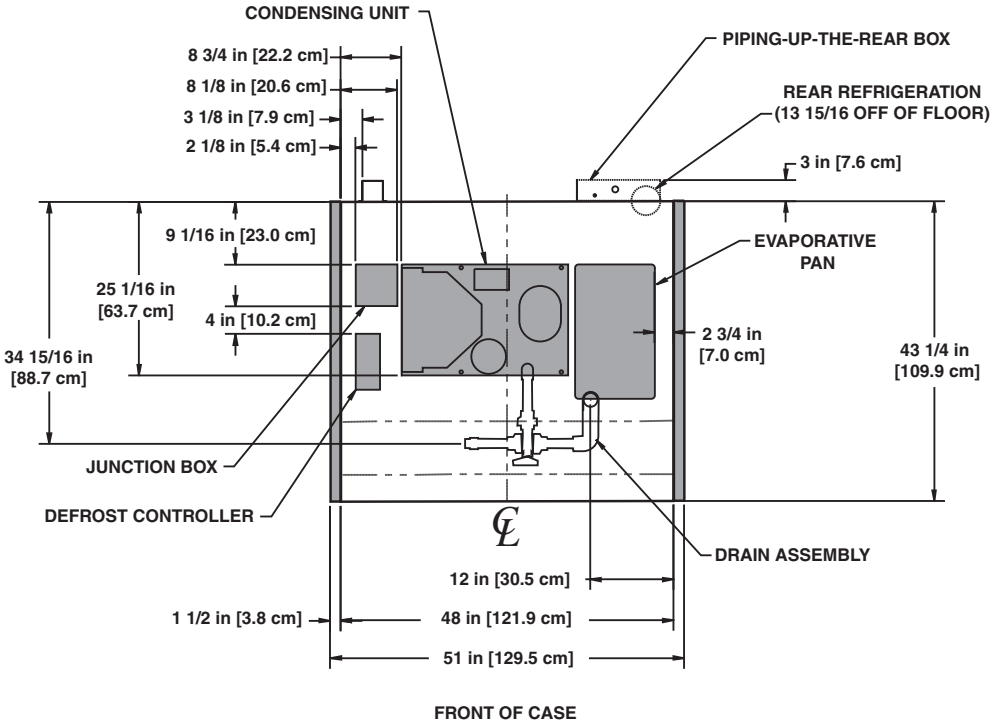
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

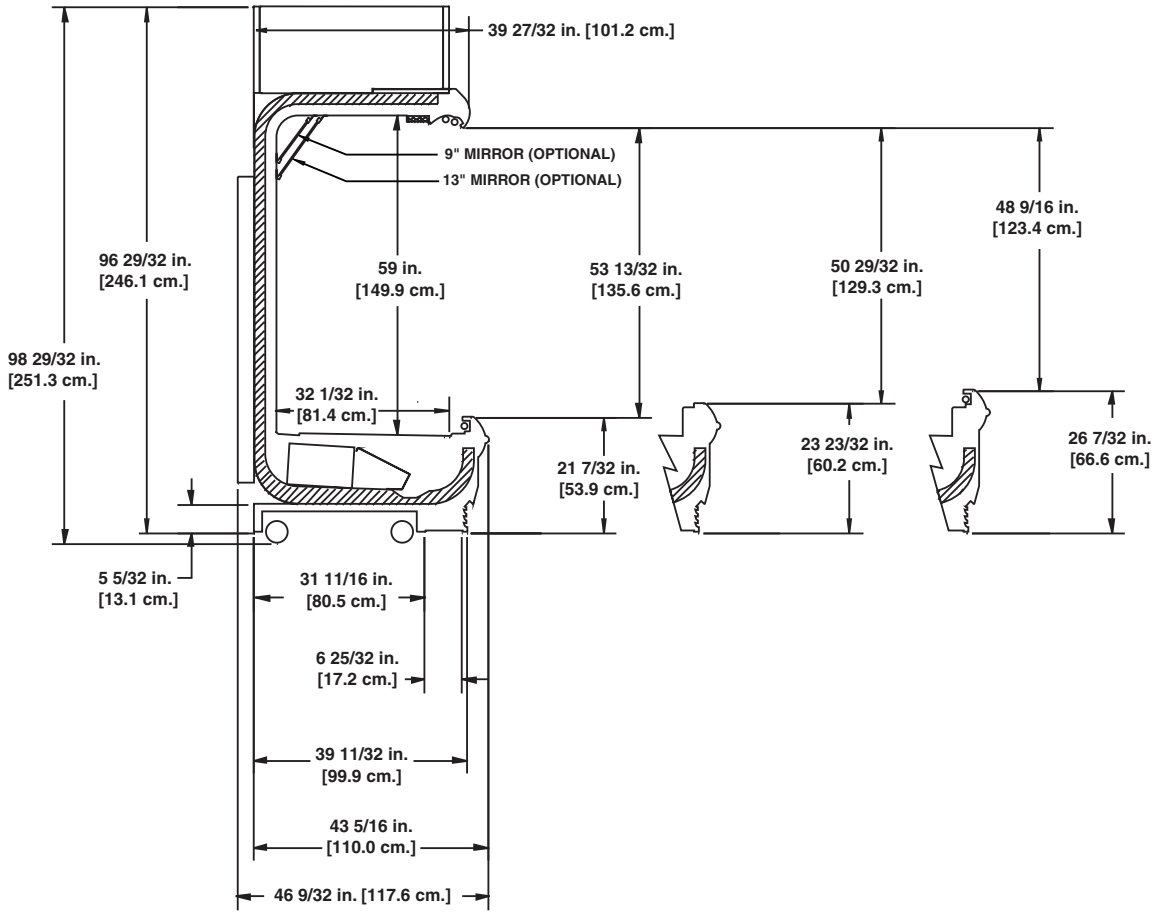
All measurements are taken per CRMA specifications.

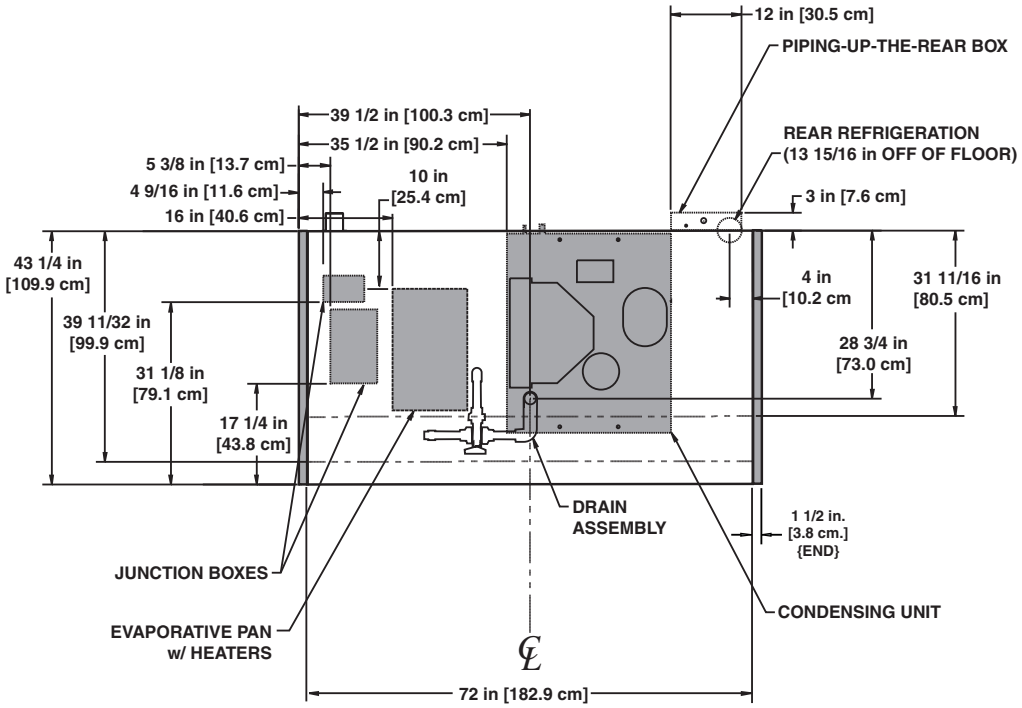




NOTES:

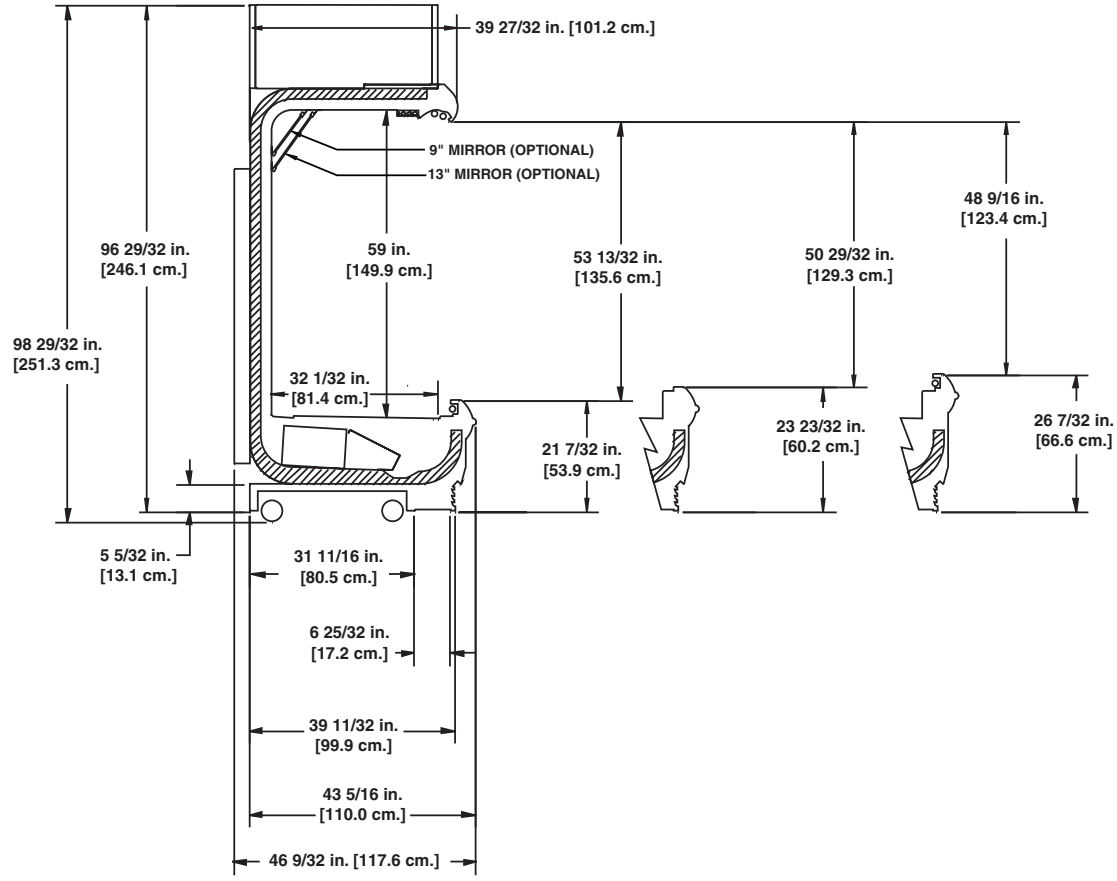
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22", & 24"

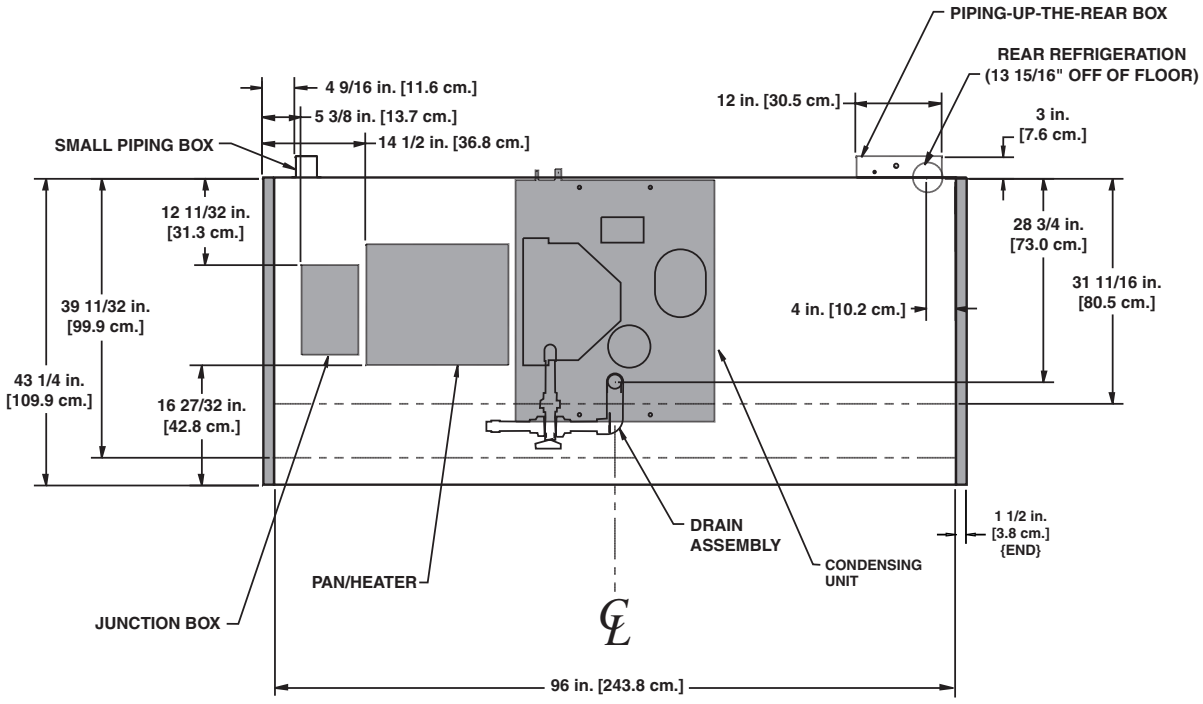




NOTES:

- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22", & 24"





NOTES:

- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22", & 24"

Narrow Multi-Deck Self-Contained Dairy Merchandiser

ONNA-47”

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
ONNA	47”	208/230	1	60	3 wire + ground	18.5	25

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	Condenser Fan 208 Volts Amps	Condenser Fan 208 Volts Watts	Drain Pump 120 Volts Amps	Drain Pump 120 Volts Watts	Evap. Pan Heater 240 Volts Amps	Evap. Pan Heater 240 Volts Watts	Maximum Lights 120 Volts Amps	Maximum Lights 120 Volts Watts
ONNA	47”	3	1.35	51	0.85	130	0.9	47	6.28	1500	0.57	68

Guidelines & Control Settings

Model	Front Sill Height	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
ONNA-47”	16”	37.2	15.5	6-8	35	38	43	275

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
ONNA-47”	208-230	1	60	3/4	6.8	33.5	R134A	3.5	25	440	165

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

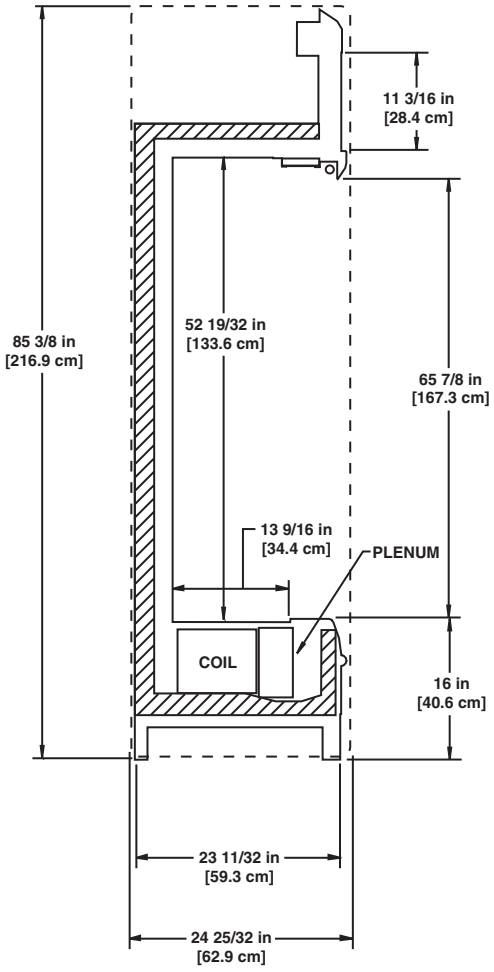
Defrost Controls

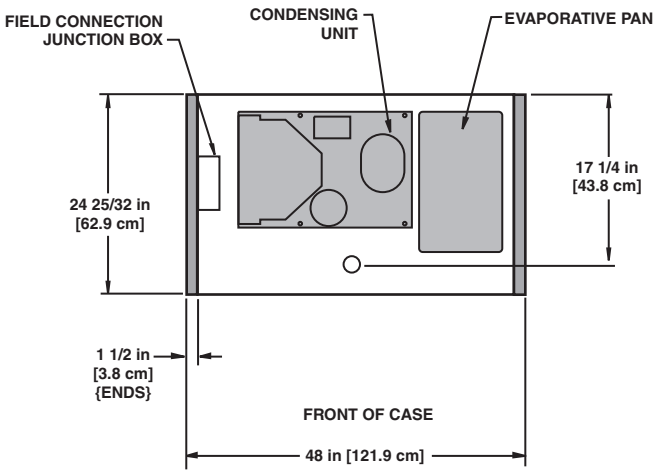
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONNA	4	- - -	- - -	40	47	- - -	- - -	- - -	- - -

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZE: 12"

Narrow Multi-Deck Self-Contained Dairy/Deli/Meat Merchandiser

ONUA - 4'/47" & 6'/71"

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
ONUA	4'/47"	208/230	1	60	3 wire + ground	19.8	25
	6'/71"	208/230	1	60	3 wire + ground	27.1	35

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		Condenser Fan 208 Volts		Drain Pump 120 Volts		Evap. Pan Heater 240 Volts		Maximum Lights 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONUA	4'/47"	2	1.00	60	0.85	130	0.90	108	6.28	1500	2.06	247
	6'/71"	3	1.50	90	1.50	111	0.90	108	6.28	1500	3.90	468

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
ONUA-4'/47"	43.9	33	6-8	27.5	34	39	310
ONUA-6'/71"	59.3	33	6-8	27.5	34	39	310

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
ONUA-4'/47"	208-230	1	60	1	7.0	34.2	R-22	5.9	45	500	174
ONUA-6'/71"	208-230	1	60	1 1/2	10.4	48.2	R-22	6.75	45	500	174

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

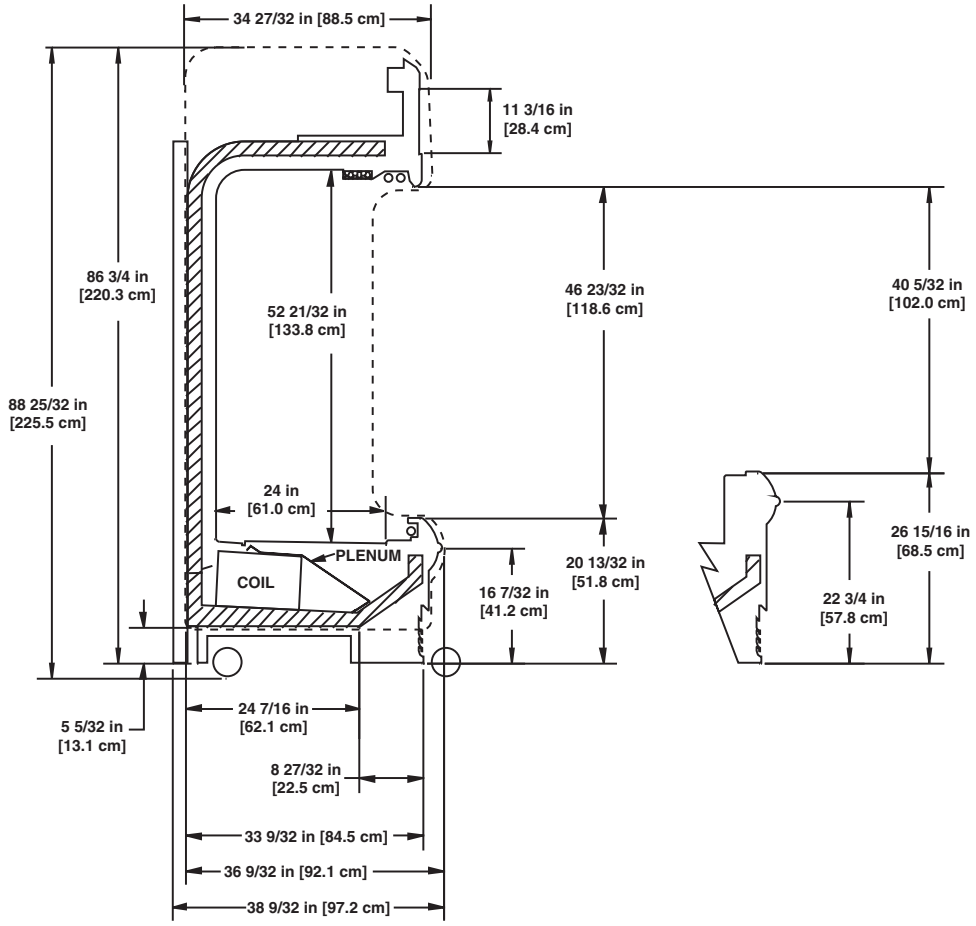
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONUA	4	- - - [4]	- - -	40	45	- - -	- - -	- - -	- - -

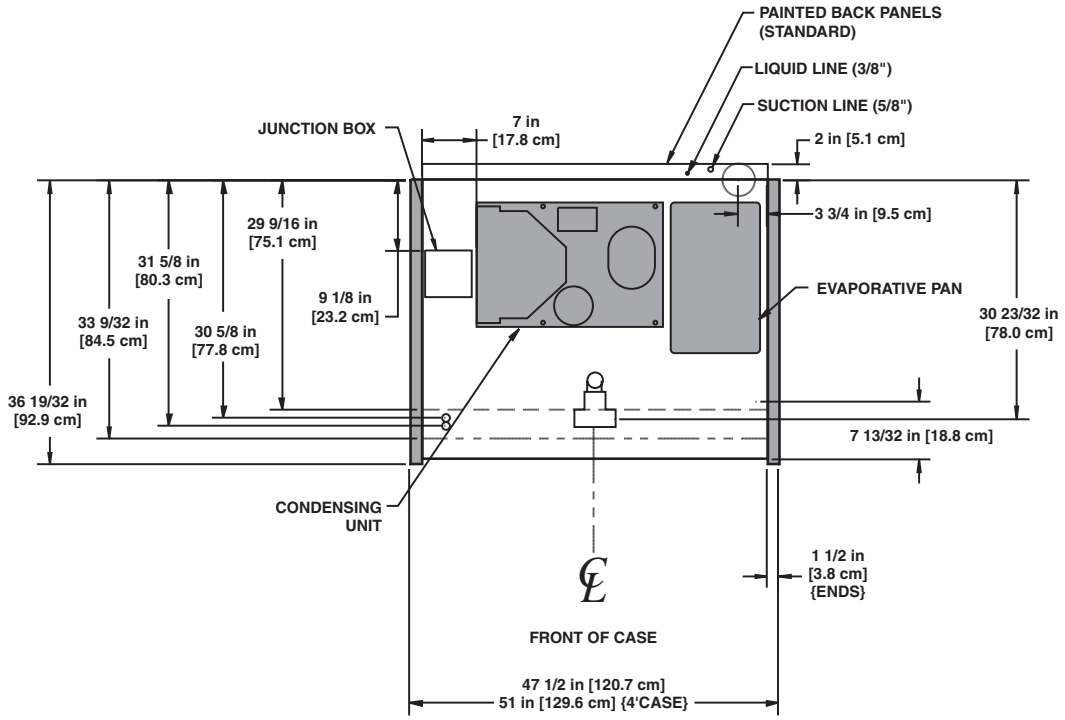
[4] Average discharge air velocity at peak of defrost.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

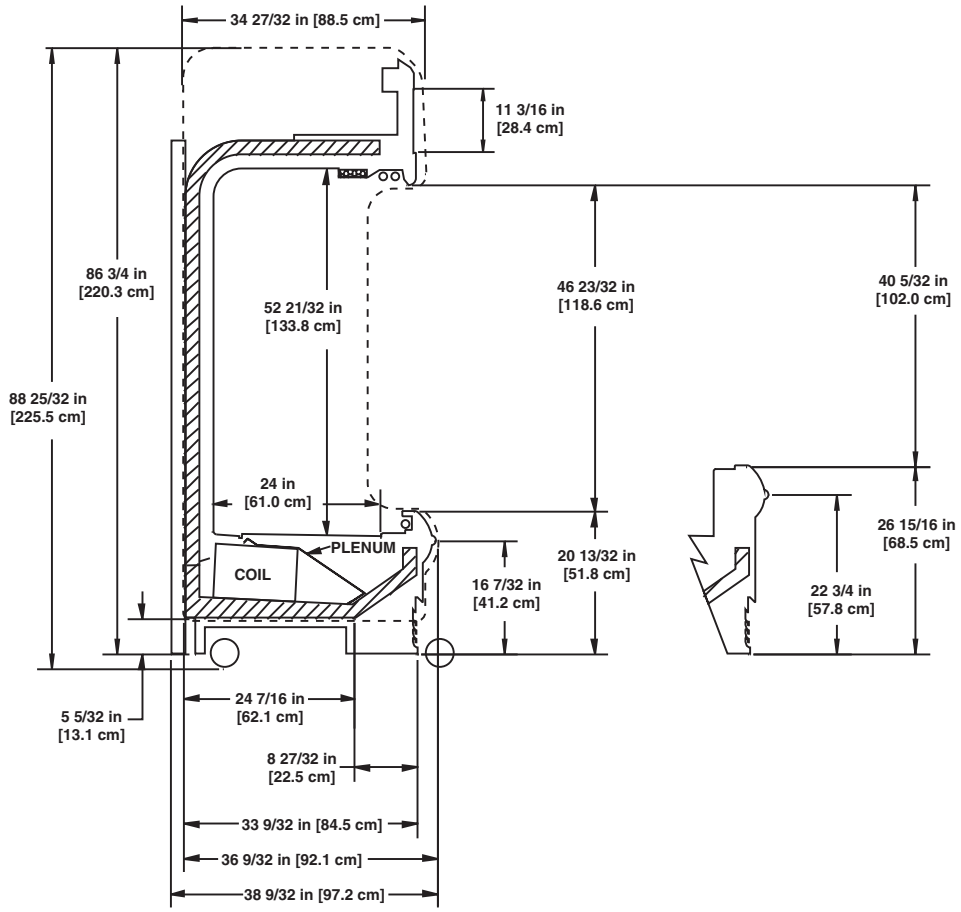
All measurements are taken per CRMA specifications.

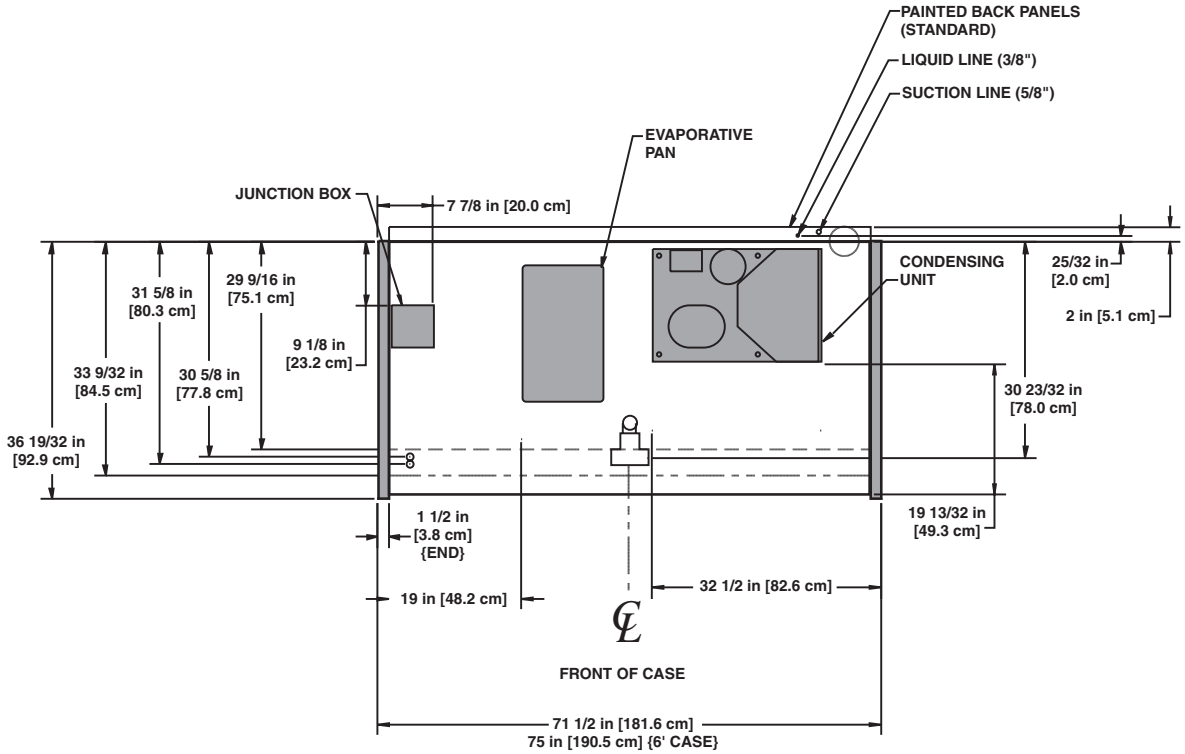




NOTES:

- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"





NOTES:

- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", & 18"

Narrow Island Self-Contained Deli/Meat Merchandiser
ONIMA - 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
ONIMA	8'	208/230	1	60	3 wire + ground	23.3	30
	12'	208/230	1	60	3 wire + ground	29.1	35

Electrical Data

			Standard Fans		Condenser Fans		Anti-Condensate Heaters		Defrost Heaters				Drain Heater		Maximum Lights	
		Fans per Case	120 Volts		208 Volts		120 Volts		208 Volts		240 Volts		240 Volts		120 Volts	
Model			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONIMA	8'	6	2.70	102	0.85	130	0.82	98	4.34	902	5.00	1200	5.55	1331	1.26	151
	12'	8	3.60	136	1.70	260	1.08	130	7.22	1502	8.33	2000	5.55	1331	1.46	175

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
ONIMA-8'		35	6-8	25	33	34	180
ONIMA-12'		35	6-8	25	33	34	180

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[3] (amps)	LRA[4] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
ONIMA-8'	208-230	1	60	1	10.36	48.2	R22	8.2	45	360	215
ONIMA-12'[2]	208-230	1	60	1	7.0	34.2	R22	12.6	45	360	215

[2] This case uses two of the condensing units listed above.

[3] RLA - Running Load Amps.

[4] LRA - Locked Rotor Amps.

Defrost Controls

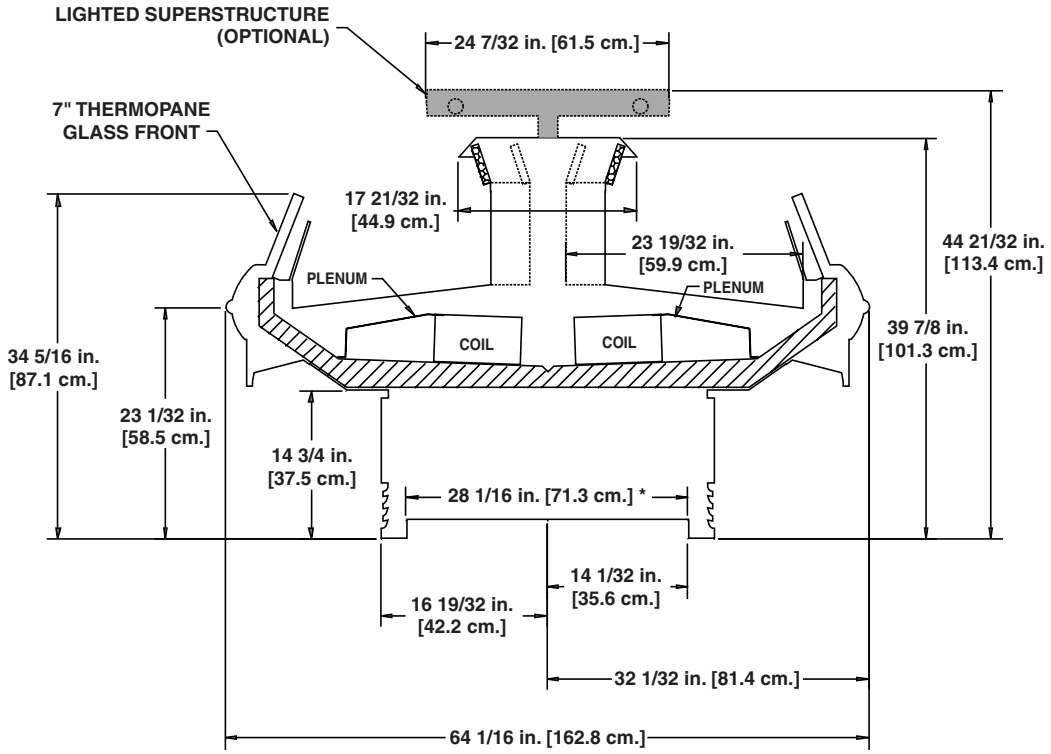
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
ONIMA	3	35	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

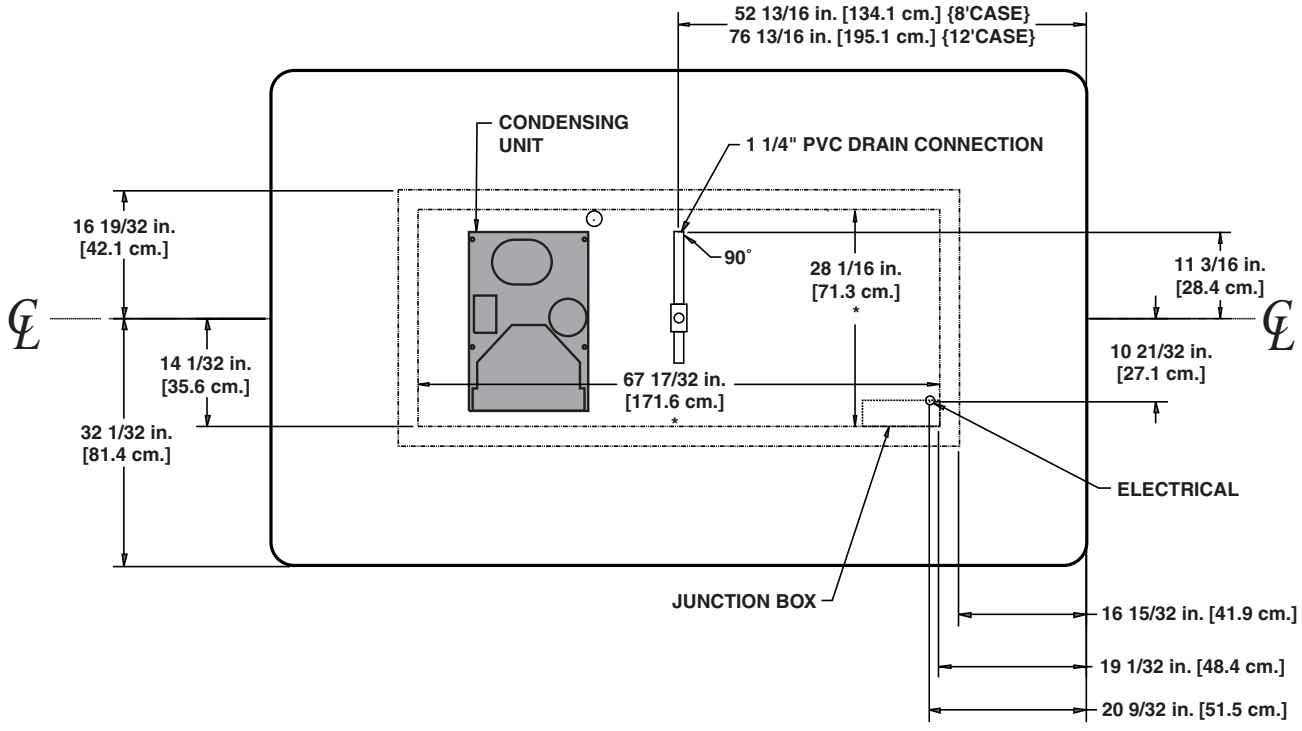
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

• 12' CASES HAVE TWO CONDENSING UNITS

Narrow Island Self-Contained Deli/Meat Merchandiser

ONIMBA - 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
ONIMBA	8'	208/230	1	60	3 wire + ground	23.3	30
	12'	208/230	1	60	3 wire + ground	29.1	35

Electrical Data

			Standard Fans		Condenser Fans		Anti-Condensate Heaters		Defrost Heaters				Drain Heater		Maximum Lights	
		Fans per Case	120 Volts		208 Volts		120 Volts		208 Volts		240 Volts		240 Volts		120 Volts	
Model			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONIMBA	8'	6	2.70	102	0.85	130	0.75	90	4.34	902	5.00	1200	5.55	1331	1.26	151
	12'	8	3.60	136	1.70	260	1.17	140	7.22	1502	8.33	2000	5.55	1331	1.46	175

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
ONIMBA-8'		35	6-8	28	33	37	180
ONIMBA-12'		35	6-8	28	33	37	180

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[3] (amps)	LRA[4] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
ONIMBA-8'	208-230	1	60	1	10.36	48.2	R22	8.2	45	360	215
ONIMBA-12'[2]	208-230	1	60	1	7.0	34.2	R22	12.6	45	360	215

[2] This case uses two of the condensing units listed above.

[3] RLA - Running Load Amps.

[4] LRA - Locked Rotor Amps.

Defrost Controls

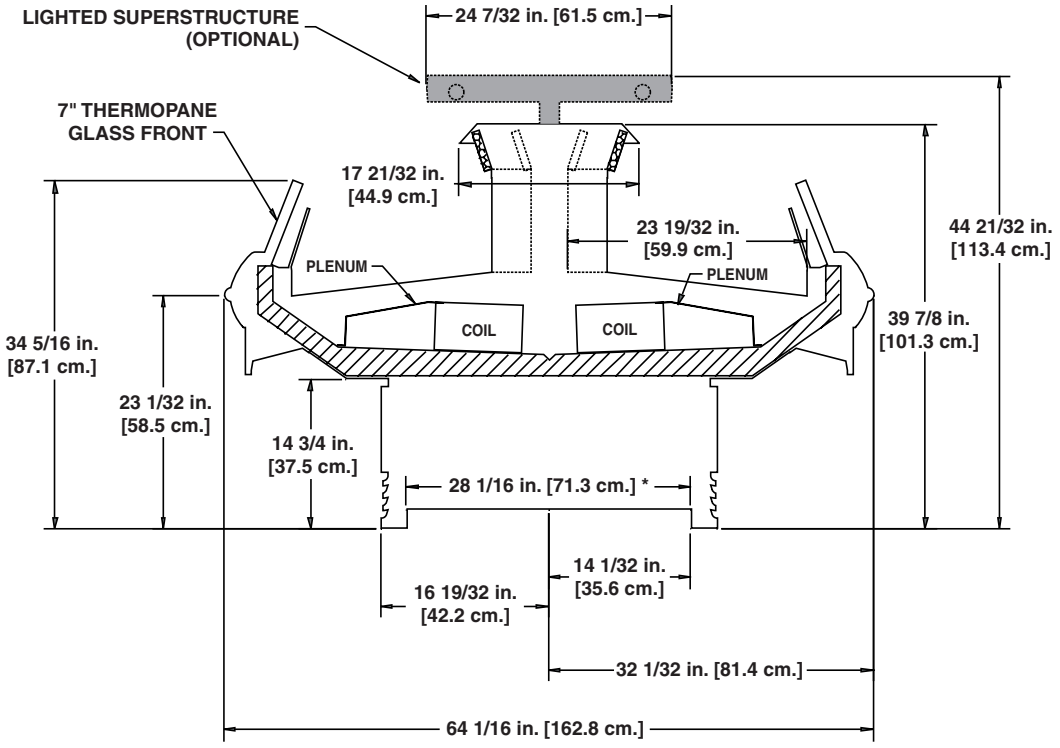
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
ONIMBA	3	35	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

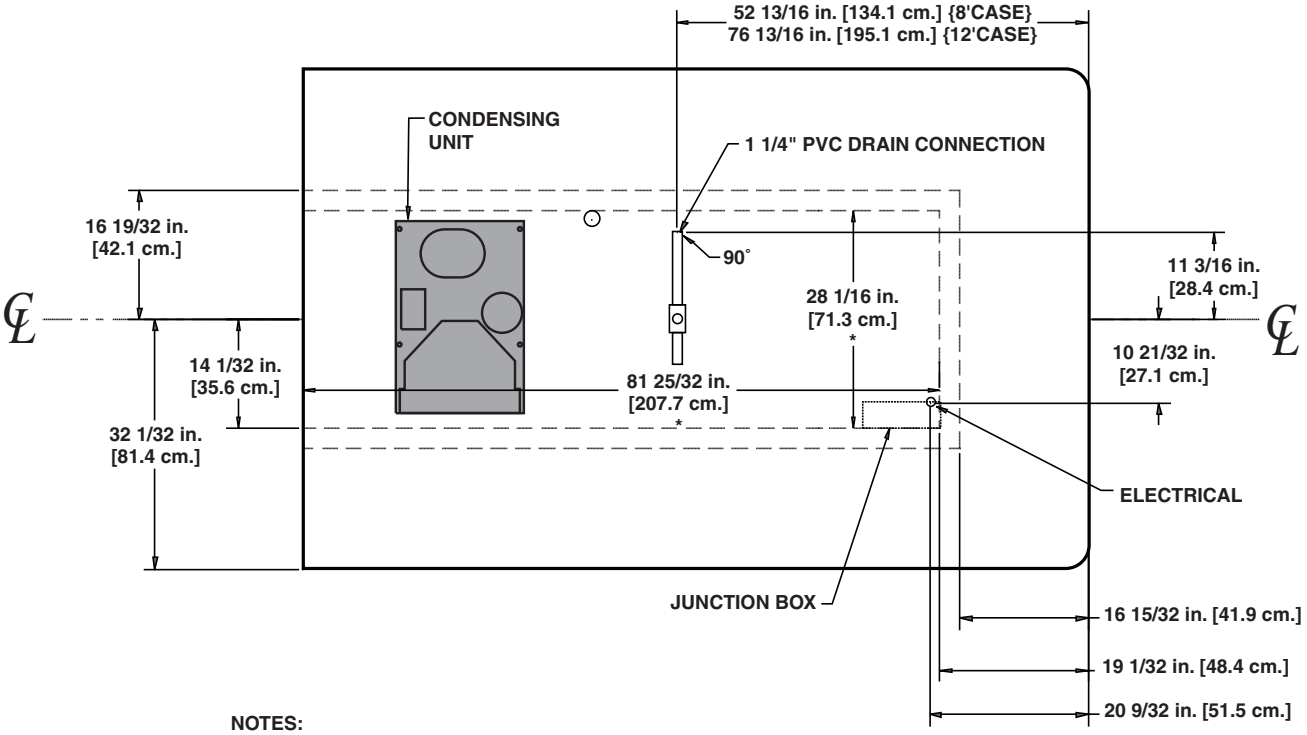
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

• 12' CASES HAVE TWO CONDENSING UNITS

Wide Island Self-Contained Deli/Meat Merchandiser

OIMA - 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
OIMA	8'	208/230	1	60	3 wire + ground	27.9	40
	12'	208/230	1	60	3 wire + ground	34.2	40

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		Condenser Fans 208 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts		Drain Heater 240 Volts		Maximum Lights 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OIMA	8'	6	2.70	102	0.85	130	0.82	98	4.34	9.02	5.00	1200	5.55	1331	5.04	606
	12'	8	3.60	136	1.70	260	1.08	130	7.22	1502	8.33	2000	5.55	1331	6.50	780

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OIMA-8'		35	6-8	26	34	31	140
OIMA-12'		35	6-8	26	34	31	140

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[3] (amps)	LRA[4] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
OIMA-8'	208-230	1	60	1	10.36	48.2	R22	8.2	45	360	215
OIMA-12'[2]	208-230	1	60	1	7.0	34.2	R22	12.6	45	360	215

[2] This case uses two of the condensing units listed above.

[3] RLA - Running Load Amps.

[4] LRA - Locked Rotor Amps.

Defrost Controls

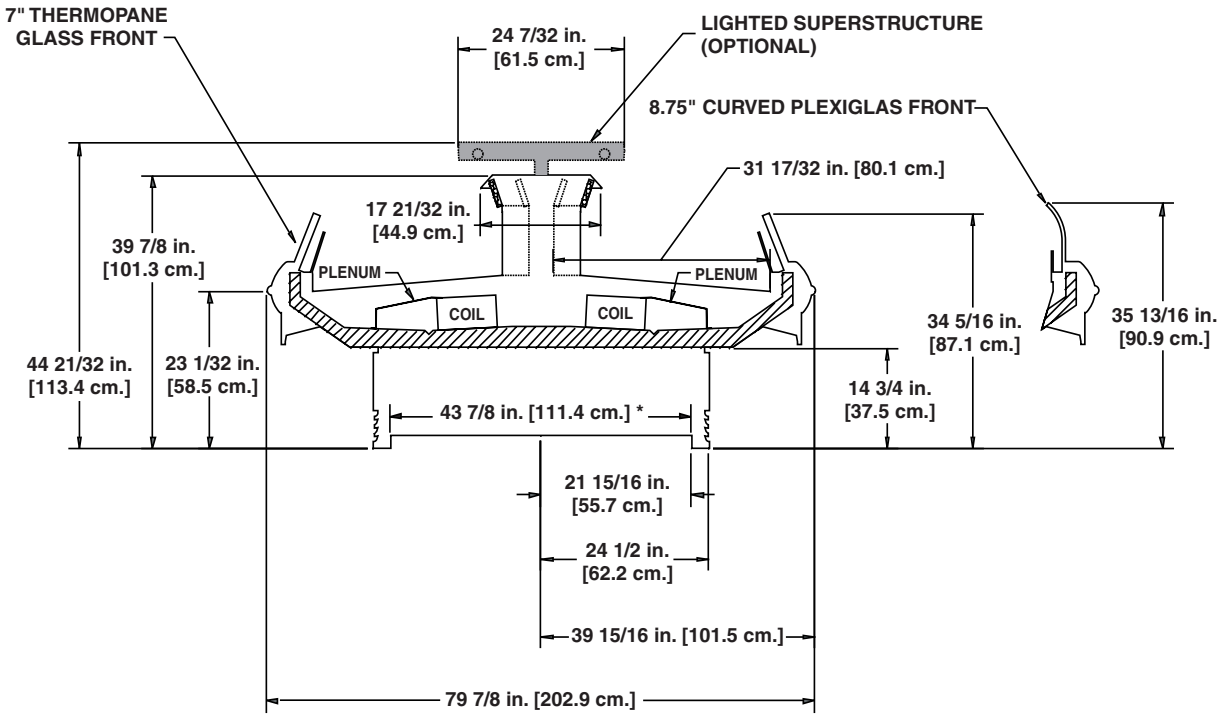
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OIMA	3	40	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

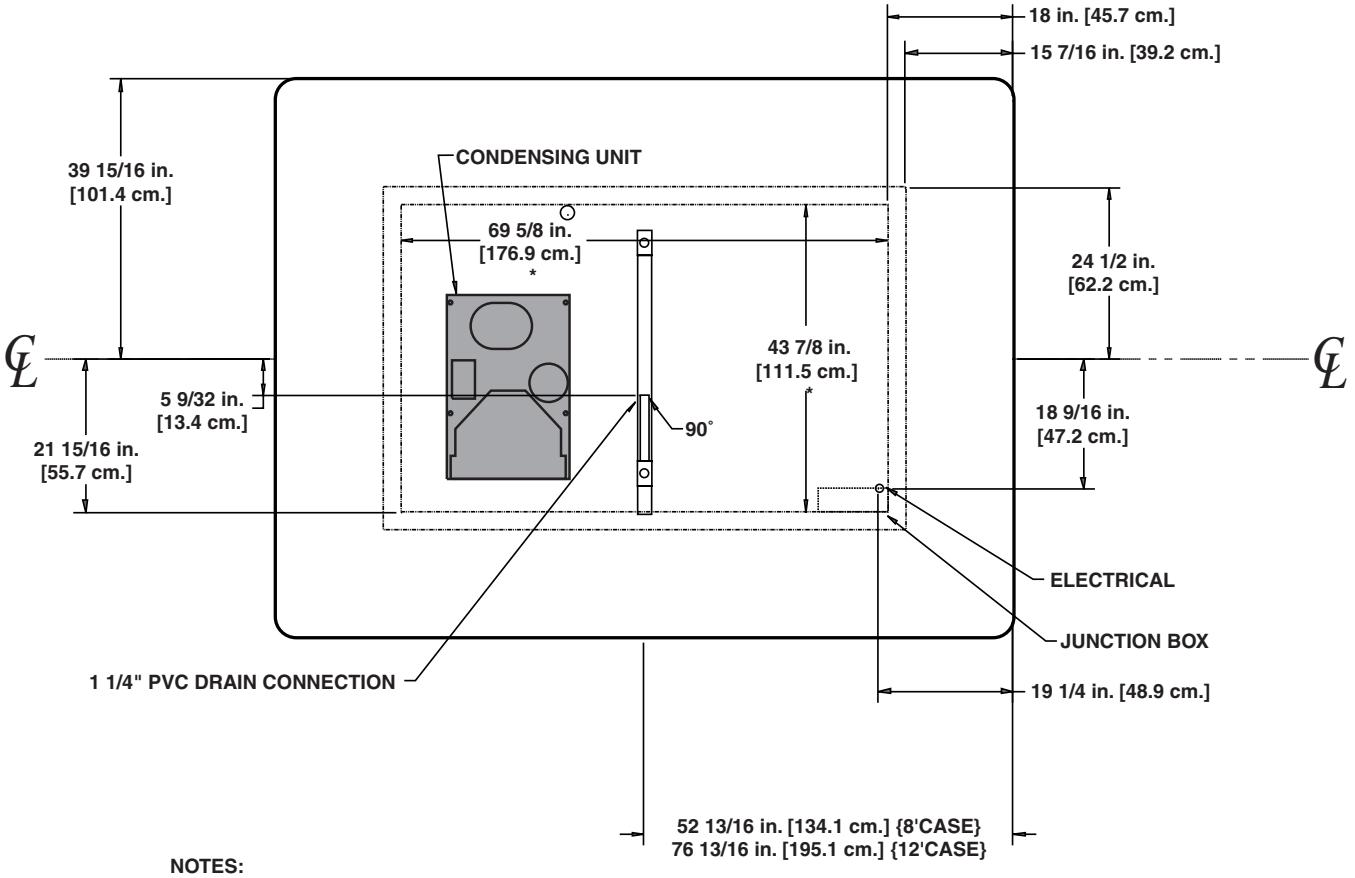
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

• 12' CASES HAVE TWO CONDENSING UNITS

Wide Island Self-Contained Deli/Meat Merchandiser

OIMBA - 6' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
OIMBA	6'	208/230	1	60	3 wire + ground	20.7	30
	12'	208/230	1	60	3 wire + ground	33.6	40

Electrical Data

			Standard Fans		Condenser Fan		Anti-Condensate Heaters		Defrost Heaters				Drain Heater		Maximum Lights	
		Fans per Case	120 Volts		208 Volts		120 Volts		208 Volts		240 Volts		240 Volts		120 Volts	
Model			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OIMBA	6'	4	1.80	76	0.85	130	0.57	68	3.25	676	3.75	900	5.55	1331	3.15	378
	12'	8	3.60	136	1.70	260	1.17	140	7.22	1502	8.33	2000	5.55	1331	5.87	704

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OIMBA-6'		35	6-8	26	34	31	140
OIMBA-12'		35	6-8	26	34	31	140

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[3] (amps)	LRA[4] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
OIMBA-6'	208-230	1	60	1	7.0	34.2	R22	8.2	45	360	215
OIMBA-12'[2]	208-230	1	60	1	7.0	34.2	R22	12.6	45	360	215

[2] This case uses two of the condensing units listed above.

[3] RLA - Running Load Amps.

[4] LRA - Locked Rotor Amps.

Defrost Controls

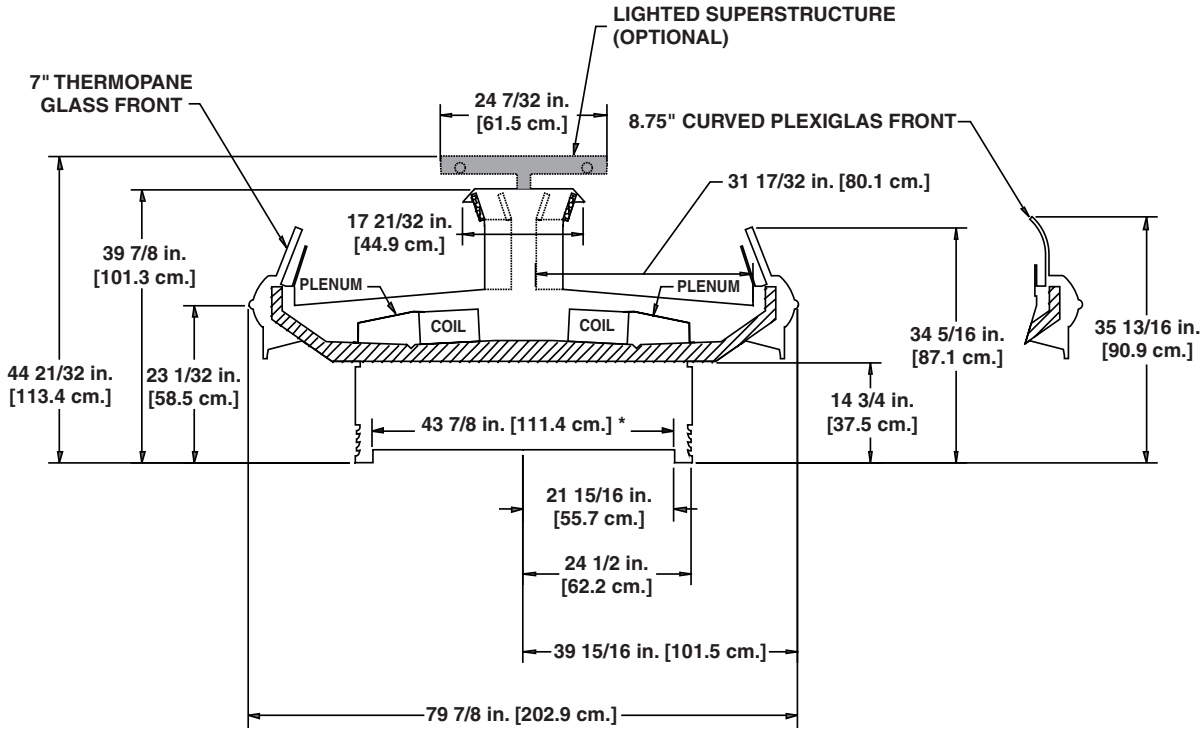
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OIMBA	3	40	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

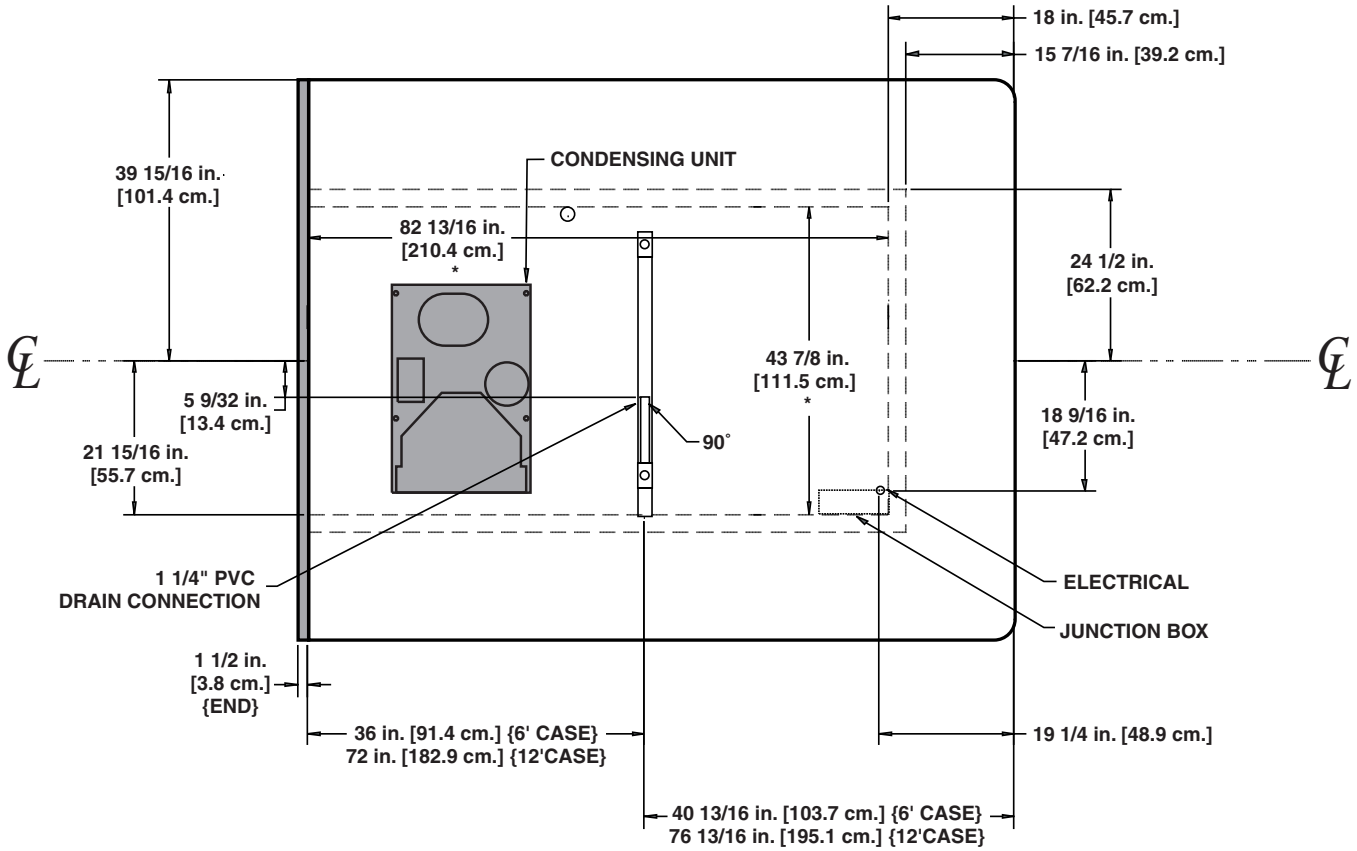
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

• 12' CASES HAVE TWO CONDENSING UNITS

Wide Island Self-Contained Bulk Produce Merchandiser

OIPA - 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
OIPA	8'	208/230	1	60	3 wire + ground	21.5	30
	12'	208/230	1	60	3 wire + ground	37.6	50

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		Condenser Fan 208 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts		Drain Heater 240 Volts		Maximum Lights 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OIPA	8'	6	2.70	102	0.85	130	0.23	28	- - - [1]	- - -	- - -	- - -	5.55	1331	3.78	454
	12'	8	3.60	136	1.70	260	0.55	66	- - -	- - -	- - -	- - -	5.55	1331	5.04	605

[1] NOTE: - - - not an option on this case model.

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OIPA-8'		45	6-8	34	40	48	140
OIPA-12'		45	6-8	34	40	48	140

[2] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[4] (amps)	LRA[5] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
OIPA-8'	208-230	1	60	1	6.7	33.5	R22	7.8	45	360	215
OIPA-12'[3]	208-230	1	60	3/4	9.4	48.2	R22	11.9	45	360	215

[3] This case uses two of the condensing units listed above.

[4] RLA - Running Load Amps.

[5] LRA - Locked Rotor Amps.

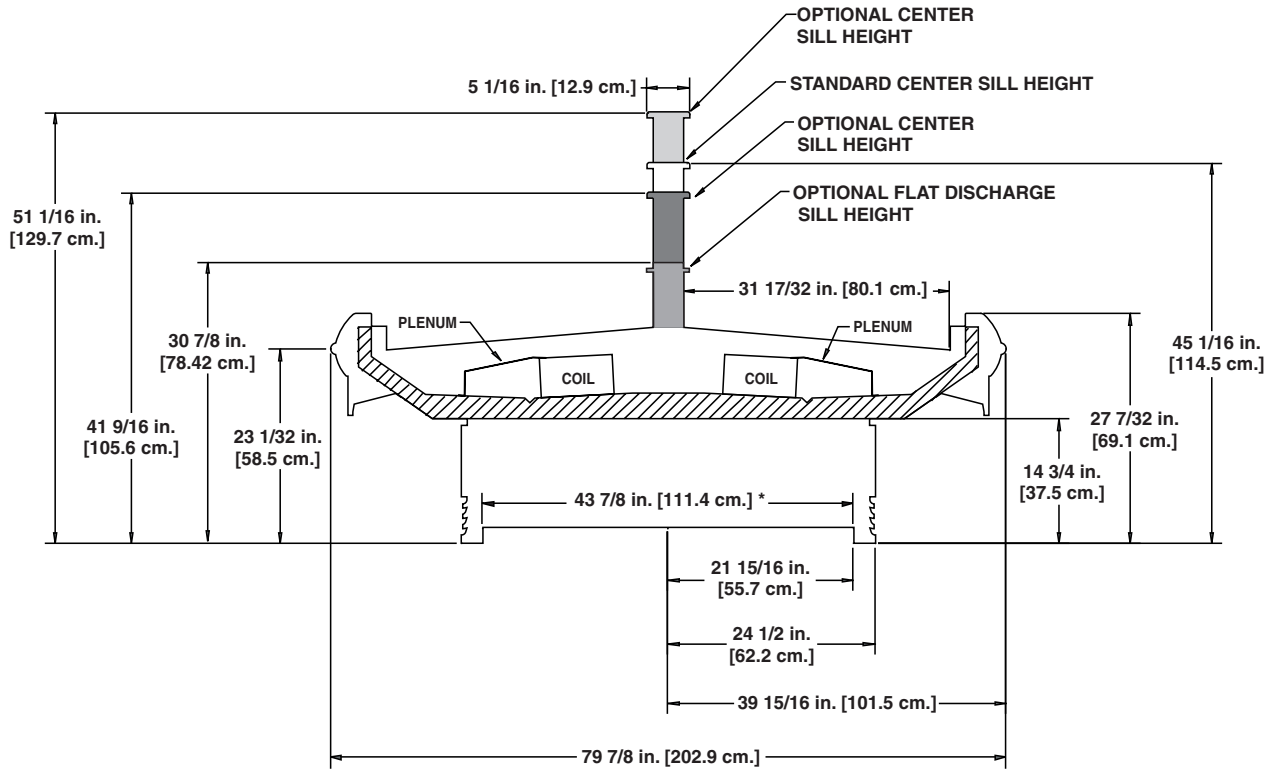
Defrost Controls

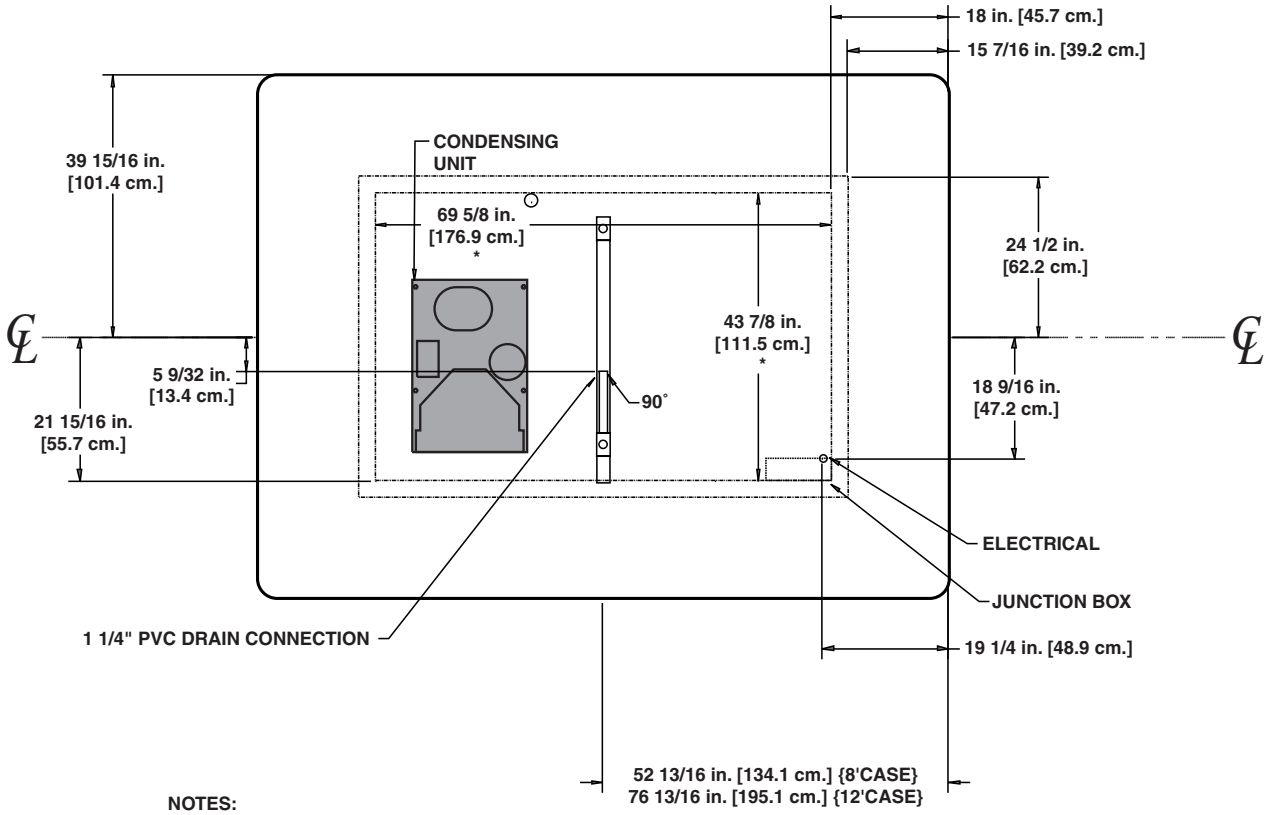
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OIPA	3	- - -	- - -	44	38	- - -	- - -	- - -	- - -

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

• 12' CASES HAVE TWO CONDENSING UNITS

Wide Island Multi-Deck Self-Contained Cheese Merchandiser

O3ICA - 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
O3ICA	8'	208/230	1	60	3 wire + ground	28.6	40
	12'	208/230	1	60	3 wire + ground	35.1	40

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		Condenser Fan 208 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts		Drain Heater 240 Volts		Maximum Lights 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O3ICA	8'	6	2.70	102	0.85	130	0.82	98	4.34	902	5.00	1200	5.55	1331	5.71	546
	12'	8	3.60	136	1.70	260	1.08	130	7.22	1502	8.33	2000	5.55	1331	7.46	779

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
O3ICA-8'		37	6-8	29	37	48	160
O3ICA-12'		37	6-8	29	37	48	160

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[3] (amps)	LRA[4] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
O3ICA-8'	208-230	1	60	1	10.36	48.2	R22	8.2	45	360	215
O3ICA-12'[2]	208-230	1	60	1	7.0	34.2	R22	12.6	45	360	215

[2] This case uses two of the condensing units listed above.

[3] RLA - Running Load Amps.

[4] LRA - Locked Rotor Amps.

Defrost Controls

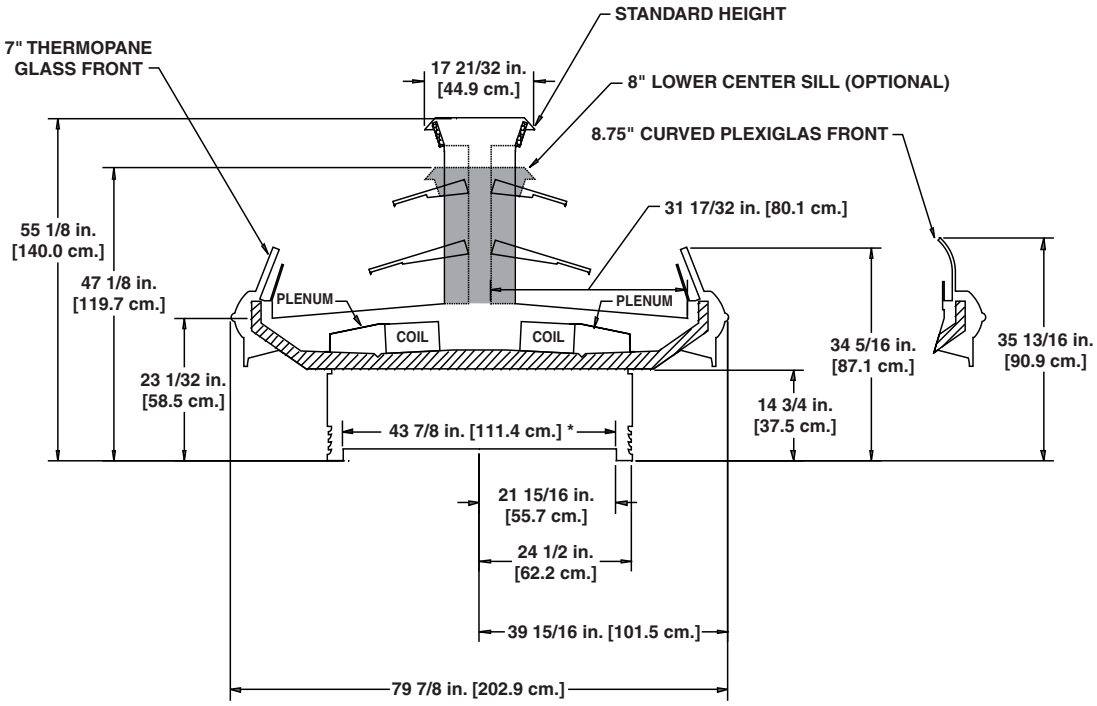
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3ICA	6	30	47	- - - [5]	- - -	- - -	- - -	- - -	- - -

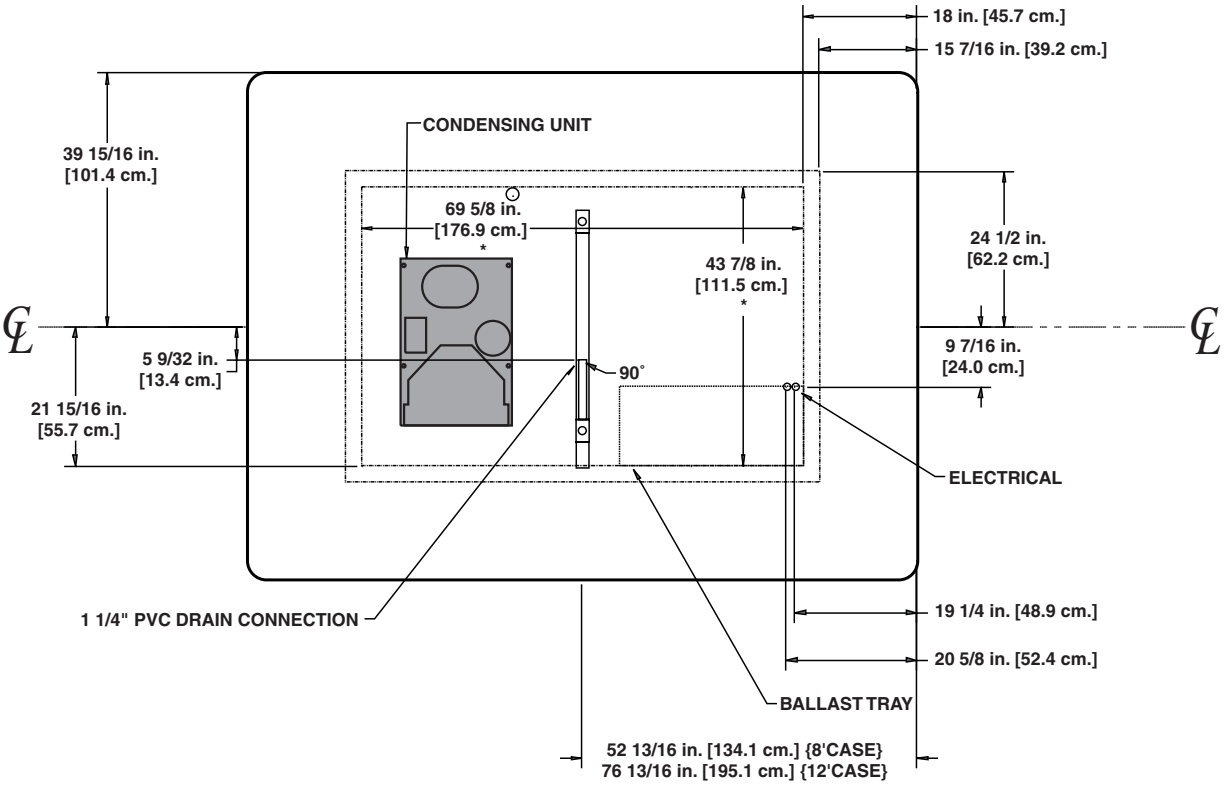
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

- 12' CASES HAVE TWO CONDENSING UNITS
- AVAILABLE SHELF SIZES: 12" & 16"

Wide Island Multi-Deck Self-Contained Cheese Merchandiser

O3ICBA - 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
O3ICBA	8'	208/230	1	60	3 wire + ground	27.6	35
	12'	208/230	1	60	3 wire + ground	33.8	40

Electrical Data

			Standard Fans		Condenser Fan		Anti-Condensate Heaters		Defrost Heaters				Drain Heater		Maximum Lights	
		Fans per Case	120 Volts		208 Volts		120 Volts		208 Volts		240 Volts		240 Volts		120 Volts	
Model			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O3ICBA	8'	6	2.70	102	0.85	130	0.75	90	4.34	902	5.00	1200	5.55	1331	4.76	514
	12'	8	3.60	136	1.70	260	1.17	140	7.22	1502	8.33	2000	5.55	1331	6.02	665

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
O3ICBA-8'		37	6-8	29	37	48	160
O3ICBA-12'		37	6-8	29	37	48	160

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[3] (amps)	LRA[4] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
O3ICBA-8'	208-230	1	60	1	10.36	48.2	R22	8.2	45	360	215
O3ICBA-12'[2]	208-230	1	60	1	7.0	34.2	R22	12.6	45	360	215

[2] This case uses two of the condensing units listed above.

[3] RLA - Running Load Amps.

[4] LRA - Locked Rotor Amps.

Defrost Controls

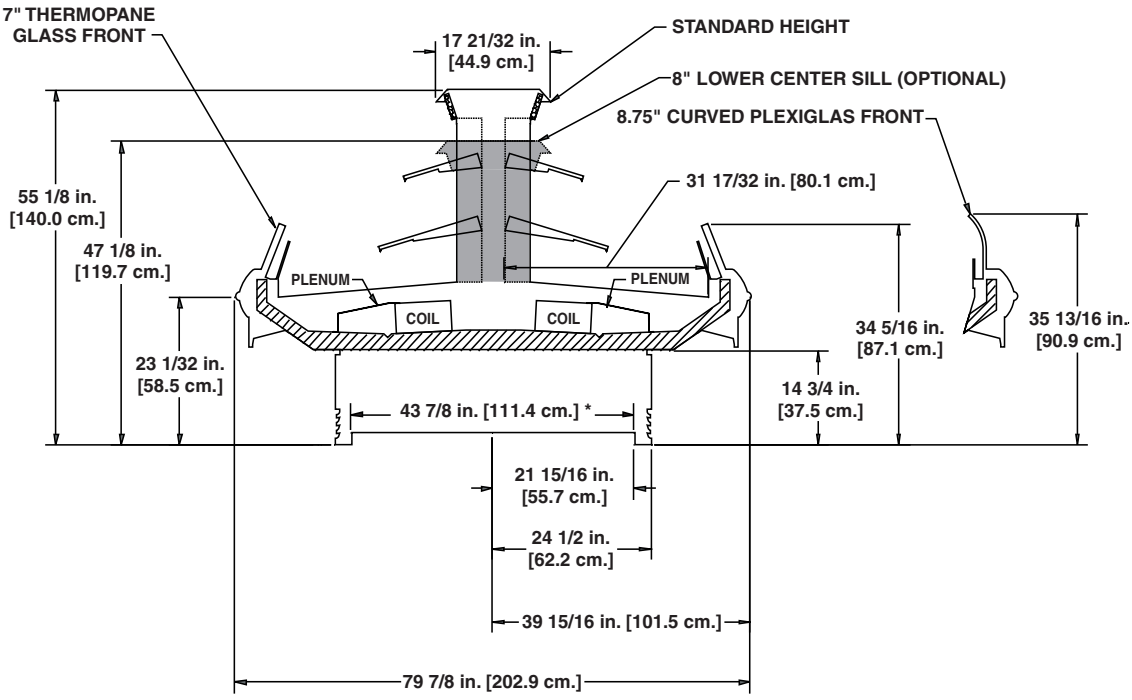
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O3ICBA	6	30	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

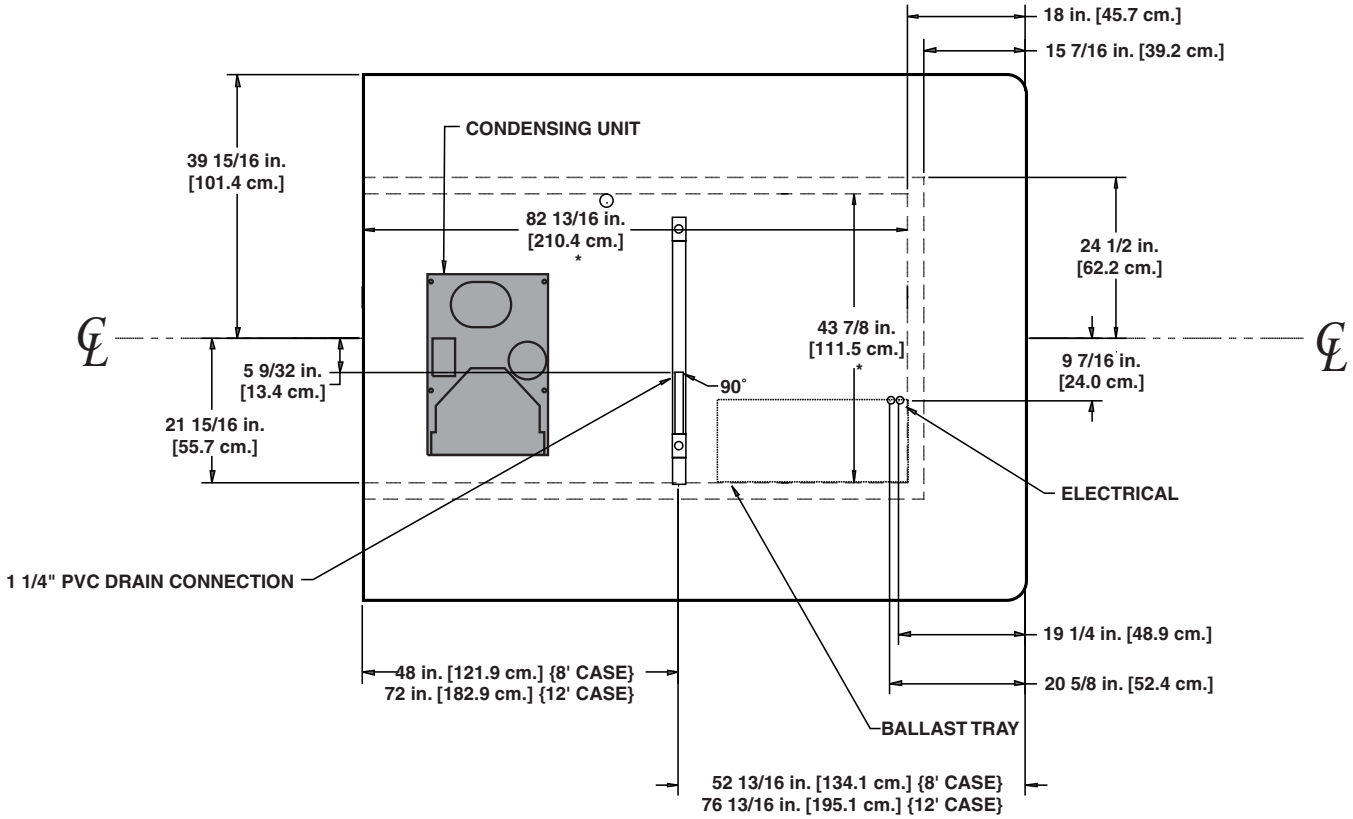
[5] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTES:

* STUB-UP AREA

- 12' CASES HAVE TWO CONDENSING UNITS
- AVAILABLE SHELF SIZES: 12" & 16"

International Style Self-Contained Mobile Service Deli/Meat/Seafood Merchandiser

OSIA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIA-4'	120	1	60	NEMA 5L20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIA-4'		12-14	6-8	26	33	34	175

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
OSIA-4'	115	1	60	1/3	7.2	29.0	R134A	2.25	45	440	162

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

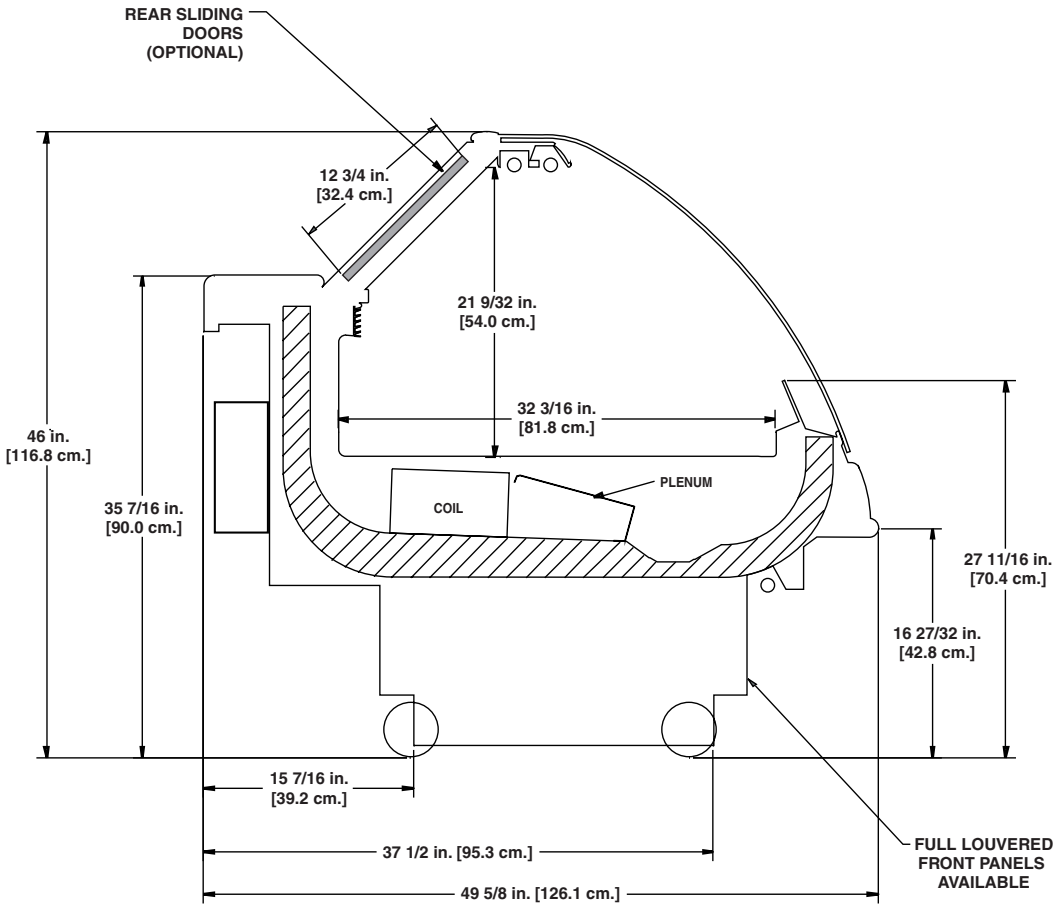
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIA-4'	2	45	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

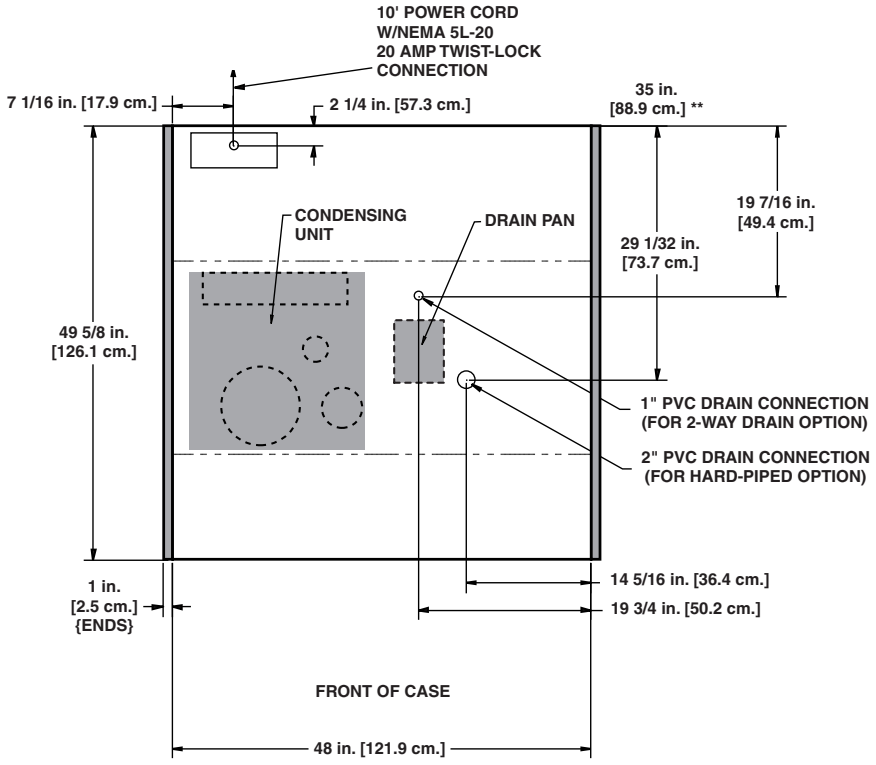
[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.





NOTE:

ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

International Style Self-Contained Mobile Service Deli/Meat/Seafood Merchandiser

O2SIA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
O2SIA-4'	120	1	60	NEMA L5-20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Average Product (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
O2SIA-4'	14.02	16	6-8	24	32	35	540

[1] Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.	Max. Evap. Temp. (°F)	High Side Press. (psig)	Low Side Press. (psig)
O2SIA-4'	115	1	60	1/3	7.2	29.0	R134A	2.25	45	440	162

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O2SIA-4'	3	45	50	- - -[4]	- - -	- - -	- - -	- - -	- - -

[4] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

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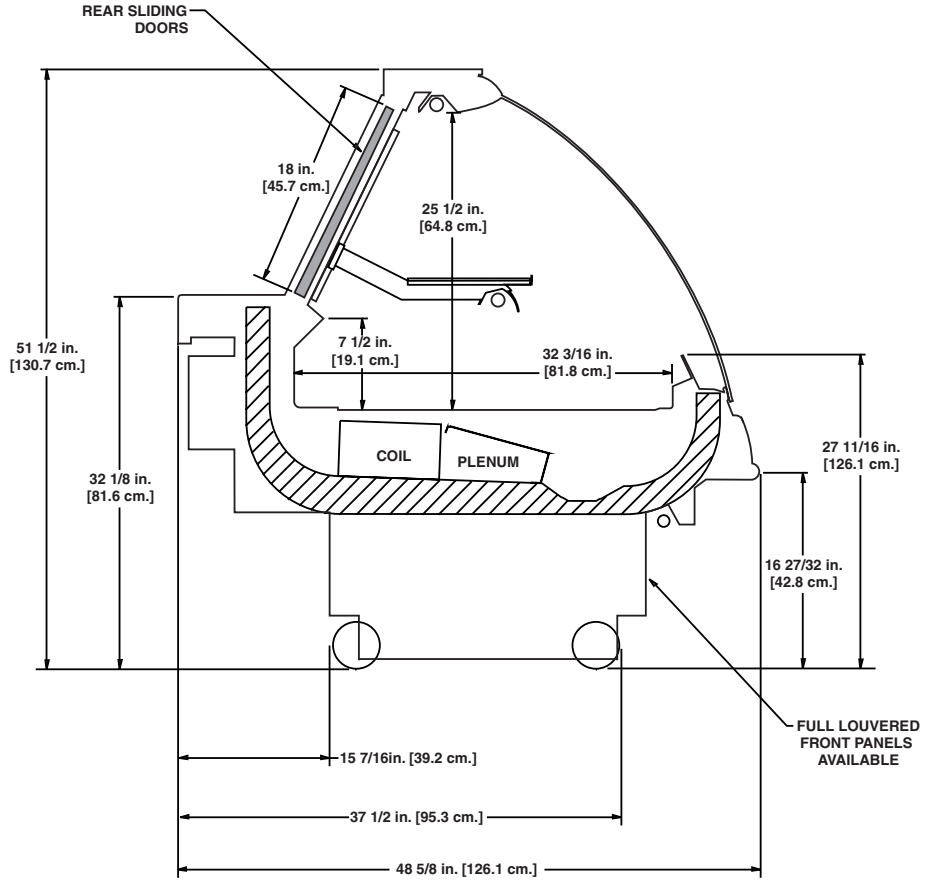
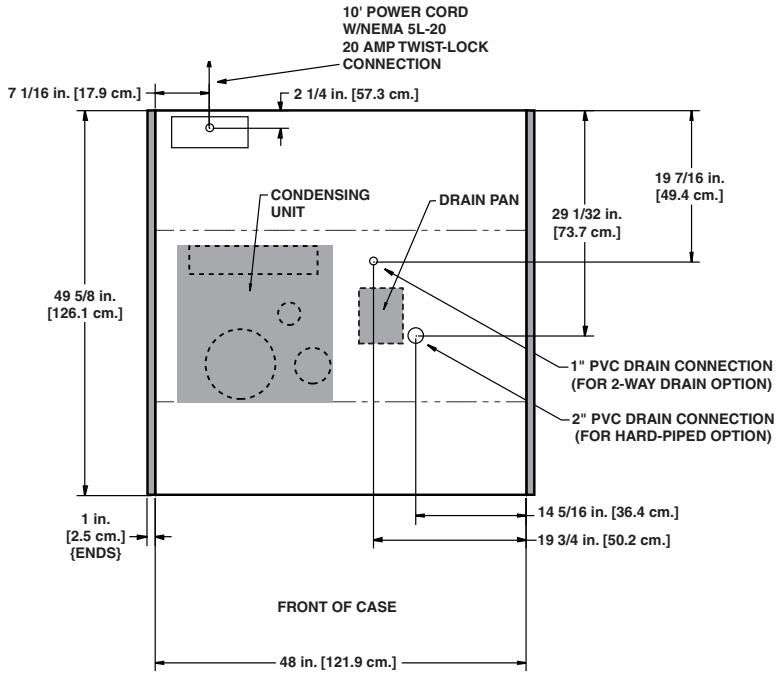




NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZE: 12"

Curved Case Merchandisers

Curved Case Merchandisers

30°, 45°, 60°, & 90° Inside and Outside

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OC	30° I/S	7.5	550	17	1	0.50	30	0.30	20	0.15	18	- - -	- - -
	45° I/S	11.3	820	17	1	0.50	30	0.30	20	0.21	25	- - -	- - -
	60° I/S	15.1	1090	17	1	0.50	30	0.30	20	0.26	31	- - -	- - -
	90° I/S	22.6	1630	17	2	1.00	60	0.60	40	0.39	47	- - -	- - -
	30° O/S	6.5	480	17	1	0.50	30	0.30	20	0.04	5	- - -	- - -
	45° O/S	9.8	710	17	1	0.50	30	0.30	20	0.05	6	- - -	- - -
	60° O/S	13.1	950	17	1	0.50	30	0.30	20	0.08	10	- - -	- - -
	90° O/S	19.6	1420	17	2	1.00	60	0.60	40	0.10	12	- - -	- - -

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OM	30° I/S	6.6	570	17	1	0.50	30	0.30	20	0.15	18	0.75	90
	45° I/S	9.9	850	17	1	0.50	30	0.30	20	0.21	25	0.75	90
	60° I/S	13.3	1140	17	1	0.50	30	0.30	20	0.26	31	1.50	180
	90° I/S	19.9	1700	17	2	1.00	60	0.60	40	0.39	47	1.50	180
	30° O/S	6.1	530	17	1	0.50	30	0.30	20	0.04	5	0.75	90
	45° O/S	9.2	790	17	1	0.50	30	0.30	20	0.05	6	0.75	90
	60° O/S	12.2	1050	17	1	0.50	30	0.30	20	0.08	10	1.50	180
	90° O/S	18.3	1570	17	2	1.00	60	0.60	40	0.10	12	1.50	180

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OP	30° I/S	6.1	410	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
39" Rear Sill	45° I/S	6.2	620	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	60° I/S	12.2	820	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	90° I/S	18.4	1230	27	2	1.00	60	0.60	40	- - -	- - -	- - -	- - -
	30° O/S	5.4	360	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	45° O/S	8.1	540	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	60° O/S	10.8	720	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	90° O/S	16.1	1080	27	2	1.00	60	0.60	40	- - -	- - -	- - -	- - -

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OP	30° I/S	7.0	580	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
43" Rear Sill	45° I/S	10.5	860	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	60° I/S	14.0	1150	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	90° I/S	21.0	1720	27	2	1.00	60	0.60	40	- - -	- - -	- - -	- - -
	30° O/S	5.8	480	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	45° O/S	8.7	720	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	60° O/S	11.6	950	27	1	0.50	30	0.30	20	- - -	- - -	- - -	- - -
	90° O/S	17.4	1430	27	2	1.00	60	0.60	40	- - -	- - -	- - -	- - -

Curved Case Merchandisers

30°, 45°, 60°, & 90° Inside and Outside

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O2UM	30° I/S	7.8	1350	17	1	0.50	30	0.30	20	0.15[2]	18	1.55	186
	45° I/S	11.7	2030	17	1	0.50	30	0.30	20	0.21[2]	25	1.55	186
	60° I/S	15.6	2700	17	1	0.50	30	0.30	20	0.26[2]	31	1.90	288
	90° I/S	23.4	4050	17	2	1.00	60	0.60	40	0.39[2]	47	2.85	342
	30° O/S	6.5	1130	17	1	0.50	30	0.30	20	0.04[2]	5	1.55	186
	45° O/S	9.8	1690	17	1	0.50	30	0.30	20	0.05[2]	6	1.55	186
	60° O/S	13.0	2260	17	1	0.50	30	0.30	20	0.08[2]	10	1.90	288
	90° O/S	19.5	3380	17	2	1.00	60	0.60	40	0.10[2]	12	2.85	342

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O2.5UM	30° I/S	8.4	1450	17	1	0.50	30	0.30	20	0.15[2]	18	2.35	282
	45° I/S	12.7	2170	17	1	0.50	30	0.30	20	0.21[2]	25	2.35	282
	60° I/S	16.9	2890	17	1	0.50	30	0.30	20	0.26[2]	31	2.55	306
	90° I/S	25.3	4340	17	2	1.00	60	0.60	40	0.39[2]	47	4.45	534
	30° O/S	6.9	1190	17	1	0.50	30	0.30	20	0.04[2]	5	2.35	282
	45° O/S	10.4	1780	17	1	0.50	30	0.30	20	0.05[2]	6	2.35	282
	60° O/S	13.8	2370	17	1	0.50	30	0.30	20	0.08[2]	10	2.55	306
	90° O/S	20.7	3550	17	2	1.00	60	0.60	40	0.10[2]	12	4.45	534

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O3UM	30° I/S	9.3	1510	17	1	0.50	30	0.30	20	0.15[2]	18	2.35	282
	45° I/S	14.0	2260	17	1	0.50	30	0.30	20	0.21[2]	25	2.35	282
	60° I/S	18.7	3020	17	1	0.50	30	0.30	20	0.26[2]	31	2.55	306
	90° I/S	28.0	4520	17	2	1.00	60	0.60	40	0.39[2]	47	4.45	534
	30° O/S	7.5	1220	17	1	0.50	30	0.30	20	0.04[2]	5	2.35	282
	45° O/S	11.3	1830	17	1	0.50	30	0.30	20	0.05[2]	6	2.35	282
	60° O/S	15.1	2440	17	1	0.50	30	0.30	20	0.08[2]	10	2.55	306
	90° O/S	22.6	3650	17	2	1.00	60	0.60	40	0.10[2]	12	4.45	534

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O3.5UM	30° I/S	10.4	1880	17	1	0.50	30	0.30	20	0.15[2]	18	3.15	378
	45° I/S	15.7	2820	17	1	0.50	30	0.30	20	0.21[2]	25	3.15	378
	60° I/S	20.9	3760	17	1	0.50	30	0.30	20	0.26[2]	31	3.20	384
	90° I/S	31.3	5640	17	2	1.00	60	0.60	40	0.39[2]	47	6.05	726
	30° O/S	8.2	1480	17	1	0.50	30	0.30	20	0.04[2]	5	3.15	378
	45° O/S	12.3	2210	17	1	0.50	30	0.30	20	0.05[2]	6	3.15	378
	60° O/S	16.4	2950	17	1	0.50	30	0.30	20	0.08[2]	10	3.20	384
	90° O/S	24.6	4420	17	2	1.00	60	0.60	40	0.10[2]	12	6.05	726

Curved Case Merchandisers

30°, 45°, 60°, & 90° Inside and Outside

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O4UM	30° I/S	12.1	2040	17	1	0.50	30	0.30	20	0.15[2]	18	3.15	378
	45° I/S	18.2	3060	17	1	0.50	30	0.30	20	0.21[2]	25	3.15	378
	60° I/S	24.3	4080	17	1	0.50	30	0.30	20	0.26[2]	31	3.20	384
	90° I/S	36.4	6120	17	2	1.00	60	0.60	40	0.39[2]	47	6.05	726
	30° O/S	9.4	1580	17	1	0.50	30	0.30	20	0.04[2]	5	3.15	378
	45° O/S	14.0	2360	17	1	0.50	30	0.30	20	0.05[2]	6	3.15	378
	60° O/S	18.7	3150	17	1	0.50	30	0.30	20	0.08[2]	10	3.20	384
	90° O/S	28.1	4720	17	2	1.00	60	0.60	40	0.10[2]	12	6.05	726

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O5UM	30° I/S	13.2	2090	17	1	0.50	30	0.30	20	0.15[2]	18	3.95	474
	45° I/S	19.8	3130	17	1	0.50	30	0.30	20	0.21[2]	25	3.95	474
	60° I/S	26.3	4170	17	1	0.50	30	0.30	20	0.26[2]	31	3.85	462
	90° I/S	39.5	6260	17	2	1.00	60	0.60	40	0.39[2]	47	7.65	918
	30° O/S	10.1	1600	17	1	0.50	30	0.30	20	0.04[2]	5	3.95	474
	45° O/S	15.1	2390	17	1	0.50	30	0.30	20	0.05[2]	6	3.95	474
	60° O/S	20.1	3190	17	1	0.50	30	0.30	20	0.08[2]	10	3.85	462
	90° O/S	30.2	4780	17	2	1.00	60	0.60	40	0.10[2]	12	7.65	918

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O5DM Deli	30° I/S	21.3	2020	17	1	0.50	30	0.30	20	- - -	- - -	5.00	600
	45° I/S	32.0	3030	17	1	0.50	30	0.30	20	- - -	- - -	5.00	600
	60° I/S	42.6	4030	17	1	0.50	30	0.30	20	- - -	- - -	5.25	630
	90° I/S	64.0	6050	17	2	1.00	60	0.60	40	- - -	- - -	10.00	1200
	30° O/S	20.5	1940	17	1	0.50	30	0.30	20	- - -	- - -	5.00	600
	45° O/S	30.8	2910	17	1	0.50	30	0.30	20	- - -	- - -	5.00	600
	60° O/S	41.0	3880	17	1	0.50	30	0.30	20	- - -	- - -	5.25	630
	90° O/S	61.5	5820	17	2	1.00	60	0.60	40	- - -	- - -	10.00	1200

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O5DM Dairy	30° I/S	21.3	1890	22	1	0.50	30	0.30	20	- - -	- - -	5.00	600
	45° I/S	32.0	2840	22	1	0.50	30	0.30	20	- - -	- - -	5.00	600
	60° I/S	42.6	3780	22	1	0.50	30	0.30	20	- - -	- - -	5.25	630
	90° I/S	64.0	5670	22	2	1.00	60	0.60	40	- - -	- - -	10.00	1200
	30° O/S	20.5	1820	22	1	0.50	30	0.30	20	- - -	- - -	5.00	600
	45° O/S	30.8	2730	22	1	0.50	30	0.30	20	- - -	- - -	5.00	600
	60° O/S	41.0	3640	22	1	0.50	30	0.30	20	- - -	- - -	5.25	630
	90° O/S	61.5	5460	22	2	1.00	60	0.60	40	- - -	- - -	10.00	1200

Curved Case Merchandisers

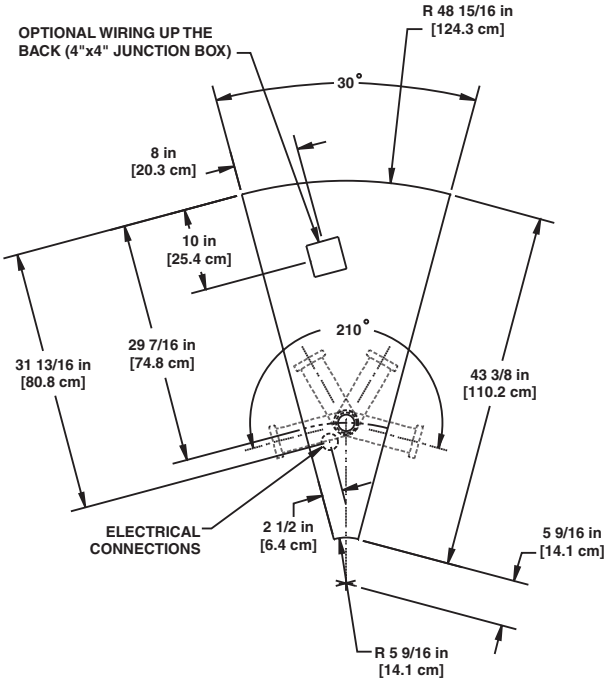
30°, 45°, 60°, & 90° Inside and Outside

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHM	30° I/S	17.3	1780	17	1	0.50	30	0.30	20	0.04	5	3.95	474
	45° I/S	26.0	2660	17	1	0.50	30	0.30	20	0.10	12	3.95	474
	60° I/S	34.6	3550	17	1	0.50	30	0.30	20	0.34	41	4.10	492
	90° I/S	52.0	5320	17	2	1.00	60	0.60	40	0.32	38	7.90	948
	30° O/S	16.2	1660	17	1	0.50	30	0.30	20	0.10	12	3.95	474
	45° O/S	24.2	2480	17	1	0.50	30	0.30	20	0.14	17	3.95	474
	60° O/S	32.3	3310	17	1	0.50	30	0.30	20	0.18	22	4.10	492
	90° O/S	48.5	4960	17	2	1.00	60	0.60	40	0.28	34	7.90	948

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHMH	30° I/S	18.3	1980	12	1	0.50	30	0.30	20	0.08	10	4.75	570
	45° I/S	27.4	2970	12	1	0.50	30	0.30	20	0.20	24	4.75	570
	60° I/S	36.6	3960	12	1	0.50	30	0.30	20	0.68	82	4.75	570
	90° I/S	54.9	5940	12	2	1.00	60	0.60	40	0.64	77	9.50	1140
	30° O/S	15.9	1730	12	1	0.50	30	0.30	20	0.20	24	4.75	570
	45° O/S	23.9	2590	12	1	0.50	30	0.30	20	0.28	34	4.75	570
	60° O/S	31.8	3450	12	1	0.50	30	0.30	20	0.36	44	4.75	570
	90° O/S	47.8	5170	12	2	1.00	60	0.60	40	0.56	68	9.50	1140

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHP	30° I/S	17.2	1650	22	1	0.50	30	0.30	20	- - -	- - -	3.95	474
	45° I/S	25.8	2470	22	1	0.50	30	0.30	20	- - -	- - -	3.95	474
	60° I/S	34.4	3300	22	1	0.50	30	0.30	20	- - -	- - -	4.10	492
	90° I/S	51.6	4940	22	2	1.00	60	0.60	40	- - -	- - -	7.90	948
	30° O/S	16.1	1550	22	1	0.50	30	0.30	20	- - -	- - -	3.95	474
	45° O/S	24.2	2320	22	1	0.50	30	0.30	20	- - -	- - -	3.95	474
	60° O/S	32.3	3090	22	1	0.50	30	0.30	20	- - -	- - -	4.10	492
	90° O/S	48.4	4640	22	2	1.00	60	0.60	40	- - -	- - -	7.90	948

Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHPH	30° I/S	18.3	17	1860	1	0.50	30	0.30	20	0.04	5	4.75	570
	45° I/S	27.5	17	2790	1	0.50	30	0.30	20	0.10	12	4.75	570
	60° I/S	36.7	17	3720	1	0.50	30	0.30	20	0.34	41	4.75	570
	90° I/S	55.0	17	5580	2	1.00	60	0.60	40	0.32	38	9.50	1140
	30° O/S	15.8	17	1610	1	0.50	30	0.30	20	0.10	12	4.75	570
	45° O/S	23.7	17	2410	1	0.50	30	0.30	20	0.14	17	4.75	570
	60° O/S	31.6	17	3210	1	0.50	30	0.30	20	0.18	22	4.75	570
	90° O/S	47.4	17	4810	2	1.00	60	0.60	40	0.28	34	9.50	1140



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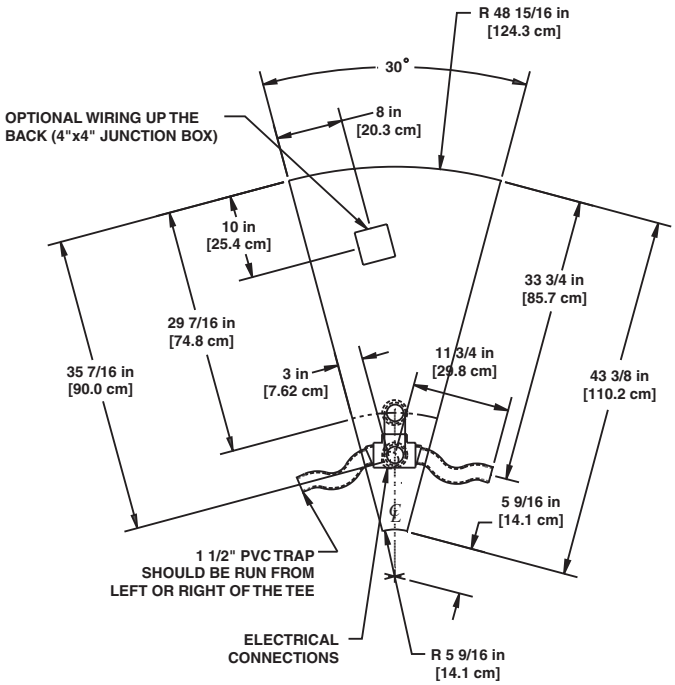

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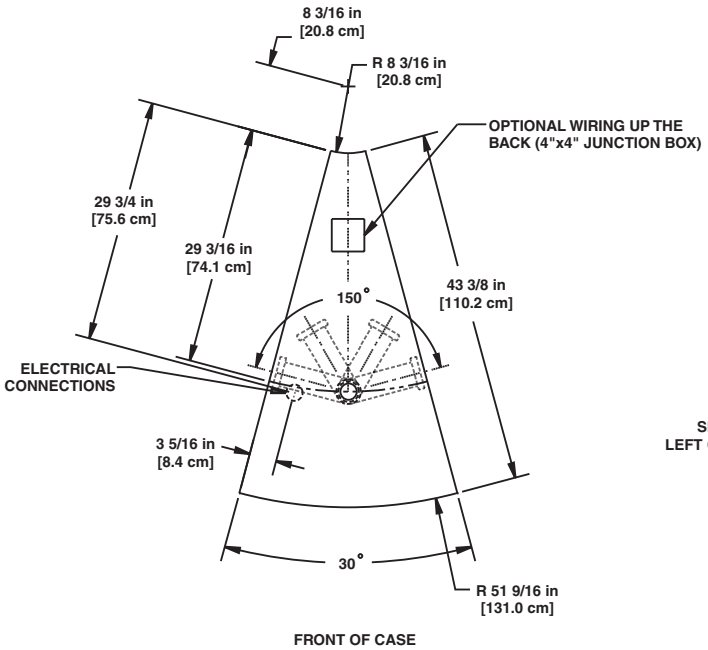

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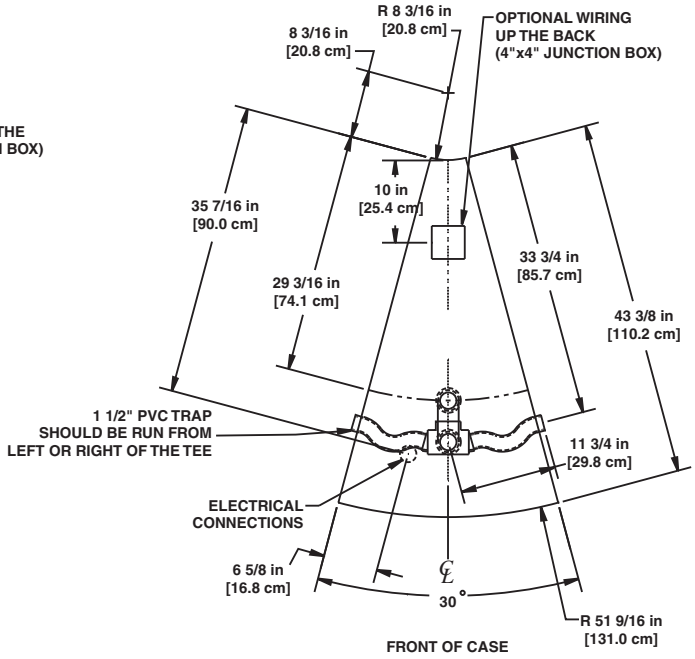

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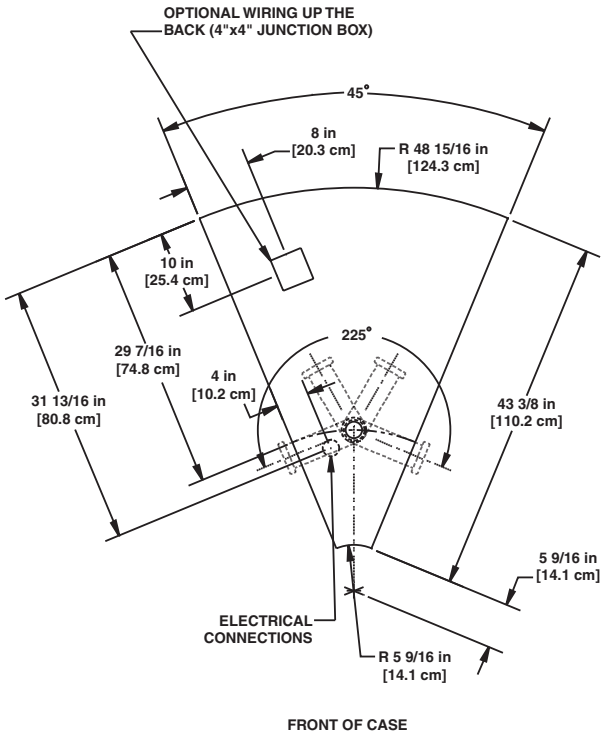
NOTE: Curved case cross sections are the same as the standard model



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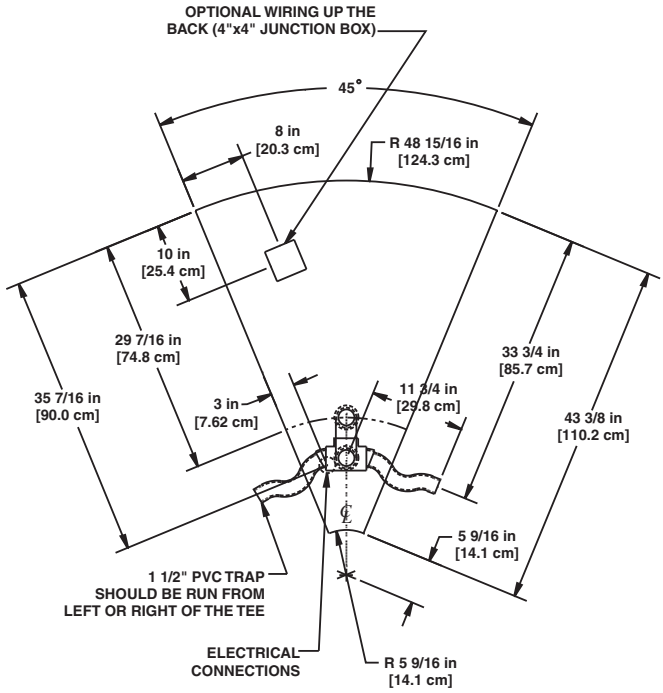

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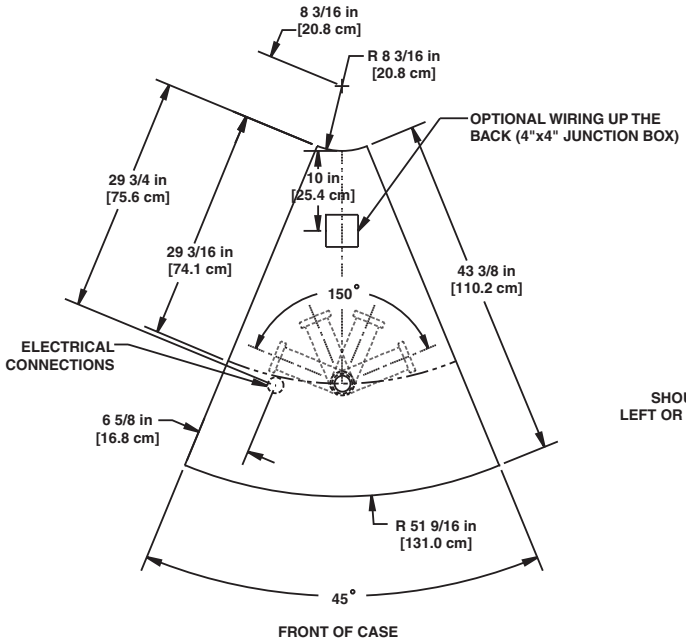

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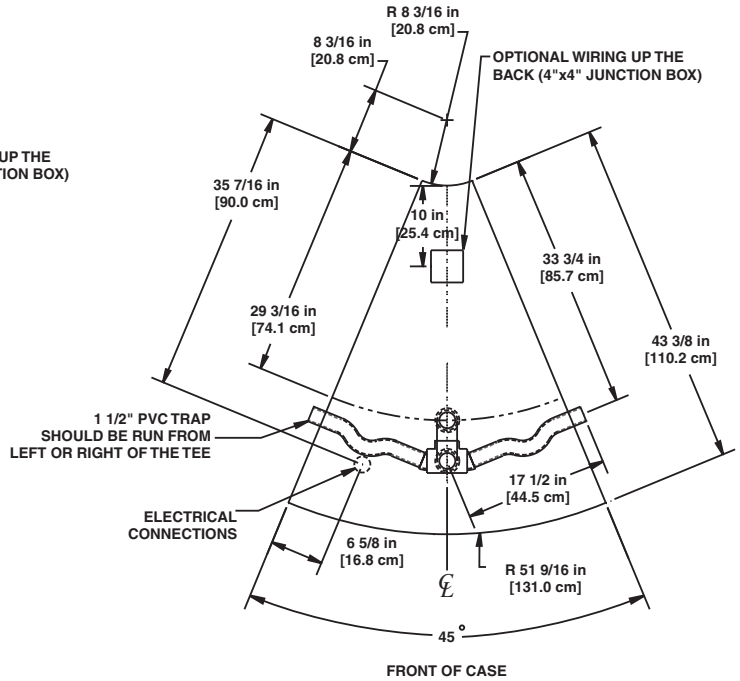

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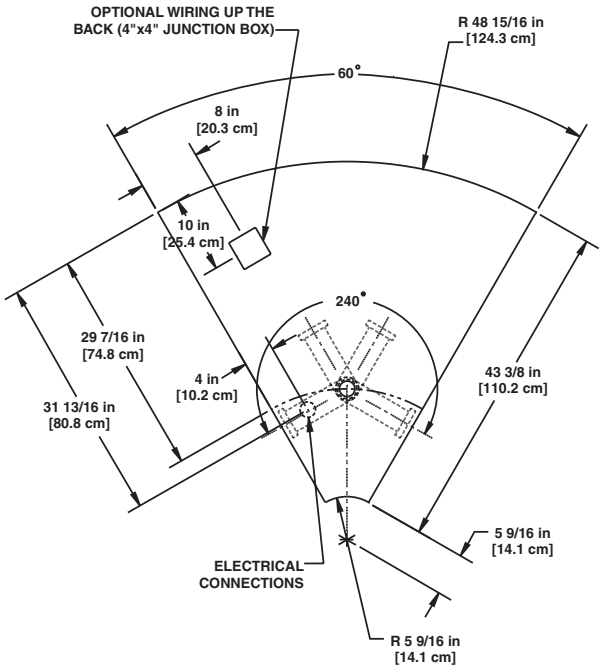
NOTE: Curved case cross sections are the same as the standard model



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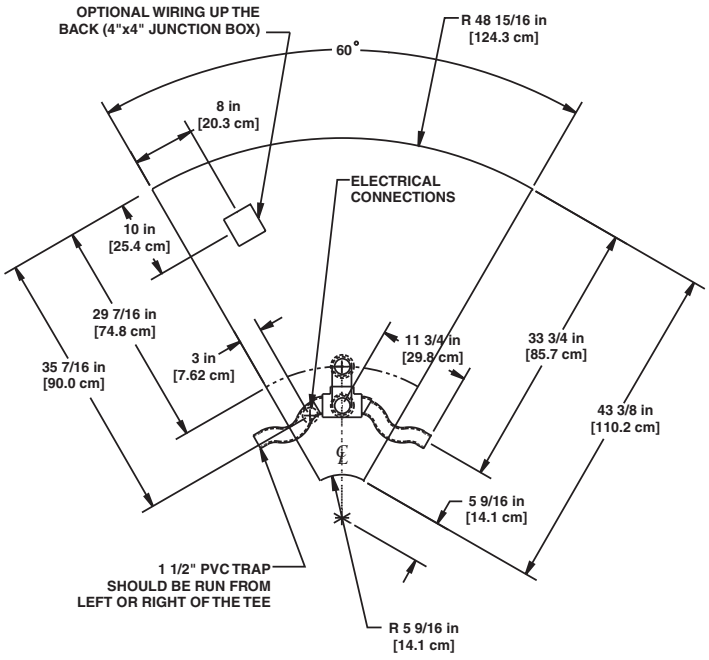

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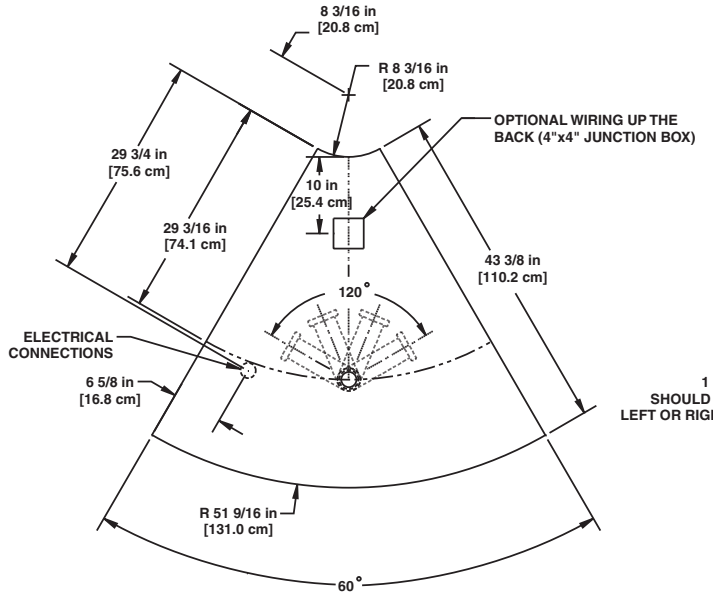

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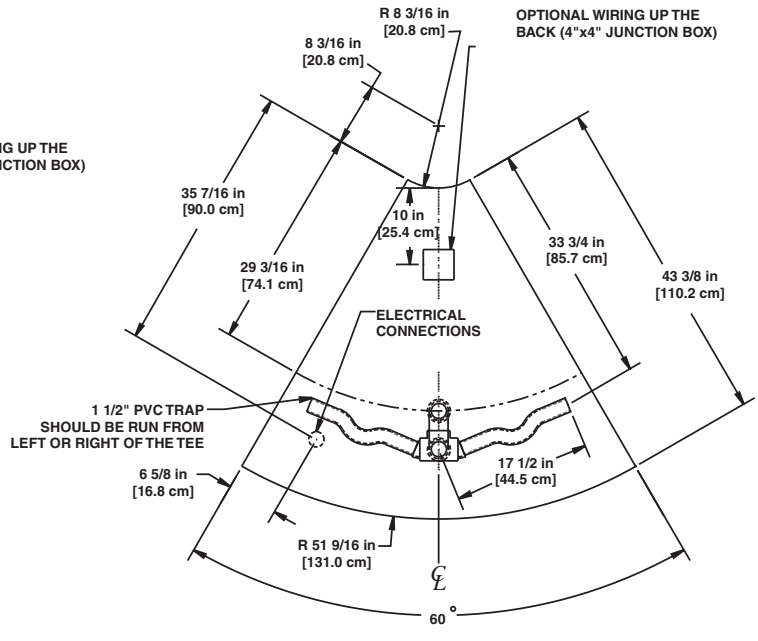

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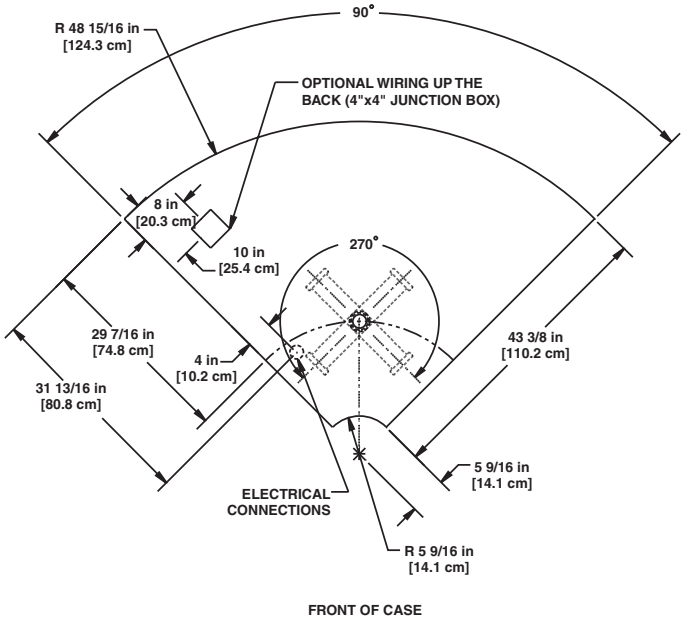
NOTE: Curved case cross sections are the same as the standard model



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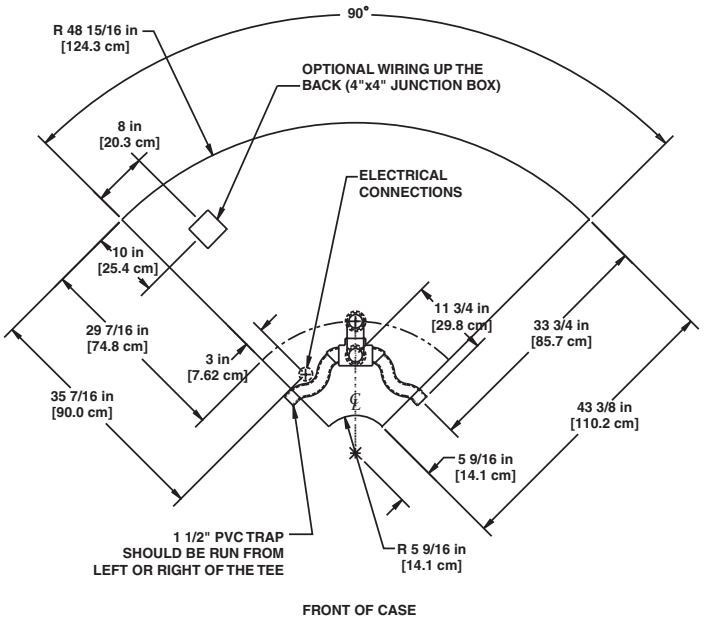

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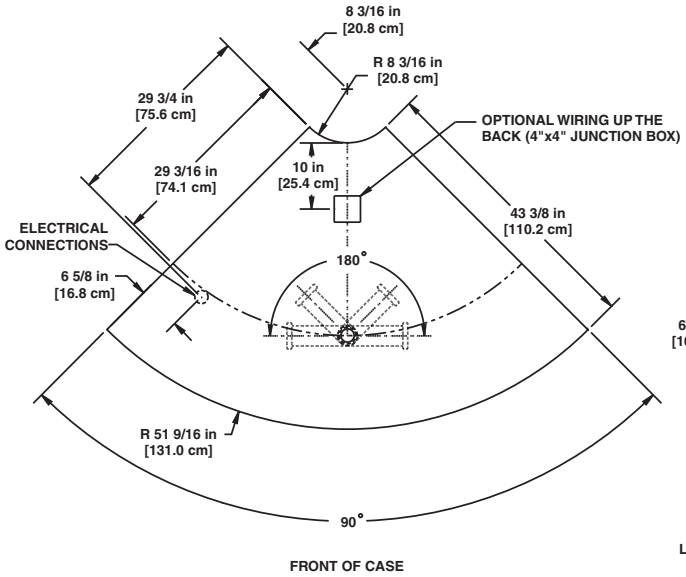

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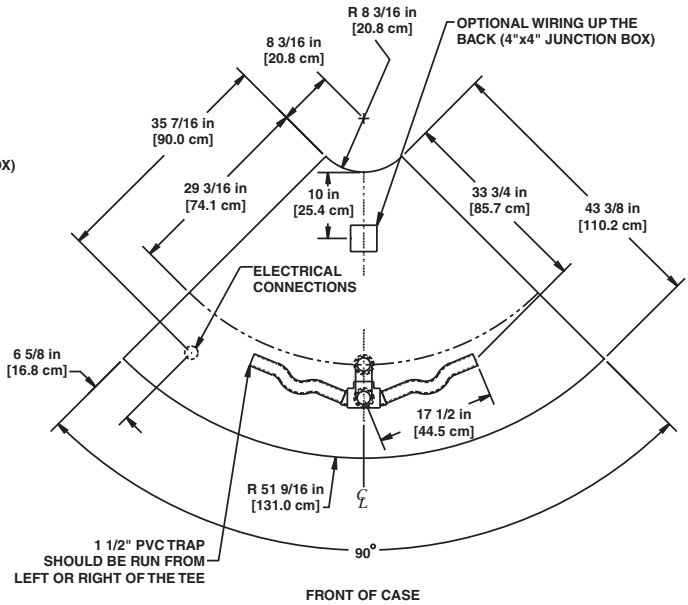

90º OUTSIDE
(5 5/32" BASEFRAME)

NOTE: Curved case cross sections are the same as the standard model

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