Hill PHOENIX
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Merchandisers

Engineering Reference Manual

OBSOLETE

2004

A DOVER™ COMPANY

Rev. 1 6/04

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Welcome to the 2004 **Merchandisers Engineering Reference Manual.** This manual is designed to provide you with cross-sections, footprints and technical data for all of our current production models. This manual is divided into sections based on design considerations which put similar case models together (single deck merchandisers, multi-deck merchandisers, reach-in merchandisers, etc.). This makes it easy to find just the right case to fit your new, or existing, store layout. The table of contents lists our cases by design application and by departmental application, giving you the ability to see which cases are available for specific functions. The index at the back of this manual lists the cases in alphabetical order, allowing you to find a specific case model at a glance.

This entire manual is posted to our web site at *www.hillphoenix.com* in the Information Center. Any new cases that are released during the year or any revisions to technical information on our current cases will be posted to our web site. If you have questions about our display merchandisers or need more information please contact one of our Sales Representatives. The phone number and address for our Colonial Heights facility is listed on the back cover of this manual and further contact information is available on our web site.

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Revisions From the 2004 Merchandisers Engineering Reference Manual

Release 1/04

New Case Models Added

Multi-Deck Merchandisers

ONN5U Page 106

Global

The lighting data was updated for all single deck, utility, multi-deck and service cases to reflect the new energy efficieint ballasts.

Revisions

ONRZ	Page 202	New enhanced efficiency coil data added.
ONRZH	Page 204	New enhanced efficiency coil data added.
ORZ	Page 206	New enhanced efficiency coil data added.
ORZH	Page 208	New enhanced efficiency coil data added.
ONRIZ	Page 210	New enhanced efficiency coil data added.
ONRIZH	Page 212	New enhanced efficiency coil data added.
ONIZ	Page 242	Updated anti-condensate heater load values.
OWIZ	Page 248	Updated anti-condensate heater load values. New enhanced efficiency coil data added.
OWEZ	Page 250	Updated anti-condensate heater load values. New enhanced efficiency coil data added.
O3IM	Page 254	New enhanced efficiency coil data added. Updated defrost control settings.
O4ID	Page 262	New enhanced efficiency coil data added. Updated defrost control settings.

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SINGLE DECK

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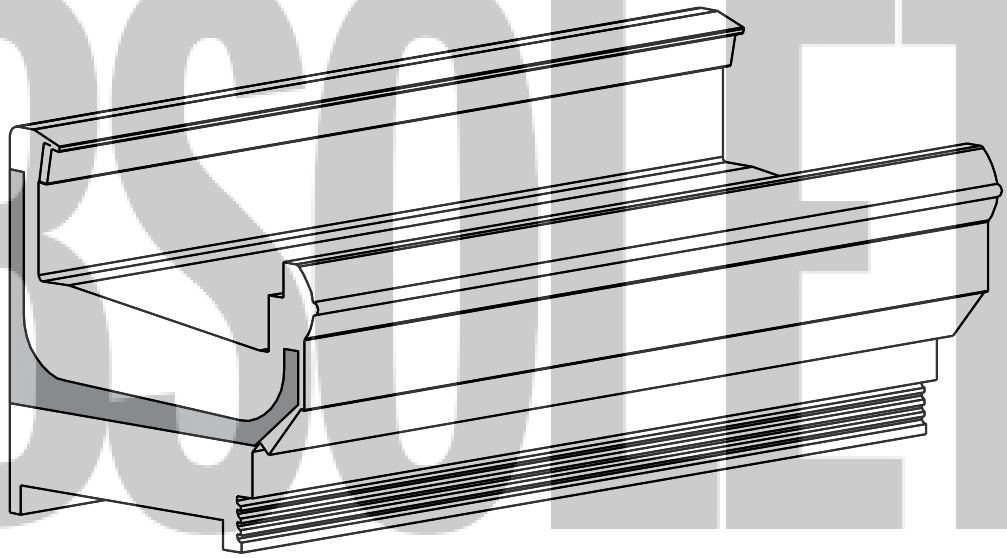

Notes:

- *Cases comply with ANSI / NSF* Standard 7. Units marked as components require remote refrigeration.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*
- *Front and rear sill heights vary with baseframe height.*

* *ANSI - American National Standard Institute*
NSF - National Sanitation Foundation

Single Deck Produce Merchandiser

MPC - 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
MPC	8'	3	1.35	51	0.45	33	0.58	70	3.85	800	4.44	1065
	12'	4	1.80	68	0.60	44	0.83	100	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
MPC	8'	- - -	4'	- - -	- - -	- - -	- - -
	12'	- - -	4'	- - -	- - -	- - -	- - -

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Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
MPC	617	22	6-8	30	42	163

[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)
MPC	3	6 - 8	40	49	60	47	- - - [3]	- - -	- - -	- - -

[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.

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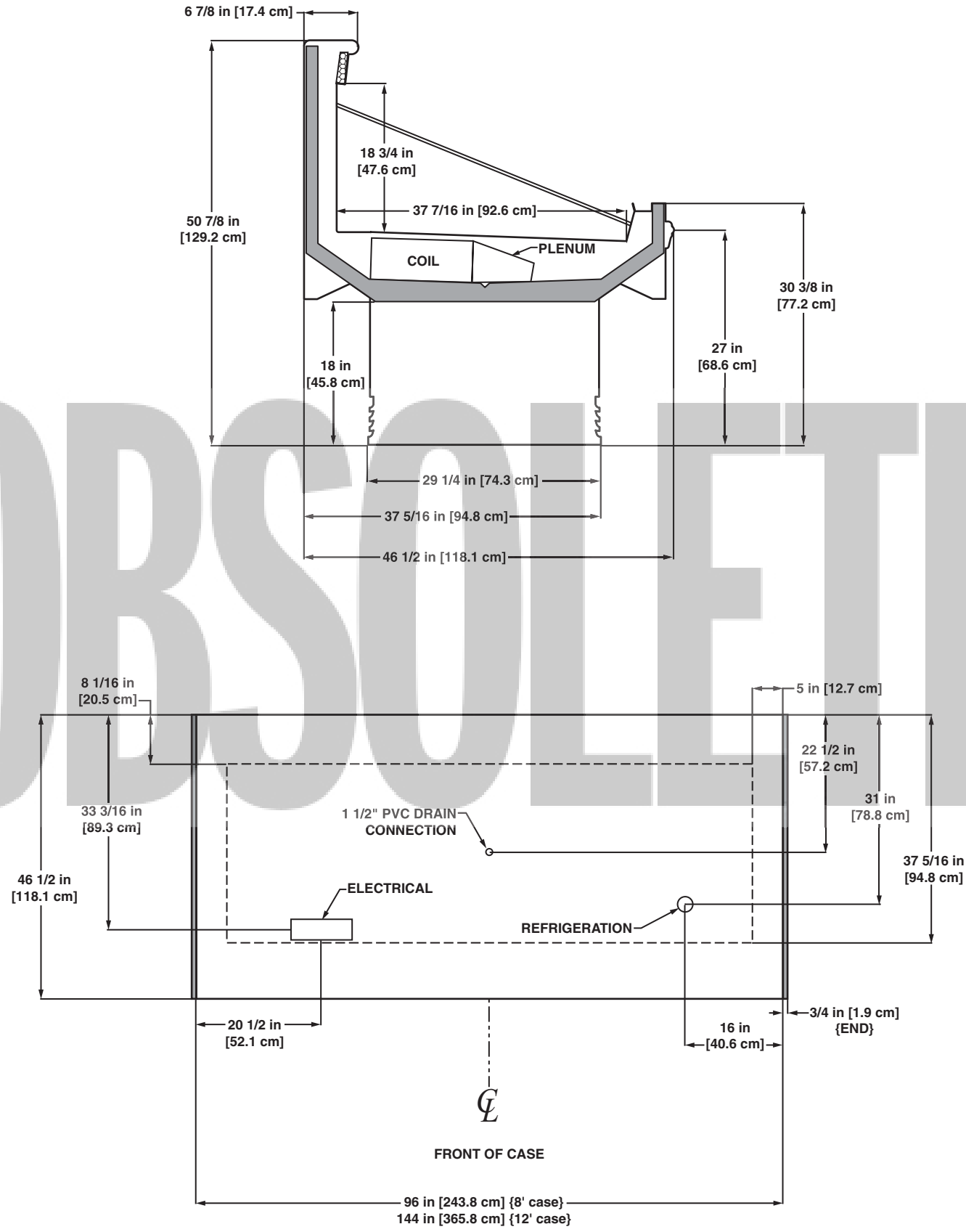
6 7/8 in [17.4 cm]
18 3/4 in [47.6 cm]
37 7/16 in [92.6 cm]
50 7/8 in [129.2 cm]
PLENUM
COIL
30 3/8 in [77.2 cm]
27 in [68.6 cm]
18 in [45.8 cm]
29 1/4 in [74.3 cm]
37 5/16 in [94.8 cm]
46 1/2 in [118.1 cm]
8 1/16 in [20.5 cm]
5 in [12.7 cm]
22 1/2 in [57.2 cm]
31 in [78.8 cm]
33 3/16 in [89.3 cm]
1 1/2" PVC DRAIN CONNECTION
37 5/16 in [94.8 cm]
46 1/2 in [118.1 cm]
ELECTRICAL
REFRIGERATION
20 1/2 in [52.1 cm]
16 in [40.6 cm]
3/4 in [1.9 cm] {END}
FRONT OF CASE
96 in [243.8 cm] {8' case}
144 in [365.8 cm] {12' case}

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Single Deck Deli/Cheese Merchandiser

OC - 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
OC	4'	2	1.00	60	0.15	9.2	0.14	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20	24	2.88	600	3.33	798
	8'	2	1.00	60	0.15	9.2	0.25	30	3.85	800	4.44	1065
	12'	3	1.50	90	0.23	13.8	0.38	46	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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	4'	1	4'	0.23	28	0.23	28
	6'	2	3'	0.37	44	0.37	44
	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84

OBSOLETE

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OC	Standard	480	Std.	17	6-8	26	39	305
	All Others	415	Std.	17	6-8	26	35	305
	Standard	480	Enh.	22	6-8	26	39	305
	All Others	415	Enh.	22	6-8	26	35	305

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
OC	3	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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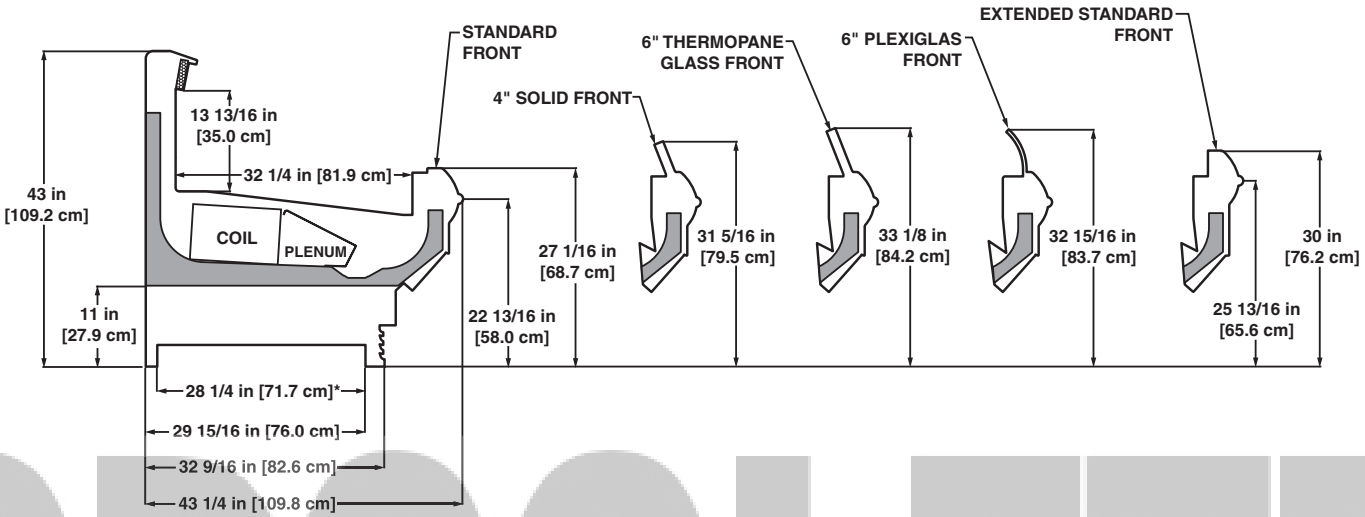

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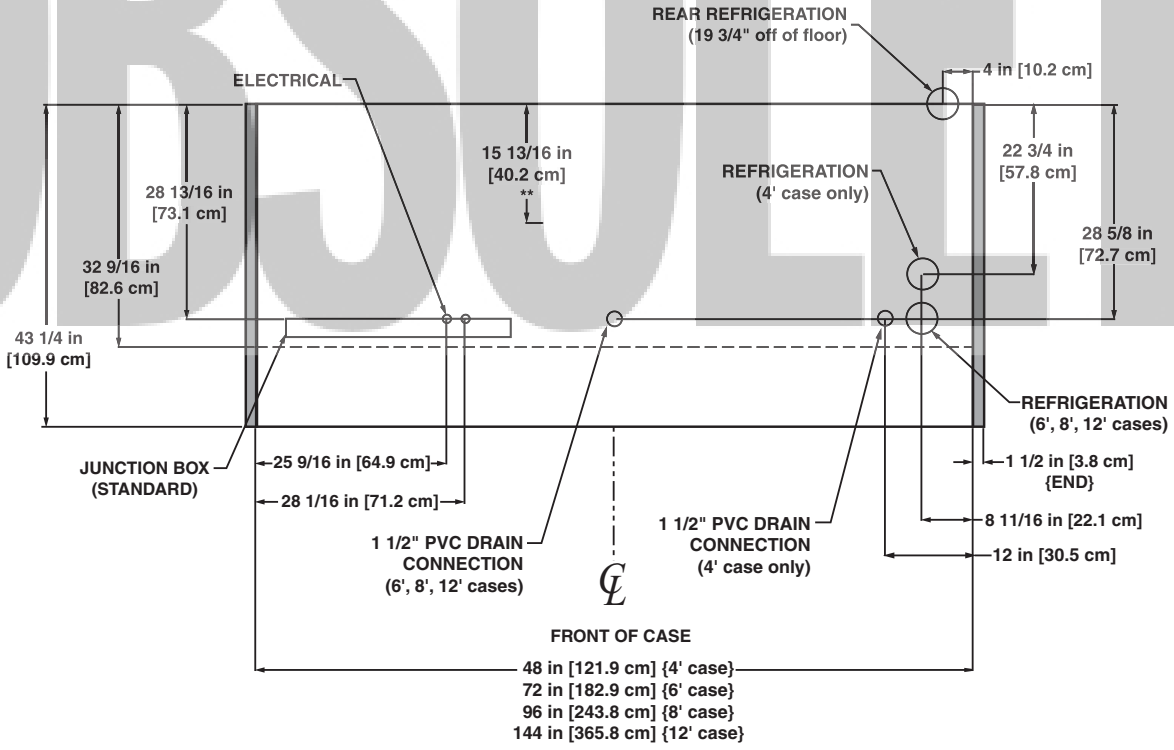

NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"

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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 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
OM	4'	2	1.00	60	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	2	1.00	60	0.15	9.2	0.25[1]	30	3.85	800	4.44	1065
	12'	3	1.50	90	0.23	13.8	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		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	1.67	140
	6'	2	3'	0.37	44	1.83	220
	8'	2	4'	0.47	56	2.33	280
	12'	3	4'	0.70	84	3.50	420

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OM	Standard	560	Std.	12	6-8	22	37	305
	Standard	480	Std.	17	6-8	26	39	305
	All Others	415	Std.	17	6-8	26	35	305
	Standard	480	Enh.	22	6-8	26	39	305
	All Others	415	Enh.	22	6-8	26	35	305

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
OM	3	6 - 8	40	49	70	47	26	45	40	45

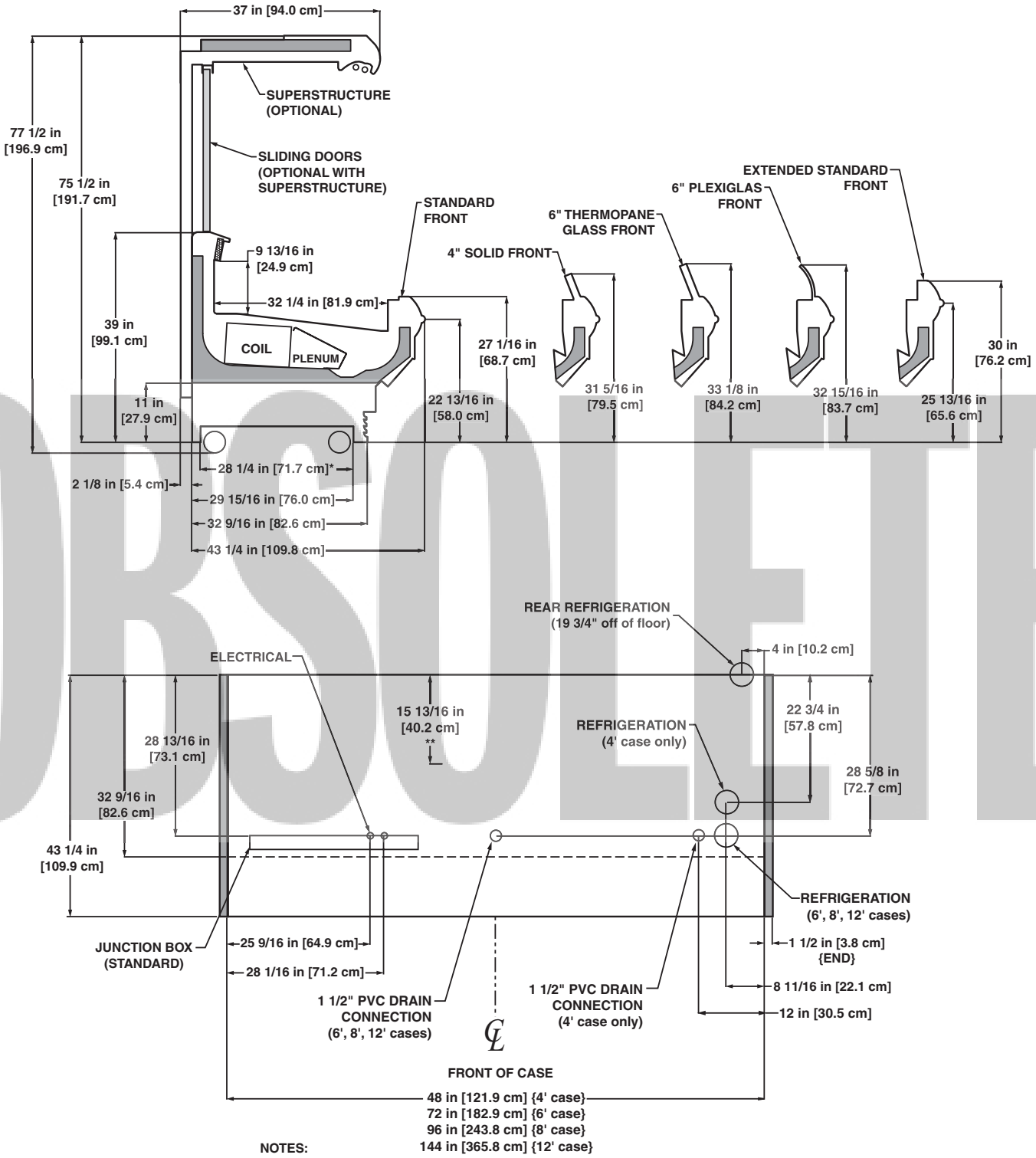
Medium Temperature Defrost Schedule

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.

OBSOLETE

6/04



OBSOLETE

NOTES:

* STUB-UP AREA

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"

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A DOVER COMPANY

Narrow Single Deck Frozen Meat Merchandiser

ONMZ - 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
ONMZ	4'	2	1.00	60	0.23	14	0.60	72	3.33[1]	1200	3.84[1]	1596
	6'	2	1.00	60	0.23	14	0.90	108	5.00[1]	1800	5.76[1]	2394
	8'	2	1.00	60	0.23	14	0.96	115	6.66[1]	2400	7.69[1]	3195
	12'	3	1.50	90	0.35	21	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONMZ	4'	1	4'	0.23	28	0.23	28
	6'	2	3'	0.37	44	0.37	44
	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ONMZ	430	0	3-5	12	25	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)
ONMZ	4	13 - 15	45	47	- - -[4]	- - -	20	60	- - -	- - -

[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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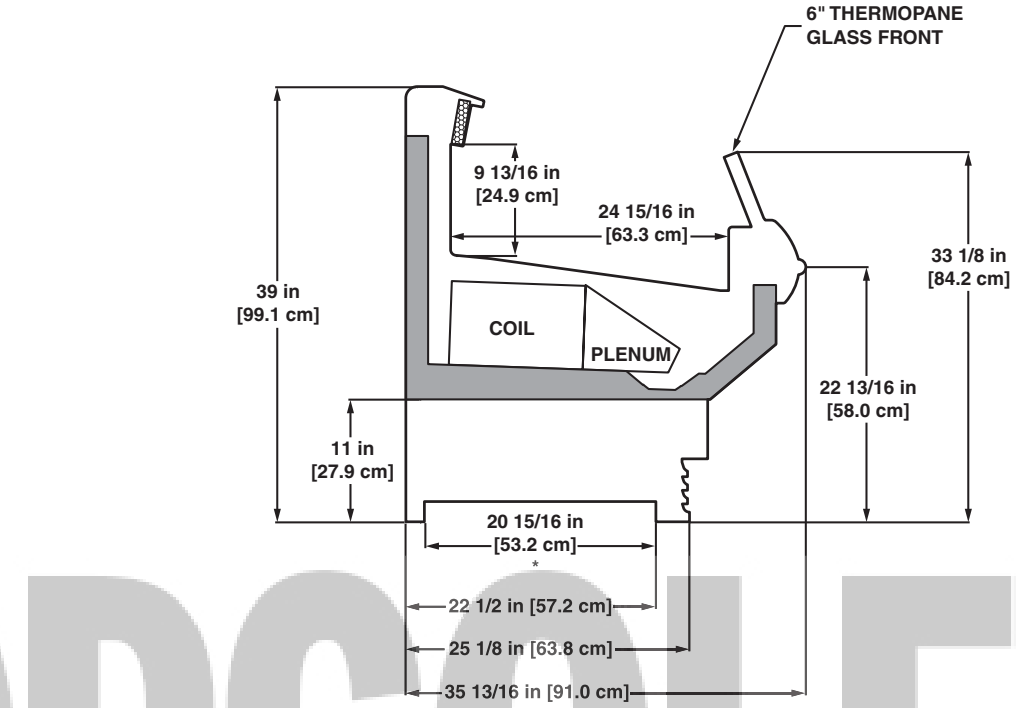

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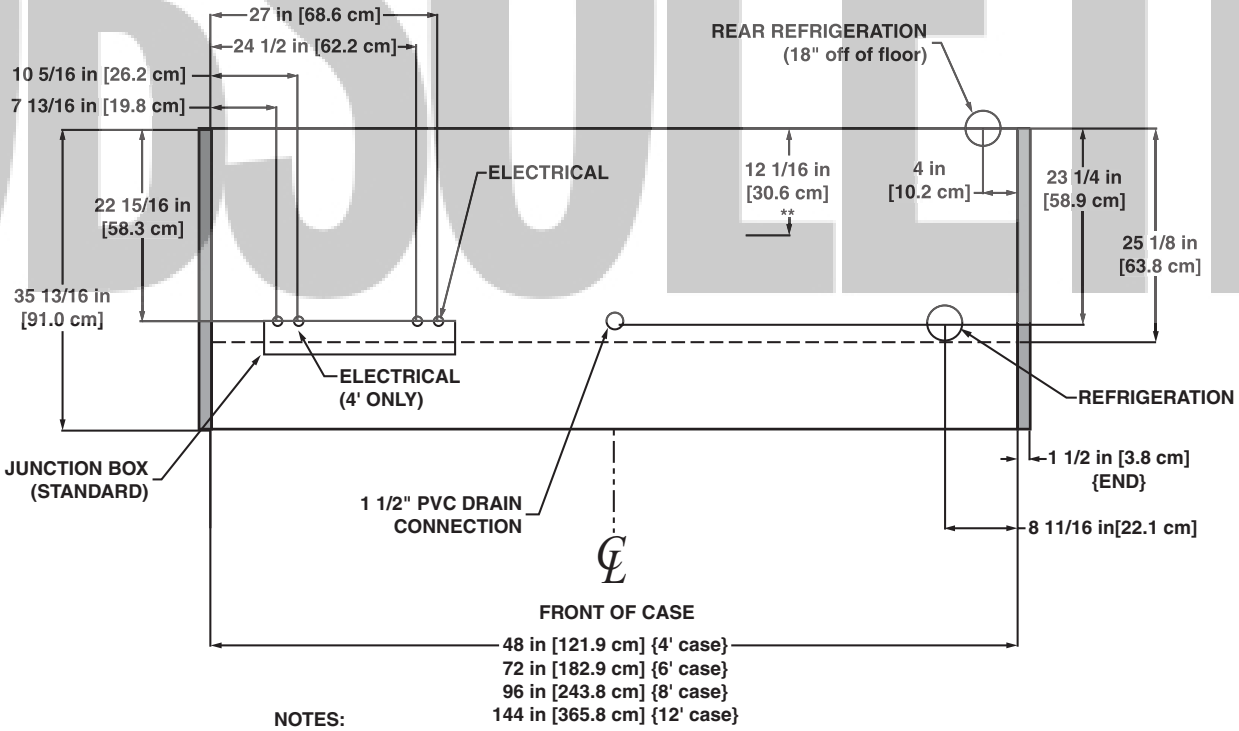

NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"

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Single Deck Frozen Meat Merchandiser

OMZ - 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
OMZ	4'	2	1.00	60	0.23	14	0.60	72	3.33[1]	1200	3.84[1]	1596
	6'	2	1.00	60	0.23	14	0.90	108	5.00[1]	1800	5.76[1]	2394
	8'	2	1.00	60	0.23	14	0.96	115	6.66[1]	2400	7.69[1]	3195
	12'	3	1.50	90	0.35	21	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		Bulbs per Row	Bulb Length	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	4'	1	4'	0.23	28	0.23	28
	6'	2	3'	0.37	44	0.37	44
	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OMZ	550	-22	3-5	-10	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

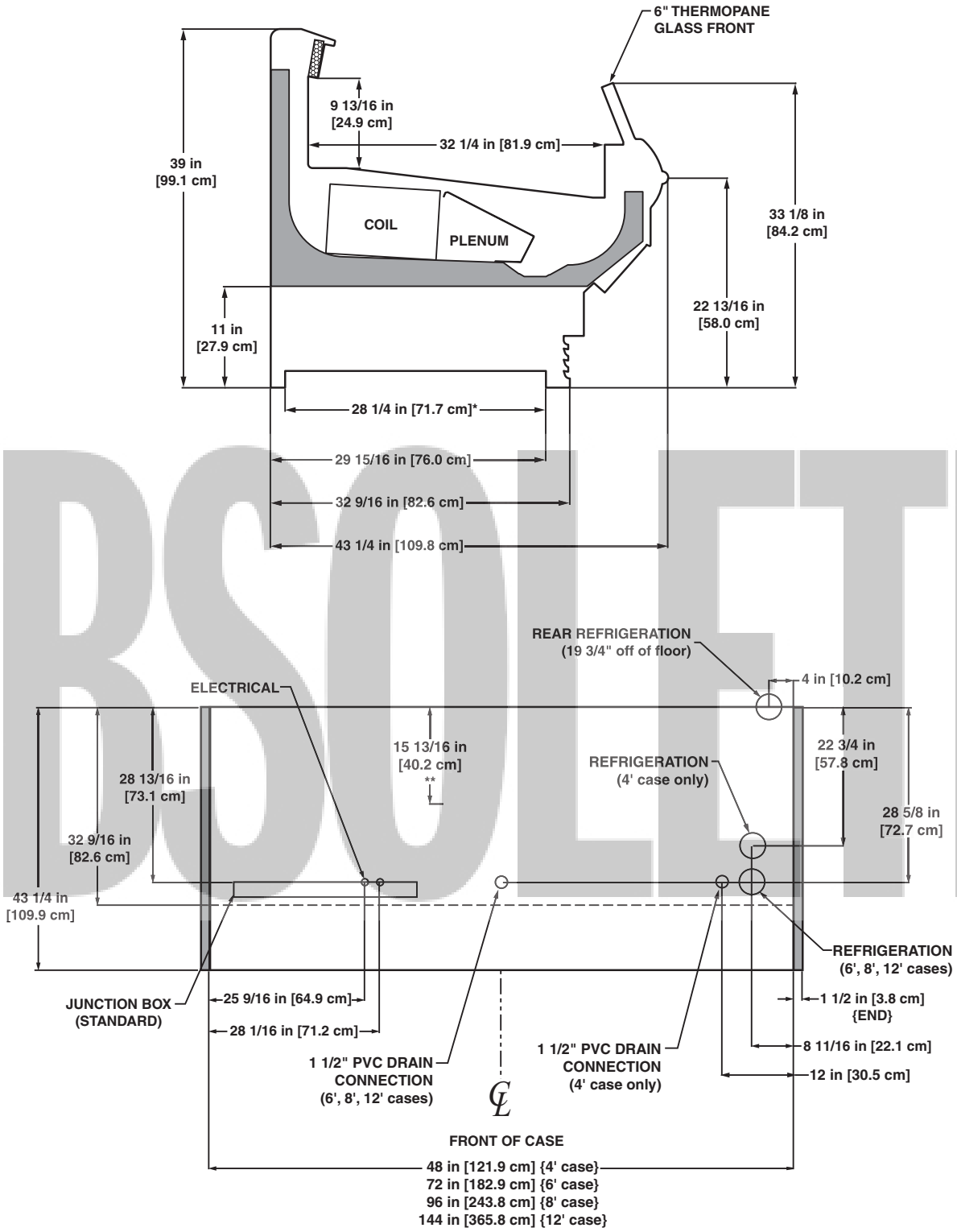
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse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

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

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:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"

Single Deck Frozen Food/Ice Cream Merchandiser

OMZD - 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
OMZD	4'	2	0.68	34	0.30	22	1.14	137	3.85	800	4.43	1064
	6'	2	0.68	34	0.30	22	1.28	154	11.54	2400	13.31	3196
	8'	3	1.02	51	0.45	33	1.45	174	15.38	3200	17.75	4260
	12'	4	1.36	68	0.60	44	2.59	311	23.08	4800	26.63	6390

Lighting Data

Model		Bulbs per Row	Bulb Length	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	4'	1	4'	0.23	28	0.23	28
	6'	2	3'	0.37	44	0.37	44
	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OMZD-F[3]	456	-17	3-5	-8	2	240
OMZD-C[3]	476	-27	3-5	-18	-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.

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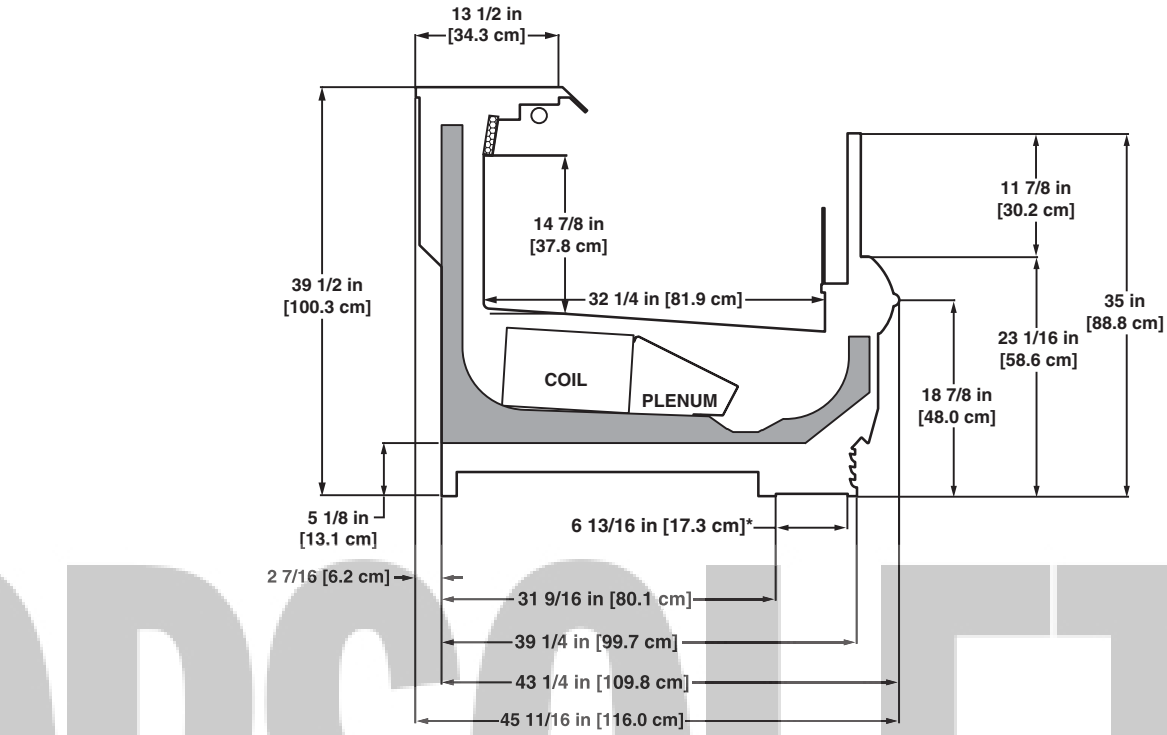

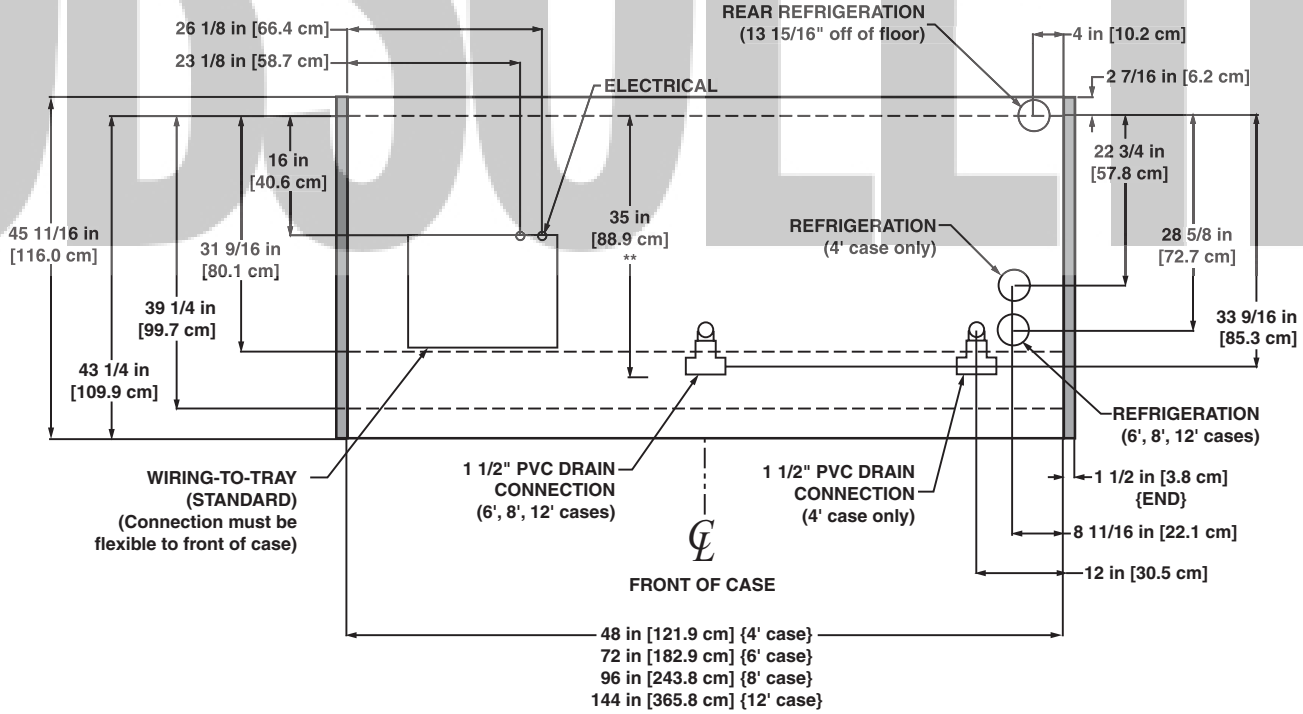

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NOTES:

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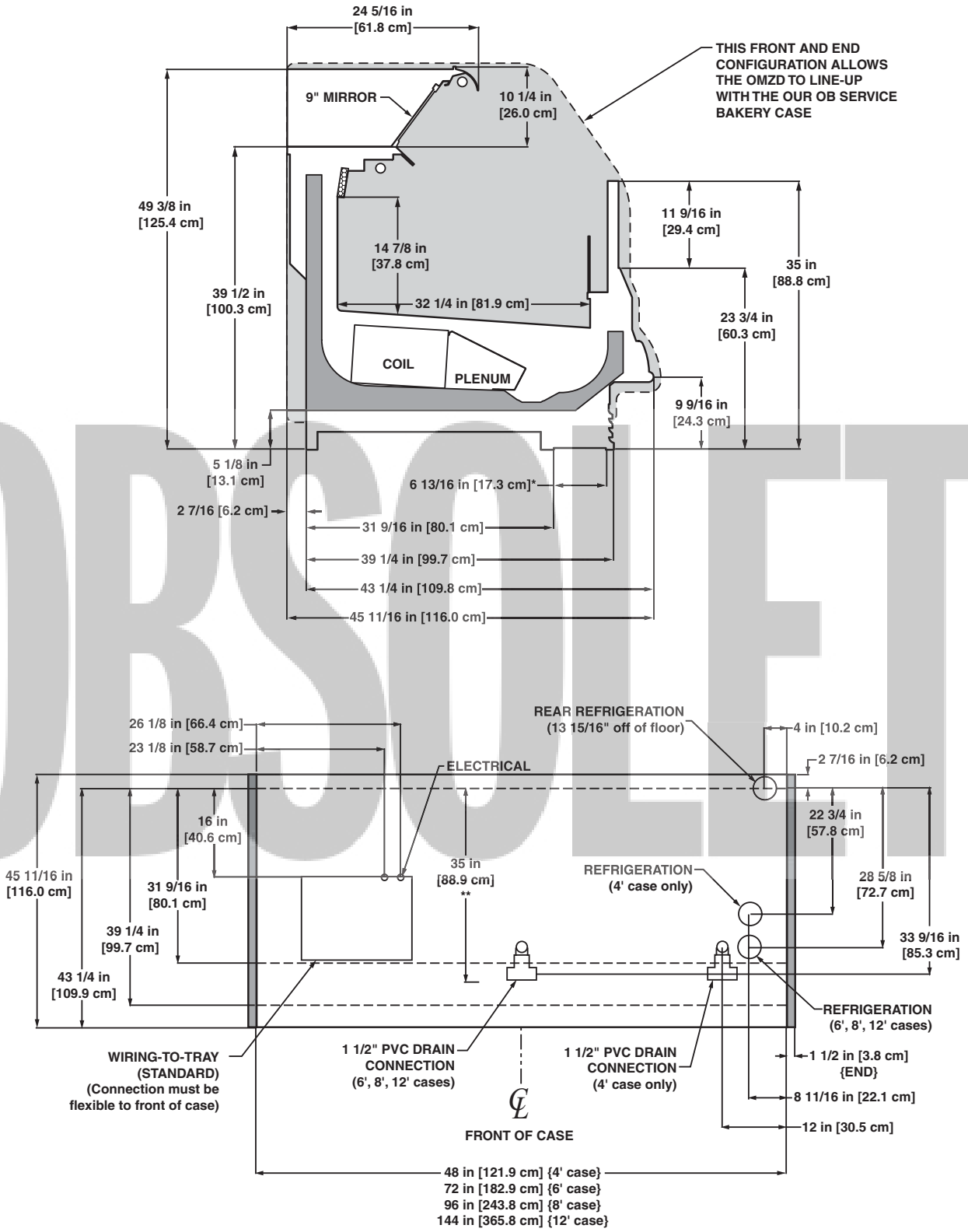
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"



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- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

OBSOLETE

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 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
OP	4'	2	1.00	60	0.15	9.2	0.14	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20	24	2.88	600	3.33	798
	8'	2	1.00	60	0.15	9.2	0.25	30	3.85	800	4.44	1065
	12'	3	1.50	90	0.23	13.8	0.38	46	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	0.23	28
	6'	2	3'	0.37	44	0.37	44
	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84

Guidelines & Control Settings

Model	Rear Sill Heights	BTUH/ft[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OP Cut Produce	39"	288	Std.	22	6-8	31	42	180
	43"	401	Std.	22	6-8	30	45	210
	39"	288	Enh.	26	6-8	31	42	180
	43"	401	Enh.	26	6-8	30	45	210
OP Bulk Produce	39"	230	Std.	27	6-8	36	44	180
	43"	374	Std.	27	6-8	35	47	210
	39"	230	Enh.	29	6-8	36	44	180
	43"	374	Enh.	29	6-8	35	47	210

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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.

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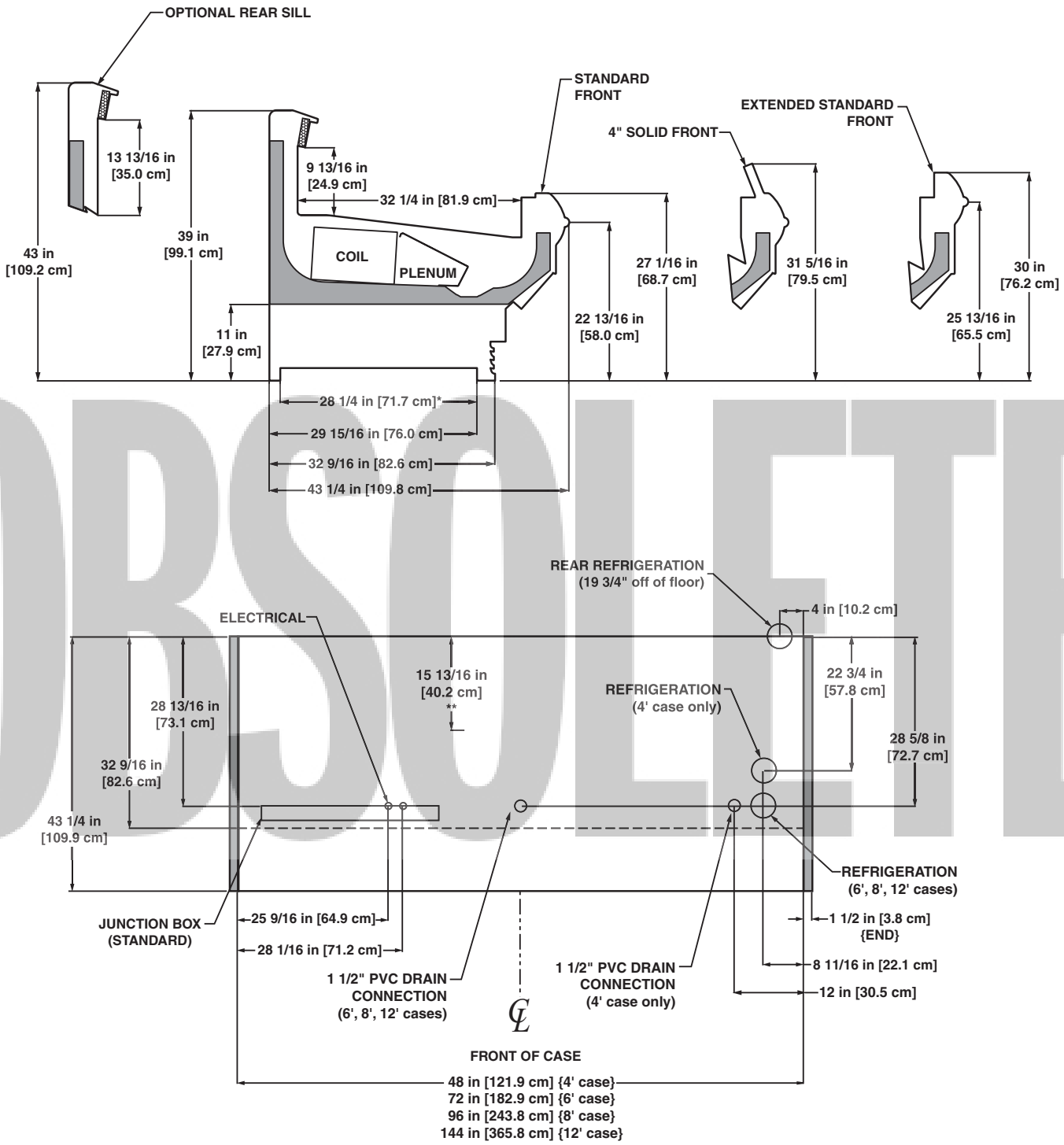

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NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"

Single Deck Produce Self-Contained Merchandiser

OPA - 6', 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
OPA	6'	120	1	60	2 wire + ground	10.748	20
	8'	120	1	60	2 wire + ground	14.648	30
	12'	120	1	60	2 wire + ground	16.848	35

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		Condenser Fan 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 120 Volts		Drain Heater 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OPA	6'	2	1.00	60	0.82	49	0.20	24	5.00	600	4.17	500
	8'	2	1.00	60	0.82	49	0.25	30	6.67	800	4.17	500
	12'	3	1.50	90	0.82	49	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)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OPA-6'		19.9	6-8	30	45	210
OPA-8'		19.9	6-8	30	45	210
OPA-12'		19.9	6-8	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.
OPA-6'	120	1	60	1/4	5.4	34	R134A	
OPA-8'	120	1	60	1/2	9.3	36	R134A	
OPA-12'	120	1	60	1/2	11	51	R134A	

[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)
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.

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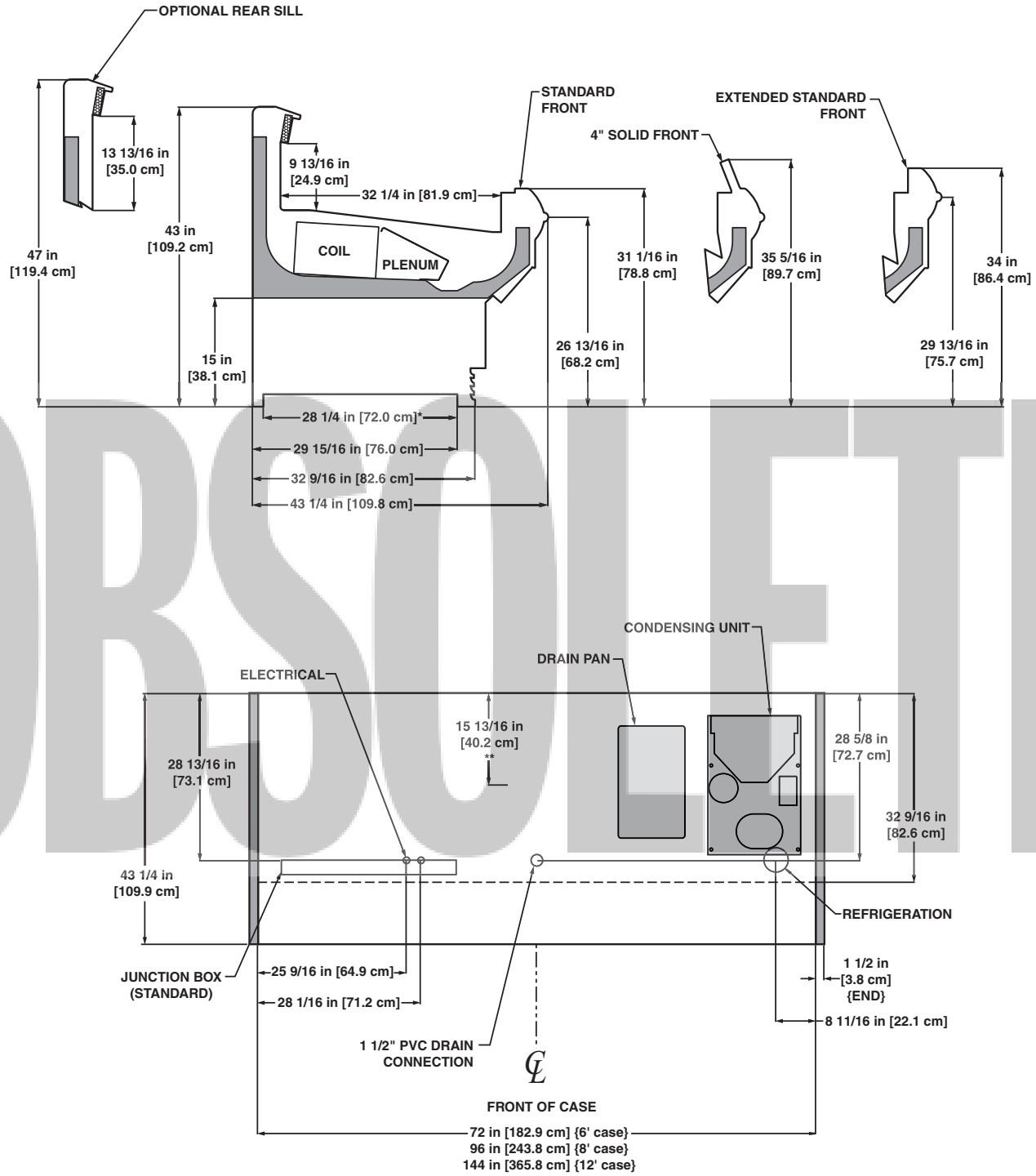

OBSOLETE

NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL

Wide Single Deck Produce Merchandiser

OWP - 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
OWP	8'	2	1.00	60	0.15	9.2	0.25	30	3.85	800	4.44	1065
	12'	3	1.50	90	0.23	13.8	0.38	46	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OWP	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84

Guidelines & Control Settings

Model	Rear Sill Heights	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OWP Cut Produce	39"	377	22	6-8	31	42	180
	43"	525	22	6-8	30	45	210
OWP Bulk Produce	39"	301	27	6-8	36	44	180
	43"	490	27	6-8	35	47	210

[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)
OWP	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.

NSF COMPONENT

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

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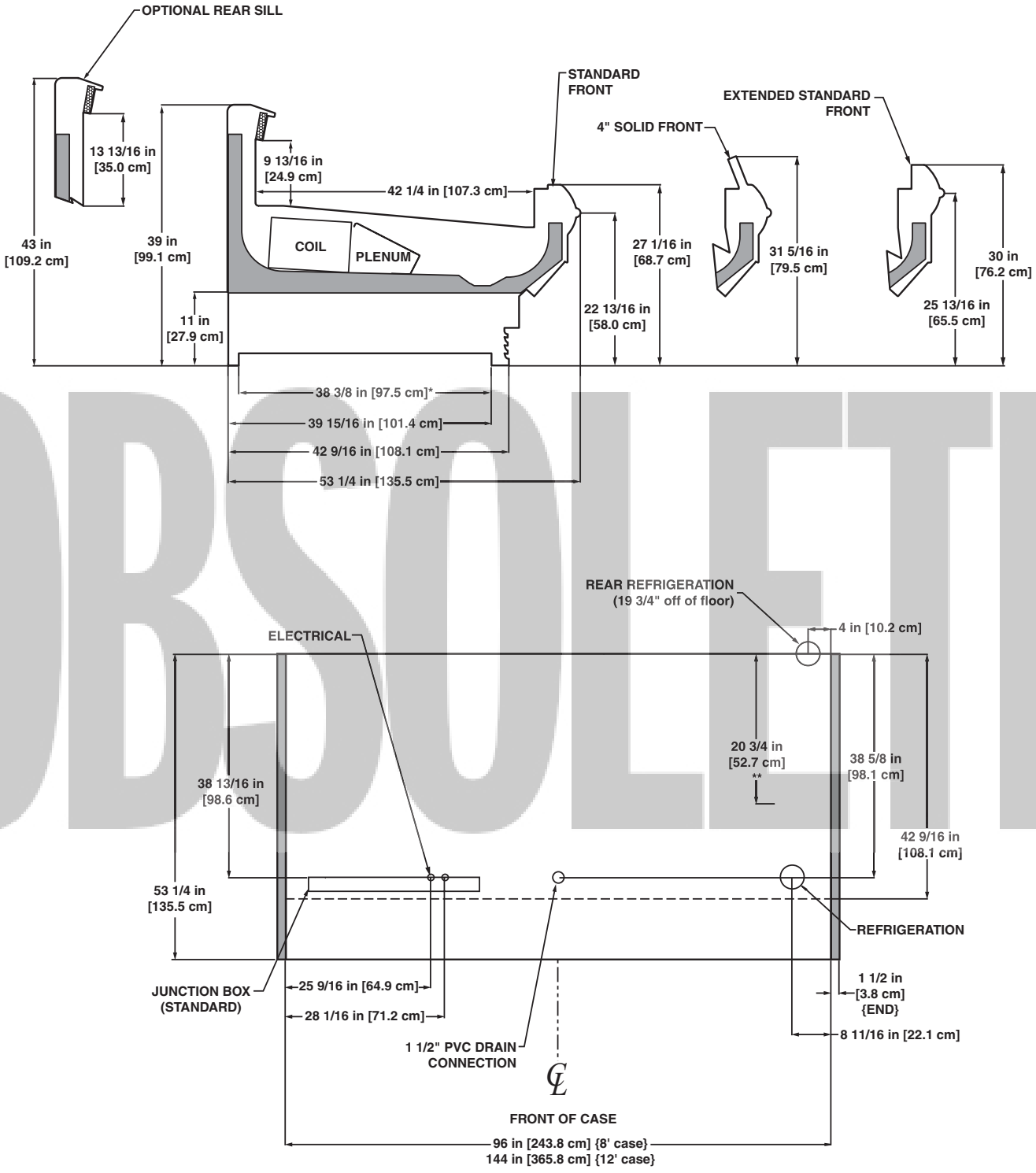


OBSOLETE

NOTES:

* STUB-UP AREA

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"

Wide Single Deck Produce Self-Contained Merchandiser

OWPA - 8’

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
OWPA	8’	120	1	60	2 wire + ground	22.49	40

Electrical Data

Model		Fans per Case	Standard Fans		Condenser Fan		Anti-Condensate Heaters		Defrost Heaters		Drain Heater	
			120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OWPA	8’	2	1.00	60	0.82	49	0.25	30	6.67	800	4.17	500

OBSOLETE

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OWPA-8’		19.9	6-8	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.
OWPA-8’	120	1	60	1/2	12.9	66.3	R134A	

[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)
OWPA	2	40	47	60	47	- - - [4]	- - -	- - -	- - -

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

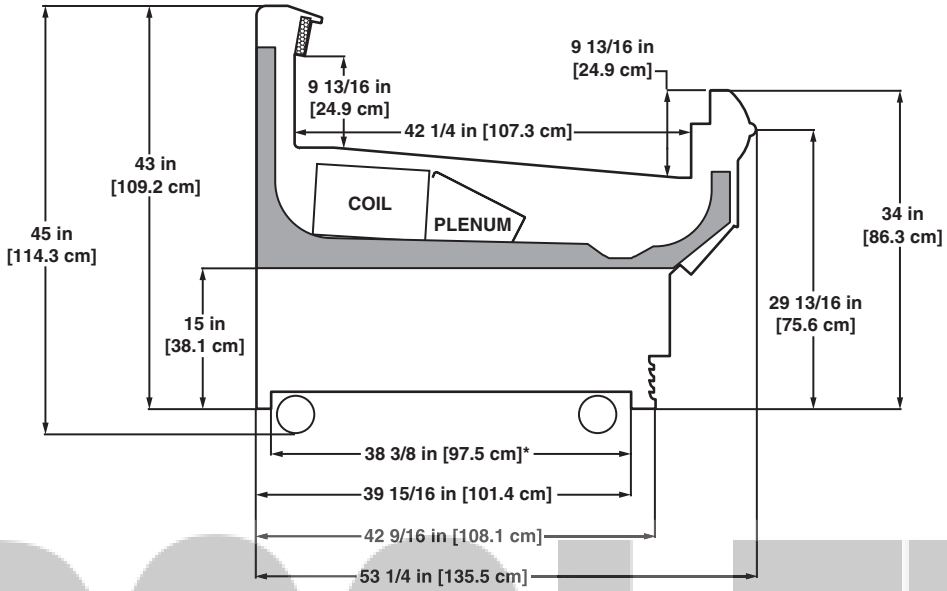
Medium Temperature Defrost Schedule

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

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

All measurements are taken per CRMA specifications.



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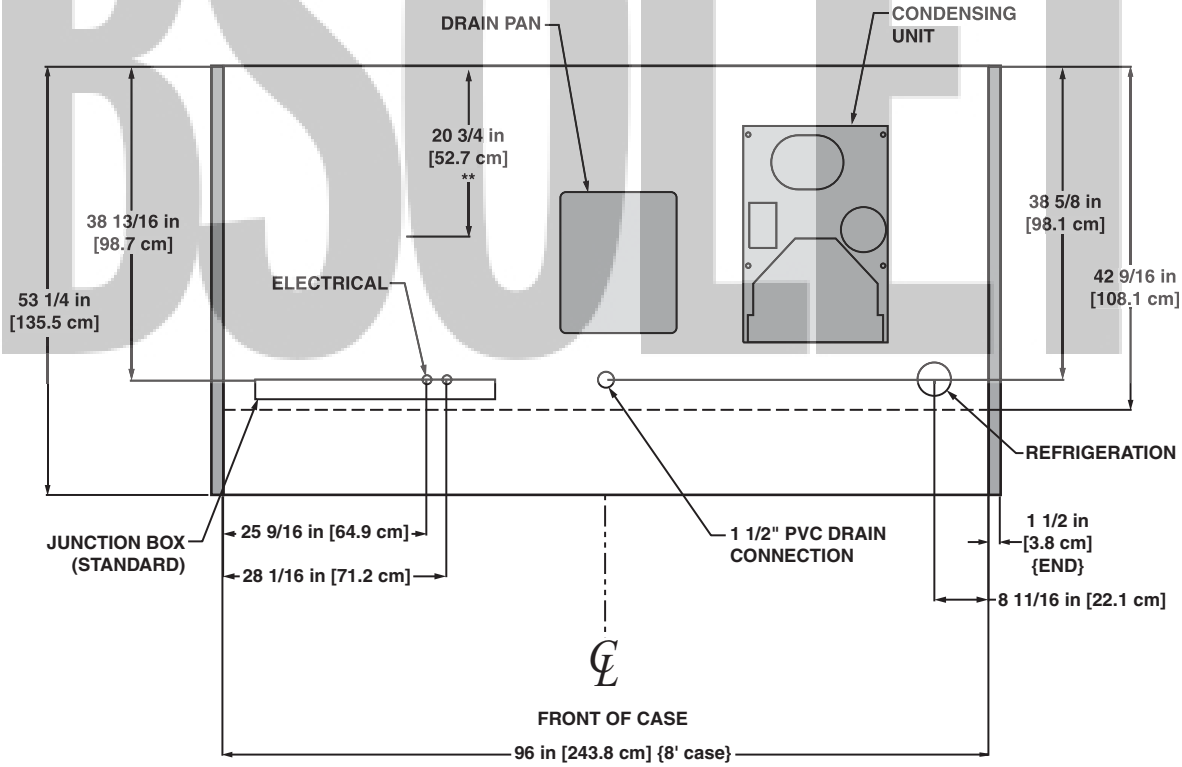

NOTES:

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

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- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL

Single Deck Boxed Produce Merchandiser

UP-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	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
UP	8’	3	1.02	51	0.45	33	- - -[1]	- - -	3.85	800	4.44	1065

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

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
UP	8’	2	4’	0.47	56	1.40	168

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
UP	600	22	6-8	32	42	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

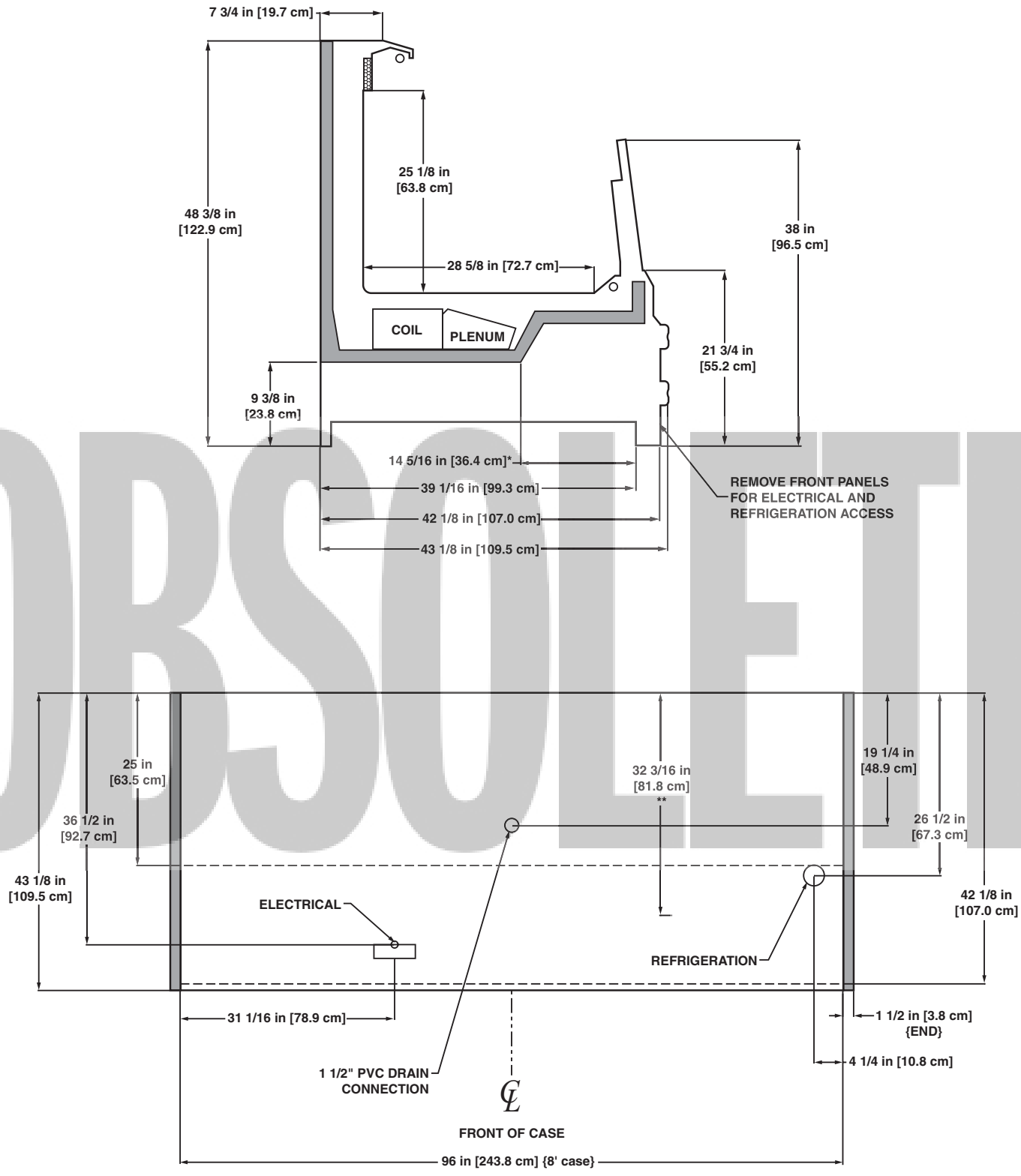
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
UP	3	40	45[4]	45	45	- - -	- - -	- - -	- - -

[4] At discharge 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.



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NOTES:

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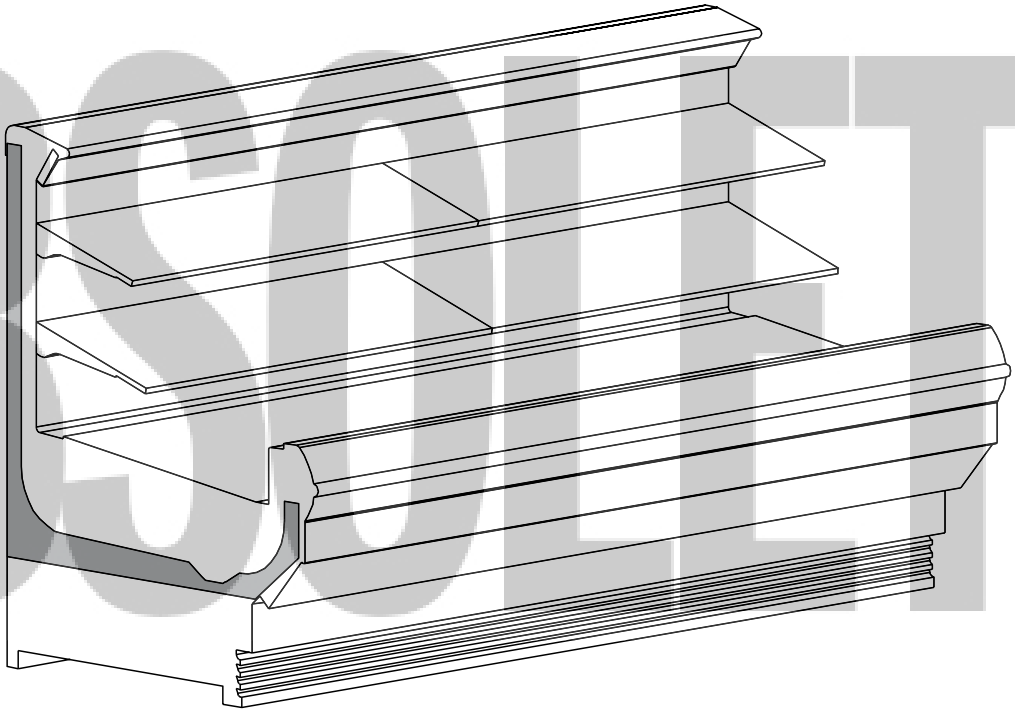
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", & 16"

OBSOLETE

UTILITY

OBSOLETE



Notes:

- *Cases comply with ANSI / NSF* Standard 7 unless otherwise specified. Units marked as components require remote refrigeration.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*
- *Front and rear sill heights vary with baseframe height.*

* *ANSI - American National Standard Institute*
NSF - National Sanitation Foundation

Narrow Multi-Deck Dome Deli Merchandiser

ONUMD - 8’ & 12’

Electrical Data

Model		Fans per Case		Ambient[1] Fans		Standard Fans		High Efficiency Fans		Anti-Condensate Heaters		Defrost Heaters			
				120 Volts		120 Volts		120 Volts		120 Volts		208 Volts		240 Volts	
		Pri.	Amb.	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONUMD	8’	3	4	0.40	22	1.50	90	0.35	21	0.25	30	3.85	800	4.44	1065
	12’	4	6	0.60	33	2.00	120	0.47	28	0.39	47	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.

Electrical Data (Continued)

Model		Secondary[2] Fans 120 Volts Amps	Secondary[2] Fans 120 Volts Watts
ONUMD	8’	2.19	158
	12’	2.19	158

[2] Secondary Fans are for the Bohn unit on the rear coil.

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONUMD	8’	2	4’	0.47	56	1.40	168
	12’	3	4’	0.70	84	2.10	252

Guidelines & Control Settings

Model	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONUMD	1390	Std.	17	6-8	29	40	250
	1390	Enh.	22	6-8	29	40	250

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ONUMD	3	6 - 8	40	47	50	45	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.

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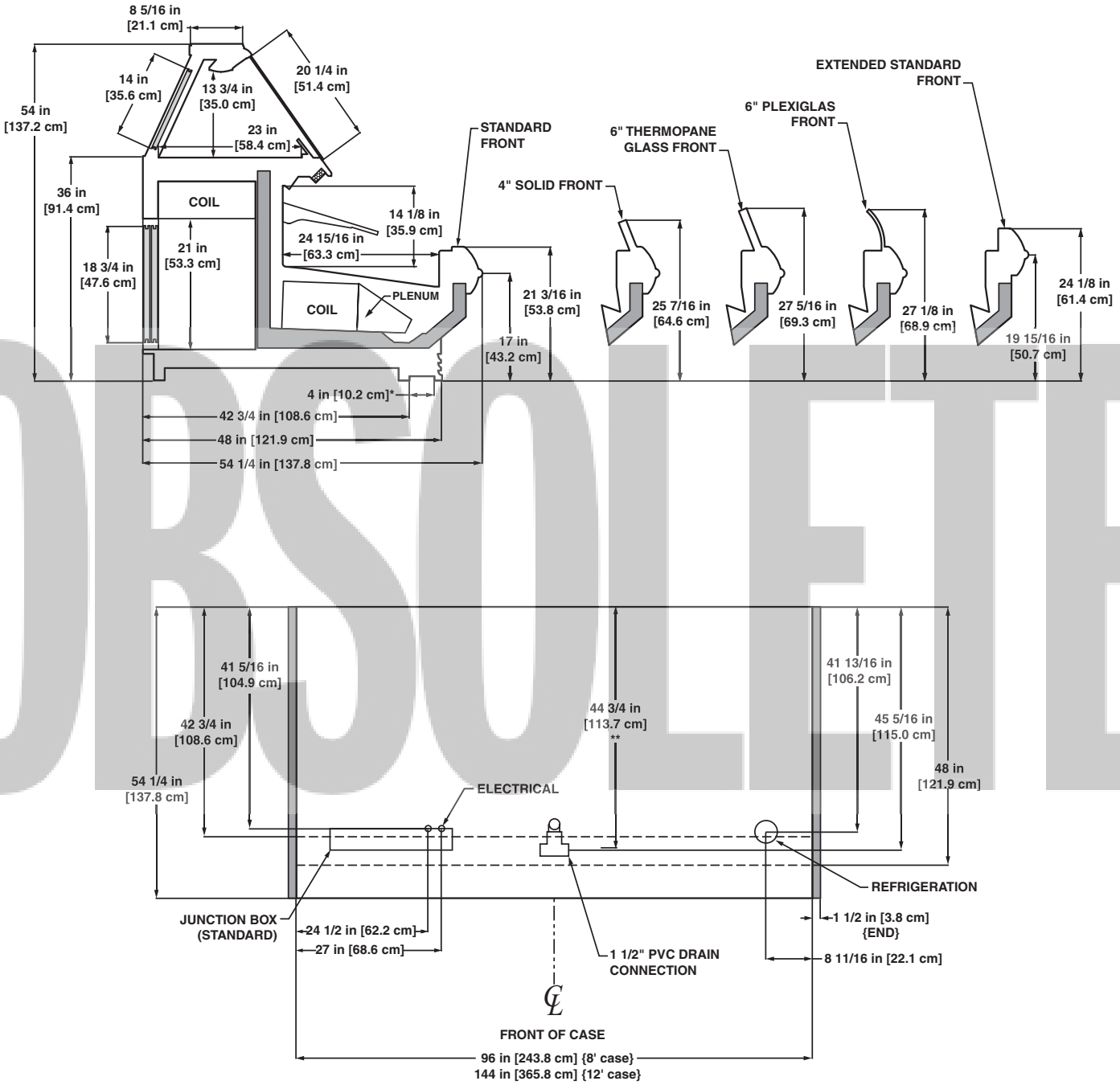

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NOTES:

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

- FRONT AND REAR SILL HEIGHT VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"

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

ON2UM - 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
ON2UM	4'	2	1.00	60	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ON2UM	4'	1	4'	0.23	28	0.70	84
	6'	2	3'	0.37	44	1.10	132
	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ON2UM	657	Std.	17	6-8	28	35	280
	657	Enh.	22	6-8	28	35	280

[2] Model ON2UM only available for meat application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ON2UM	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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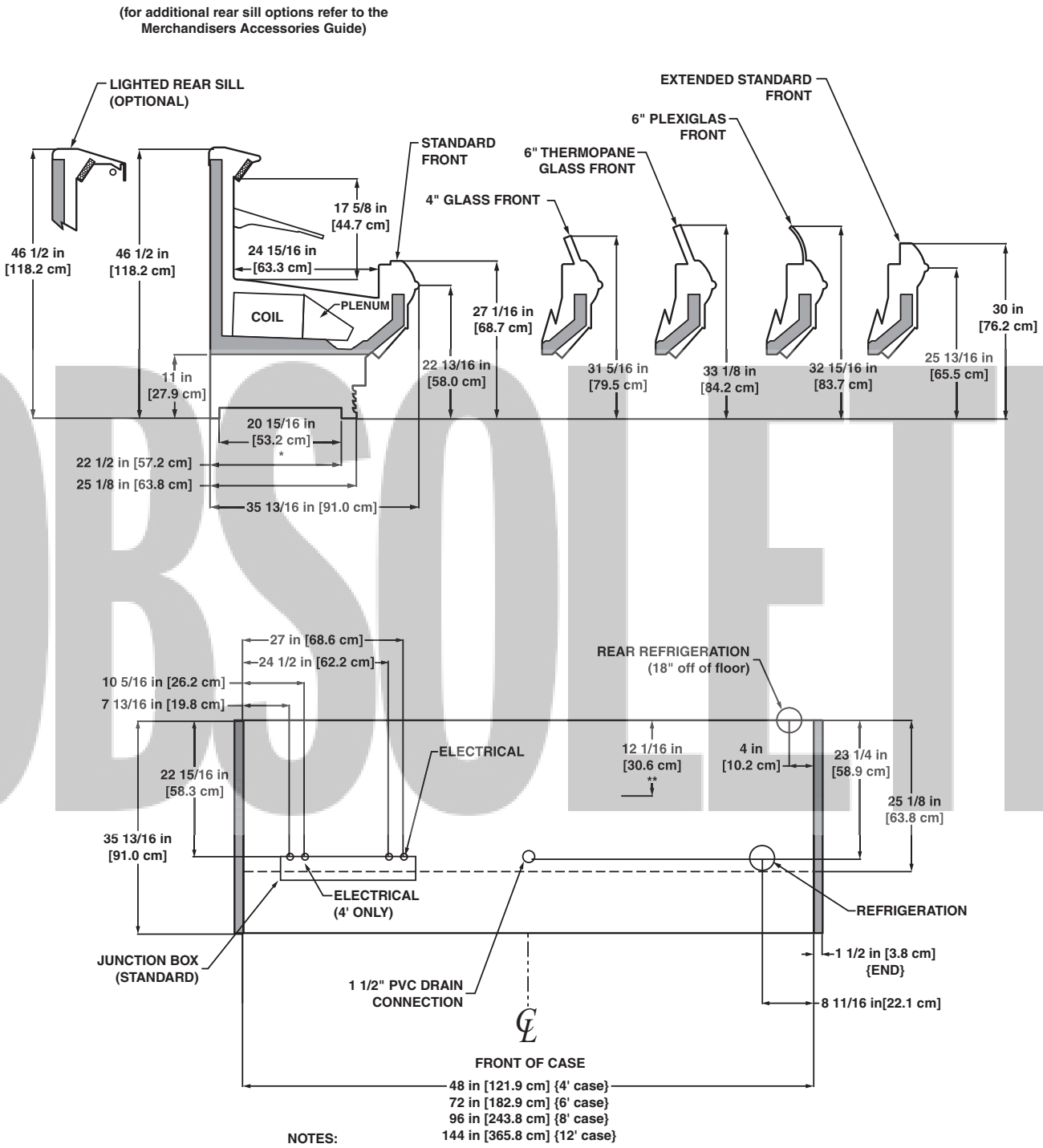

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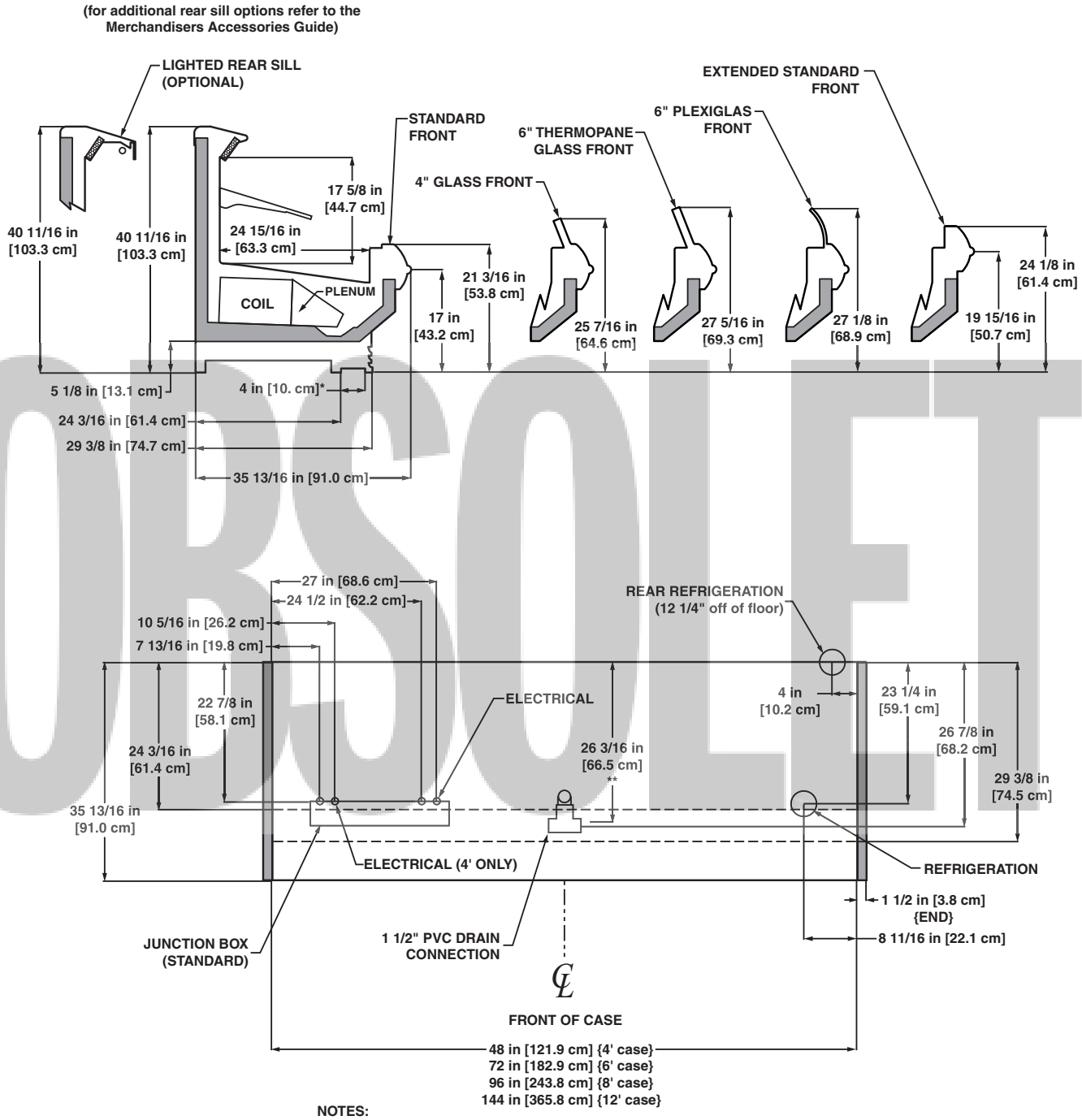
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"



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- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"

Produce/Dairy/Deli/Meat/Seafood

OBSOLETE

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	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	0.70	84
	6'	2	3'	0.37	44	1.10	132
	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O2UM	1000	Std.	17	6-8	27	40	340
	1000	Enh.	22	6-8	27	40	340

[2] Model O2UM only available for meat application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
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

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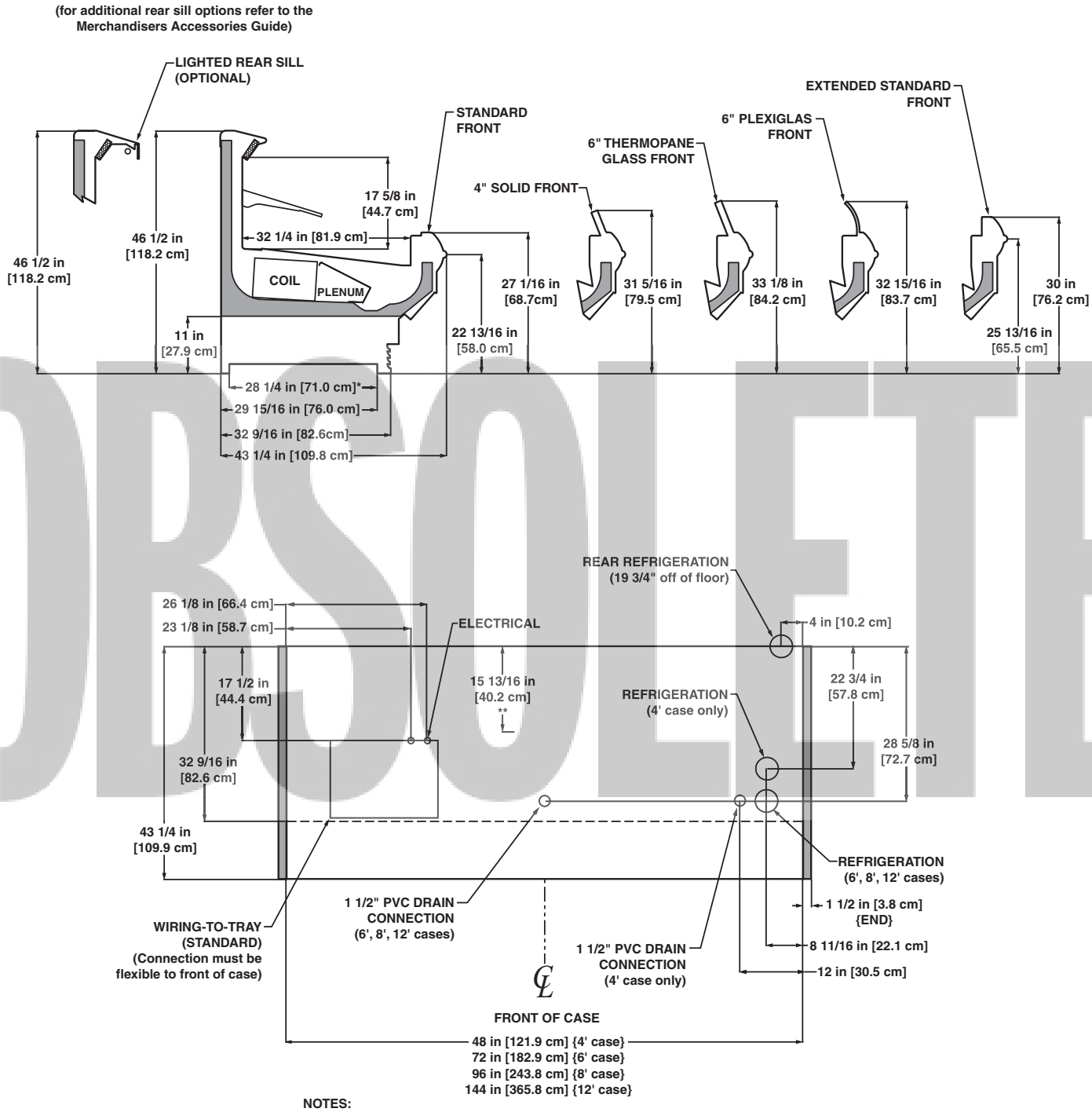
Hill PHOENIX EXCELLENCE
A DOVER COMPANY

All measurements are taken per CRMA specifications.



NOTES:

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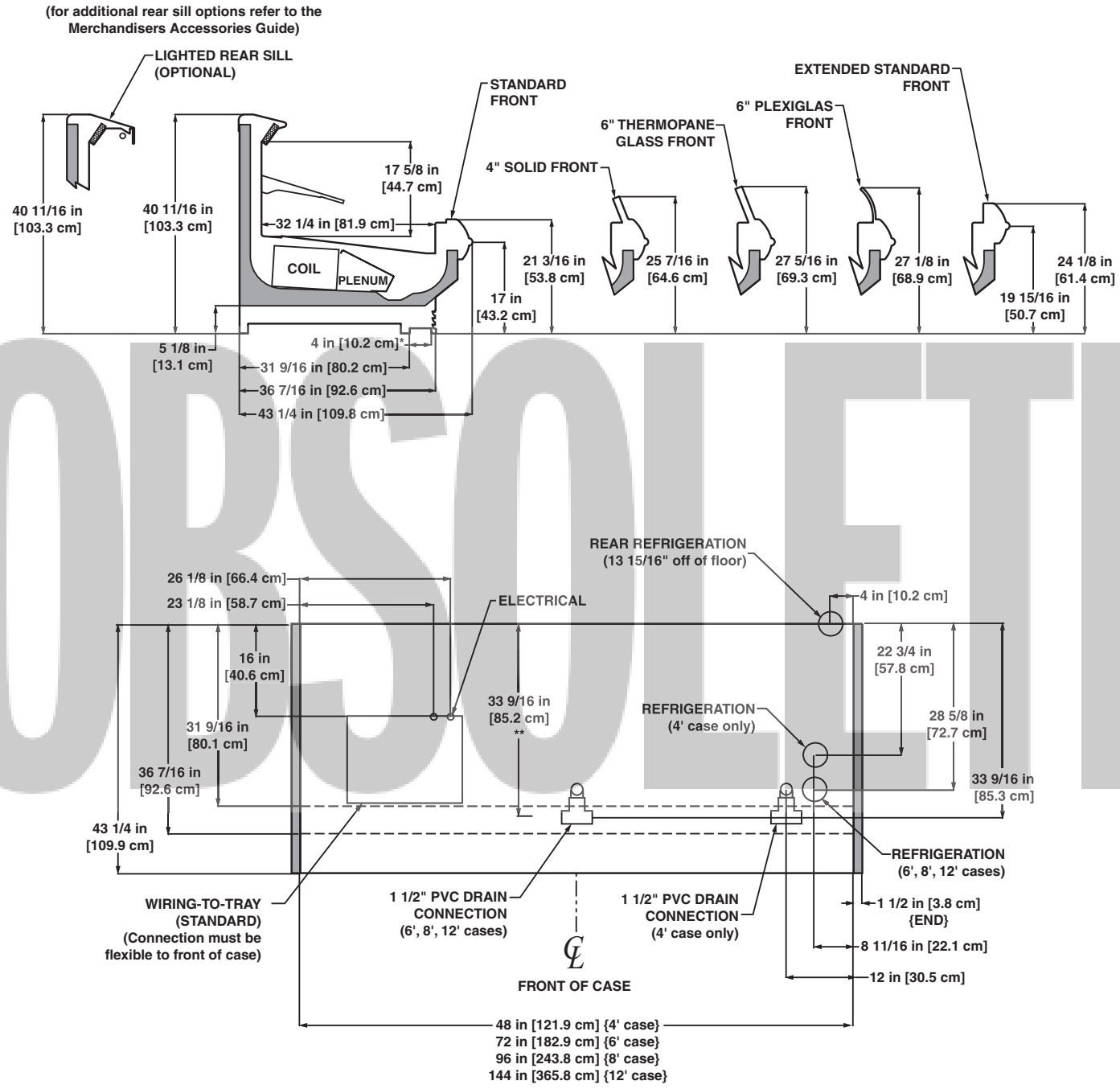
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

OBSOLETE



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NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
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- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

OBSOLETE

Wide Multi-Deck Produce/Dairy/Deli Merchandiser

OW2UM - 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
OW2UM	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OW2UM	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OW2UM	1236	Std.	17	6-8	27	40	340
	1236	Enh.	22	6-8	27	40	340

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
OW2UM	3	6 - 8	40	47	45	45	26	45	45	45

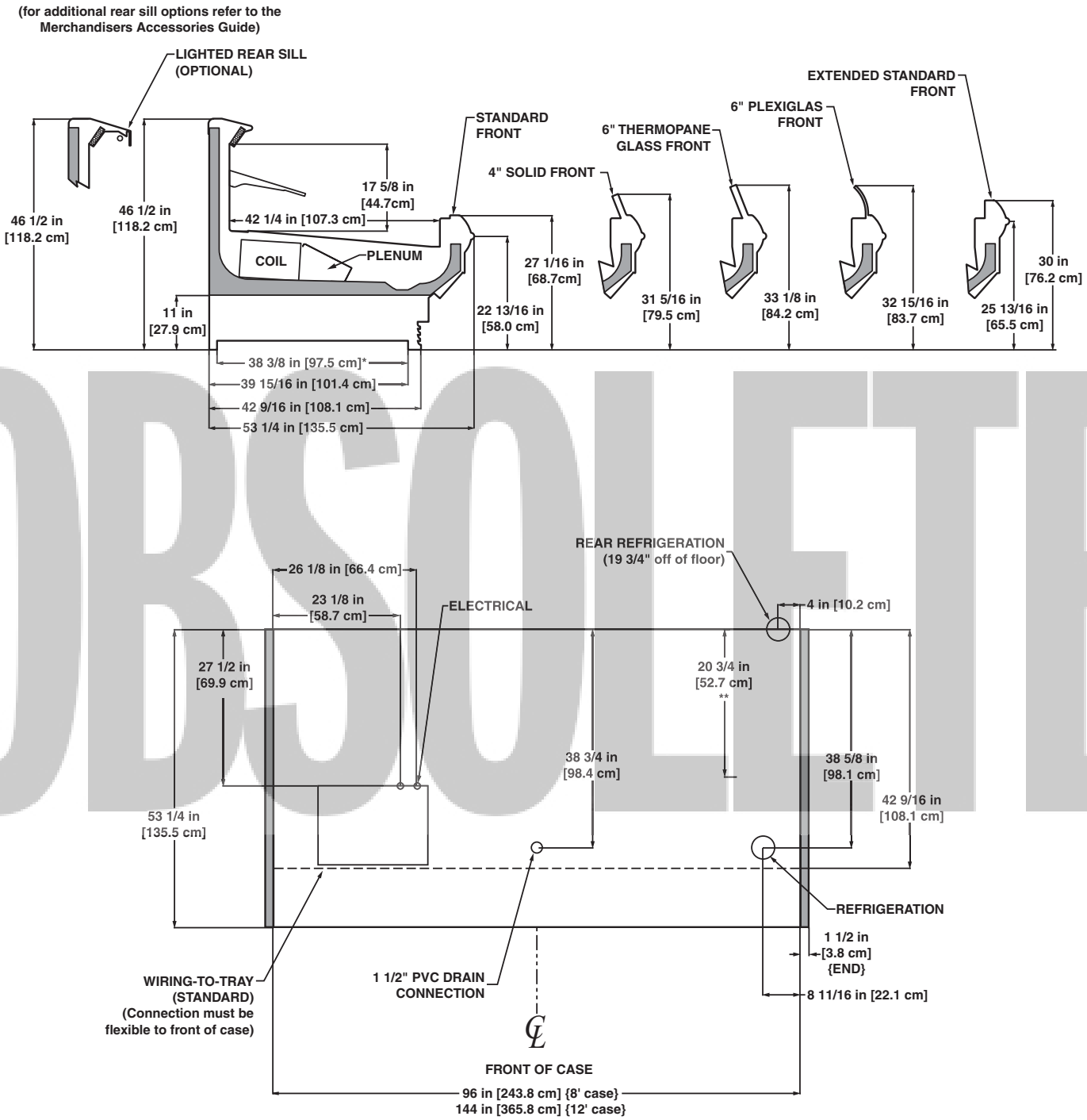
Medium Temperature Defrost Schedule

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.

Hill PHOENIX EXCELLENCE

A DOVER COMPANY



OBSOLETE

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- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

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 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
ON2.5UM	4'	2	1.00	60	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ON2.5UM	4'	1	4'	0.23	28	0.93	112
	6'	2	3'	0.37	44	1.47	176
	8'	2	4'	0.47	56	1.87	224
	12'	3	4'	0.70	84	2.80	336

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ON2.5UM	811	Std.	17	6-8	28	35	284
	811	Enh.	22	6-8	28	35	284

[2] Model ON2.5UM only available for meat application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ON2.5UM	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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A DOVER COMPANY

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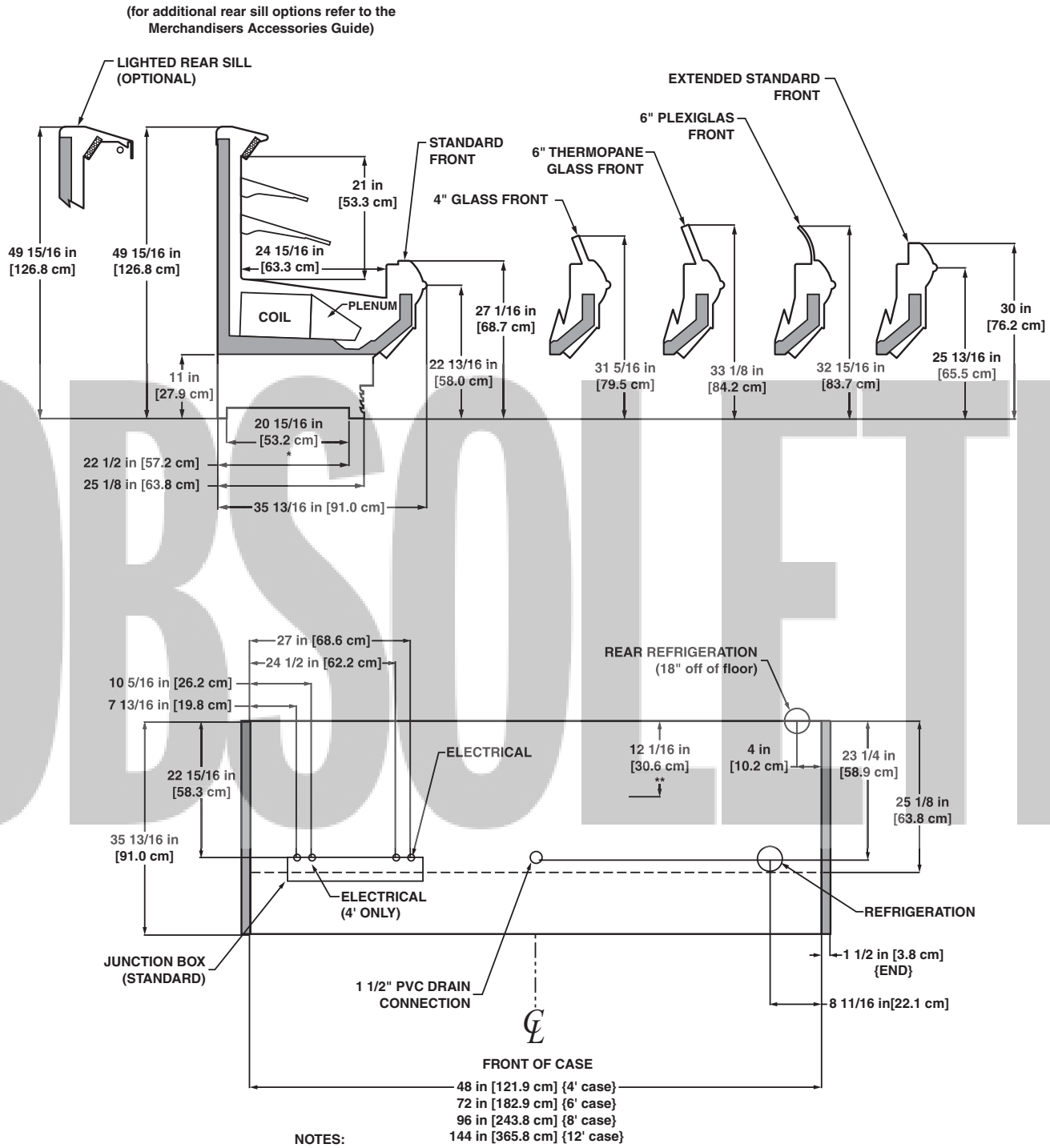

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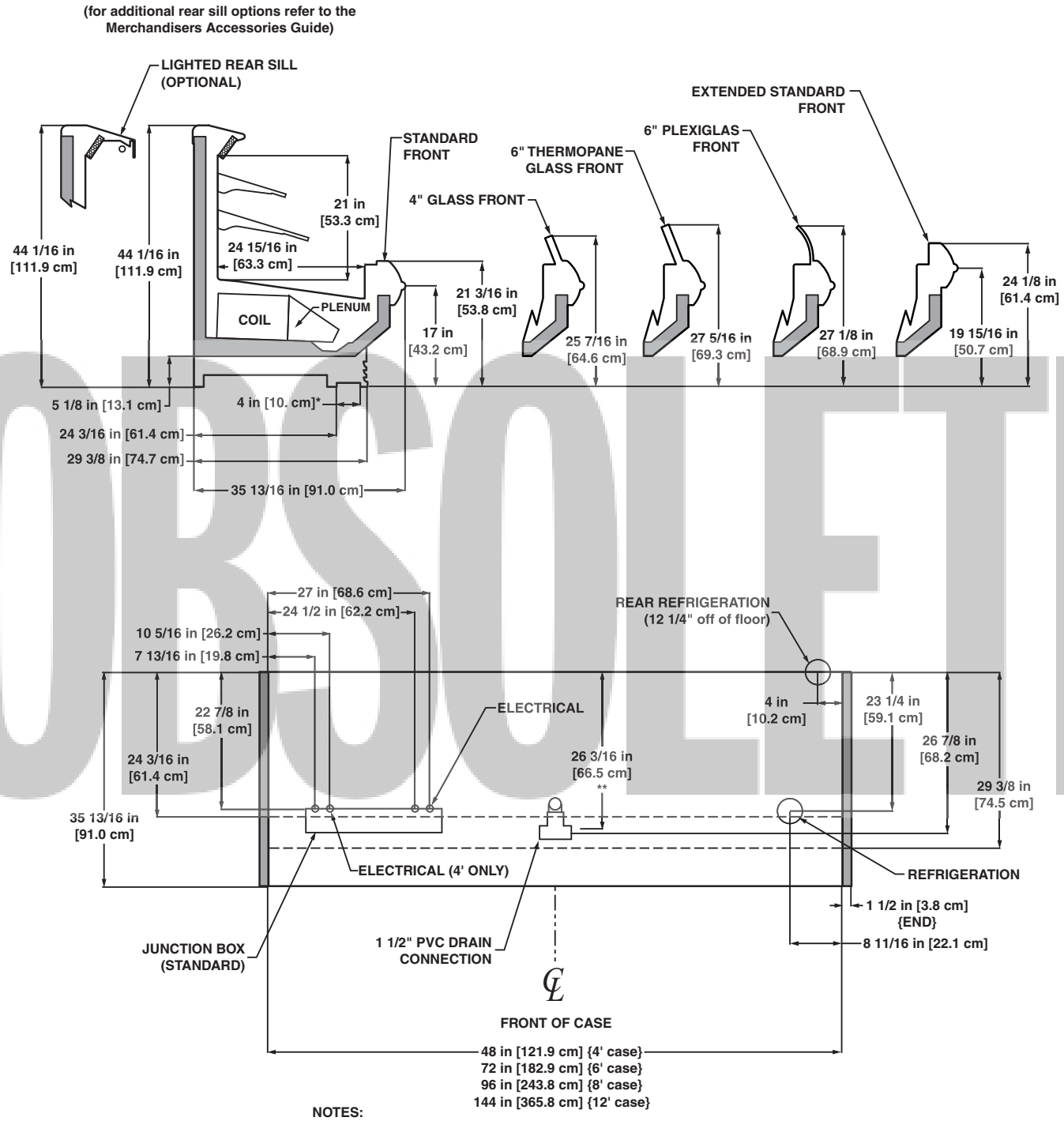
NSF COMPONENT c UL us

A DOVER COMPANY



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Produce/Dairy/Deli/Meat/Seafood

OBSOLETE

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	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	1.40	168
	6'	2	3'	0.37	44	2.20	264
	8'	2	4'	0.47	56	2.80	336
	12'	3	4'	0.70	84	4.20	504

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O2.5UM[6]	1020	Std.	17	6-8	27	45	225
	1020	Enh.	22	6-8	27	45	225
O2.5UM w/Plexi Dome	1380	Std.	17	6-8	32	46	305
	1380	Enh.	22	6-8	32	46	305

[2] Model O2.5UM only available for meat application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

[6] 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.

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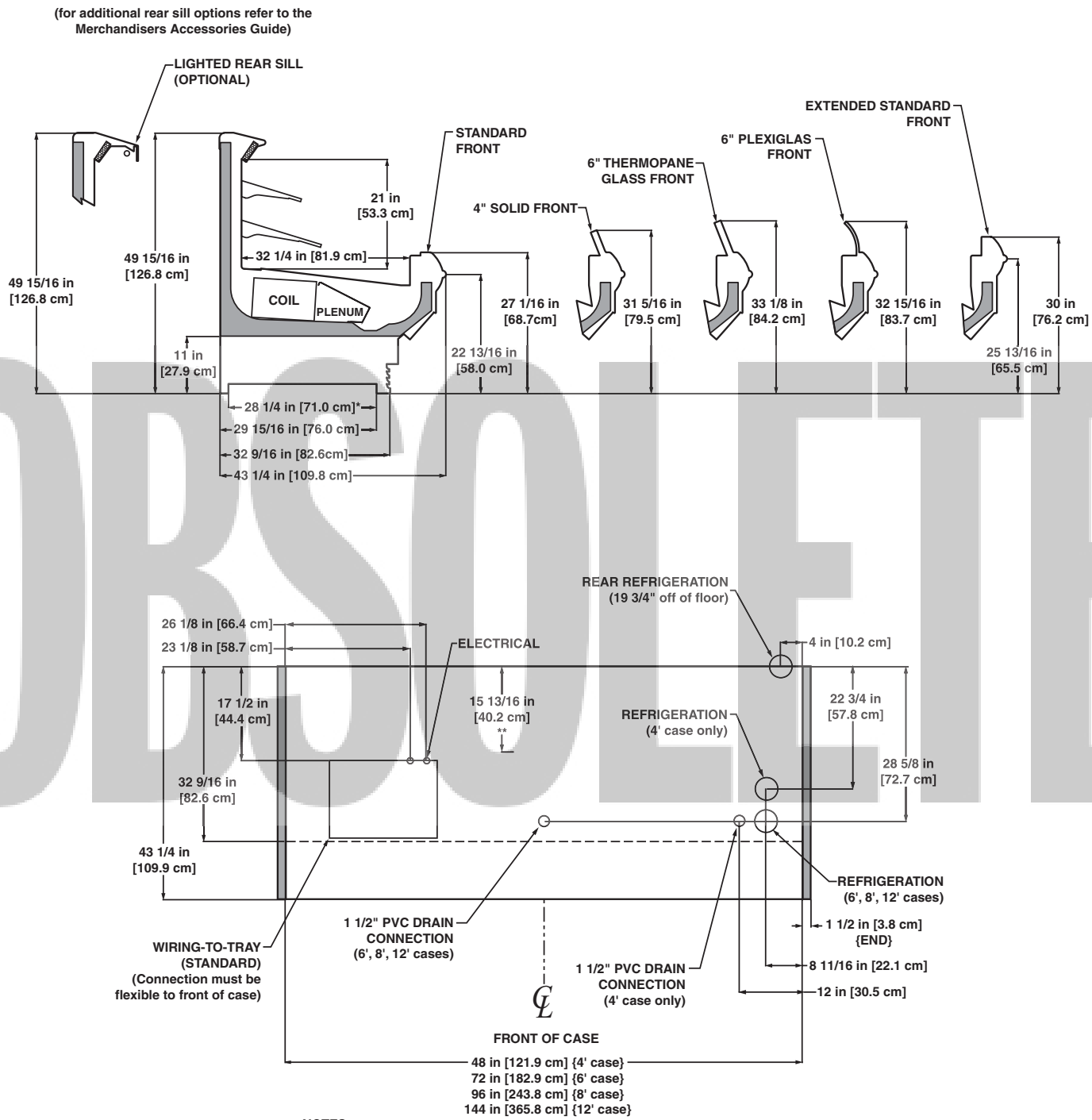

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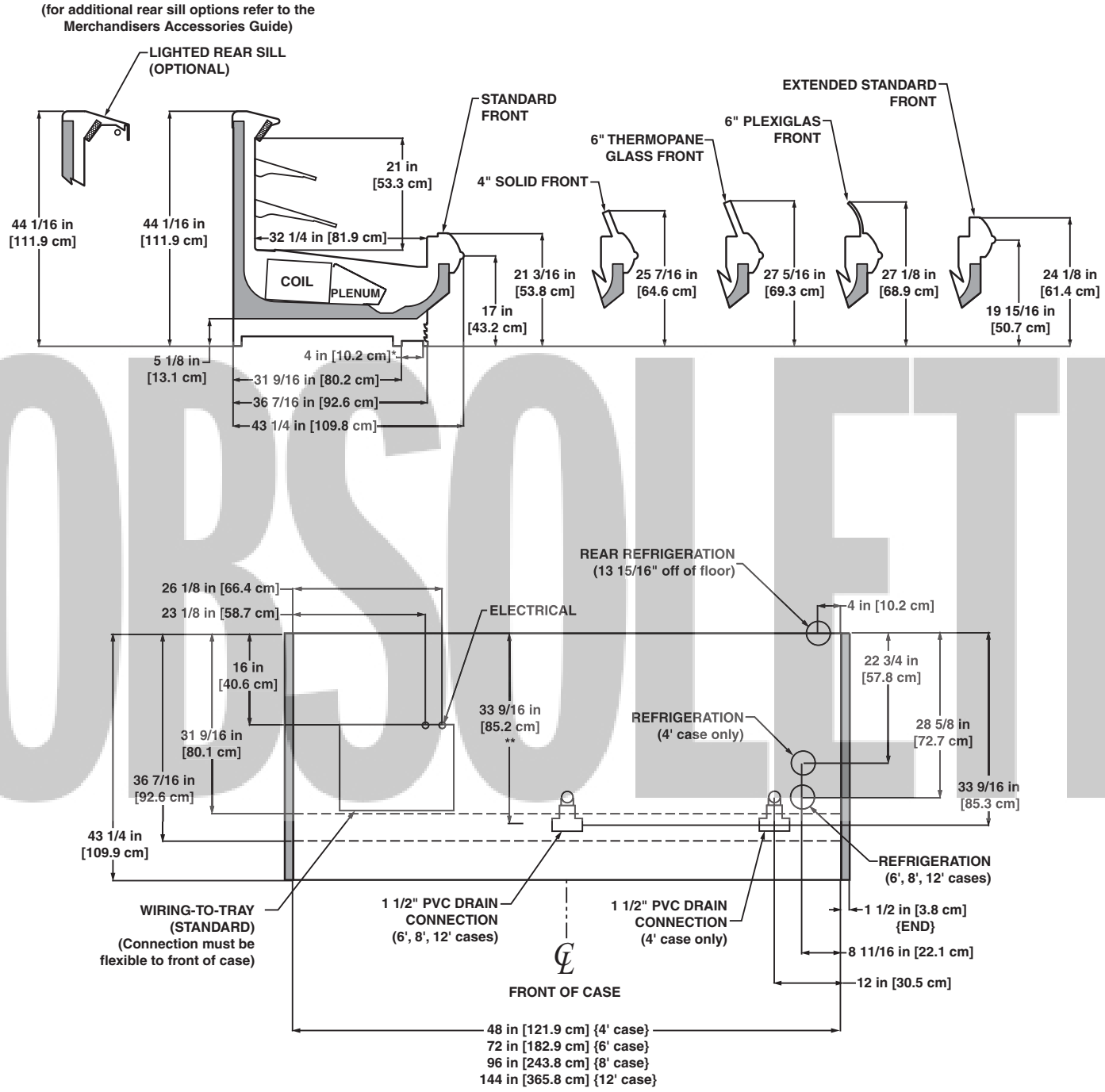
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"



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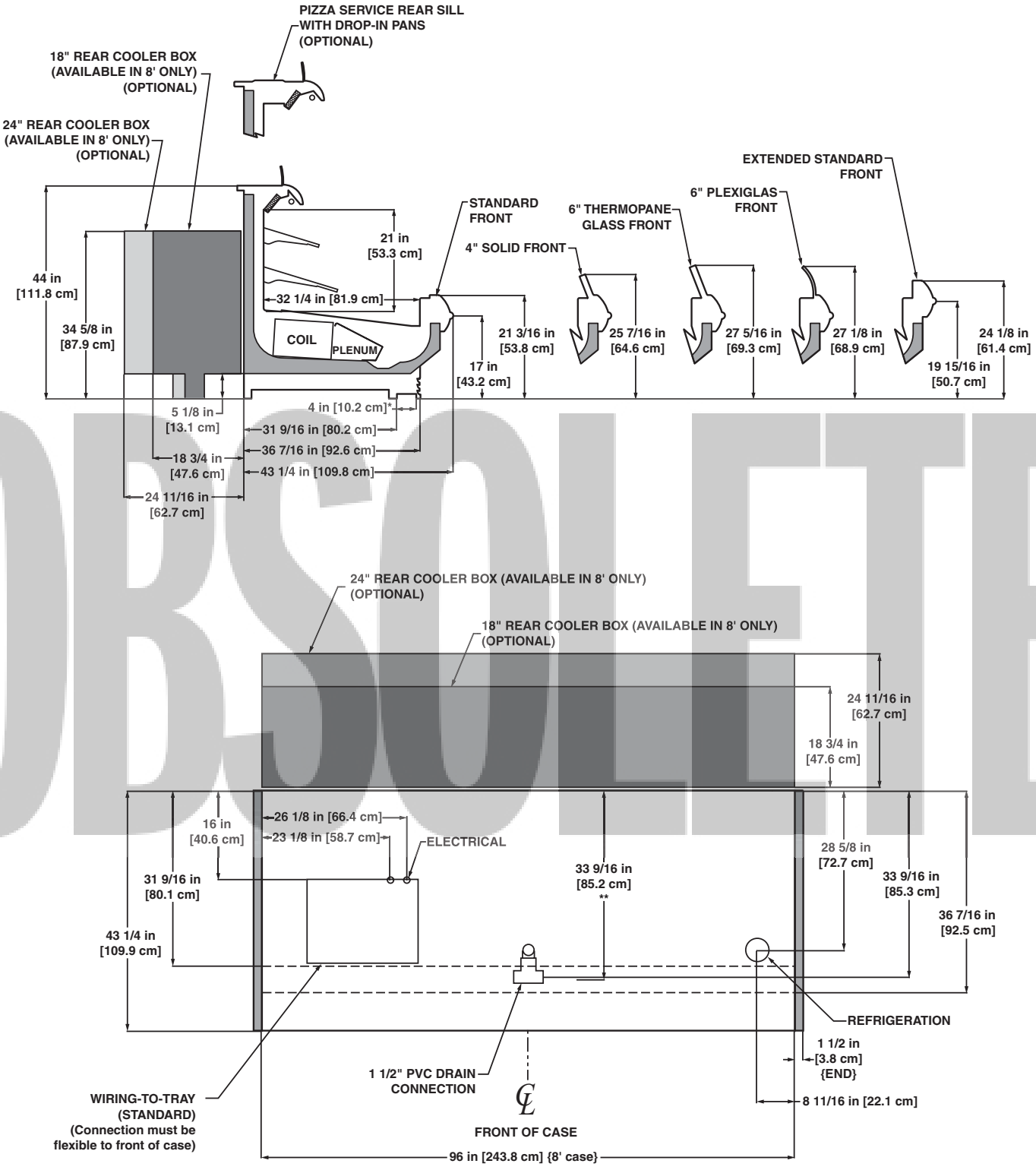

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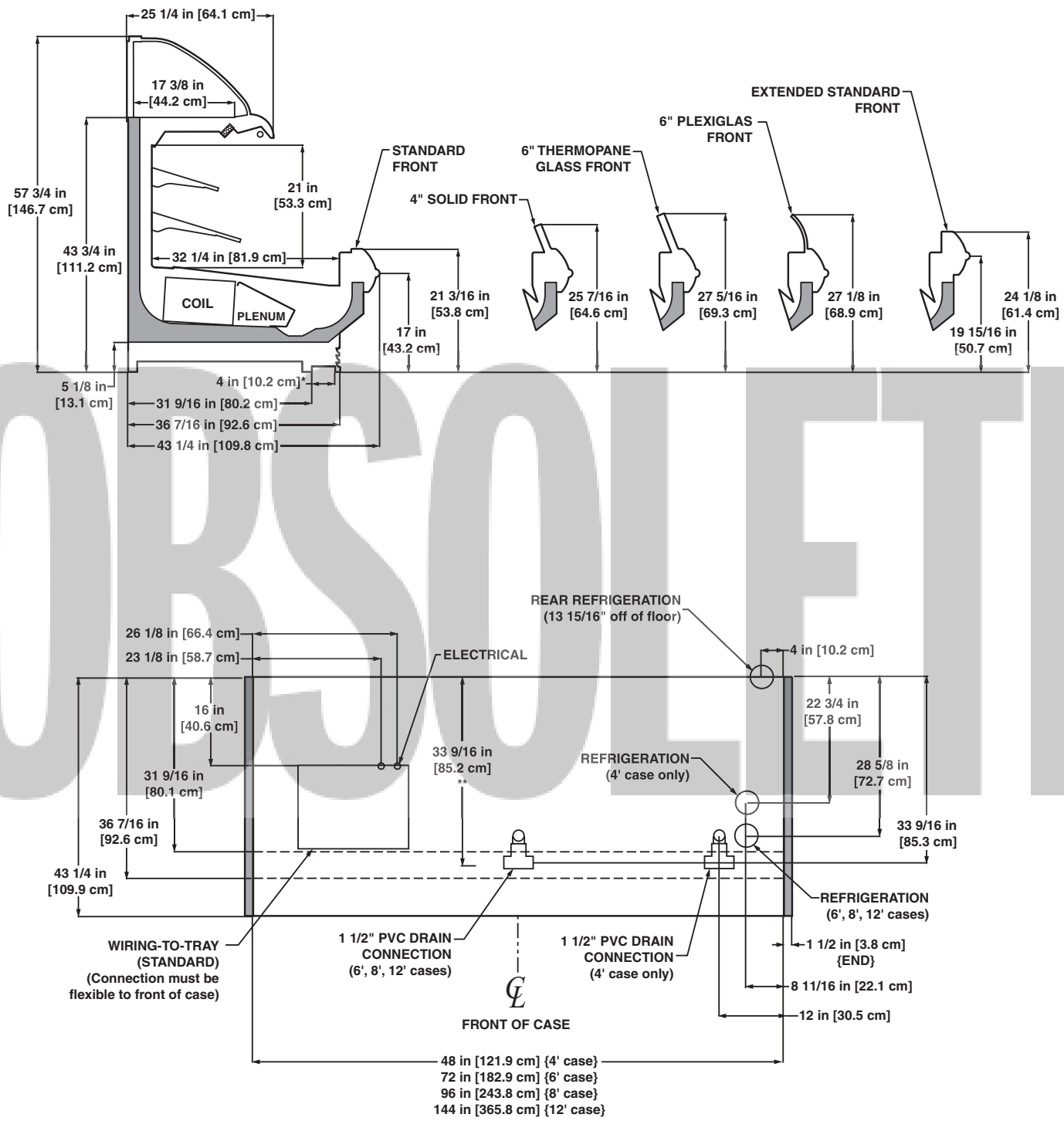

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NSF COMPONENT
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A DOVER COMPANY

Produce/Dairy/Deli/Meat/Seafood

OBSOLETE

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

O2.5UMA - 8'

System Requirements

Model	Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
O2.5UMA-8'	208	1	60	3 wire + ground	13.560	30

Electrical Data

Model	Fans per Case	Standard Fans		Condenser Fan		Anti-Condensate Heaters		Maximum Lighting		Defrost Heaters			
		120 Volts		208 Volts		120 Volts		120 Volts		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O2.5UMA-8'	3	1.50	90	0.85	85	0.25[1]	30	1.41	169	3.85	800	4.44	1065

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

OBSOLETE

Guidelines & Control Settings

Model[4]	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O2.5UMA-8'		40	6-8	29	43	225

[4] Model O2.5UMA only available for meat application with a thermopane glass front or a curved plexiglas front.

[5] 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.
O2.5UMA-8'	208	1	60	1	10.4	48.2	R22	5.25

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

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)
O2.5UMA-8'	3	6 - 8	40	47	45	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.

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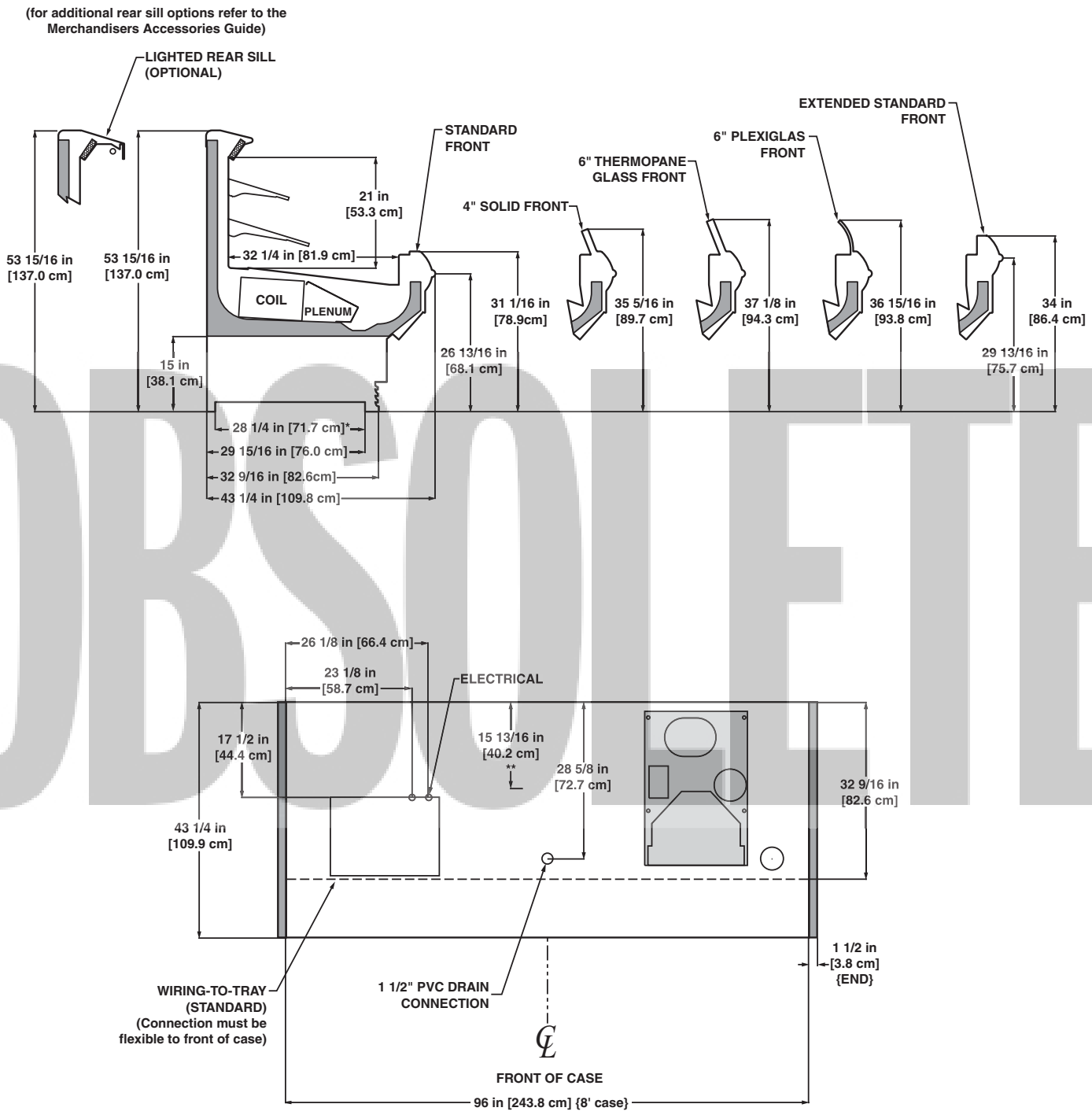

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- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"

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

O2.75UM - 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
O2.75UM	4'	2	1.00	60	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O2.75UM	4'	1	4'	0.23	28	0.93	112
	6'	2	3'	0.37	44	1.47	176
	8'	2	4'	0.47	56	1.87	224
	12'	3	4'	0.70	84	2.80	336

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O2.75UM	1025	Std.	17	6-8	27	45	225
	1025	Enh.	22	6-8	27	45	225

[2] Model O2.75UM only available for meat application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

Defrost Controls

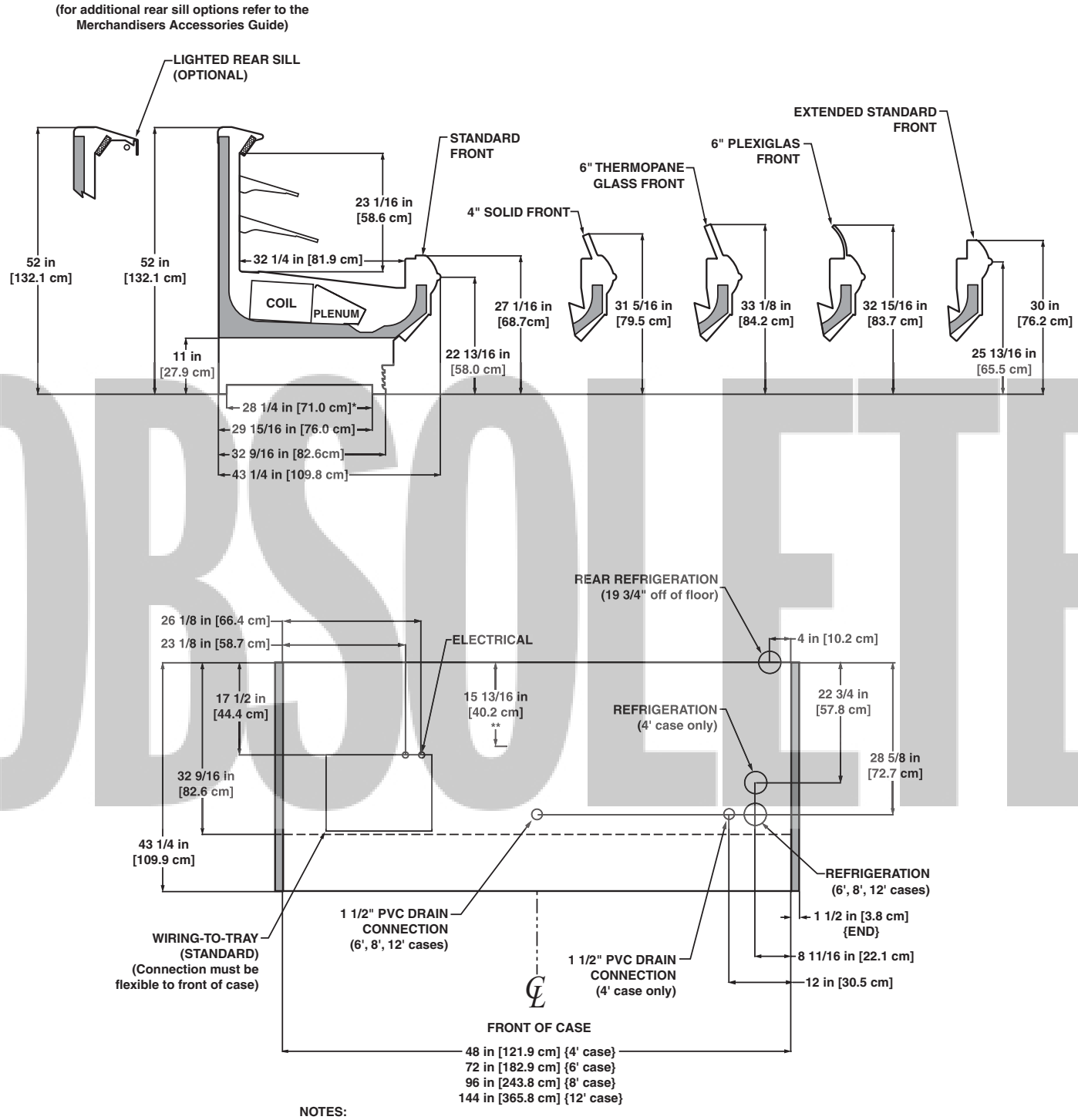
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O2.75UM	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.

O2.75UM
(11" BASEFRAME)



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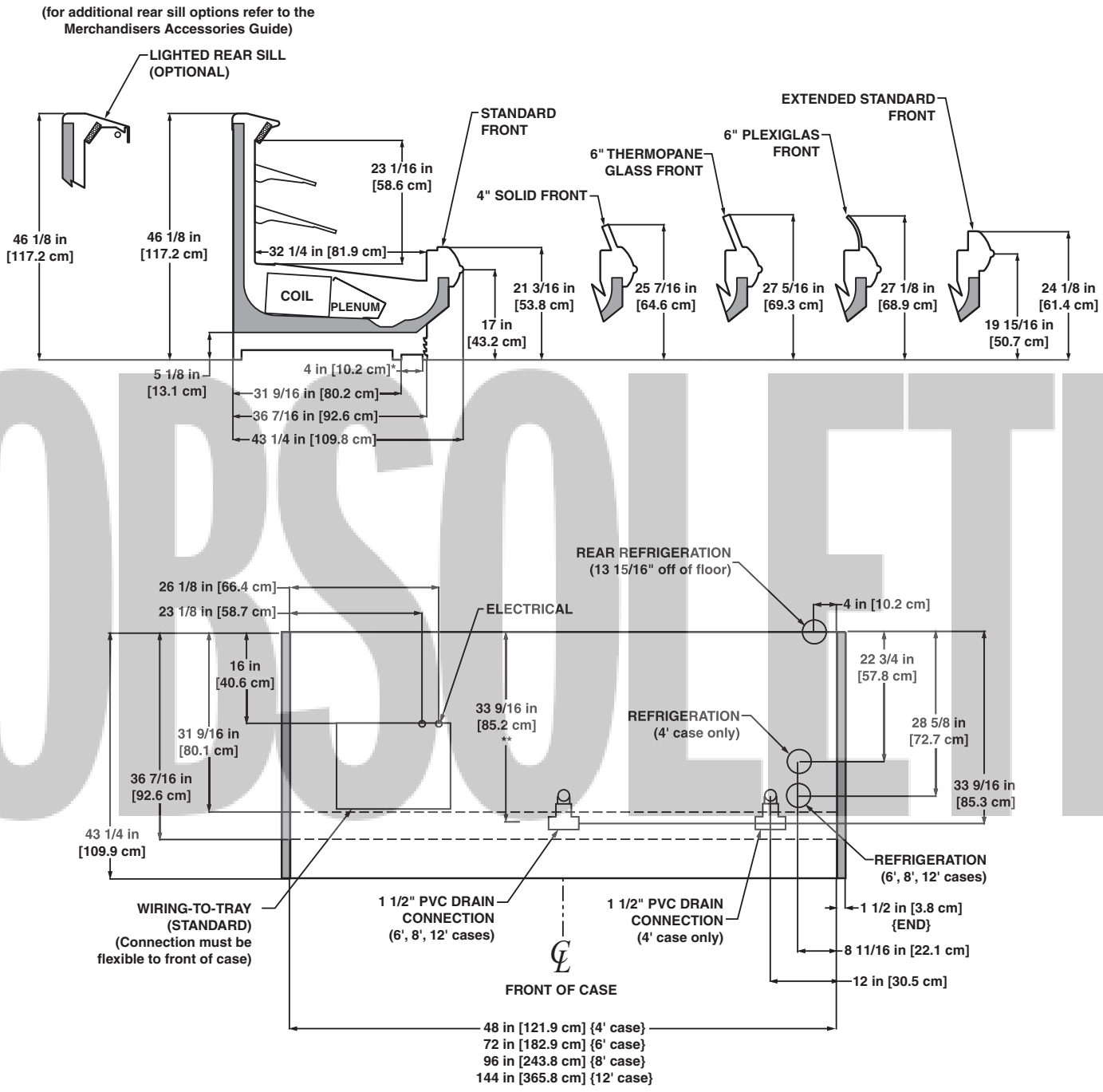

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OBSOLETE

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

ON3UM - 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
ON3UM	4'	2	1.00	60	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ON3UM	4'	1	4'	0.23	28	0.93	112
	6'	2	3'	0.37	44	1.47	176
	8'	2	4'	0.47	56	1.87	224
	12'	3	4'	0.70	84	2.80	336

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ON3UM	824	Std.	17	6-8	28	35	230
	824	Enh.	22	6-8	28	35	230

[2] Model ON3UM only available for meat application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ON3UM	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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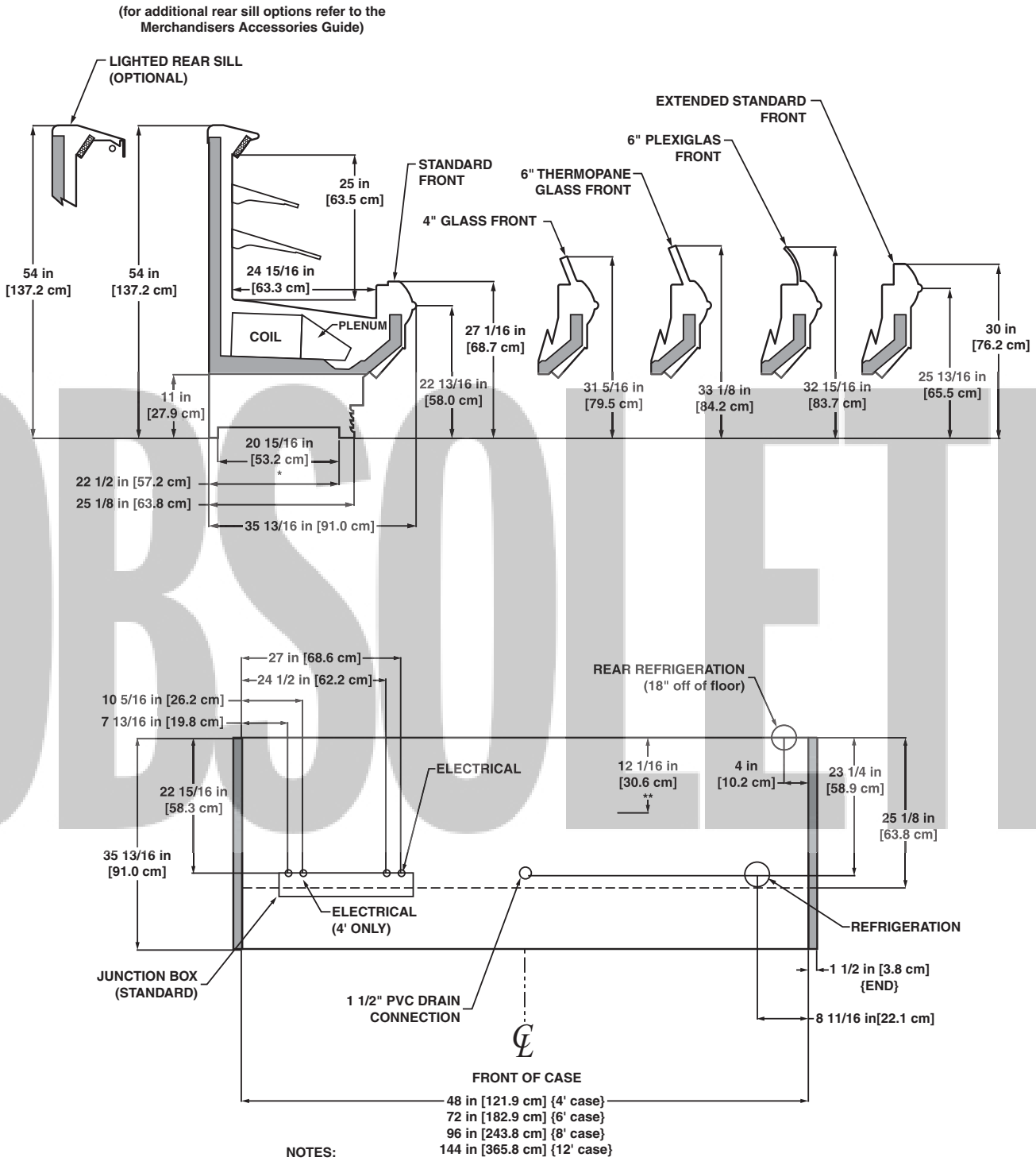

NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"

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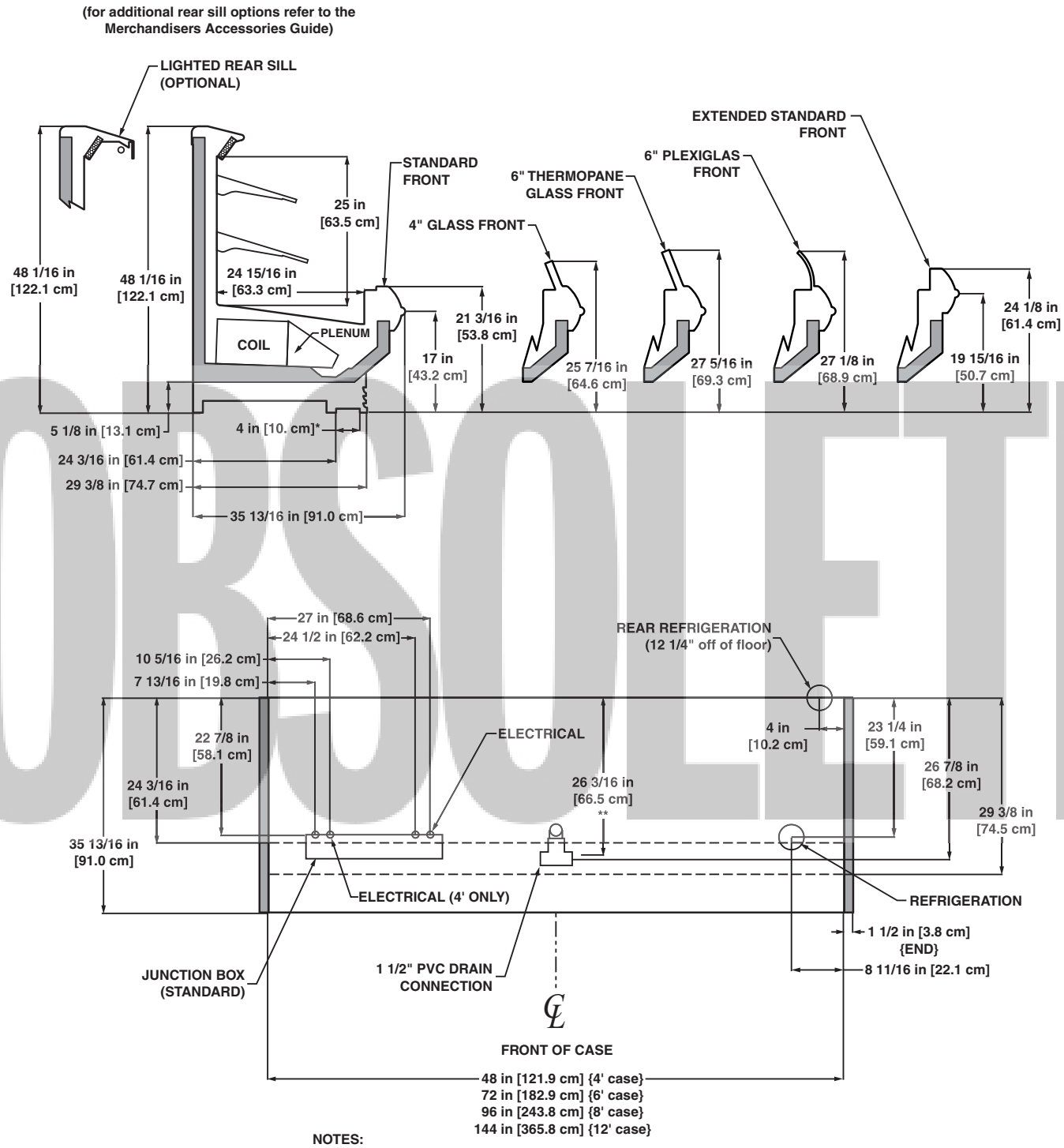
ON3UM
(5" BASEFRAME)



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- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"

OBSOLETE

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	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	0.93	112
	6'	2	3'	0.37	44	1.47	176
	8'	2	4'	0.47	56	1.87	224
	12'	3	4'	0.70	84	2.80	336

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O3UM	1030	Std.	17	6-8	27	45	225
	1030	Enh.	22	6-8	27	45	225

[2] Model O3UM only available for meat application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
O3UM	3	6 - 8	40	47	45	45	26	45	45	45

Medium Temperature Defrost Schedule

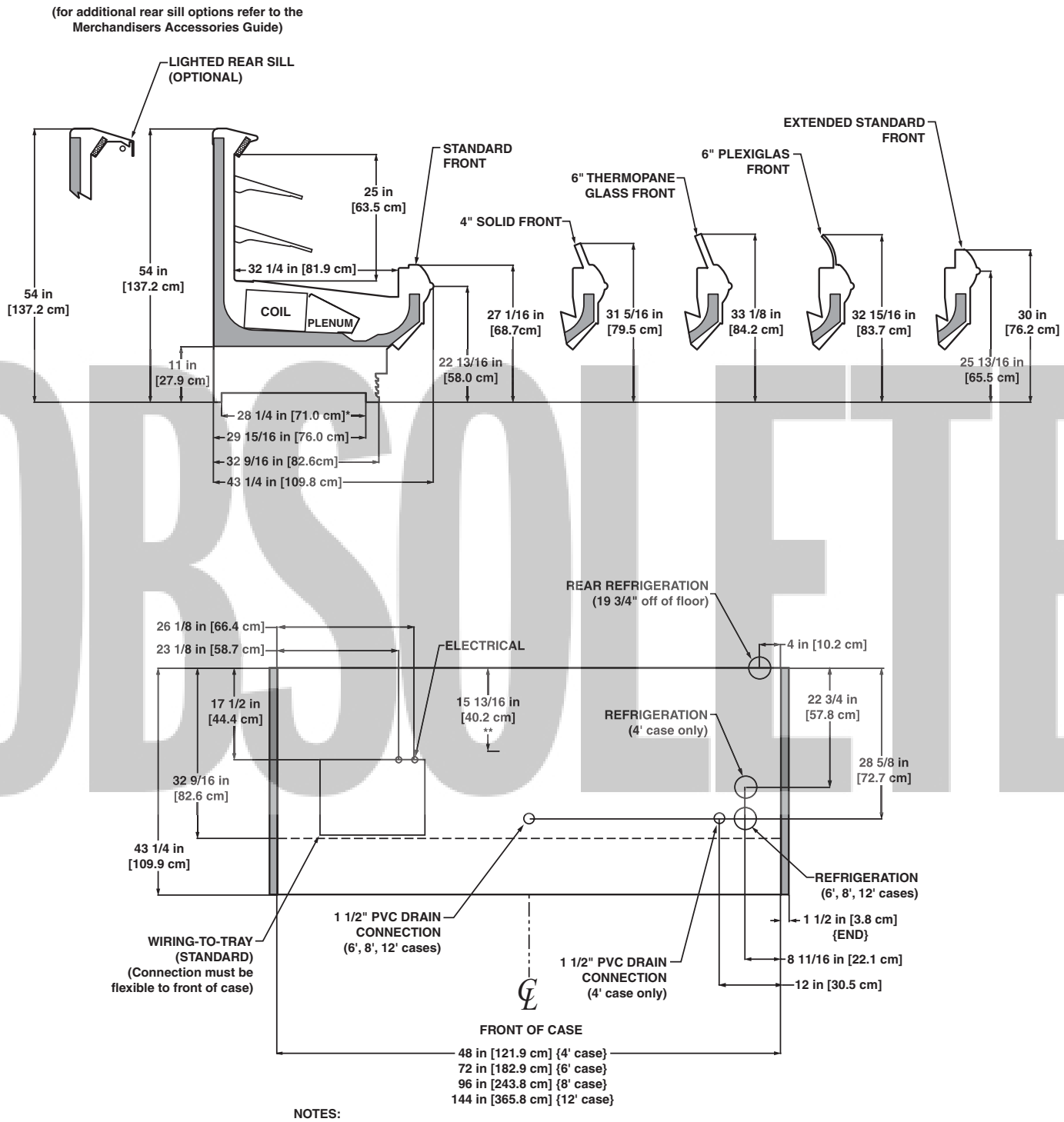
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

OBSOLETE

All measurements are taken per CRMA specifications.

O3UM
(11" BASEFRAME)

OBSOLETE



NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

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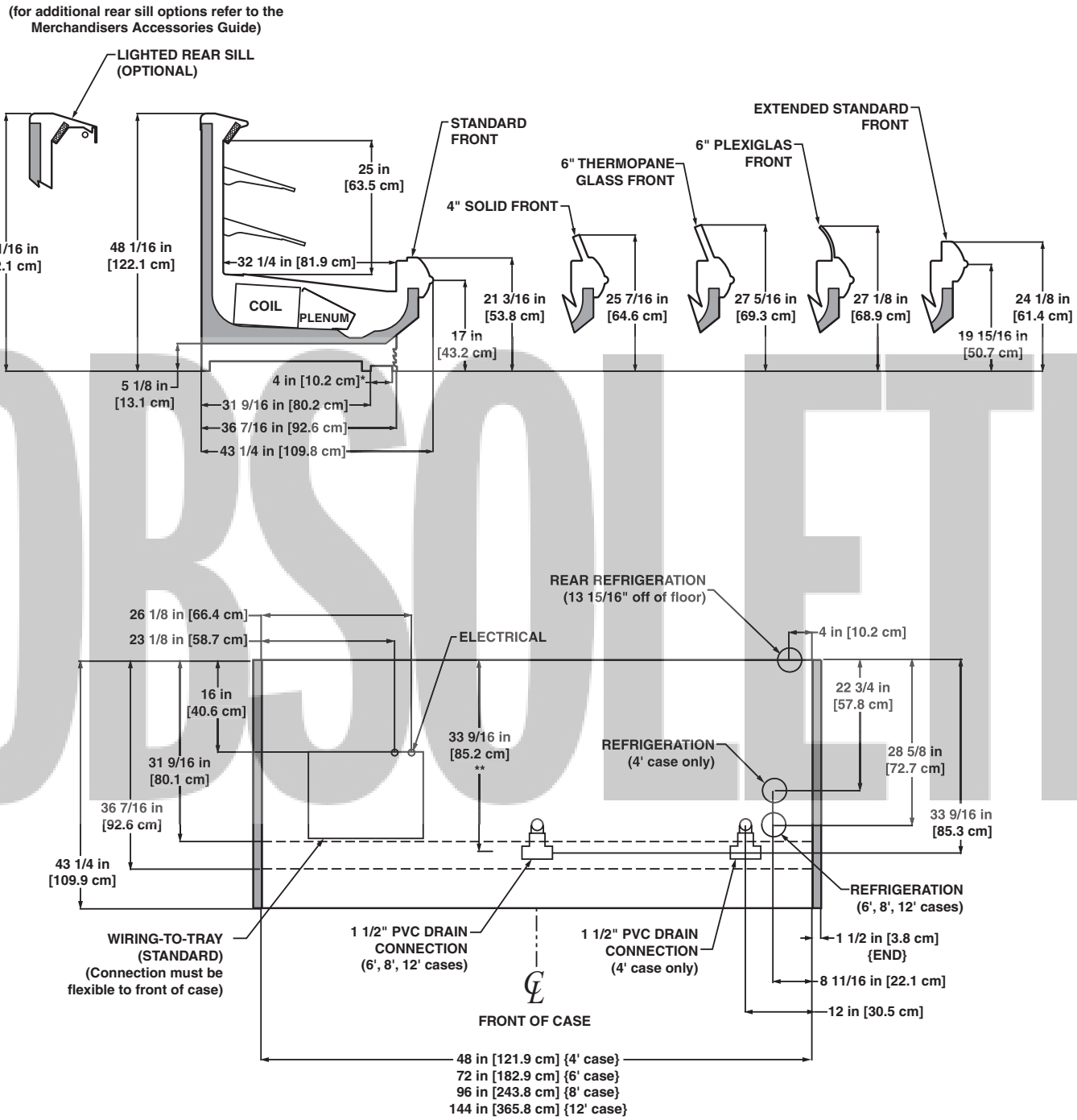
O3UM
(5" BASEFRAME)



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- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

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Wide Multi-Deck Produce/Dairy/Deli Merchandiser

OW3UM - 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
OW3UM	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OW3UM	8'	2	4'	0.47	56	1.87	224
	12'	3	4'	0.70	84	2.80	336

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OW3UM	1349	Std.	17	6-8	27	45	225
	1349	Enh.	22	6-8	27	45	225

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

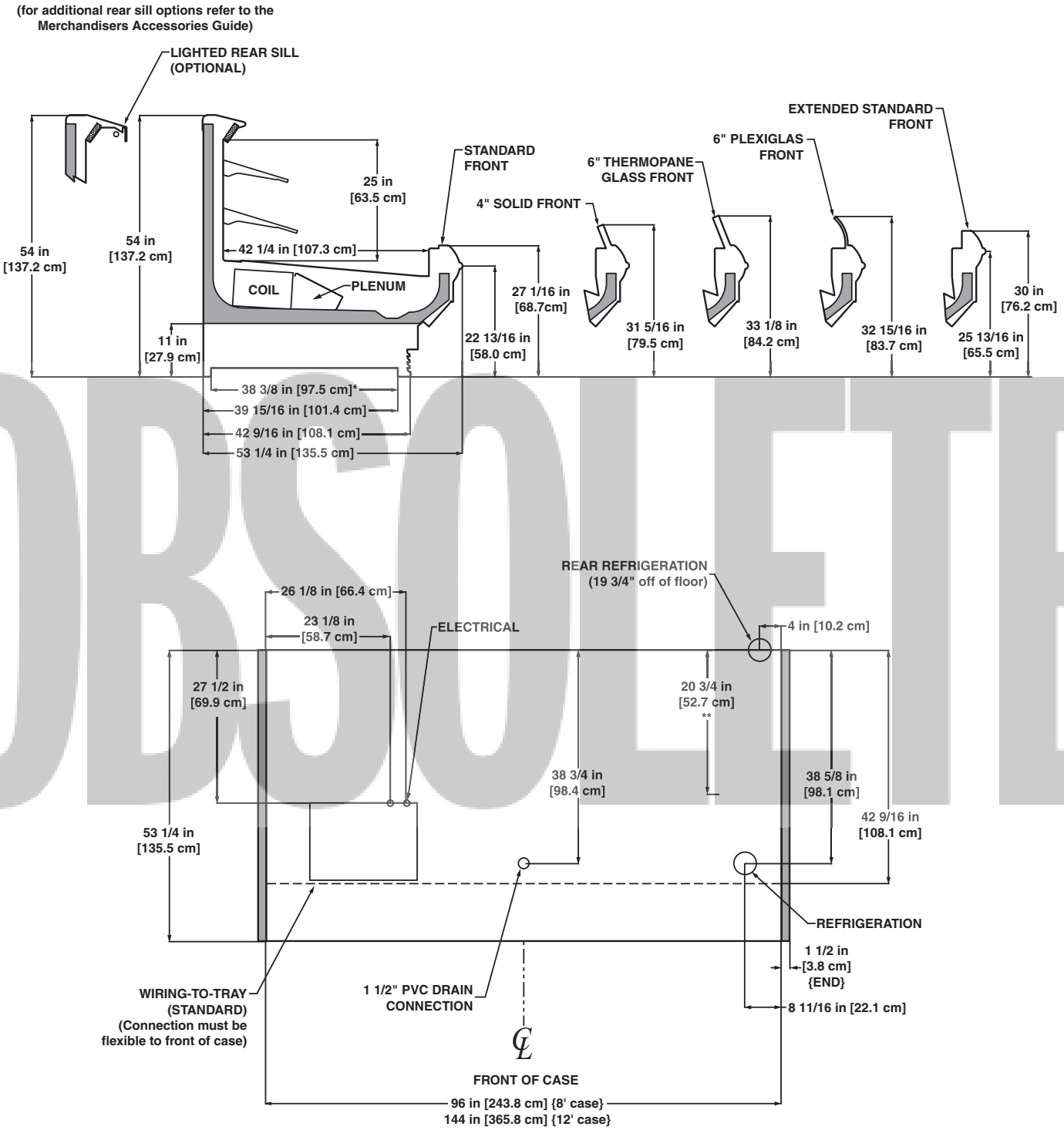
Defrost Controls

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)
OW3UM	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.



NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

OBSOLETE

Multi-Deck Produce/Dairy/Deli Merchandiser

O3UD - 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
O3UD	4'	2	1.00	60	0.15	9.2	0.14	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	0.38	46	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3UD	4'	1	4'	0.23	28	0.70	84
	6'	2	3'	0.37	44	1.10	132
	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

OBSOLETE

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O3UD	Std. Dairy	1030	Std.	17	6-8	30	45	225
	Std. Dairy	1030	Enh.	22	6-8	30	45	225

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
O3UD	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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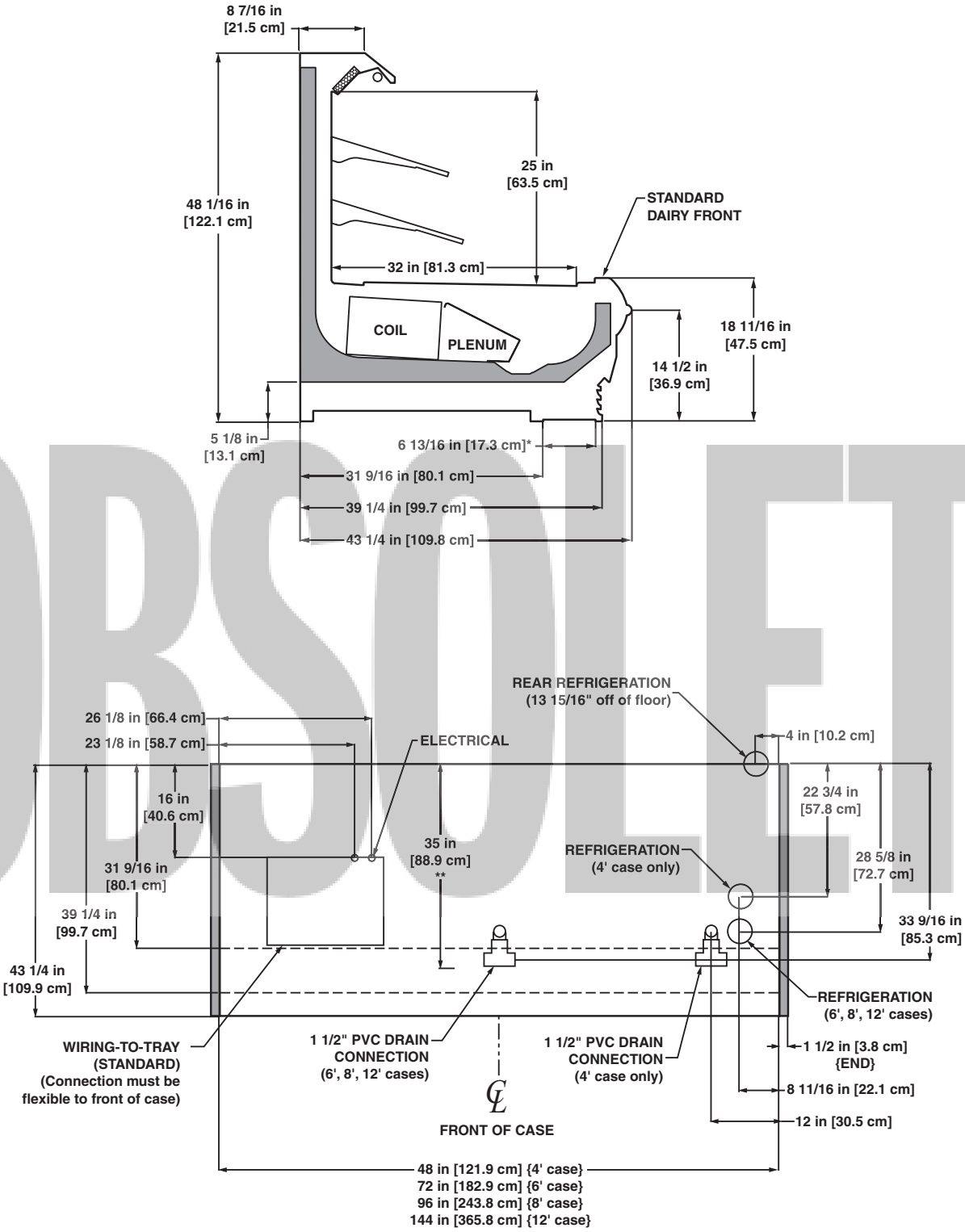
A DOVER COMPANY



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NOTES:

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

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- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

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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	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	1.67	140
	6'	2	3'	0.37	44	1.83	220
	8'	2	4'	0.47	56	2.33	280
	12'	3	4'	0.70	84	3.50	420

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ON3.5UM	1019	Std.	17	6-8	28	35	204
	1019	Enh.	22	6-8	28	35	204

[2] Model ON3.5UM only available for meat application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
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.

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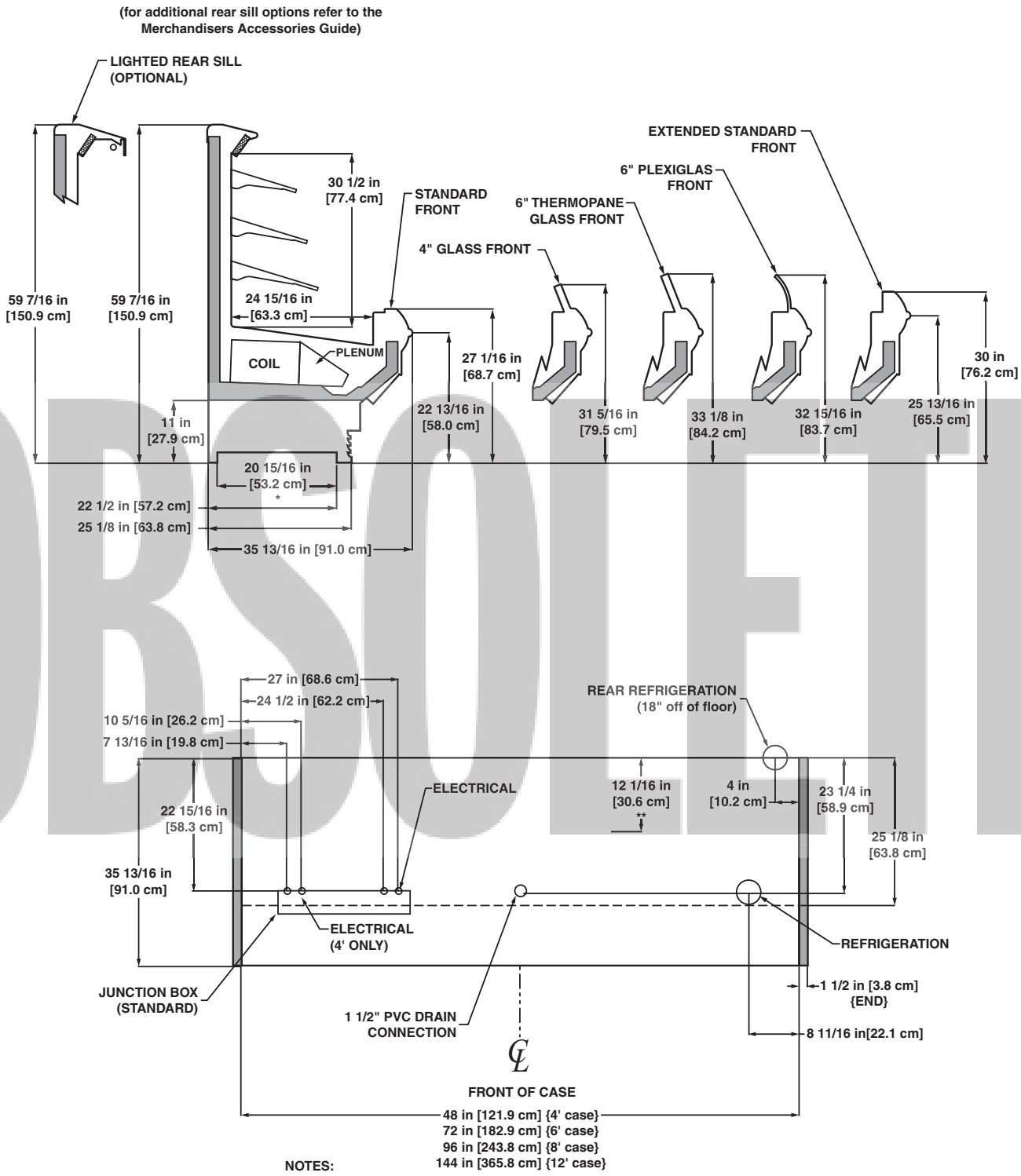

NOTES:

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

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- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"

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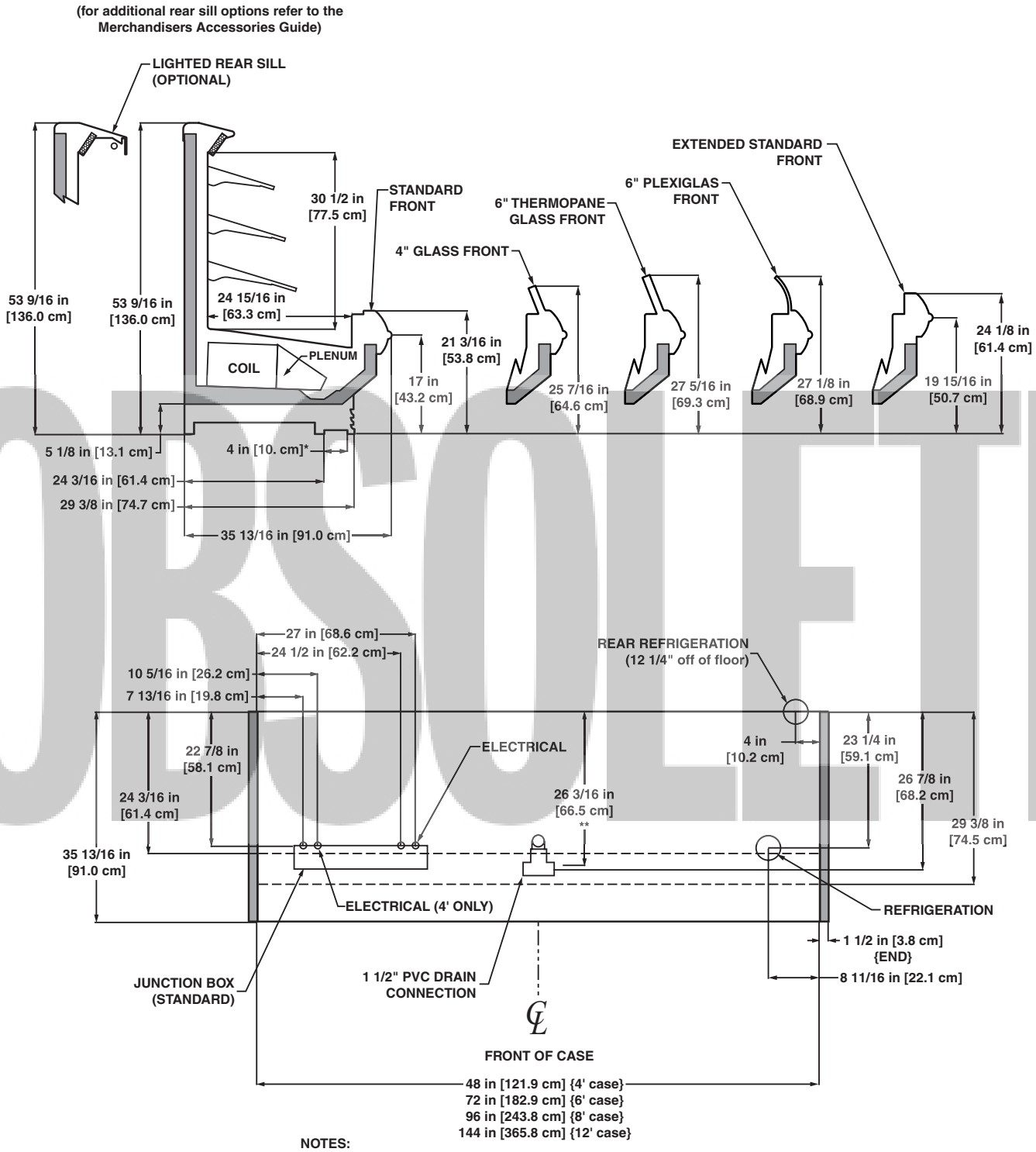

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Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser

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	0.39	23.4	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.39	23.4	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.59	35.1	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.78	46.8	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		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	1.67	140
	6'	2	3'	0.37	44	1.83	220
	8'	2	4'	0.47	56	2.33	280
	12'	3	4'	0.70	84	3.50	420

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O3.5UM	1300	Std.	17	6-8	30	45	300
	1300	Enh.	22	6-8	30	45	300

[2] Model O3.5UM only available for meat application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
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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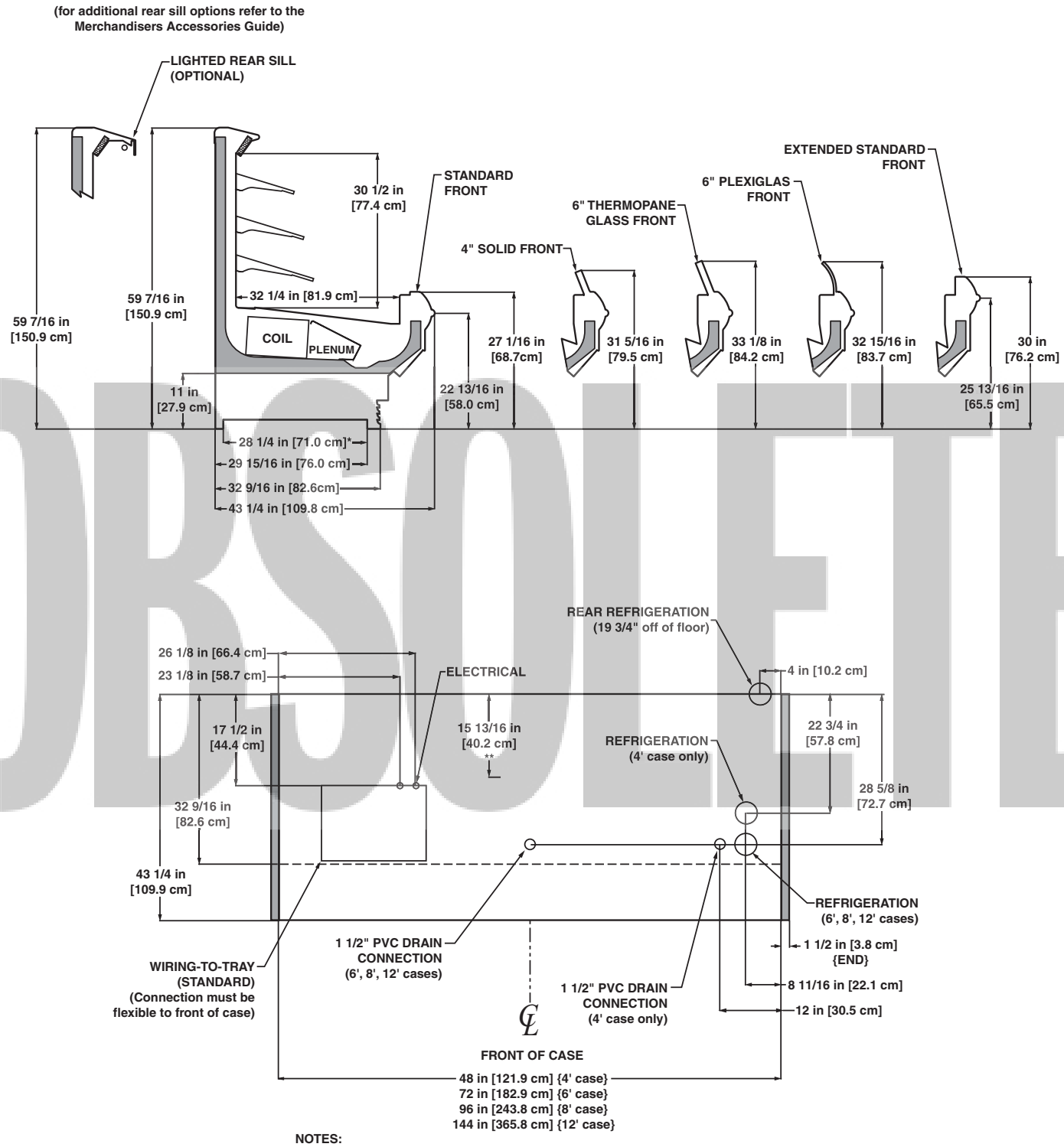

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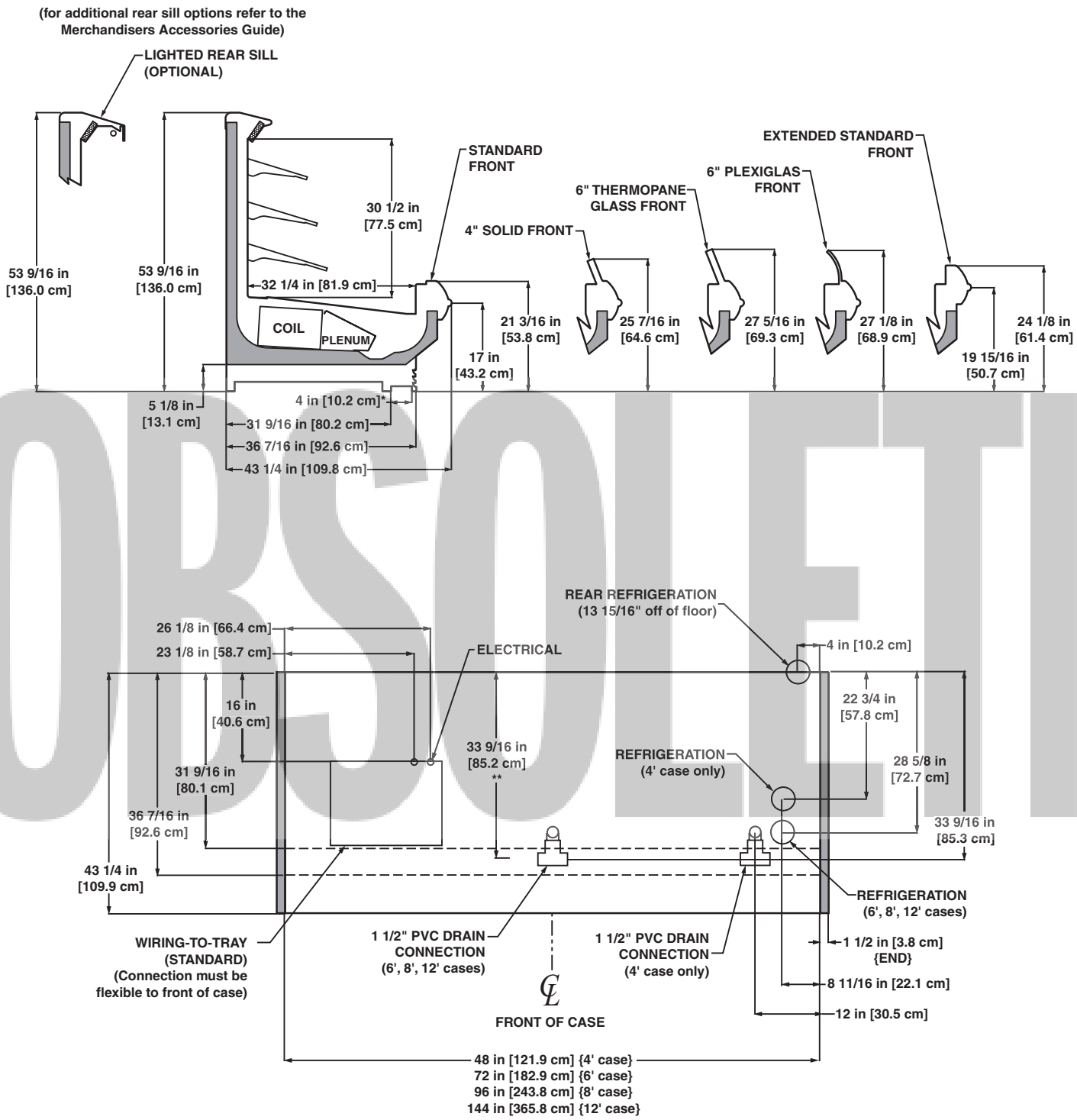
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

NSF COMPONENT c UL us

A DOVER COMPANY

O3.5UM
(5" BASEFRAME)



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NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

NSF COMPONENT c UL us

A DOVER COMPANY

OBSOLETE

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	0.15	9.2	0.14	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	0.38	46	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	0.93	112
	6'	2	3'	0.37	44	1.47	176
	8'	2	4'	0.47	56	1.87	224
	12'	3	4'	0.70	84	2.80	336

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O3.5UD	Std. Dairy	1300	Std.	17	6-8	30	45	300
	Std. Dairy	1300	Enh.	22	6-8	30	45	300

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
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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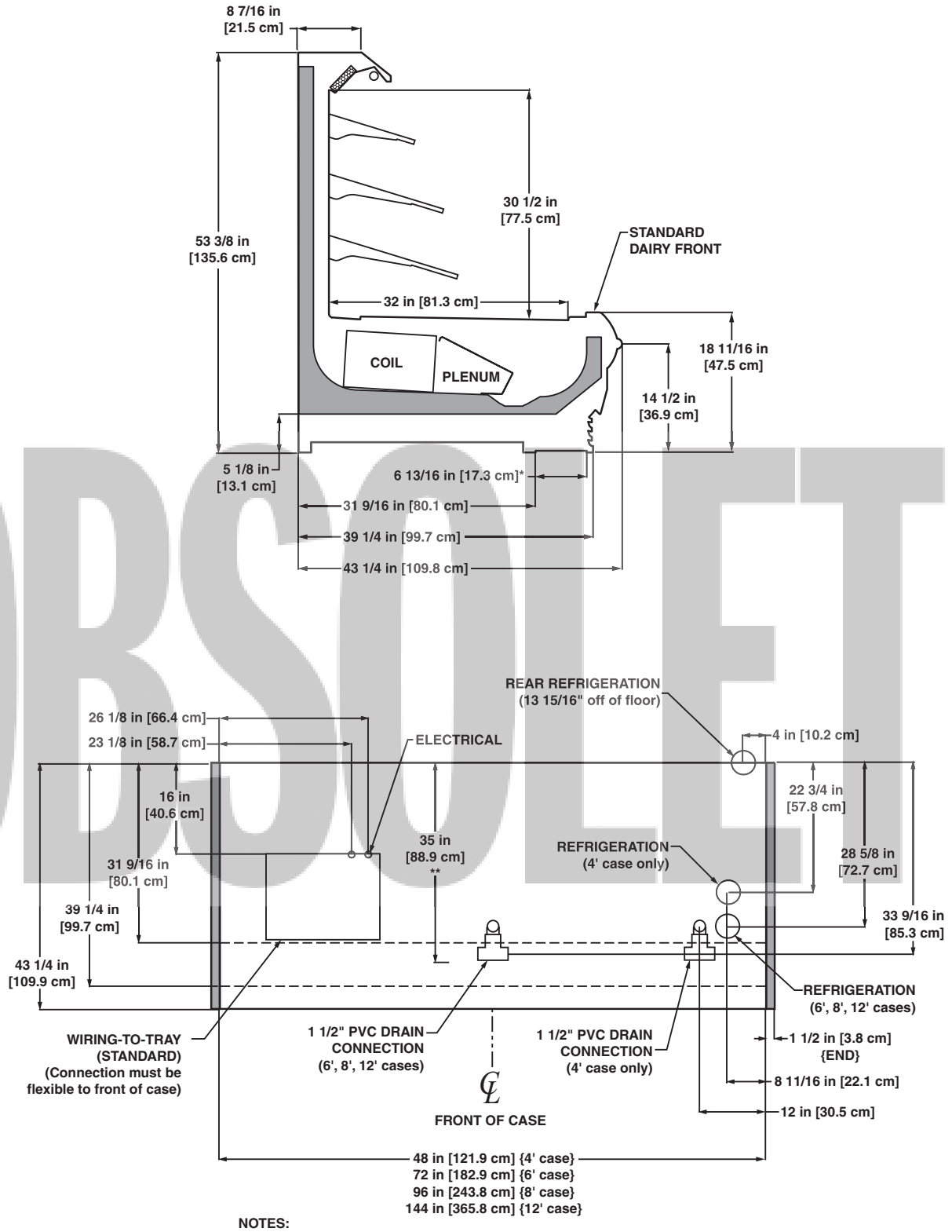

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- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

OBSOLETE

Narrow Multi-Deck Produce/Dairy/Deli Merchandiser

ON4UM - 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
ON4UM	4'	2	1.00	60	0.15	9.2	0.14[1]	17	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.23	13.8	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.31	18.4	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ON4UM	4'	1	4'	0.23	28	1.67	140
	6'	2	3'	0.37	44	1.83	220
	8'	2	4'	0.47	56	2.33	280
	12'	3	4'	0.70	84	3.50	420

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ON4UM	1135	Std.	17	6-8	31	33	203
	1135	Enh.	22	6-8	31	33	203

[2] Model ON4UM only available for deli application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ON4UM	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.

NSF COMPONENT

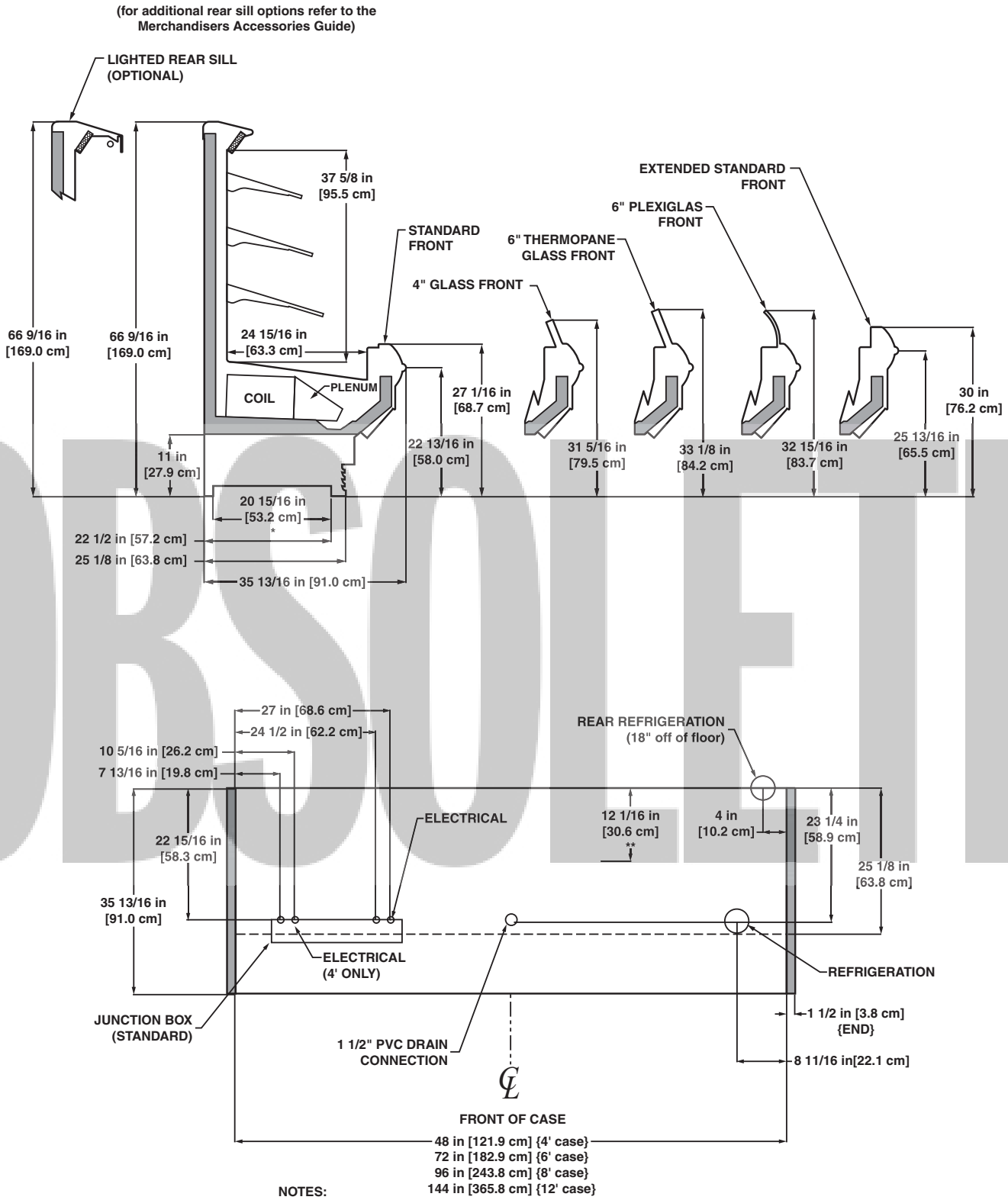
c UL us

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

ON4UM
(11" BASEFRAME)

OBSOLETE



NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
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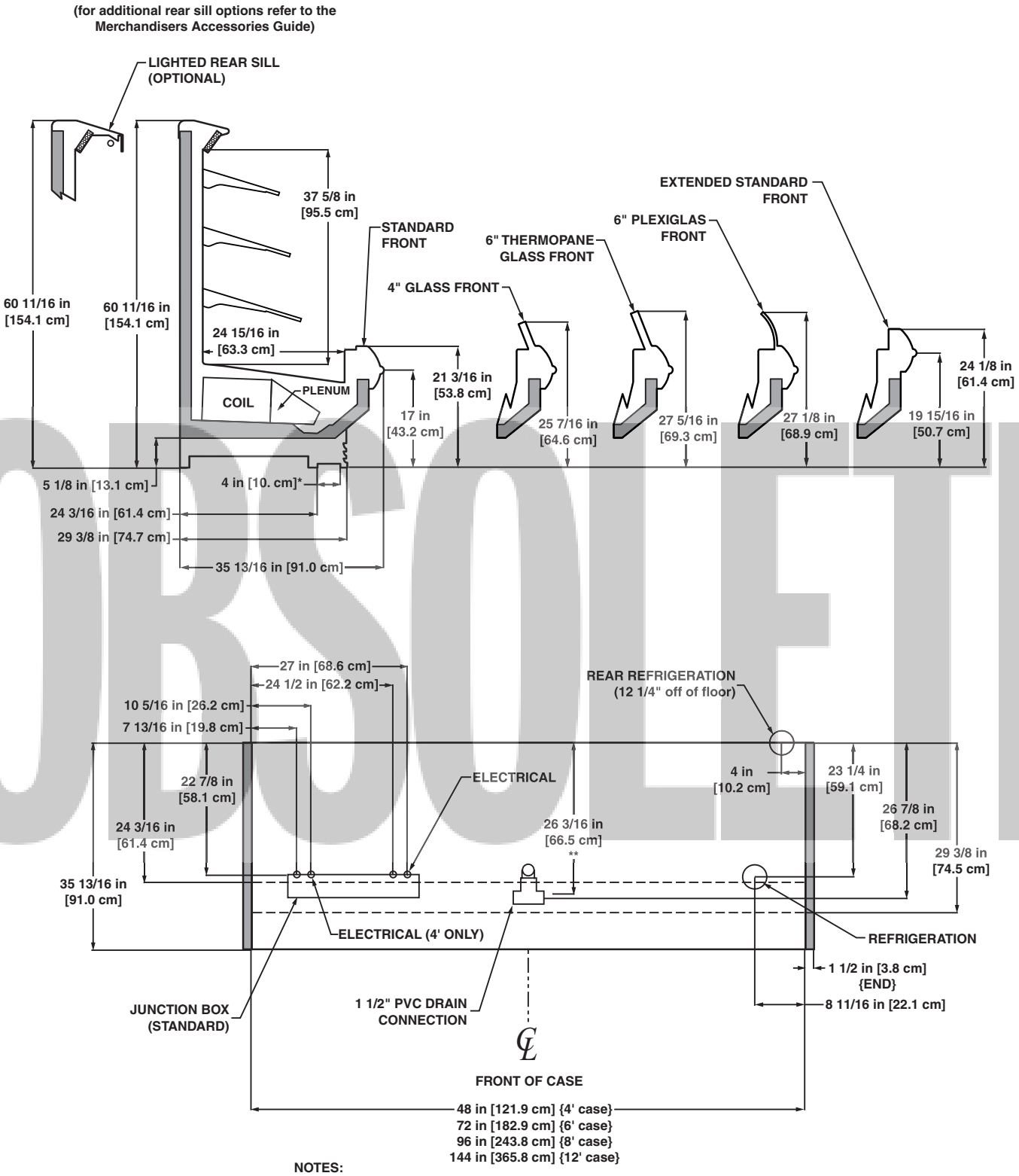
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"

NSF COMPONENT
c UL us

A DOVER COMPANY

OBSOLETE



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NSF COMPONENT
c UL us
A DOVER COMPANY

OBSOLETE

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	0.39	23.4	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.59	35.1	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.78	46.8	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		Bulbs per Row	Bulb Length	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'	2	3'	0.37	44	1.83	220
	8'	2	4'	0.47	56	2.33	280
	12'	3	4'	0.70	84	3.50	420

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O4UM	1460	Std.	17	6-8	30	43	300
	1460	Enh.	22	6-8	30	43	300

[2] Model O4UM only available for deli application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
O4UM	4	6 - 8	40	47	45	45	26	45	45	45

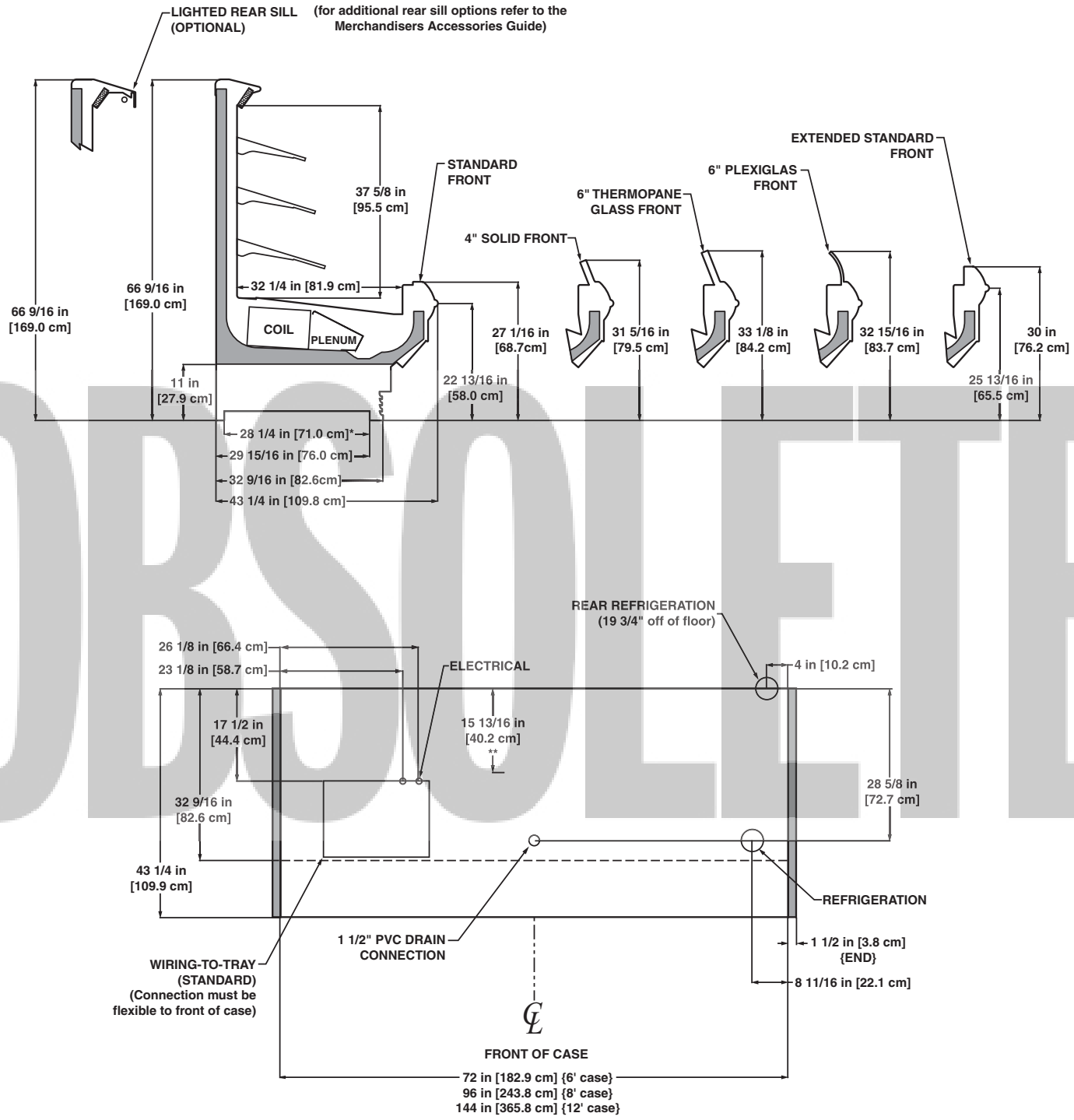
Medium Temperature Defrost Schedule

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.

OBSOLETE

O4UM
(11" BASEFRAME)



OBSOLETE

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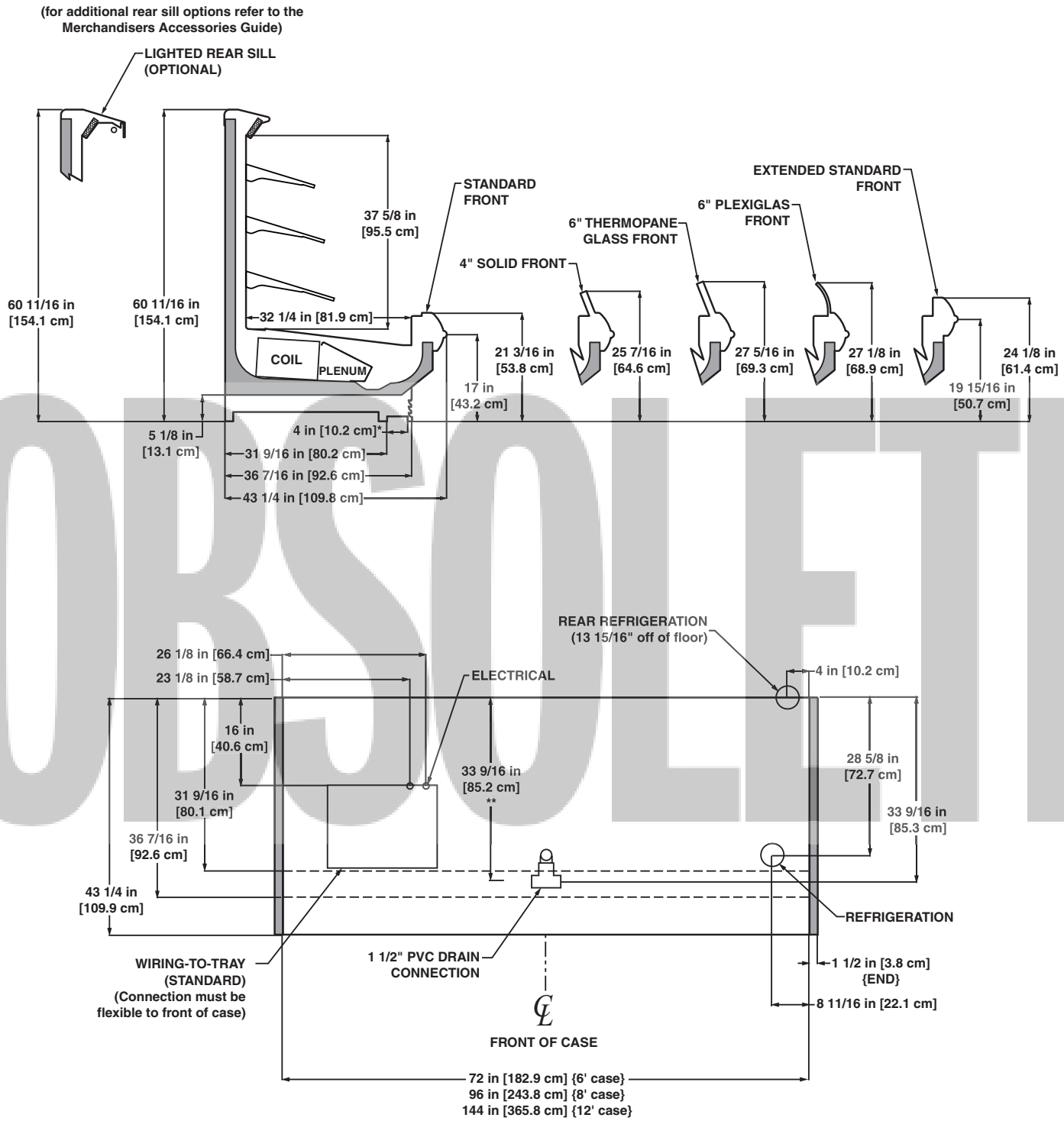
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

O4UM
(5" BASEFRAME)



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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	0.39	23.4	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.59	35.1	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.78	46.8	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		Bulbs per Row	Bulb Length	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'	2	3'	0.37	44	2.20	264
	8'	2	4'	0.47	56	2.80	336
	12'	3	4'	0.70	84	4.20	504

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O5UM	1490	Std.	17	6-8	30	42	300
	1490	Enh.	22	6-8	30	42	300

[2] Model O5UM only available for deli application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
O5UM	4	6 - 8	40	47	- - -[6]	- - -	26	45	45	45

[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

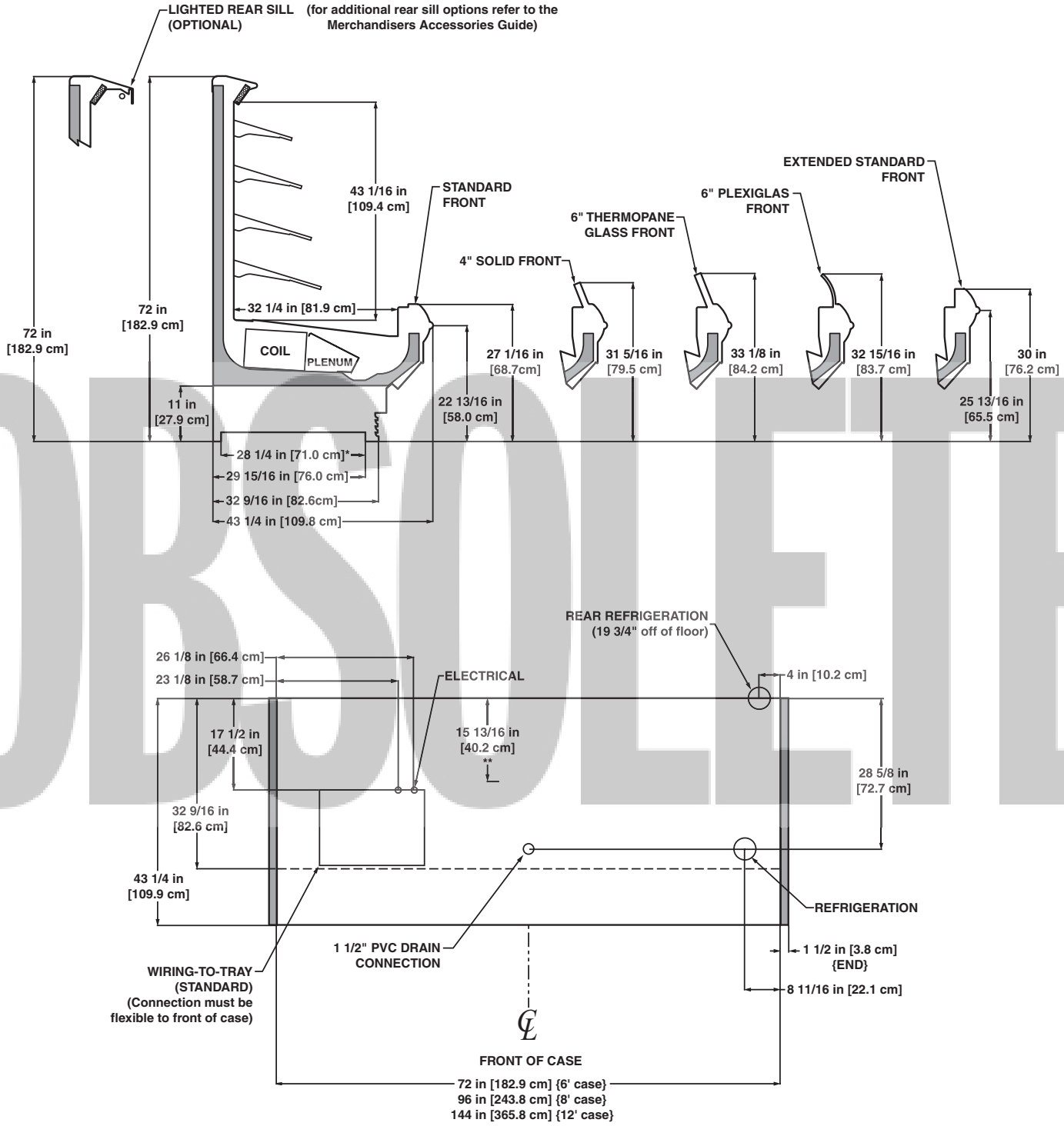
All measurements are taken per CRMA specifications.

NSF COMPONENT c UL us

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

O5UM
(11" BASEFRAME)



OBSOLETE

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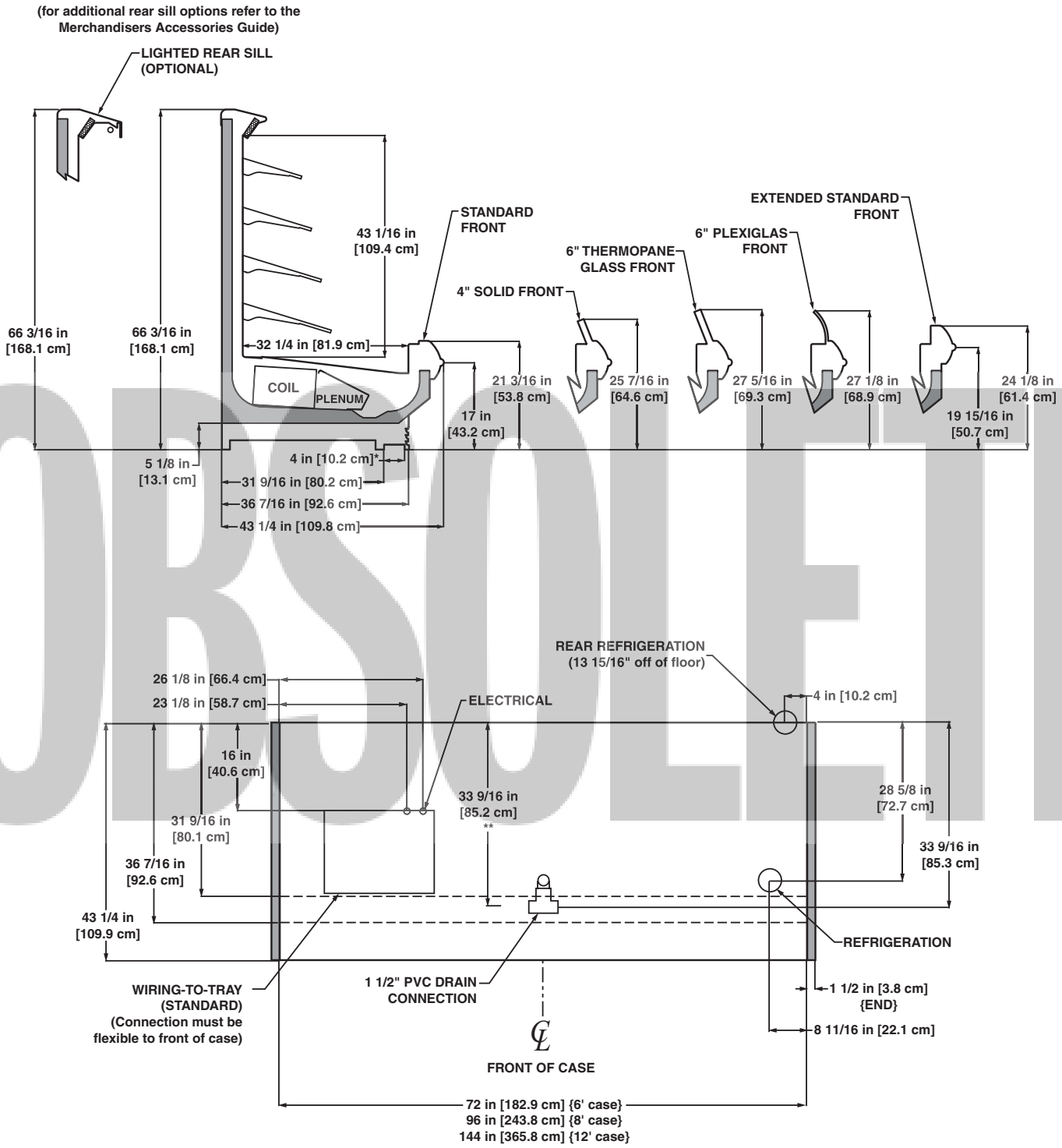
NSF COMPONENT
c UL us
A DOVER COMPANY

O5UM
(5" BASEFRAME)



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NSF COMPONENT
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OBSOLETE

Narrow Multi-Deck Produce/Dairy/Deli Merchandiser

ON6UM - 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
ON6UM	8'	3	1.50	90	0.70	42	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.93	56	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ON6UM	8'	2	4'	0.47	56	3.27	392
	12'	3	4'	0.70	84	4.90	588

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ON6UM	1092	Std.	17	6-8	28	40	300
	1092	Enh.	22	6-8	28	40	300

[2] Model ON6UM only available for deli application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ON6UM	4	6 - 8	35	48	- - - [6]	- - -	26	45	- - -	- - -

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

Medium Temperature Defrost Schedule

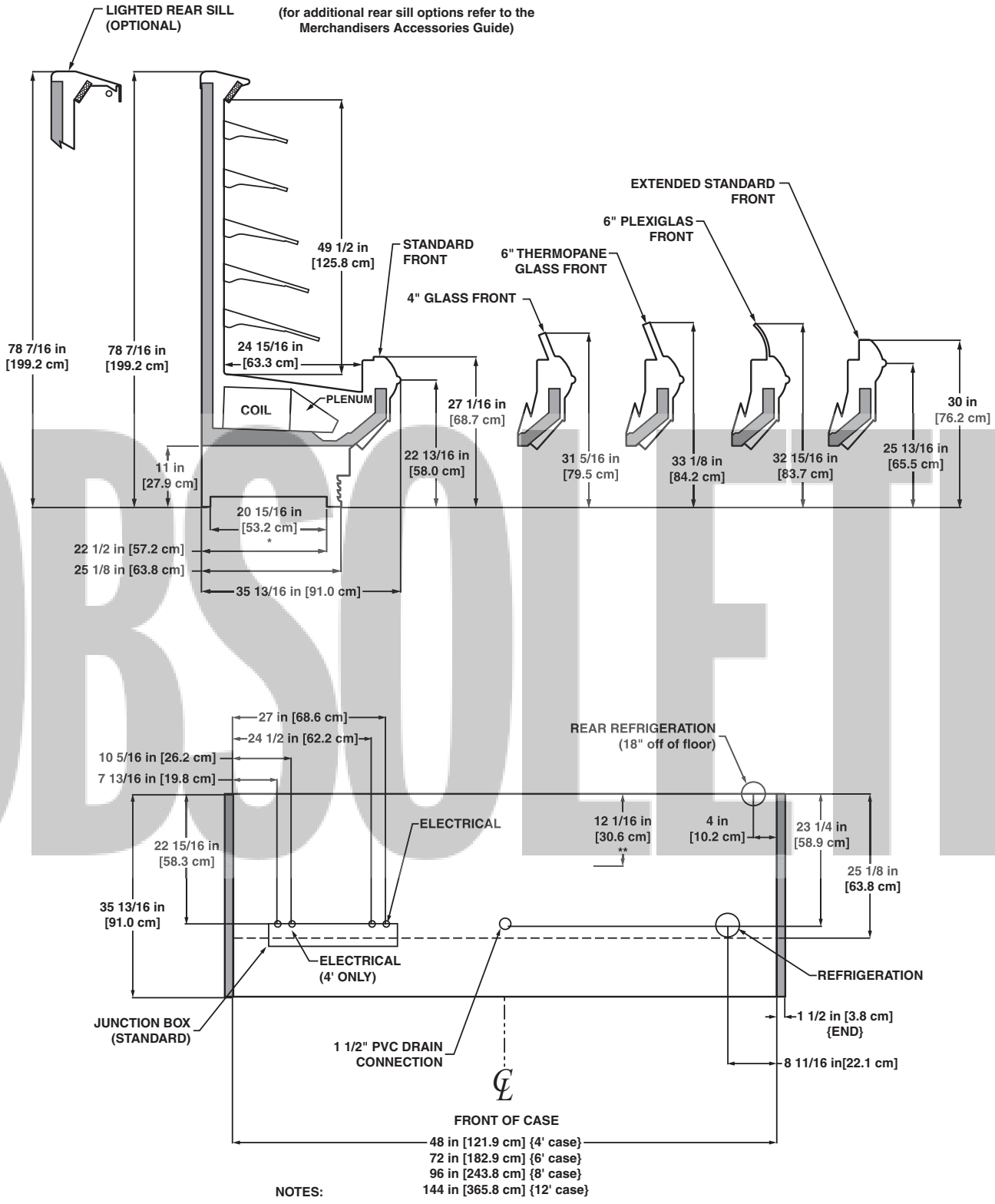
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

Hill PHOENIX EXCELLENCE

A DOVER™ COMPANY

ON6UM
(11" BASEFRAME)



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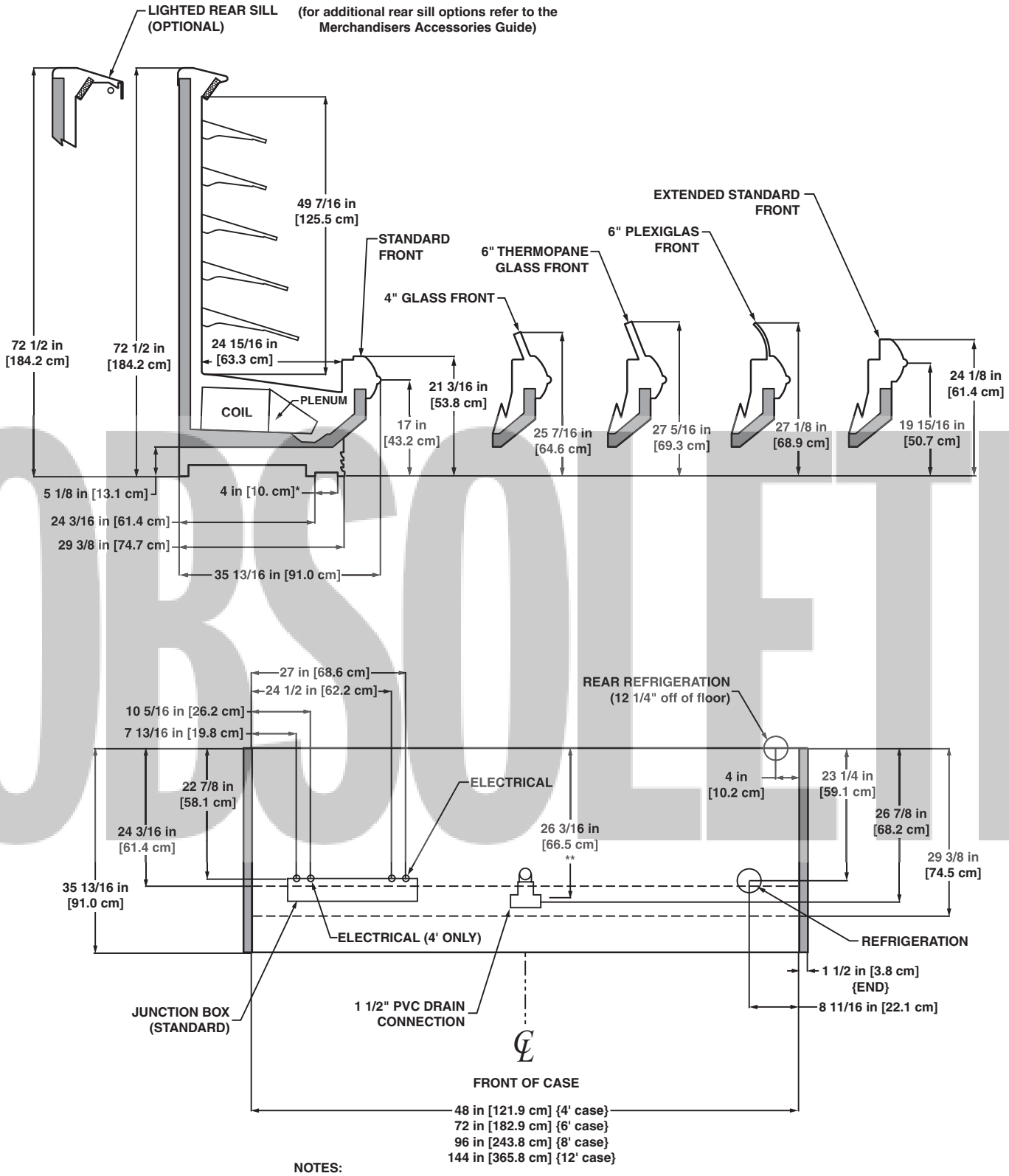
OBSOLETE

ON6UM
(5" BASEFRAME)



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OBSOLETE

OBSOLETE

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	0.31	18.4	0.20[1]	24	2.88	600	3.33	798
	8'	3	1.50	90	0.46	27.6	0.25[1]	30	3.85	800	4.44	1065
	12'	4	2.00	120	0.61	36.8	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		Bulbs per Row	Bulb Length	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'	2	3'	0.37	44	2.57	308
	8'	2	4'	0.47	56	3.27	392
	12'	3	4'	0.70	84	4.90	588

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Coil[4] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O6UM	1405	Std.	17	6-8	29	41	300
	1405	Enh.	22	6-8	29	41	300

[2] Model O6UM only available for deli application with a thermopane glass front or a curved plexiglas front.

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

[4] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
O6UM	4	6 - 8	35	48	- - - [6]	- - -	26	45	- - -	- - -

[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.

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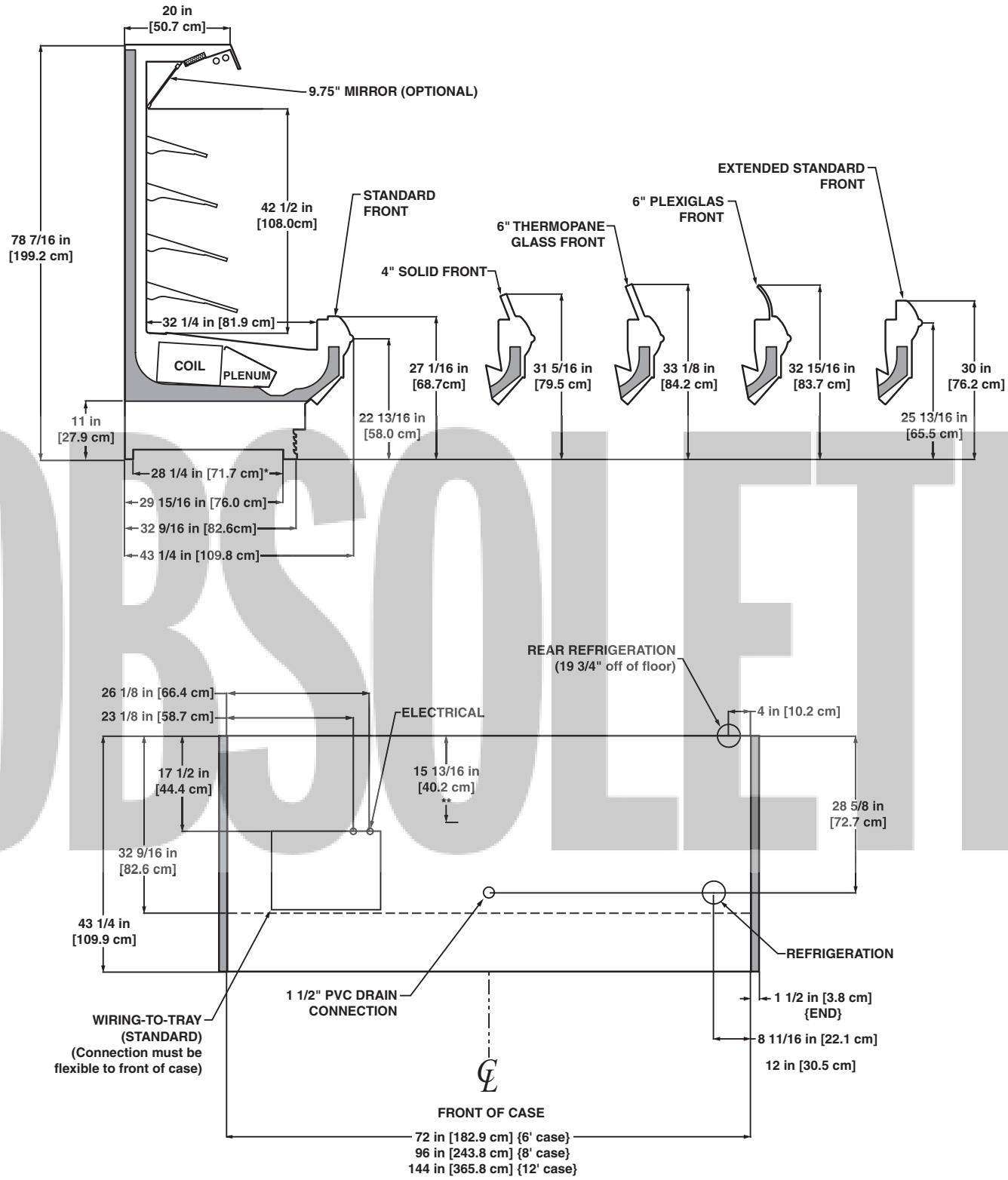
Hill PHOENIX EXCELLENCE

A DOVER COMPANY

O6UM
(11" BASEFRAME)



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NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

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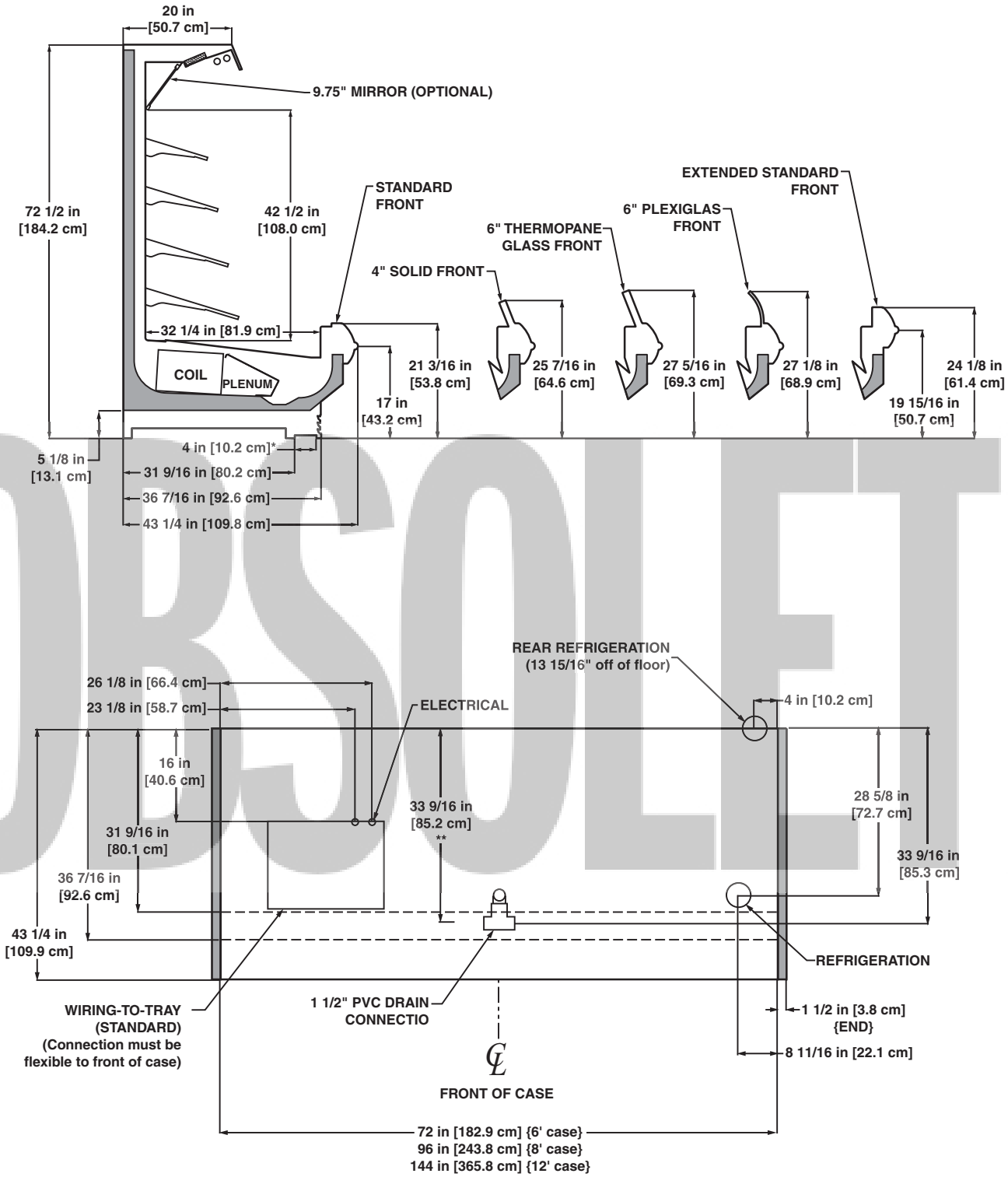

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NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
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- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

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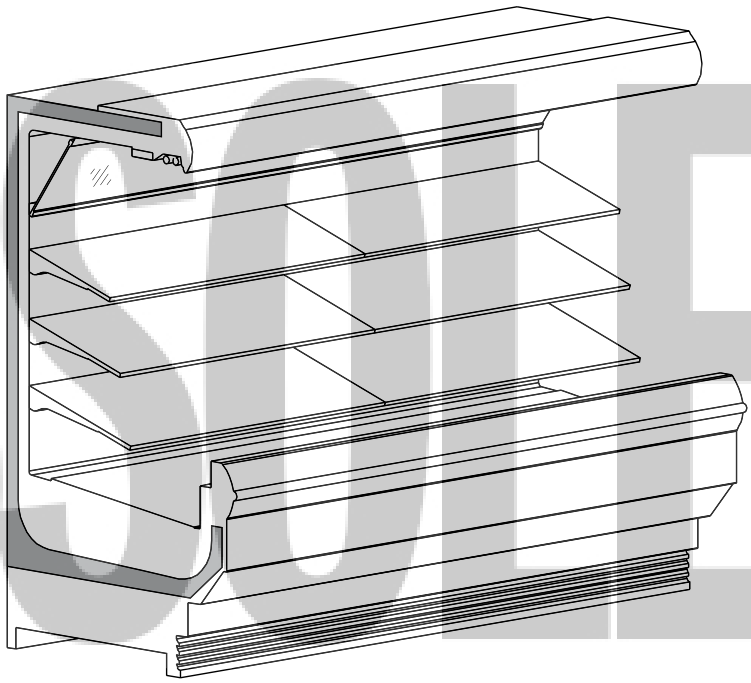
OBSOLETE

MULTI-DECK

OBSOLETE



Notes:

- *Cases comply with ANSI / NSF* Standard 7. Units marked as components require remote refrigeration.*
- *Allow for an extra 1/8” per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*
- *Front and rear sill heights vary with baseframe height.*

* *ANSI - American National Standard Institute*
NSF - National Sanitation Foundation

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	1.36	68	0.60	44	1.60	92	- - -[1]	- - -	2.88	600	3.33	798
	8'	5	1.70	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		Bulbs per Row	Bulb Length	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'	2	3'	0.37	44	2.20	264
	8'	2	4'	0.47	56	2.80	336

Guidelines & Control Settings

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

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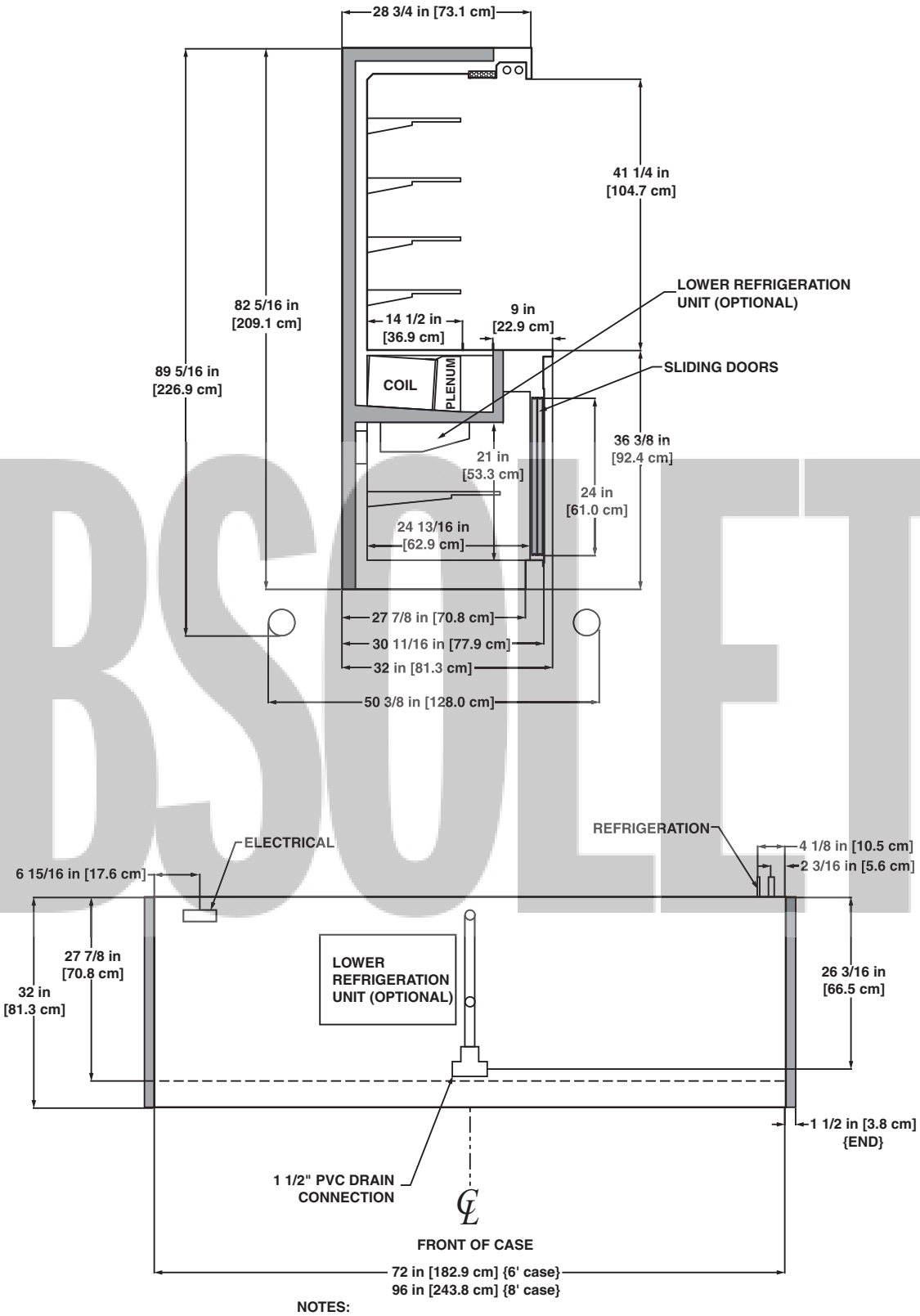

NOTES:

- 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 - 1/2"
- AVAILABLE SHELF SIZES: (UPPER SECTION) 12" & 14"
  (LOWER SECTION) 22"

Narrow Multi-Deck Deli Merchandiser

ONN35U - 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
ONN35U	4'	3	1.02	51	0.45	33	- - -[1]	- - -	1.92	400	2.22	532
	6'	4	1.36	68	0.60	44	- - -	- - -	2.88	600	3.33	798
	8'	4	1.36	68	0.60	44	- - -	- - -	3.85	800	4.44	1065
	12'	6	2.04	102	0.90	66	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONN35U	4'	1	4'	0.23	28	0.93	112
	6'	2	3'	0.37	44	1.47	176
	8'	2	4'	0.47	56	1.87	224
	12'	3	4'	0.70	84	2.80	336

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ONN35U	700	22	6-8	35	45	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)
ONN35U	4	6 - 8	35	47	45	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

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

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All measurements are taken per CRMA specifications.

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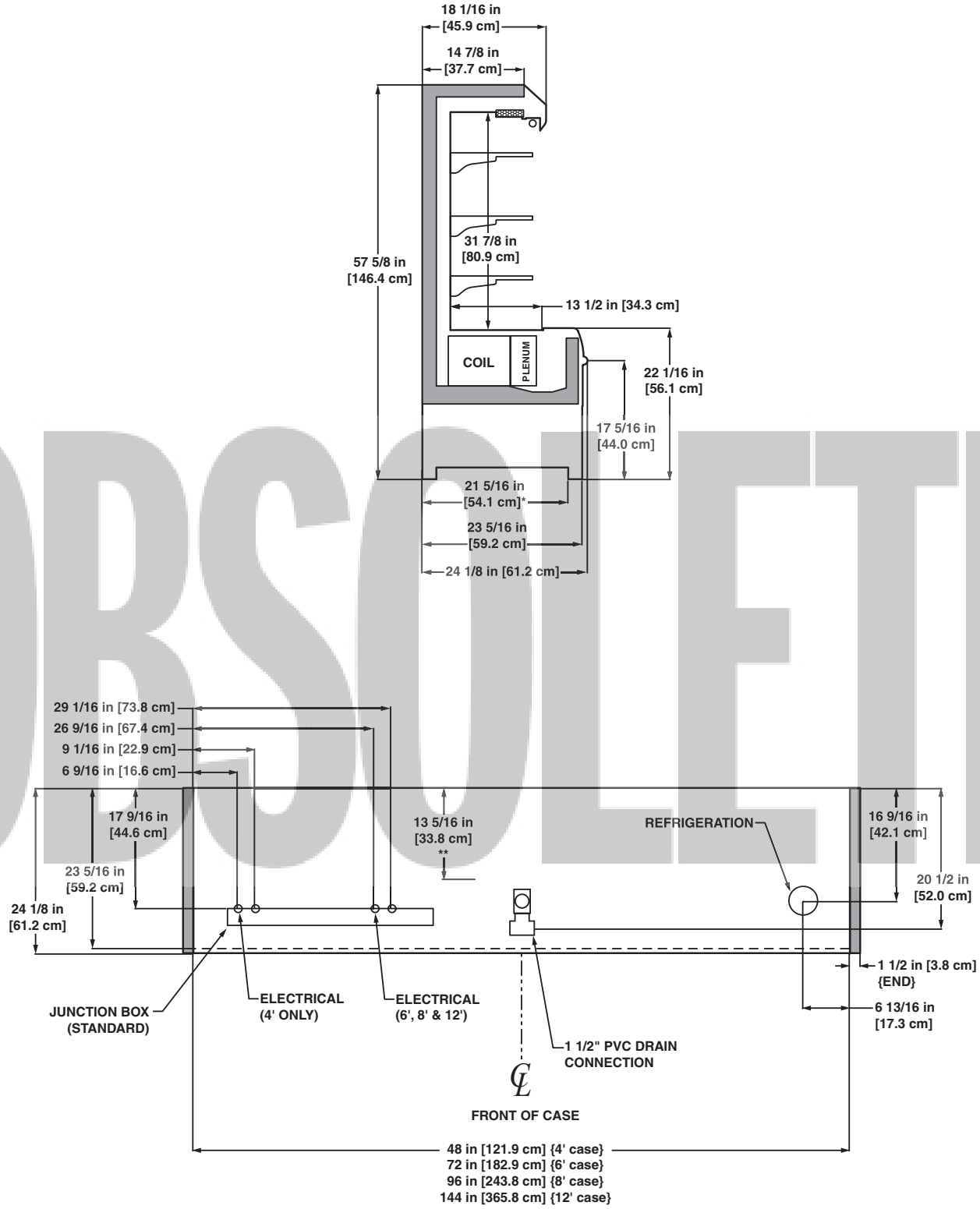

NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"

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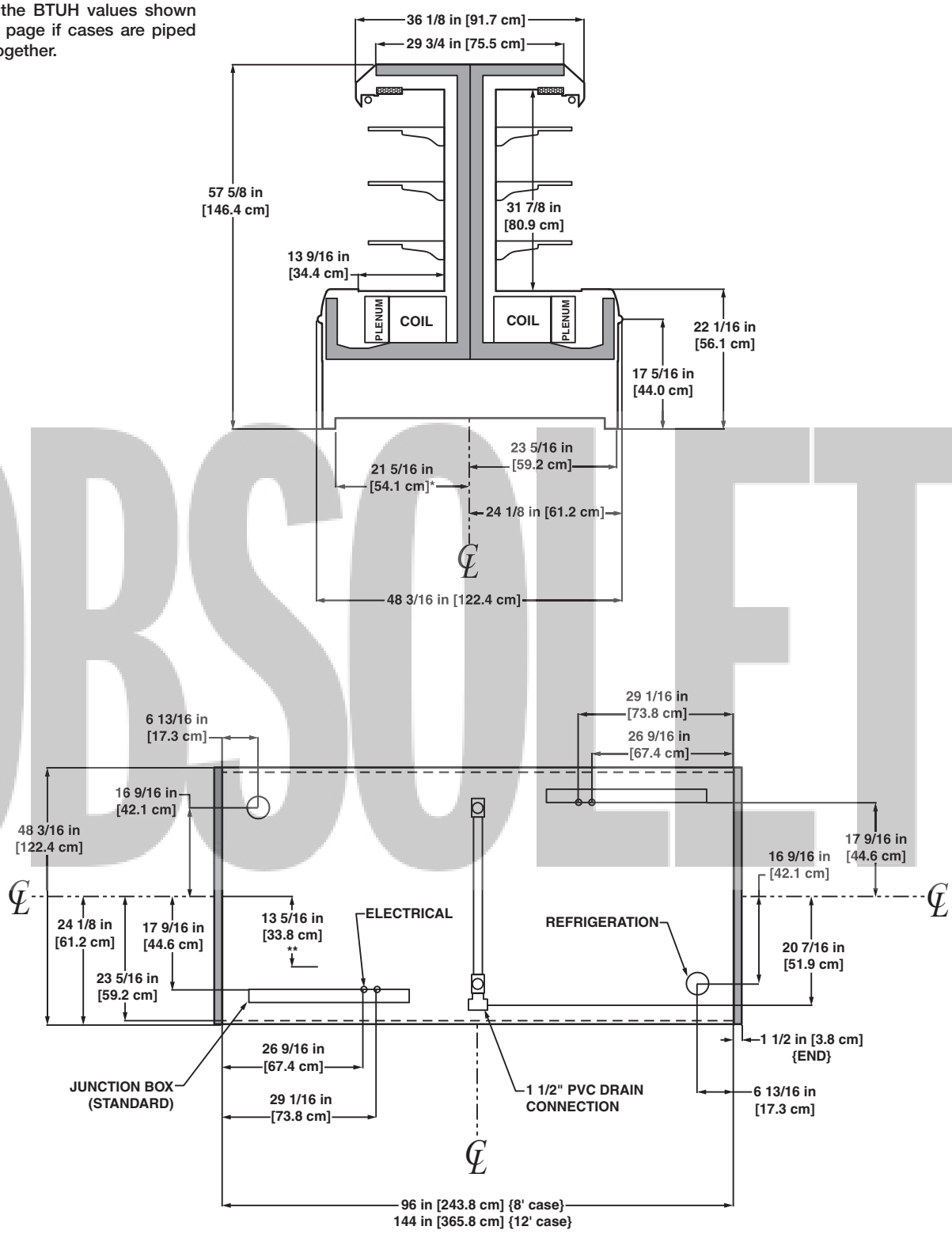
A DOVER COMPANY

ONN35U

BACK-TO-BACK CONFIGURATION

Note: For cases in a back-to-back configuration double the electrical values and the BTUH values shown on the data page if cases are piped and wired together.



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 - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"

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A DOVER COMPANY

Deli

OBSOLETE

Multi-Deck Utility Deli Merchandiser

ONN5U - 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
ONN5U	4'	2	1.00	60	0.39	23.4	- - -[1]	- - -	1.92	400	2.22	532
	6'	2	1.00	60	0.39	23.4	- - -	- - -	2.88	600	3.33	798
	8'	3	1.50	90	0.59	35.1	- - -	- - -	3.85	800	4.44	1065
	12'	4	2.00	120	0.78	46.8	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONN5U	4'	1	4'	0.23	28	1.40	168
	6'	2	3'	0.37	44	2.20	264
	8'	2	4'	0.47	56	2.80	336
	12'	3	4'	0.70	84	4.20	504

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ONN5U	990	20	6-8	33	44	245

[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

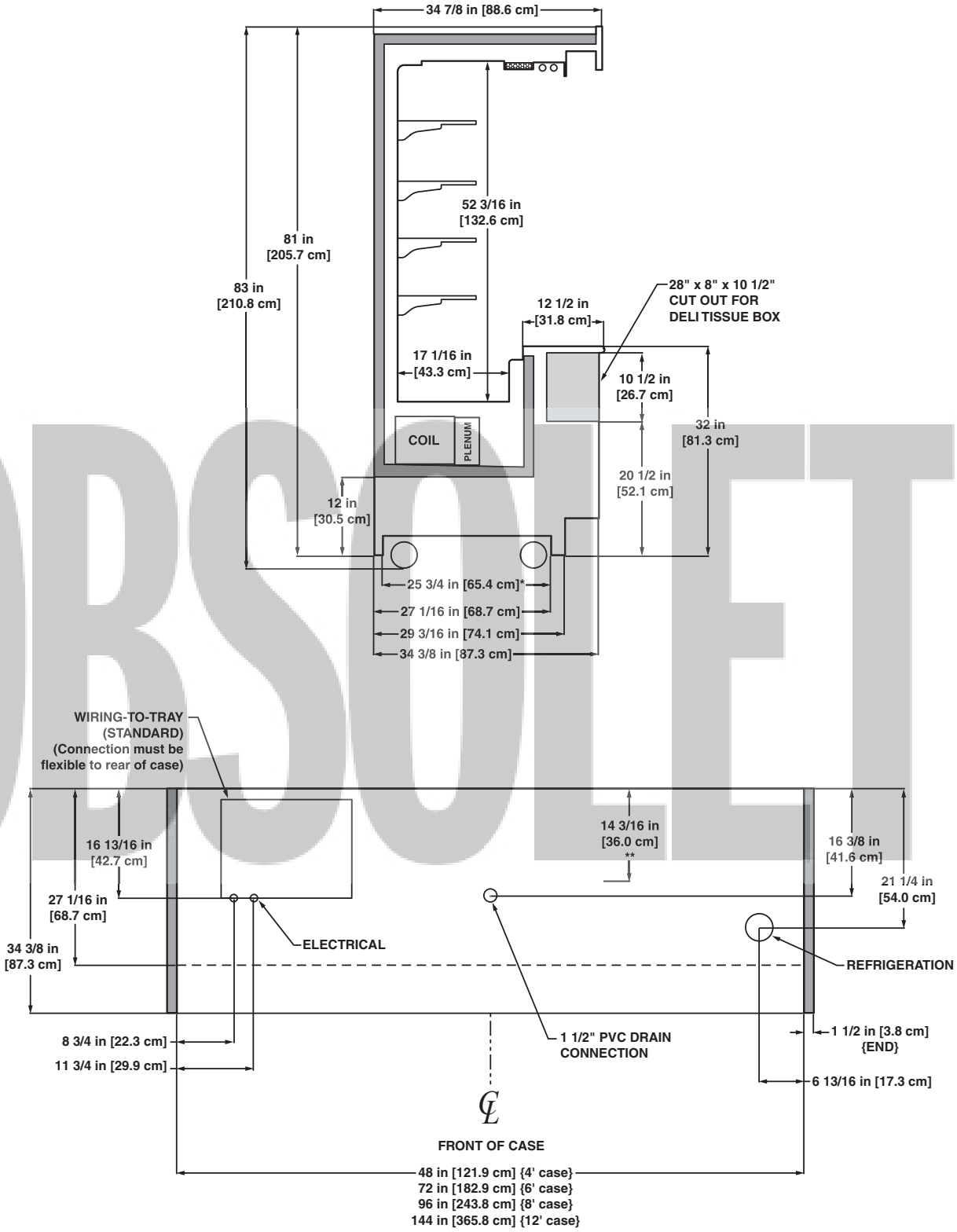
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONN5U	4	6 - 8	35	47	45	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.

OBSOLETE



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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12" & 14"

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A DOVER COMPANY

Narrow Multi-Deck Produce/Dairy Merchandiser

ON5DM - 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
ON5DM	4'	2	1.00	60	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	3	1.50	90	0.70	42	- - -	- - -	2.88	600	3.33	798
	8'	4	2.00	120	0.93	56	- - -	- - -	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	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	4'	1	4'	0.23	28	2.10	252
	6'	2	3'	0.37	44	3.30	396
	8'	2	4'	0.47	56	4.20	504
	12'	3	4'	0.70	84	6.30	756

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON5DM Dairy Cut Produce	Std. Dairy	1811	Std.	17	6-8	32	47	215
	2.5" Ext.	1766	Std.	17	6-8	31	44	215
	5" Ext.	1739	Std.	17	6-8	31	40	215
	7.5" Ext.	1681	Std.	17	6-8	31	40	215
	Std. Dairy	1811	Enh.	22	6-8	32	47	215
	2.5" Ext.	1766	Enh.	22	6-8	31	44	215
	5" Ext.	1739	Enh.	22	6-8	31	40	215
	7.5" Ext.	1681	Enh.	22	6-8	31	40	215
ON5DM Beverage Bulk Produce	Std. Dairy	1670	Std.	27	6-8	37	53	215
	2.5" Ext.	1628	Std.	27	6-8	36	52	215
	5" Ext.	1576	Std.	27	6-8	36	52	215
	7.5" Ext.	1550	Std.	27	6-8	36	52	215
	Std. Dairy	1670	Enh.	29	6-8	37	53	215
	2.5" Ext.	1628	Enh.	29	6-8	36	52	215
	5" Ext.	1576	Enh.	29	6-8	36	52	215
	7.5" Ext.	1550	Enh.	29	6-8	36	52	215

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
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.

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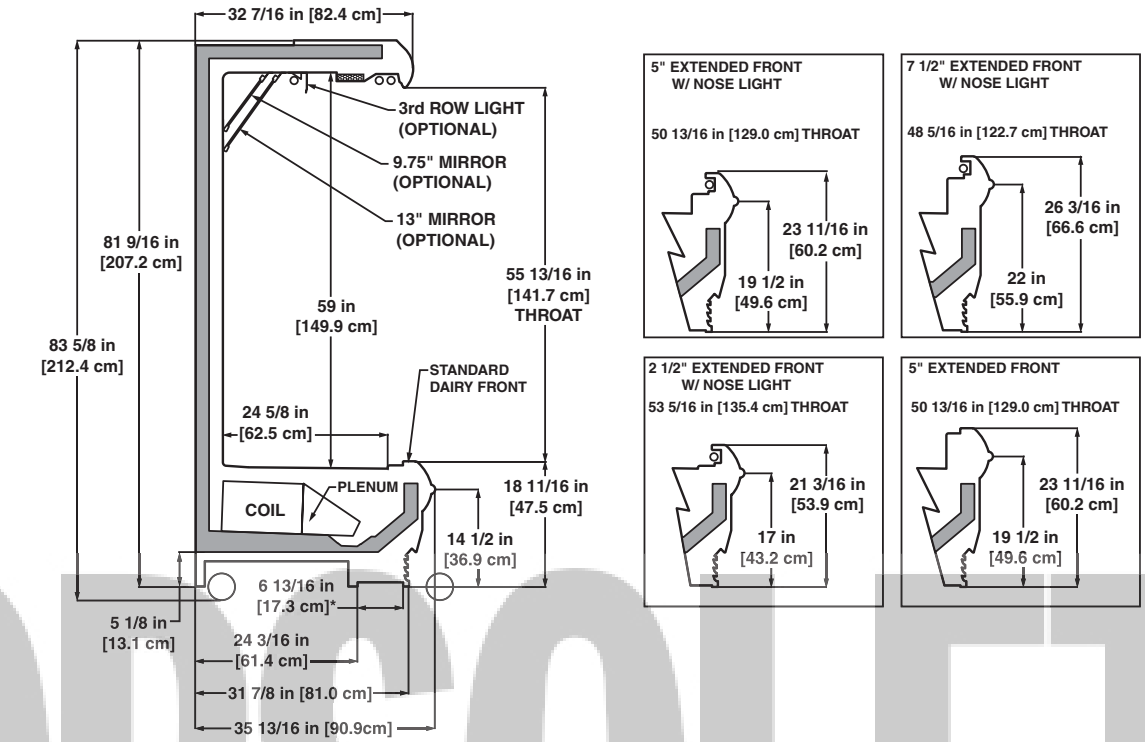

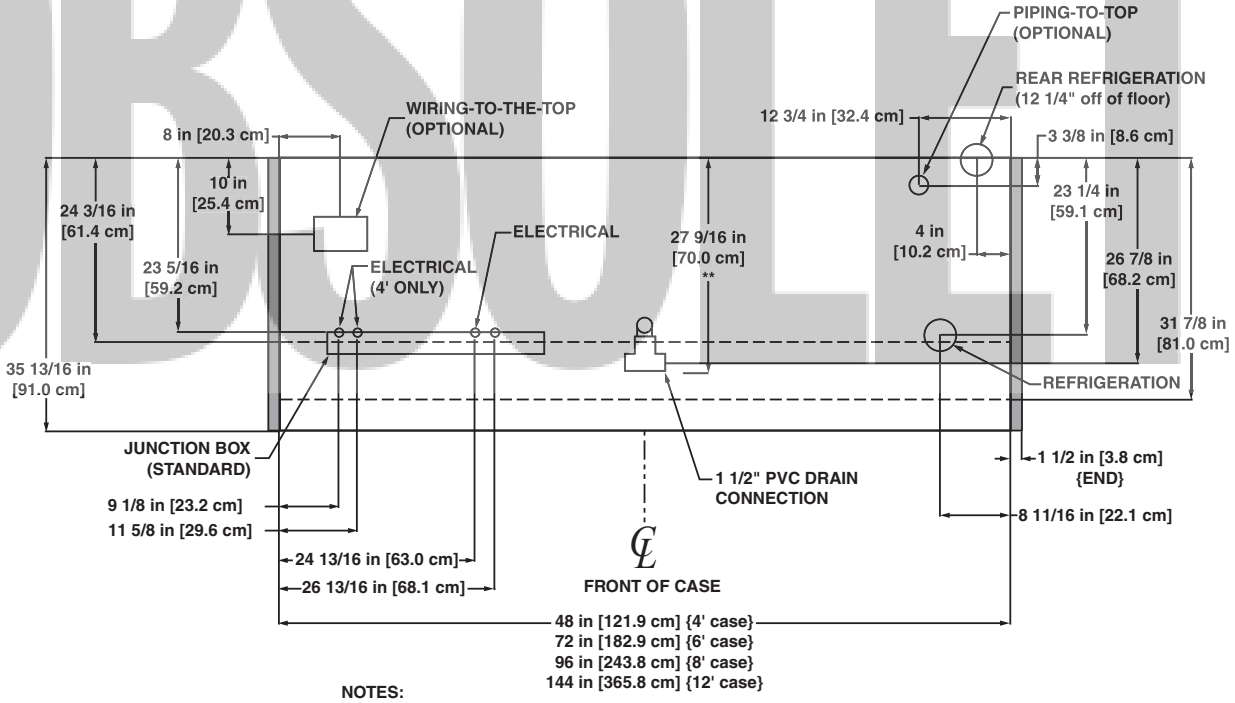

NOTES:

* STUB-UP AREA

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

(TOP SHELF MUST BE 16" OR SHORTER. RECOMMENDED CONFIGURATION IS 16" SHELF AND 3 OR 4 18" SHELVES BELOW TOP SHELF)

OBSOLETE

Narrow Multi-Deck Self-Contained Produce/Dairy Merchandiser

ON5DMA - 6' & 8'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
ON5DMA	6'	208	1	60	3 wire + ground	25.412	45
	8'	208	1	60	3 wire + ground	25.534	45

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 208 Volts Amps	Evap. Pan Heater 208 Volts Watts	Maximum Lights 120 Volts Amps	Maximum Lights 120 Volts Watts
ON5DMA	6'	3	1.50	90	1.10	114	1.10	66	7.21	1500	4.70	564
	8'	4	2.00	120	1.10	114	1.10	66	7.21	1500	4.70	564

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
ON5DMA-6'		52	6-8	31	44	215
ON5DMA-8'		52	6-8	31	44	215

[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.
ON5DMA-6'	208	1	60	1 3/4	10.9	56	R404A	
ON5DMA-8'	208	1	60	2 1/4	12.4	61	R404A	

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

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)
ON5DMA	4	6 - 8	- - -[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.

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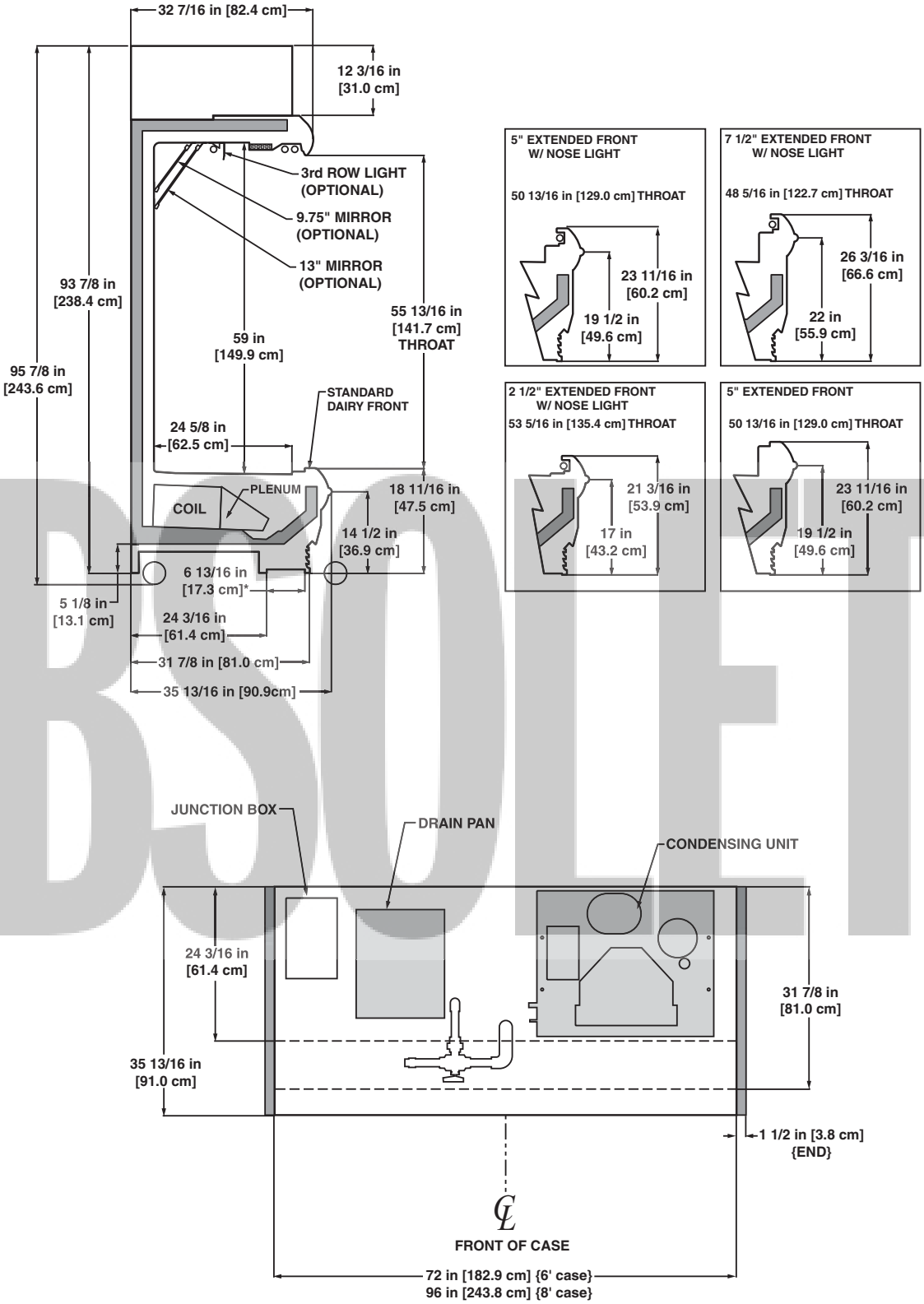

NOTES:

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

(TOP SHELF MUST BE 16" OR SHORTER. RECOMMENDED CONFIGURATION IS 16" SHELF AND 3 OR 4 18" SHELVES BELOW TOP SHELF)

OBSOLETE

High Narrow Multi-Deck Produce/Dairy Merchandiser

ON5DMH - 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
ON5DMH	4'	2	1.00	60	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	3	1.50	90	0.70	42	- - -	- - -	2.88	600	3.33	798
	8'	4	2.00	120	0.93	56	- - -	- - -	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ON5DMH	4'	1	4'	0.23	28	2.10	252
	6'	2	3'	0.37	44	3.30	396
	8'	2	4'	0.47	56	4.20	504
	12'	3	4'	0.70	84	6.30	756

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON5DMH Dairy Cut Produce	Std. Dairy	1840	Std.	17	6-8	33	48	215
	2.5" Ext.	1795	Std.	17	6-8	33	45	215
	5" Ext.	1779	Std.	17	6-8	32	41	215
	7.5" Ext.	1700	Std.	17	6-8	32	41	215
	Std. Dairy	1840	Enh.	22	6-8	33	48	215
	2.5" Ext.	1795	Enh.	22	6-8	33	45	215
	5" Ext.	1779	Enh.	22	6-8	32	41	215
	7.5" Ext.	1700	Enh.	22	6-8	32	41	215
ON5DMH Beverage Bulk Produce	Std. Dairy	1700	Std.	27	6-8	37	54	215
	2.5" Ext.	1640	Std.	27	6-8	37	53	215
	5" Ext.	1608	Std.	27	6-8	36	52	215
	7.5" Ext.	1595	Std.	27	6-8	36	52	215
	Std. Dairy	1700	Enh.	29	6-8	37	54	215
	2.5" Ext.	1640	Enh.	29	6-8	37	53	215
	5" Ext.	1608	Enh.	29	6-8	36	52	215
	7.5" Ext.	1595	Enh.	29	6-8	36	52	215

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ON5DMH	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.

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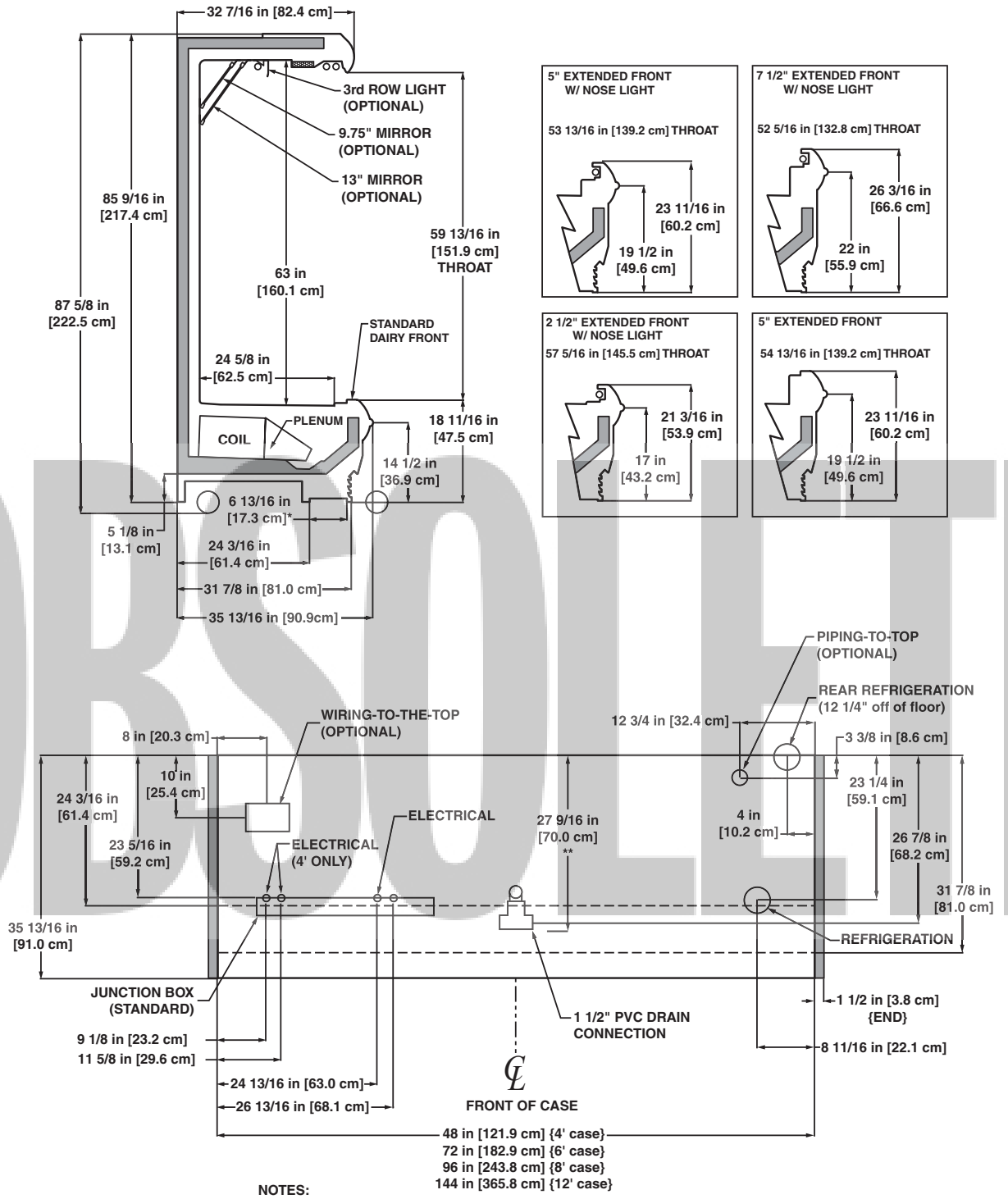

NOTES:

* STUB-UP AREA

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

(TOP SHELF MUST BE 16" OR SHORTER. RECOMMENDED CONFIGURATION IS 16" SHELF AND 3 OR 4 18" SHELVES BELOW TOP SHELF)

NSF COMPONENT

c UL us

A DOVER COMPANY

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	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	2	1.00	60	0.47	28	- - -	- - -	2.88	600	3.33	798
	8'	3	1.50	90	0.70	42	- - -	- - -	3.85	800	4.44	1065
	12'	4	2.00	120	0.93	56	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	2.10	252
	6'	2	3'	0.37	44	3.30	396
	8'	2	4'	0.47	56	4.20	504
	12'	3	4'	0.70	84	6.30	756

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O5DM Deli w/ Shelf Lights	2.5" Ext.	1570	Std.	17	6-8	30	44	270
	5" Ext.	1530	Std.	17	6-8	30	44	270
	7.5" Ext.	1500	Std.	17	6-8	30	44	270
	2.5" Ext.	1570	Enh.	22	6-8	30	44	270
	5" Ext.	1530	Enh.	22	6-8	30	44	270
	7.5" Ext.	1500	Enh.	22	6-8	30	44	270
O5DM Dairy Cut Produce w/ Shelf Lights	Std. Dairy	1470	Std.	22	6-8	34	47	270
	2.5" Ext.	1431	Std.	22	6-8	34	47	270
	5" Ext.	1401	Std.	22	6-8	34	47	270
	7.5" Ext.	1370	Std.	22	6-8	34	47	270
	Std. Dairy	1470	Enh.	26	6-8	34	47	270
	2.5" Ext.	1431	Enh.	26	6-8	34	47	270
	5" Ext.	1401	Enh.	26	6-8	34	47	270
	7.5" Ext.	1370	Enh.	26	6-8	34	47	270
O5DM Beverage Bulk Produce w/o Shelf Lights	Std. Dairy	1490	Std.	27	6-8	36	52	270
	2.5" Ext.	1450	Std.	27	6-8	36	52	270
	5" Ext.	1420	Std.	27	6-8	36	52	270
	7.5" Ext.	1390	Std.	27	6-8	36	52	270
	Std. Dairy	1490	Enh.	29	6-8	36	52	270
	2.5" Ext.	1450	Enh.	29	6-8	36	52	270
	5" Ext.	1420	Enh.	29	6-8	36	52	270
	7.5" Ext.	1390	Enh.	29	6-8	36	52	270

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
O5DM	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.

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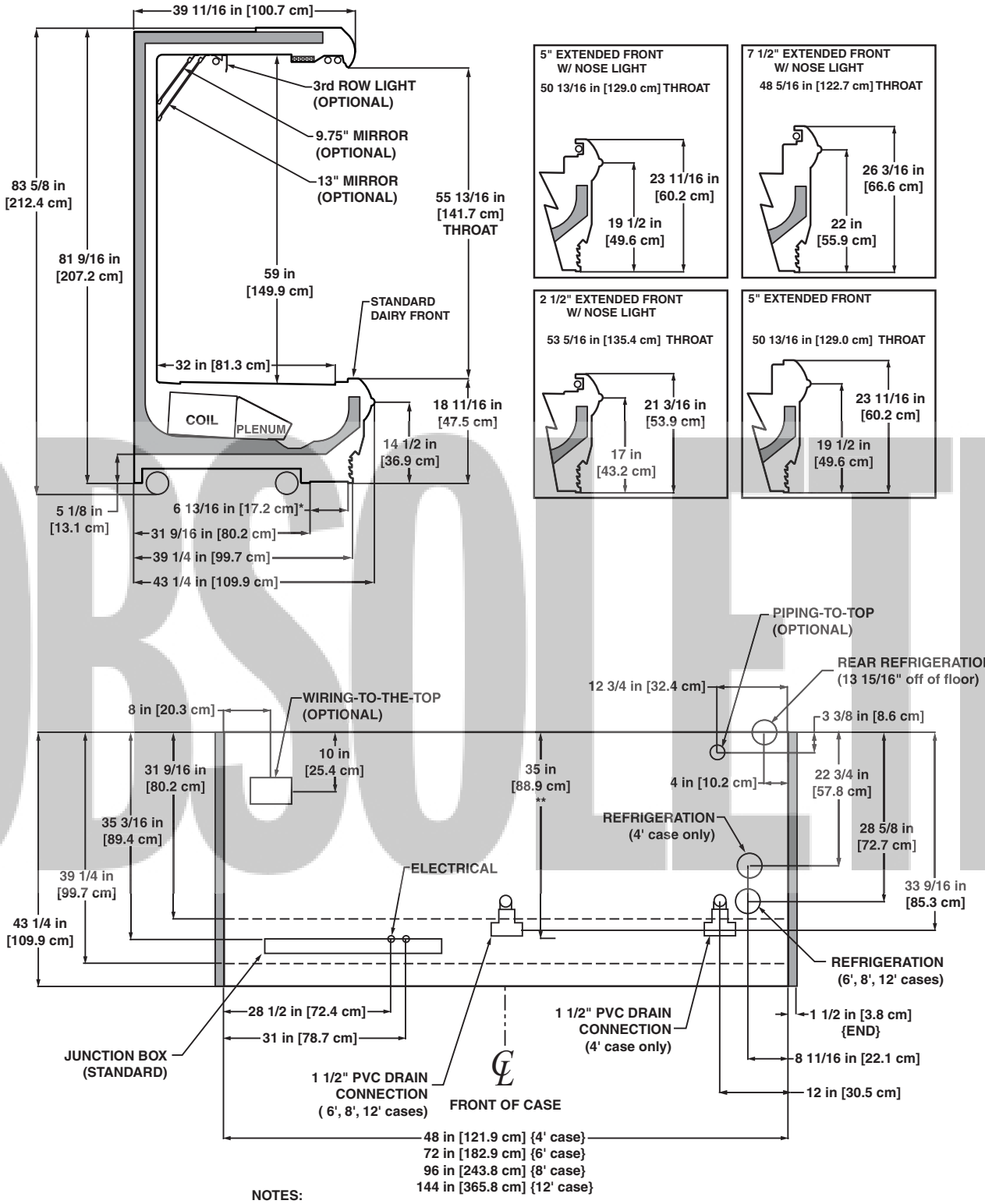

NOTES:

* STUB-UP AREA

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"

NSF COMPONENT

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A DOVER COMPANY

Multi-Deck Self-Contained Produce/Dairy/Deli Merchandiser

O5DMA - 4', 6' & 8'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
O5DMA	4'	208	1	60	3 wire + ground	22.096	35
	6'	208	1	60	3 wire + ground	23.034	40
	8'	208	1	60	3 wire + ground	23.934	45

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 208 Volts Amps	Evap. Pan Heater 208 Volts Watts	Maximum Lights 120 Volts Amps	Maximum Lights 120 Volts Watts
O5DMA	4'	2	1.00	60	0.85	88	1.10	66	7.21	1500	3.18	382
	6'	2	1.00	60	1.10	114	1.10	66	7.21	1500	4.59	551
	8'	3	1.50	90	2.60	270	1.10	66	7.21	1500	4.59	551

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
O5DMA-4'		52	6-8	30	44	250
O5DMA-6'		52	6-8	30	44	250
O5DMA-8'		52	6-8	30	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.
O5DMA-4'	208	1	60	1	9.6	51	R404A	4.5
O5DMA-6'	208	1	60	1 3/4	10.9	56	R404A	
O5DMA-8'	208	1	60	2	12.4	61	R404A	

[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	4	- - - [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.

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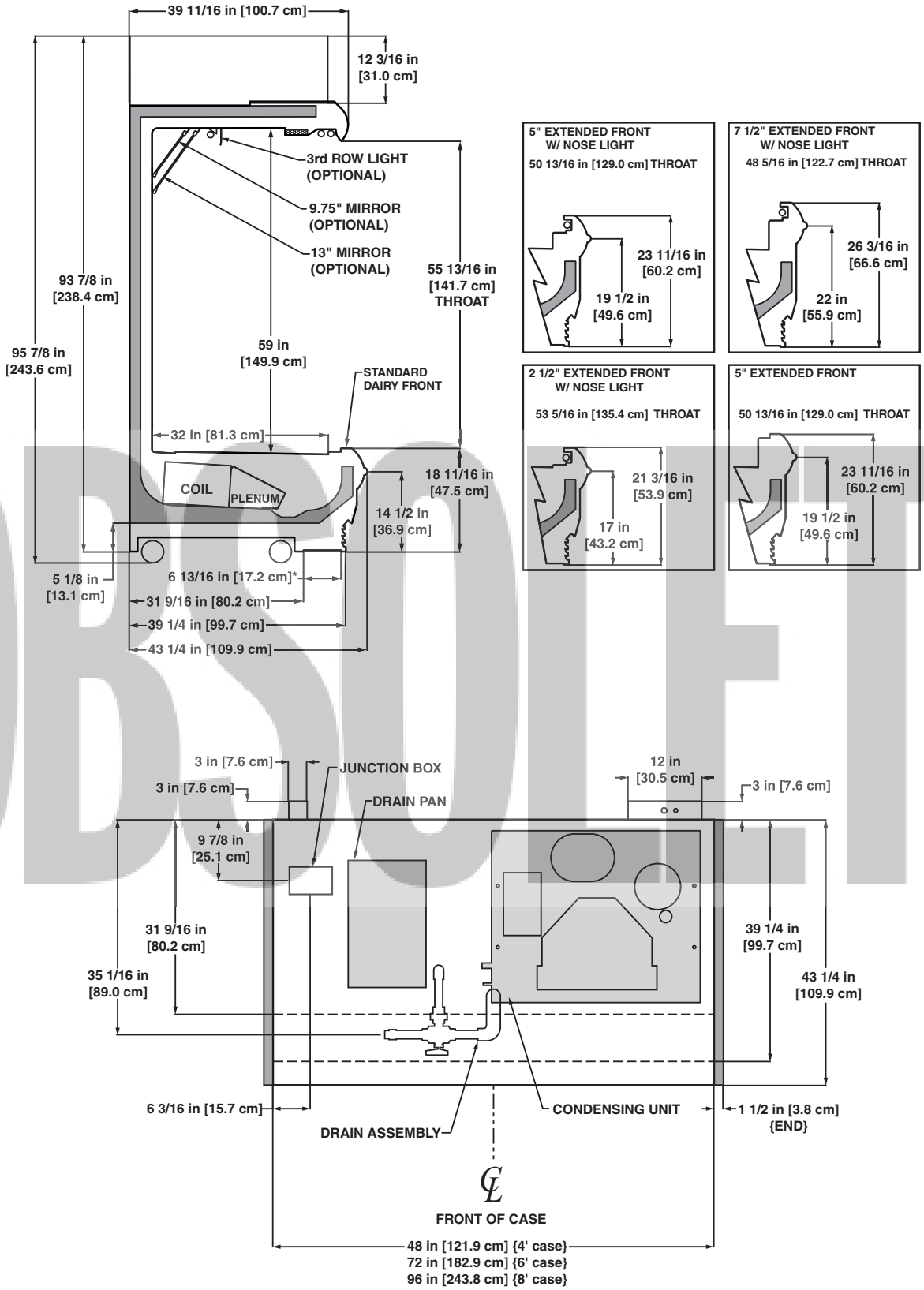

NOTES:

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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"

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A DOVER COMPANY

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	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	3	1.50	90	0.70	42	- - -	- - -	2.88	600	3.33	798
	8'	4	2.00	120	0.93	56	- - -	- - -	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	2.10	252
	6'	2	3'	0.37	44	3.30	396
	8'	2	4'	0.47	56	4.20	504
	12'	3	4'	0.70	84	6.30	756

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O5DMH Deli w/ Shelf Lights	2.5" Ext.	1620	Std.	17	6-8	31	43	250
	5" Ext.	1570	Std.	17	6-8	31	43	250
	7.5" Ext.	1540	Std.	17	6-8	31	43	250
	2.5" Ext.	1620	Enh.	22	6-8	31	43	250
	5" Ext.	1570	Enh.	22	6-8	31	43	250
	7.5" Ext.	1540	Enh.	22	6-8	31	43	250
O5DMH Dairy Cut Produce w/ Shelf Lights	Std. Dairy	1555	Std.	22	6-8	35	47	265
	2.5" Ext.	1500	Std.	22	6-8	35	47	265
	5" Ext.	1470	Std.	22	6-8	35	47	265
	7.5" Ext.	1440	Std.	22	6-8	35	47	265
	Std. Dairy	1555	Enh.	26	6-8	35	47	265
	2.5" Ext.	1500	Enh.	26	6-8	35	47	265
	5" Ext.	1470	Enh.	26	6-8	35	47	265
	7.5" Ext.	1440	Enh.	26	6-8	35	47	265
O5DMH Beverage Bulk Produce w/o Shelf Lights	Std. Dairy	1495	Std.	27	6-8	37	52	270
	2.5" Ext.	1455	Std.	27	6-8	36	53	270
	5" Ext.	1426	Std.	27	6-8	36	52	270
	7.5" Ext.	1397	Std.	27	6-8	36	52	270
	Std. Dairy	1495	Enh.	29	6-8	37	52	270
	2.5" Ext.	1455	Enh.	29	6-8	36	53	270
	5" Ext.	1426	Enh.	29	6-8	36	52	270
	7.5" Ext.	1397	Enh.	29	6-8	36	52	270

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
O5DMH	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.

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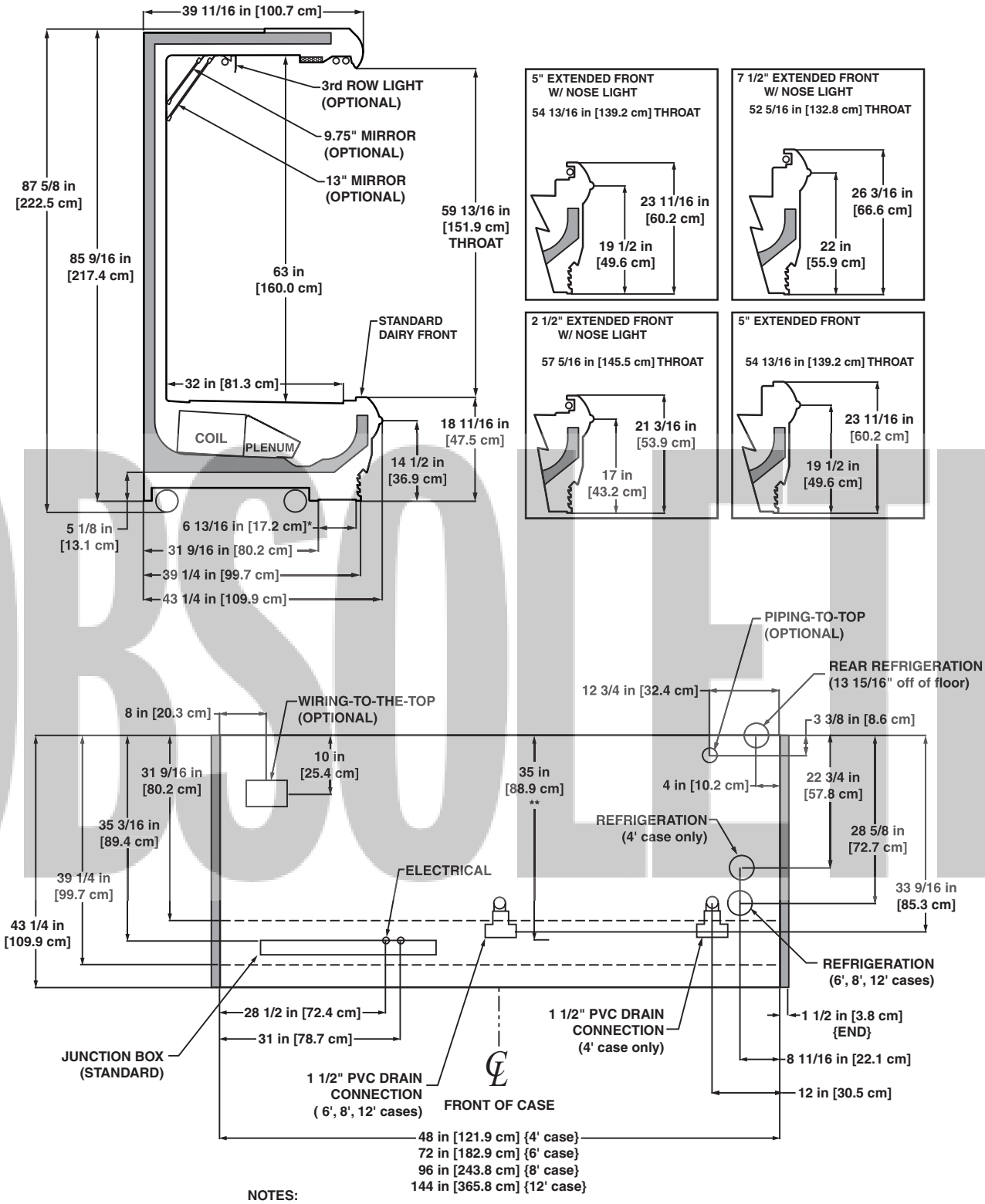

NOTES:

* STUB-UP AREA

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"

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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	3.20	213	1.44	142	- - -[1]	- - -	3.85	800	4.44	1065
	12'	5	4.00	267	1.80	178	- - -	- - -	5.78	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	2	4'	0.47	56	4.20	504
	12'	3	4'	0.70	84	6.30	756

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Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O5DR Dairy	Std. Dairy	1502	Std.	17	6-8	32	47	275
	2.5" Ext.	1502	Std.	17	6-8	32	46	275
	5" Ext.	1453	Std.	17	6-8	32	42	275
	7.5" Ext.	1425	Std.	17	6-8	32	42	275
	Std. Dairy	1502	Enh.	22	6-8	32	47	275
	2.5" Ext.	1502	Enh.	22	6-8	32	46	275
	5" Ext.	1453	Enh.	22	6-8	32	42	275
	7.5" Ext.	1425	Enh.	22	6-8	32	42	275
O5DR Dairy	2.5" Ext.	1389	Std.	22	6-8	35	48	275
	5" Ext.	1422	Std.	22	6-8	35	47	275
	2.5" Ext.	1389	Enh.	26	6-8	35	48	275
	5" Ext.	1422	Enh.	26	6-8	35	47	275

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
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.

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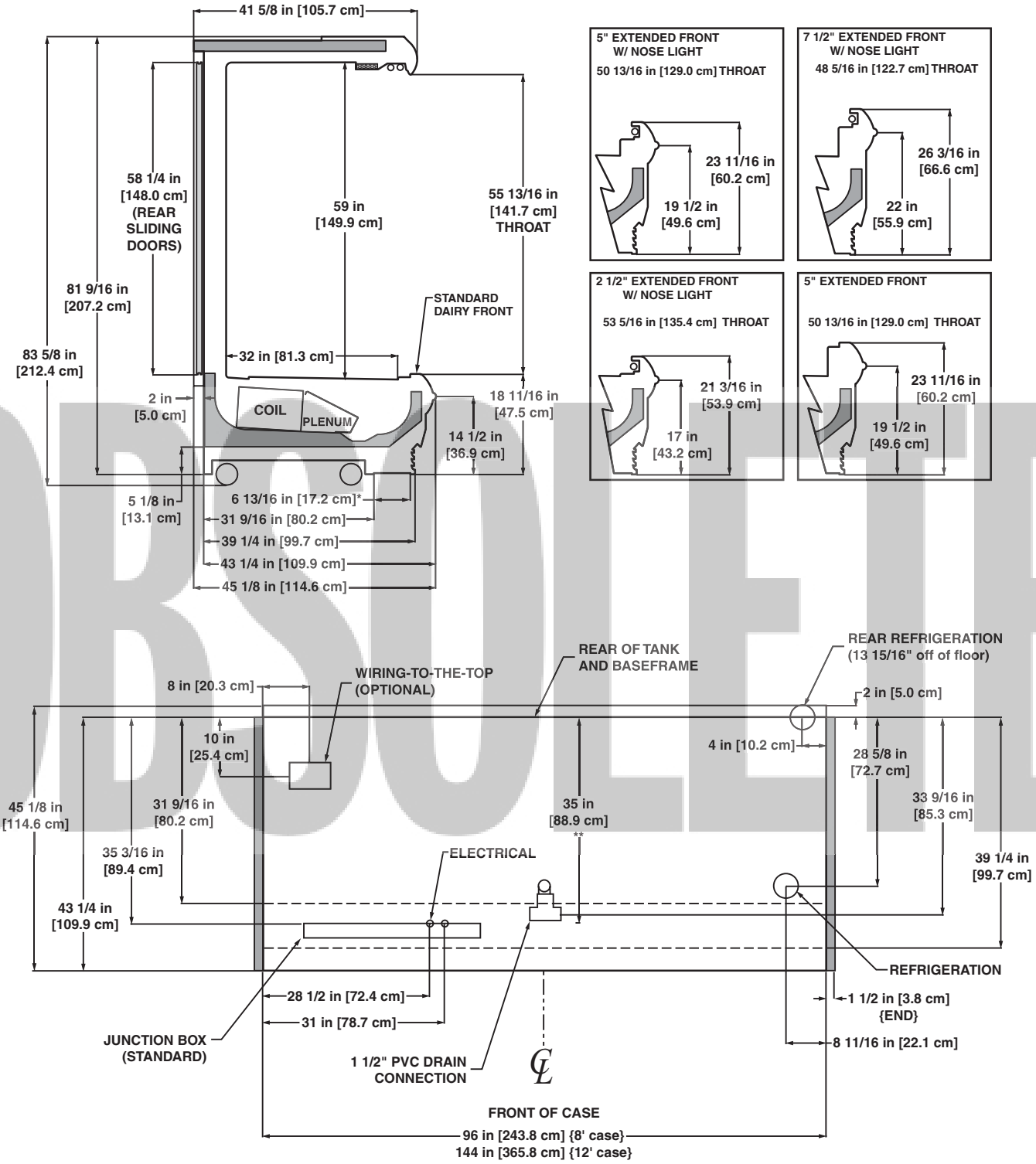
A DOVER COMPANY



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NOTES:

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"

NSF COMPONENT c UL us

A DOVER COMPANY

High Multi-Deck Rear Load Dairy Merchandiser

O5DRH - 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
O5DRH	8'	4	3.20	213	1.44	142	- - -[1]	- - -	3.85	800	4.44	1065
	12'	5	4.00	267	1.80	178	- - -	- - -	5.78	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O5DRH	8'	2	4'	0.47	56	4.20	504
	12'	3	4'	0.70	84	6.30	756

OBSOLETE

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O5DRH Dairy	Std. Dairy	1543	Std.	17	6-8	32	47	275
	2.5" Ext.	1543	Std.	17	6-8	32	46	275
	5" Ext.	1493	Std.	17	6-8	32	42	275
	7.5" Ext.	1464	Std.	17	6-8	32	42	275
	Std. Dairy	1543	Enh.	22	6-8	32	47	275
	2.5" Ext.	1543	Enh.	22	6-8	32	46	275
	5" Ext.	1493	Enh.	22	6-8	32	42	275
	7.5" Ext.	1464	Enh.	22	6-8	32	42	275
O5DRH Dairy	2.5" Ext.	1427	Std.	22	6-8	35	48	275
	5" Ext.	1461	Std.	22	6-8	35	47	275
	2.5" Ext.	1427	Enh.	26	6-8	35	48	275
	5" Ext.	1461	Enh.	26	6-8	35	47	275

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

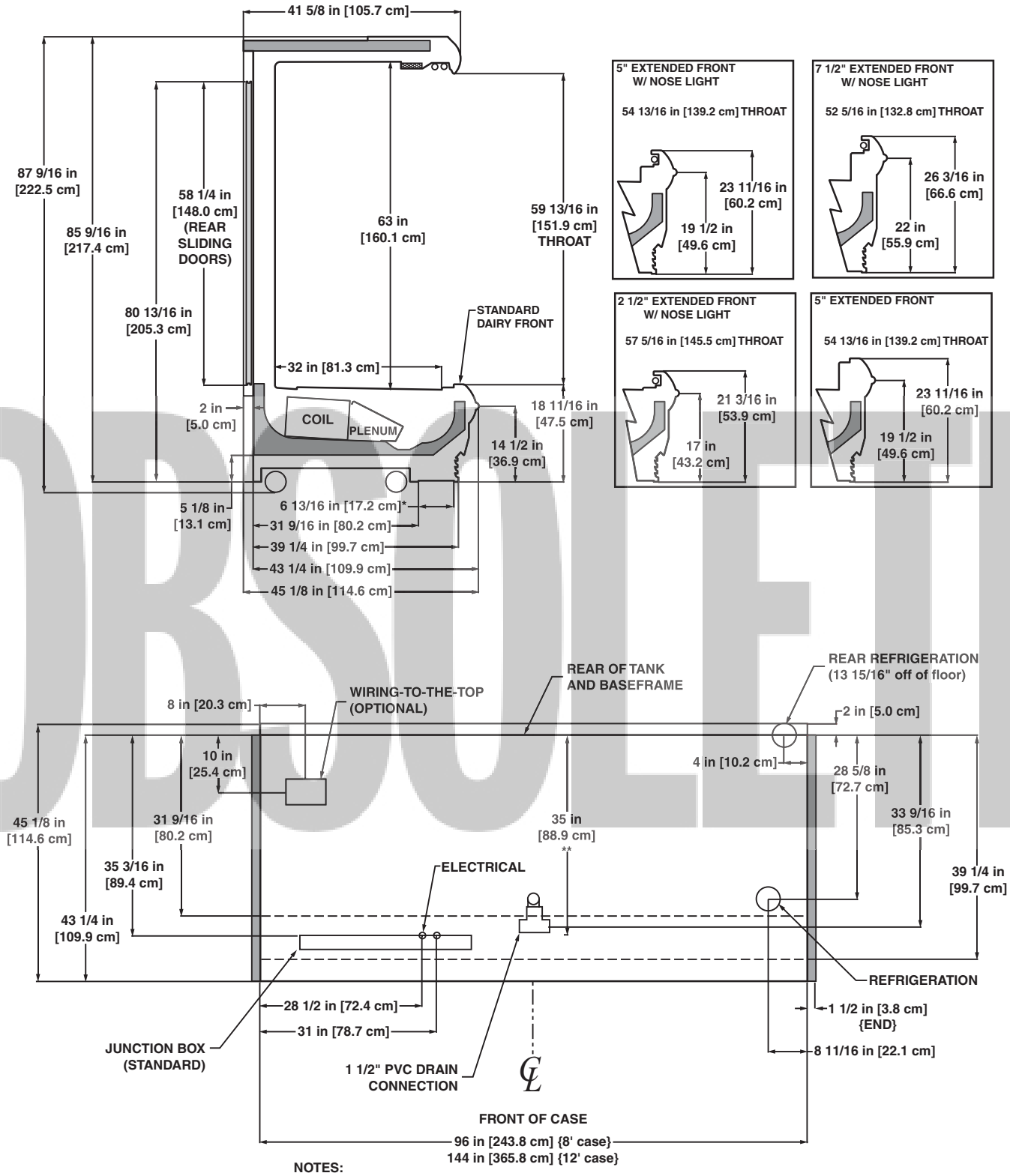
Defrost Controls

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)
O5DRH	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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"

OBSOLETE

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		Bulbs per Row	Bulb Length	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'	2	3'	0.37	44	1.10	132
	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

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)	Return Air (°F)	Discharge Air Velocity[6] (FPM) Pri.	Sec.	Amb.
O5Z	1840	-17	3-5	-5	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	3	13 - 15	34	50	- - -	- - -	24	60	50	50

Low Temperature Defrost Schedule

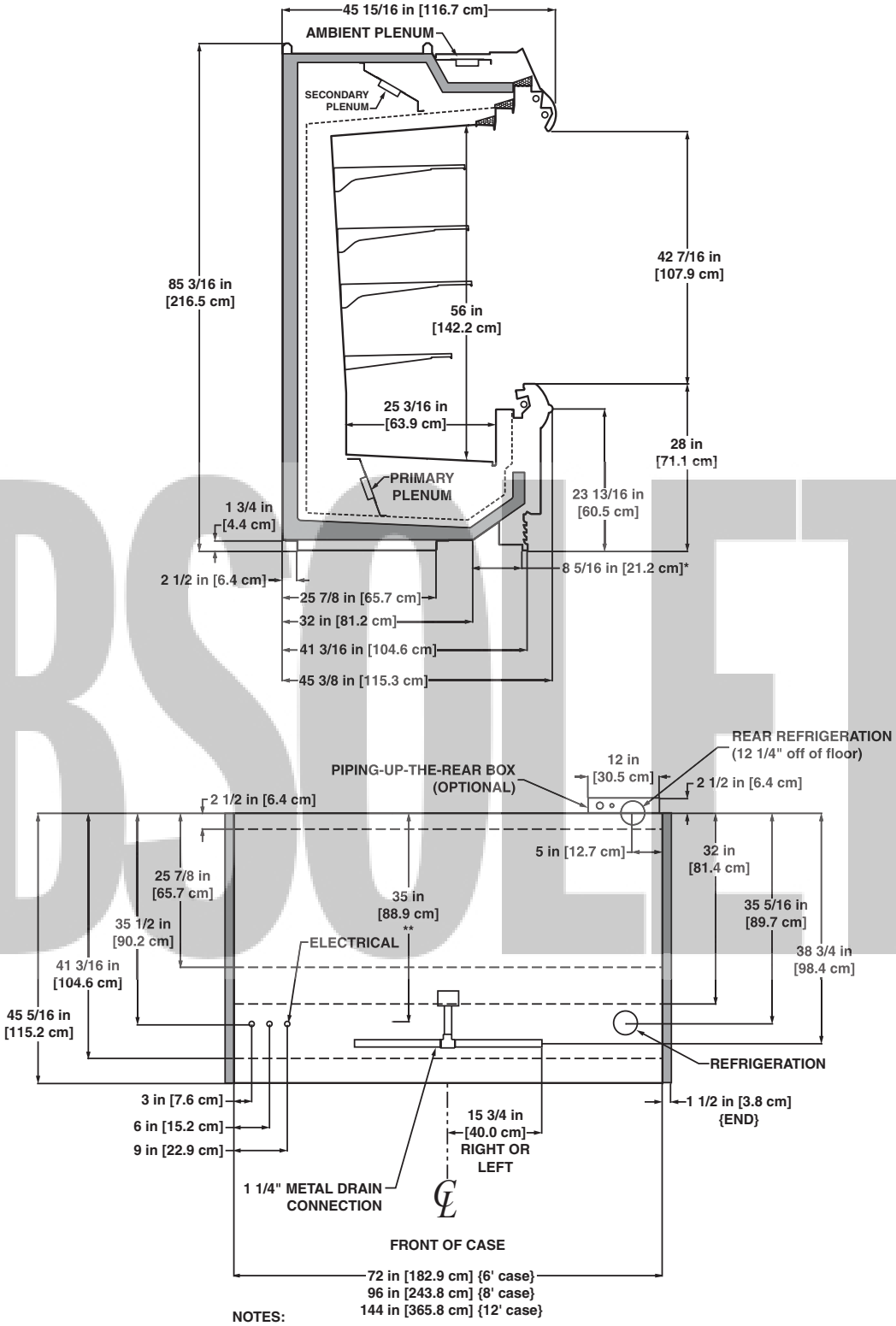
No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

All measurements are taken per CRMA specifications.

OBSOLETE

OBSOLETE



NOTES:

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** 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 - 1 1/8", LIQUID LINE - 5/8"
- AVAILABLE SHELF SIZES: 18" & 22"

(RECOMMENDED CONFIGURATION IS 3 - 22" SHELVES ON TOP AND 1 - 18" SHELF ON THE BOTTOM)

NSF COMPONENT c UL us

A DOVER COMPANY

Narrow Multi-Deck Deli/Meat Merchandiser

ONHM - 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
ONHM	4'	2	1.00	60	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	3	1.50	90	0.70	42	- - -	- - -	2.88	600	3.33	798
	8'	4	2.00	120	0.93	56	- - -	- - -	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	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	4'	1	4'	0.23	28	1.63	196
	6'	2	3'	0.37	44	2.57	308
	8'	2	4'	0.47	56	3.27	392
	12'	3	4'	0.70	84	4.90	588

OBSOLETE

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONHM	Standard	1440	Std.	17	6-8	30	41	340
	All Others	1340	Std.	17	6-8	30	41	340
	Standard	1440	Enh.	22	6-8	30	41	340
	All Others	1340	Enh.	22	6-8	30	41	340

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

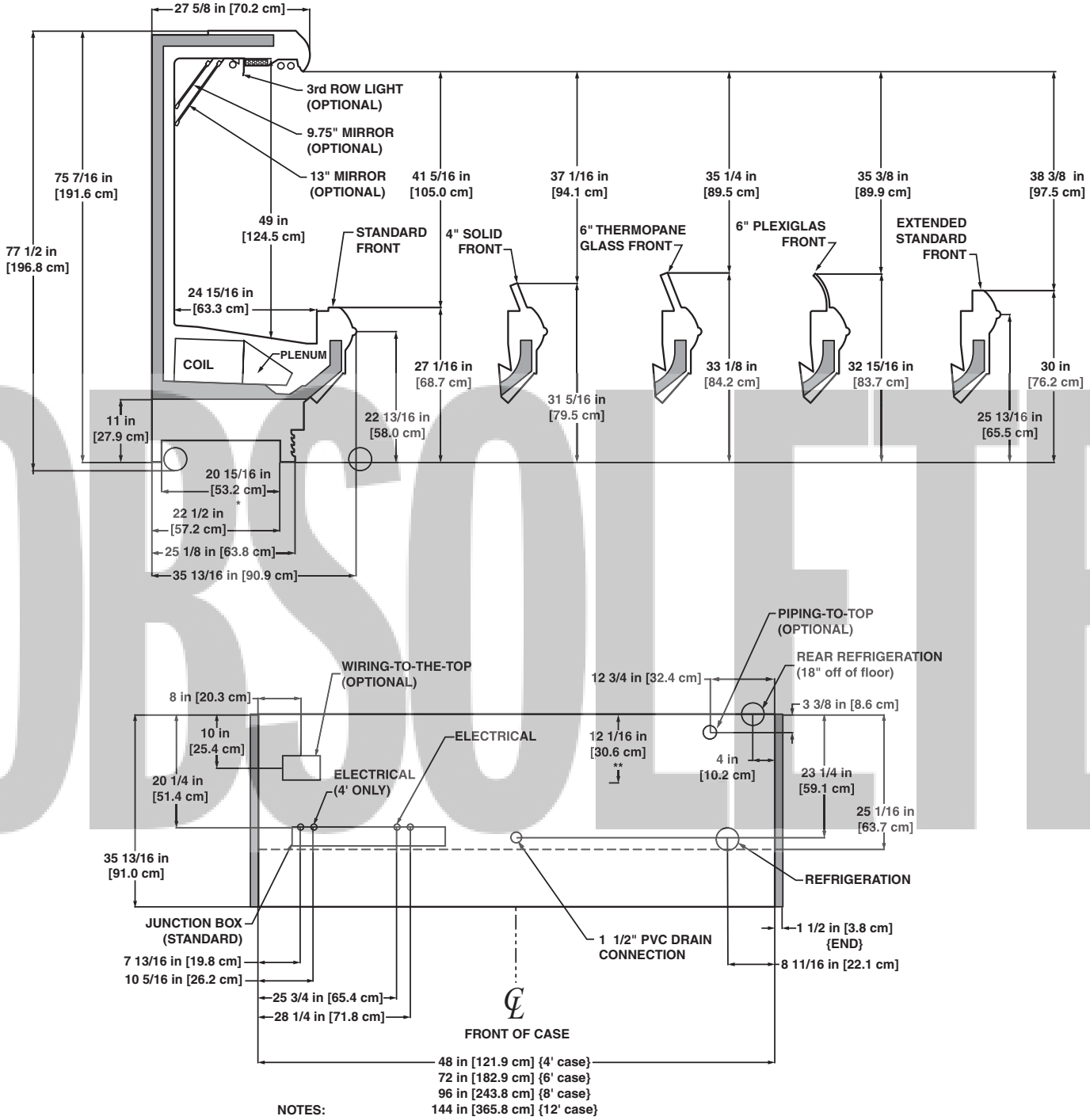
Defrost Controls

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)
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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"

OBSOLETE

High Narrow Multi-Deck Deli/Meat Merchandiser

ONHMH - 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
ONHMH	4'	2	1.00	60	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	3	1.50	90	0.70	42	- - -	- - -	2.88	600	3.33	798
	8'	4	2.00	120	0.93	56	- - -	- - -	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONHMH	4'	1	4'	0.23	28	1.87	224
	6'	2	3'	0.37	44	2.93	352
	8'	2	4'	0.47	56	3.73	448
	12'	3	4'	0.70	84	5.60	672

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONHMH	Standard	1440	Std.	17	6-8	30	41	340
	All Others	1340	Std.	17	6-8	29	40	340
	Standard	1440	Enh.	22	6-8	30	41	340
	All Others	1340	Enh.	22	6-8	29	40	340

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ONHMH	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

OBSOLETE

All measurements are taken per CRMA specifications.

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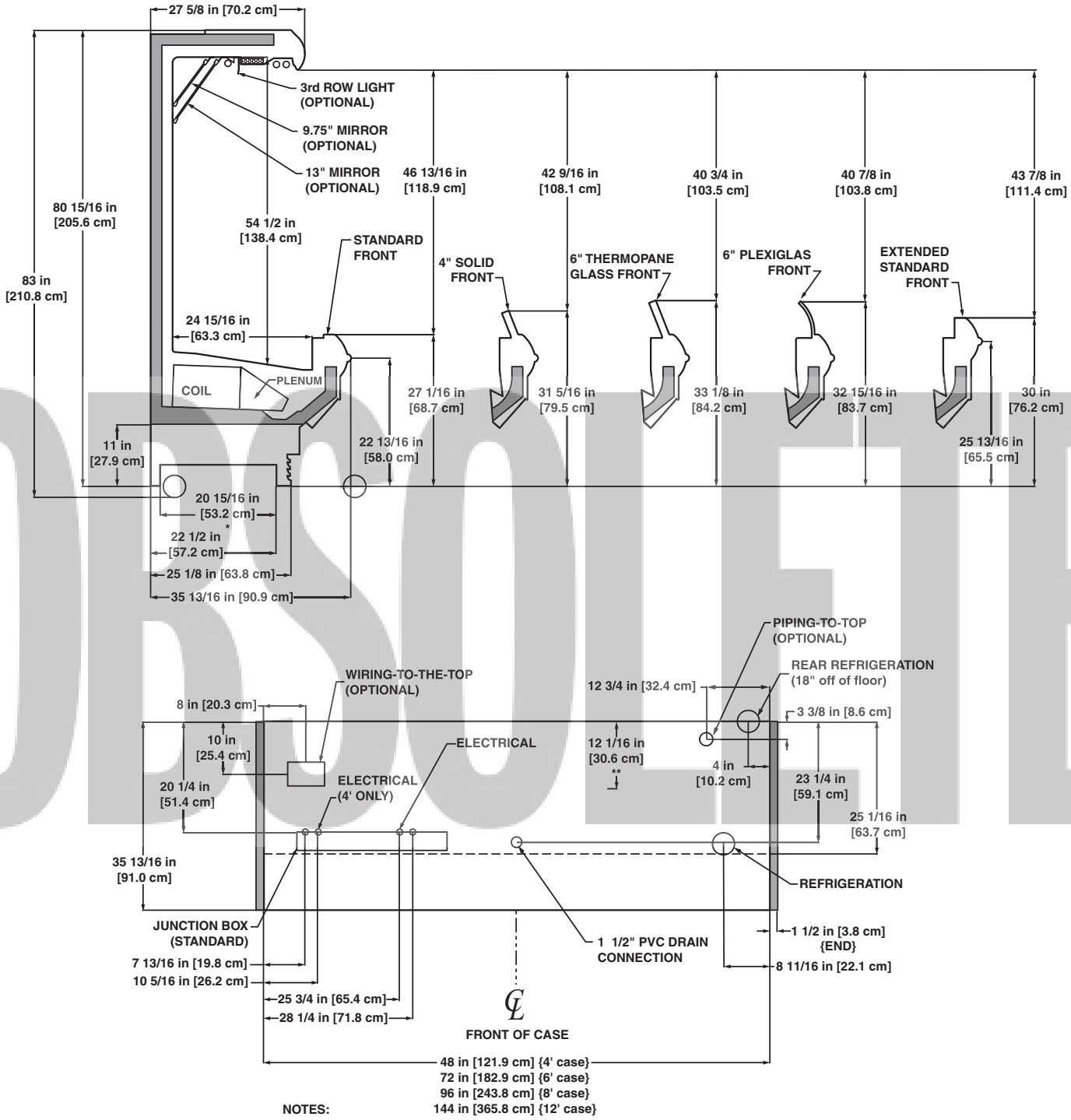


NOTES:

* STUB-UP AREA

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", 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	0.39	23.4	0.40	48	2.88	600	3.33	798
	8'	3	1.50	90	0.59	35.1	0.58	70	3.85	800	4.44	1065
	12'	4	2.00	120	0.78	46.8	0.83	100	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	2	3'	0.37	44	2.57	308
	8'	2	4'	0.47	56	3.27	392
	12'	3	4'	0.70	84	4.90	588

OBSOLETE

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OHM	Standard	1451	Std.	12	6-8	25	35	350
	Standard	1385	Std.	17	6-8	28	38	350
	All Others	1341	Std.	17	6-8	28	37	350
	Standard	1385	Enh.	22	6-8	28	38	350
	All Others	1341	Enh.	22	6-8	28	37	350

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

Defrost Controls

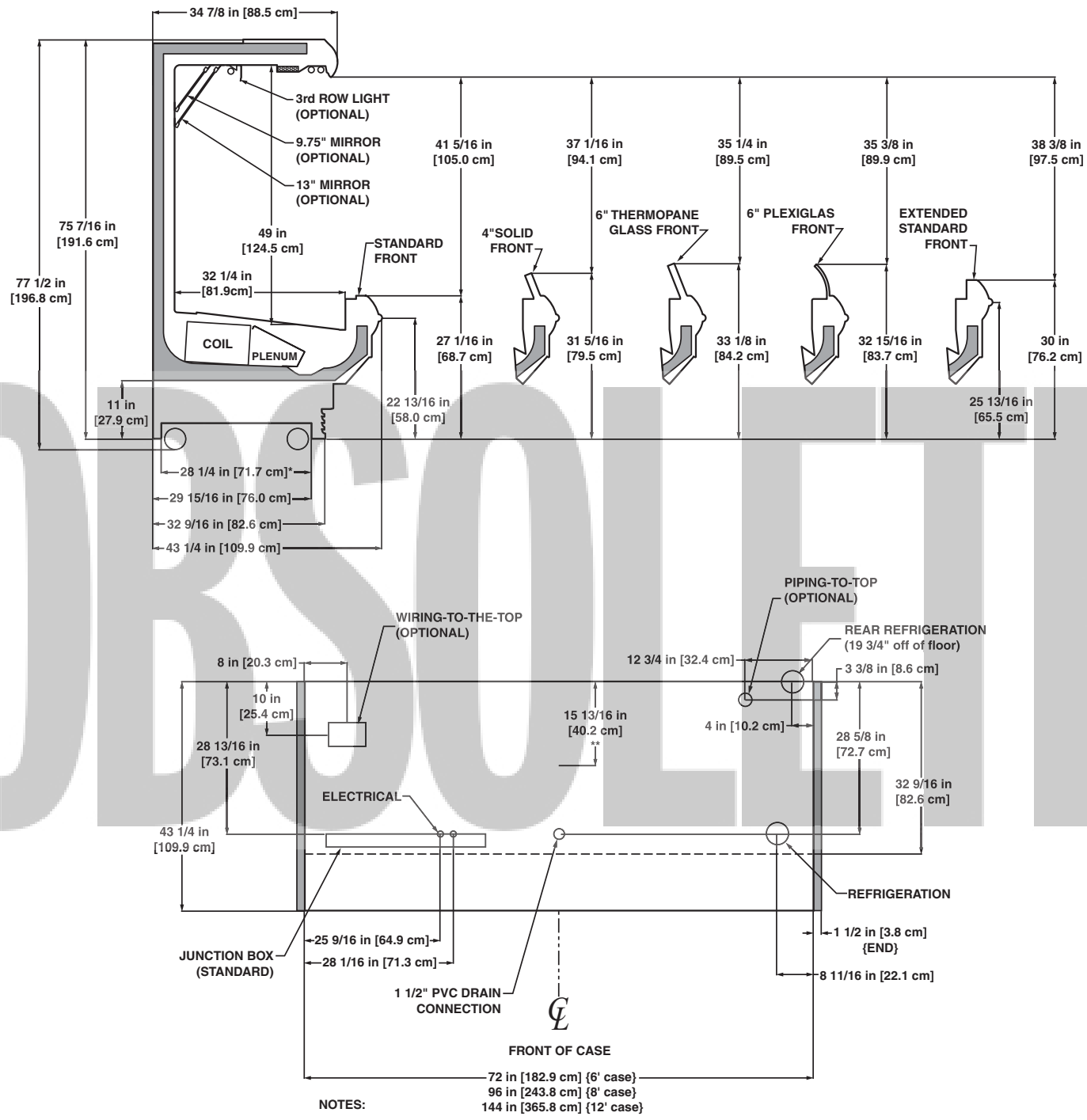
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OHM	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.

OHM
(11" BASEFRAME)



NOTES:

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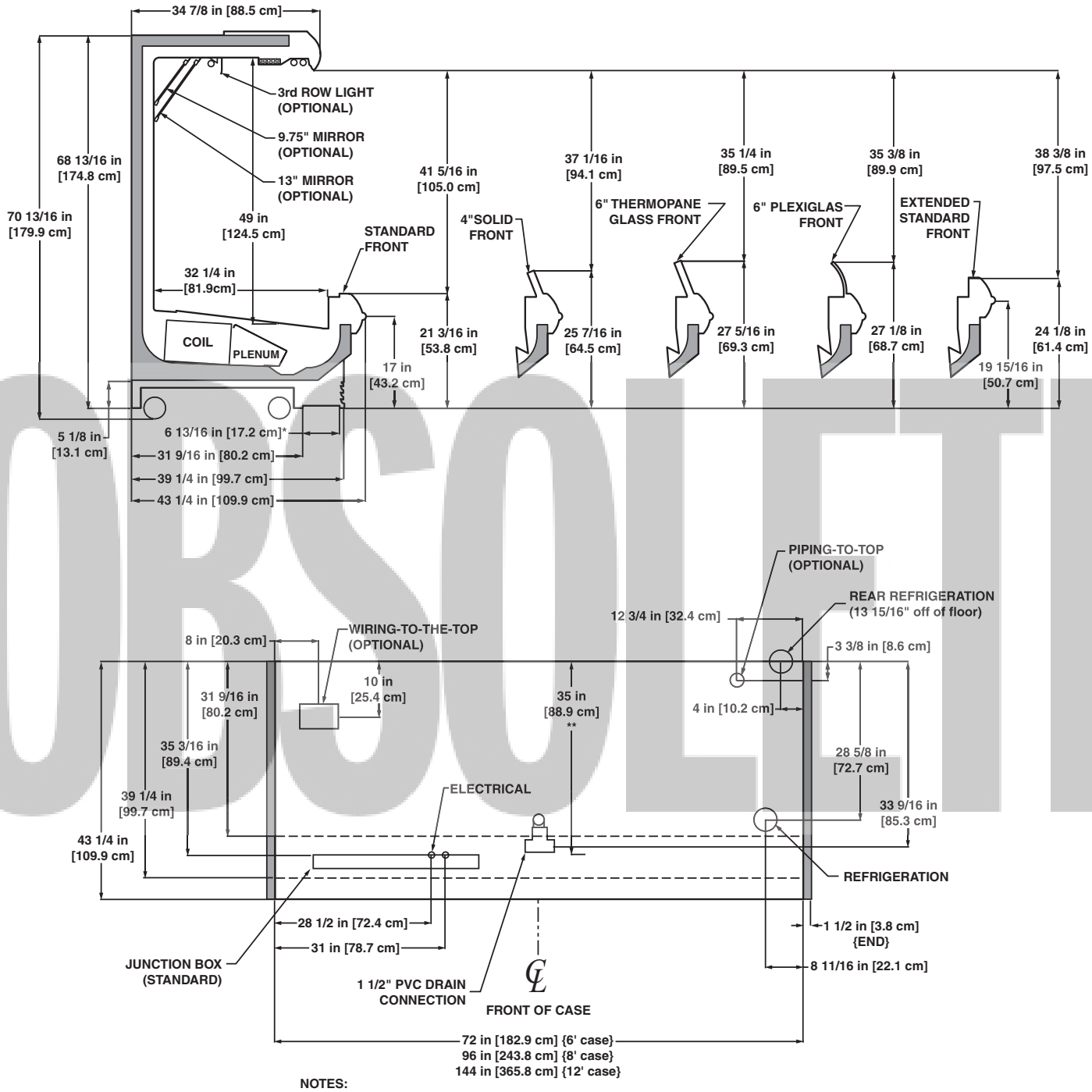
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"

OBSOLETE

OHM
(5" BASEFRAME)



NOTES:

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
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- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20

OBSOLETE

OBSOLETE

High Multi-Deck Deli/Meat Merchandiser

OHMH- 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
OHMH	6'	3	1.50	90	0.70	42	0.40	48	2.88	600	3.33	798
	8'	4	2.00	120	0.93	56	0.58	70	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	0.83	100	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHMH	6'	2	3'	0.37	44	2.93	352
	8'	2	4'	0.47	56	3.73	448
	12'	3	4'	0.70	84	5.60	672

OBSOLETE

Guidelines & Control Settings

Model	Front Sill Heights	BTUH/ft[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OHMH	Standard	1550	Std.	12	6-8	26	37	330
	Standard	1434	Std.	17	6-8	29	41	330
	All Others	1340	Std.	17	6-8	29	38	330
	Standard	1434	Enh.	22	6-8	29	41	330
	All Others	1340	Enh.	22	6-8	29	38	330

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
OHMH	4	6 - 8	35	47	45	47	26	45	45	45

Medium Temperature Defrost Schedule

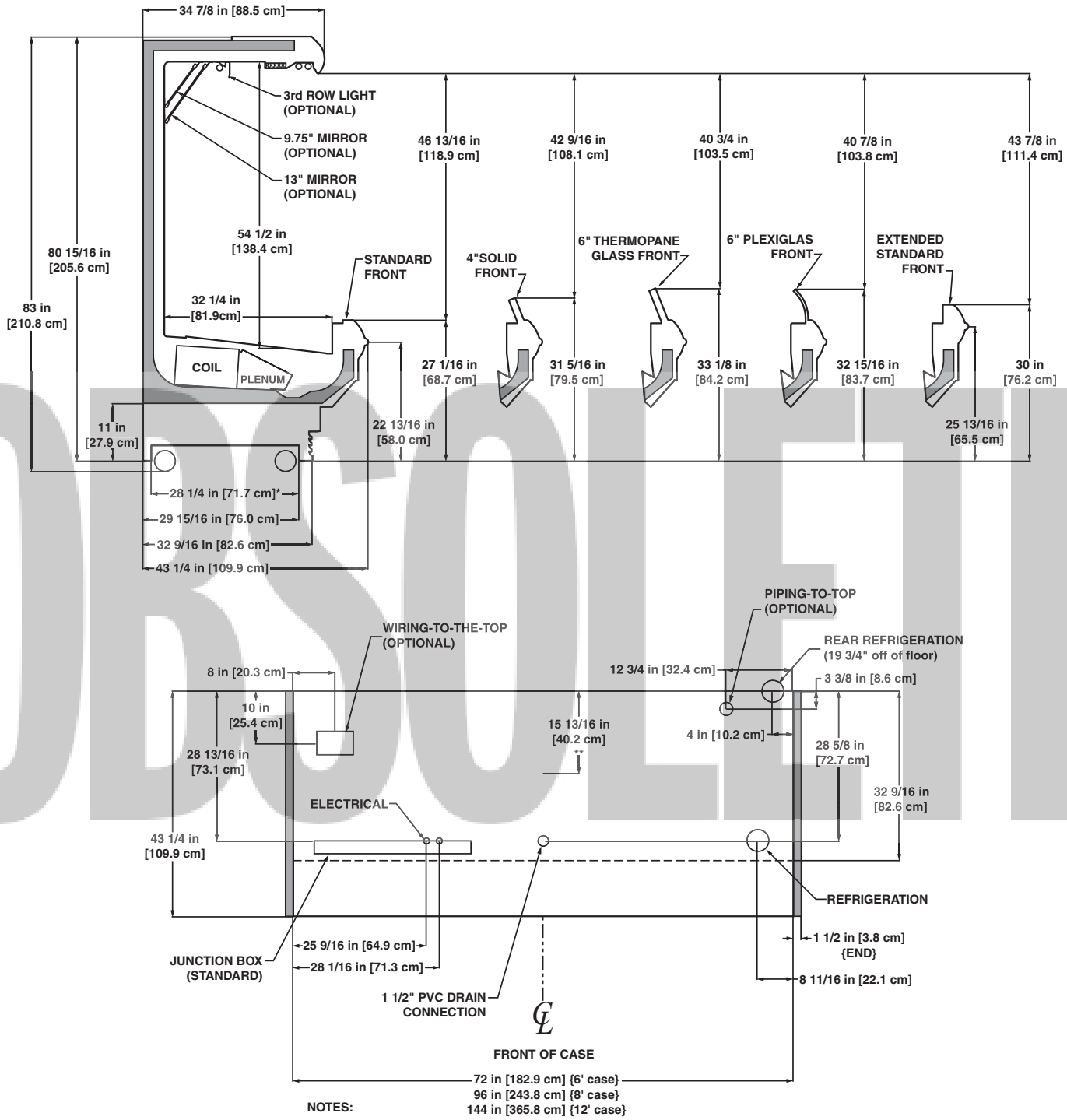
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

Hill PHOENIX EXCELLENCE
A DOVER COMPANY
NSF COMPONENT
c UL us

OHMH
(11" BASEFRAME)

OBSOLETE



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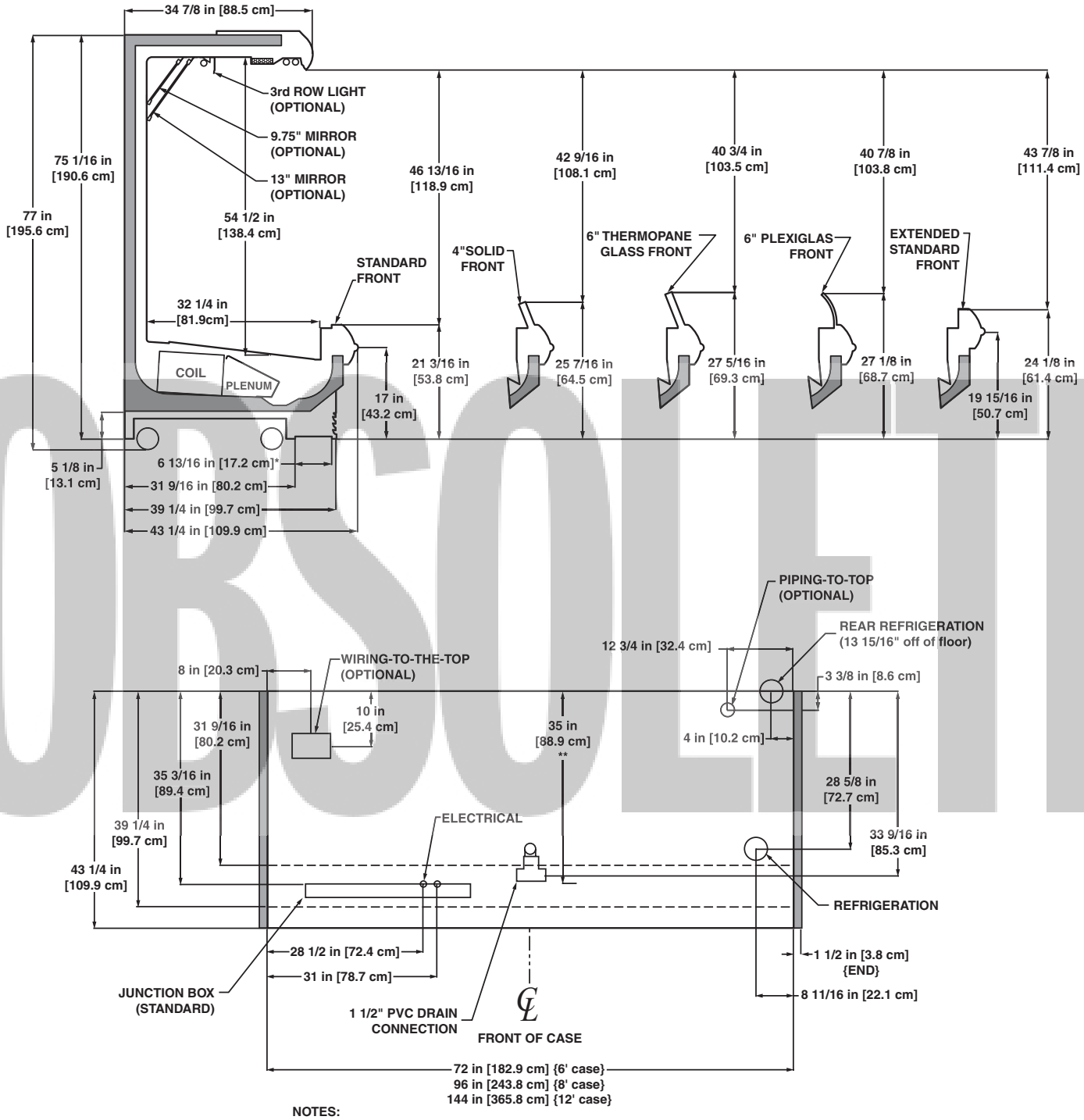
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"

NSF COMPONENT
c UL us
A DOVER COMPANY

OHMH
(5" BASEFRAME)



OBSOLETE

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

OBSOLETE

Narrow Multi-Deck Produce Merchandiser

ONHP - 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
ONHP	4'	2	1.00	60	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	2	1.00	60	0.47	28	- - -	- - -	2.88	600	3.33	798
	8'	3	1.50	90	0.70	42	- - -	- - -	3.85	800	4.44	1065
	12'	4	2.00	120	0.93	56	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	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	4'	1	4'	0.23	28	1.63	196
	6'	2	3'	0.37	44	2.57	308
	8'	2	4'	0.47	56	3.27	392
	12'	3	4'	0.70	84	4.90	588

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONHP Cut Produce	1310	Std.	22	6-8	32	45	360
	1310	Enh.	26	6-8	32	45	360
ONHP Bulk Produce	930	Std.	27	6-8	36	48	360
	930	Enh.	29	6-8	36	48	360

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ONHP	3	6 - 8	35	47	45	47	- - -[5]	- - -	45	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.

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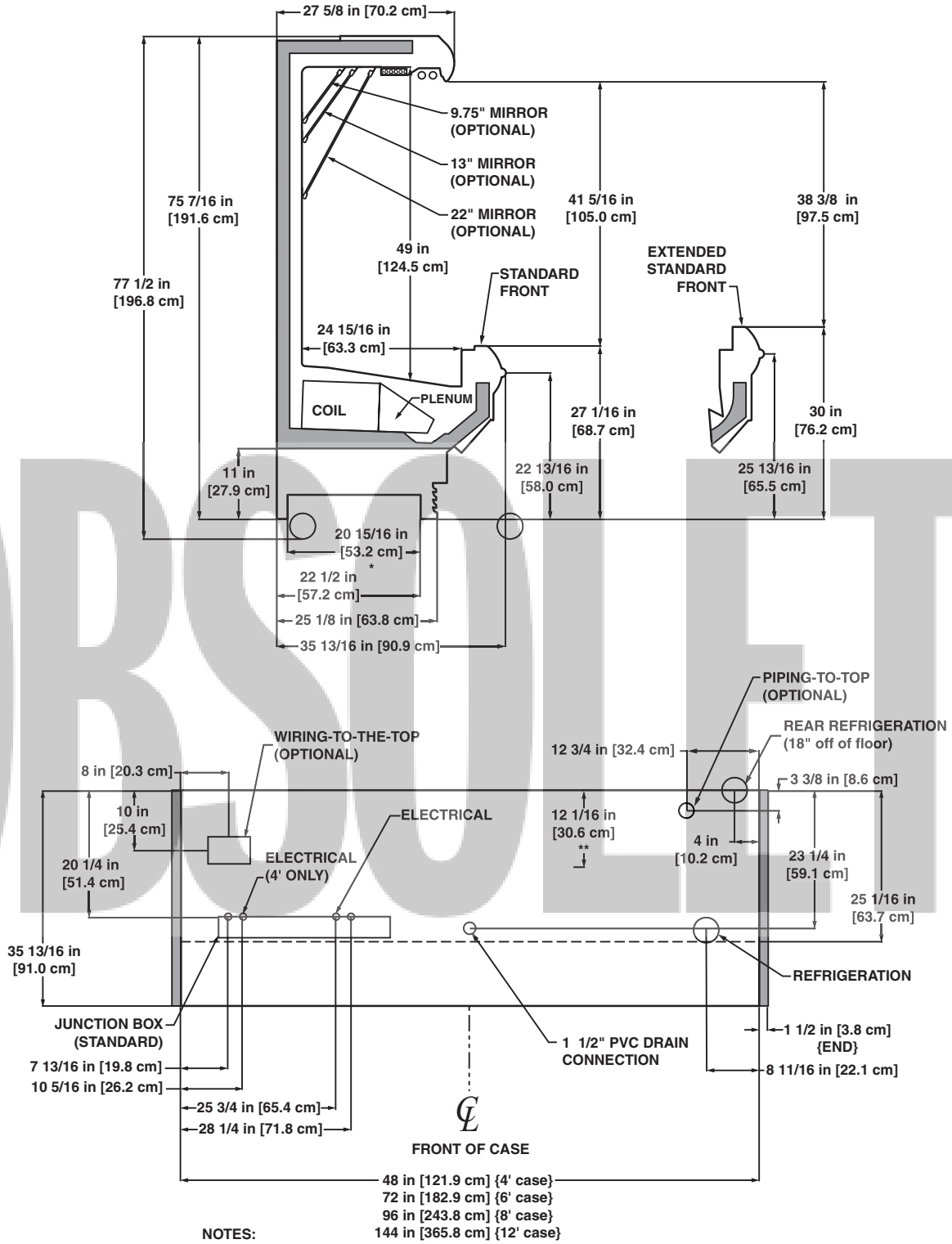

NOTES:

* STUB-UP AREA

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"

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A DOVER COMPANY

High Narrow Multi-Deck Produce Merchandiser

ONHPH - 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
ONHPH	4'	2	1.00	60	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	3	1.50	90	0.70	42	- - -	- - -	2.88	600	3.33	798
	8'	4	2.00	120	0.93	56	- - -	- - -	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	- - -	- - -	5.77	1200	6.67	1600

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

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONHPH	4'	1	4'	0.23	28	1.87	224
	6'	2	3'	0.37	44	2.93	352
	8'	2	4'	0.47	56	3.73	448
	12'	3	4'	0.70	84	5.60	672

Guidelines & Control Settings

Model	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONHPH Cut Produce	1330	Std.	22	6-8	34	46	360
	1330	Enh.	26	6-8	34	46	360
ONHPH Bulk Produce	945	Std.	27	6-8	37	47	360
	945	Enh.	29	6-8	37	47	360

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
ONHPH	3	6 - 8	35	47	45	47	- - -[5]	- - -	45	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.

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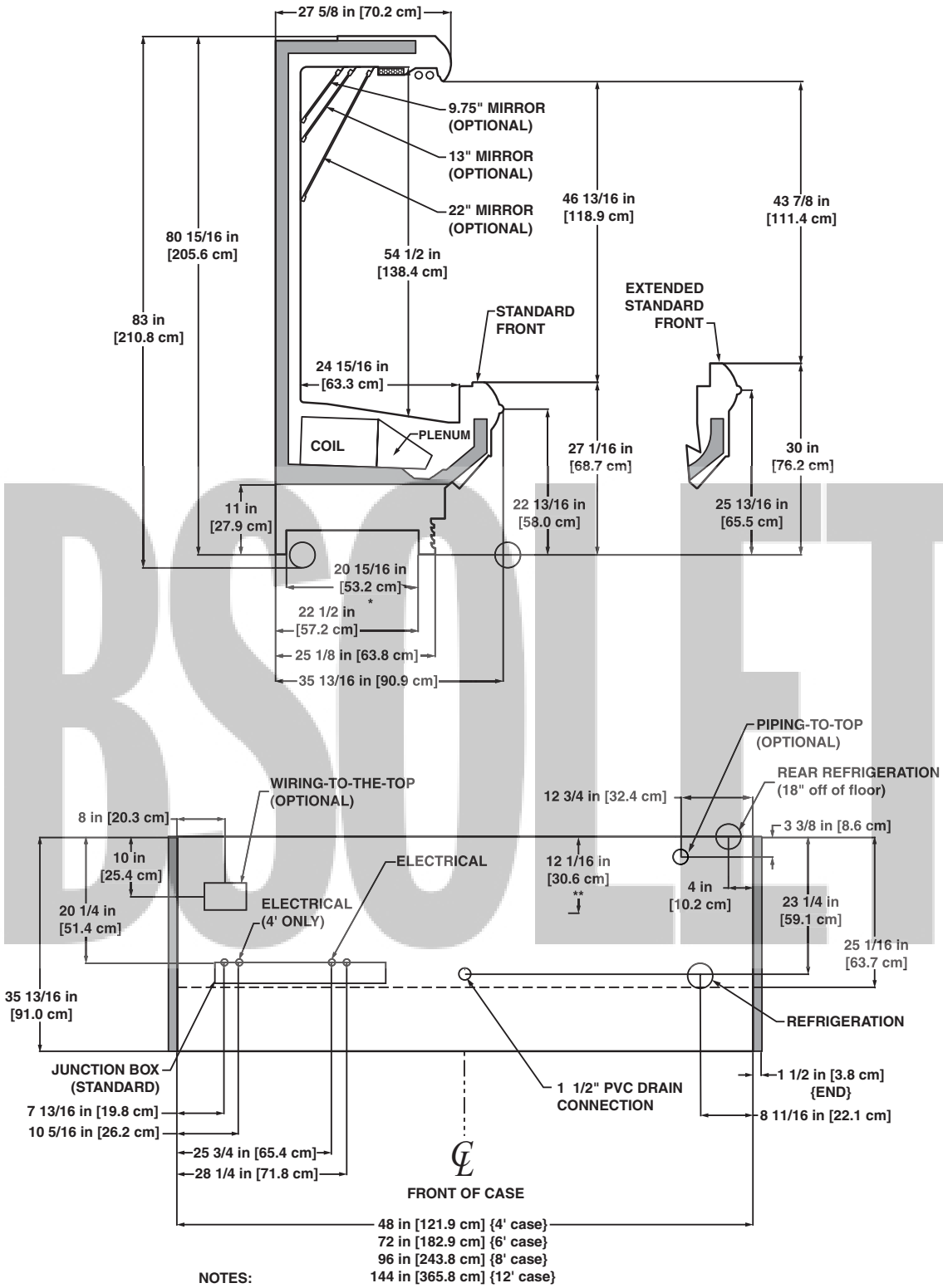

NOTES:

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- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"

OBSOLETE

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	0.47	28	0.40[1]	48	2.88	600	3.33	798
	8'	3	1.50	90	0.70	42	0.58[1]	70	3.85	800	4.44	1065
	12'	4	2.00	120	0.93	56	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		Bulbs per Row	Bulb Length	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'	2	3'	0.37	44	2.57	308
	8'	2	4'	0.47	56	3.27	392
	12'	3	4'	0.70	84	4.90	588

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OHP Cut Produce	1215	Std.	22	6-8	31	45	440
	1215	Enh.	26	6-8	31	45	440
OHP Bulk Produce	855	Std.	27	6-8	36	48	250
	855	Enh.	29	6-8	36	48	250

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
OHP	3	6 - 8	35	47	45	47	26	45	30	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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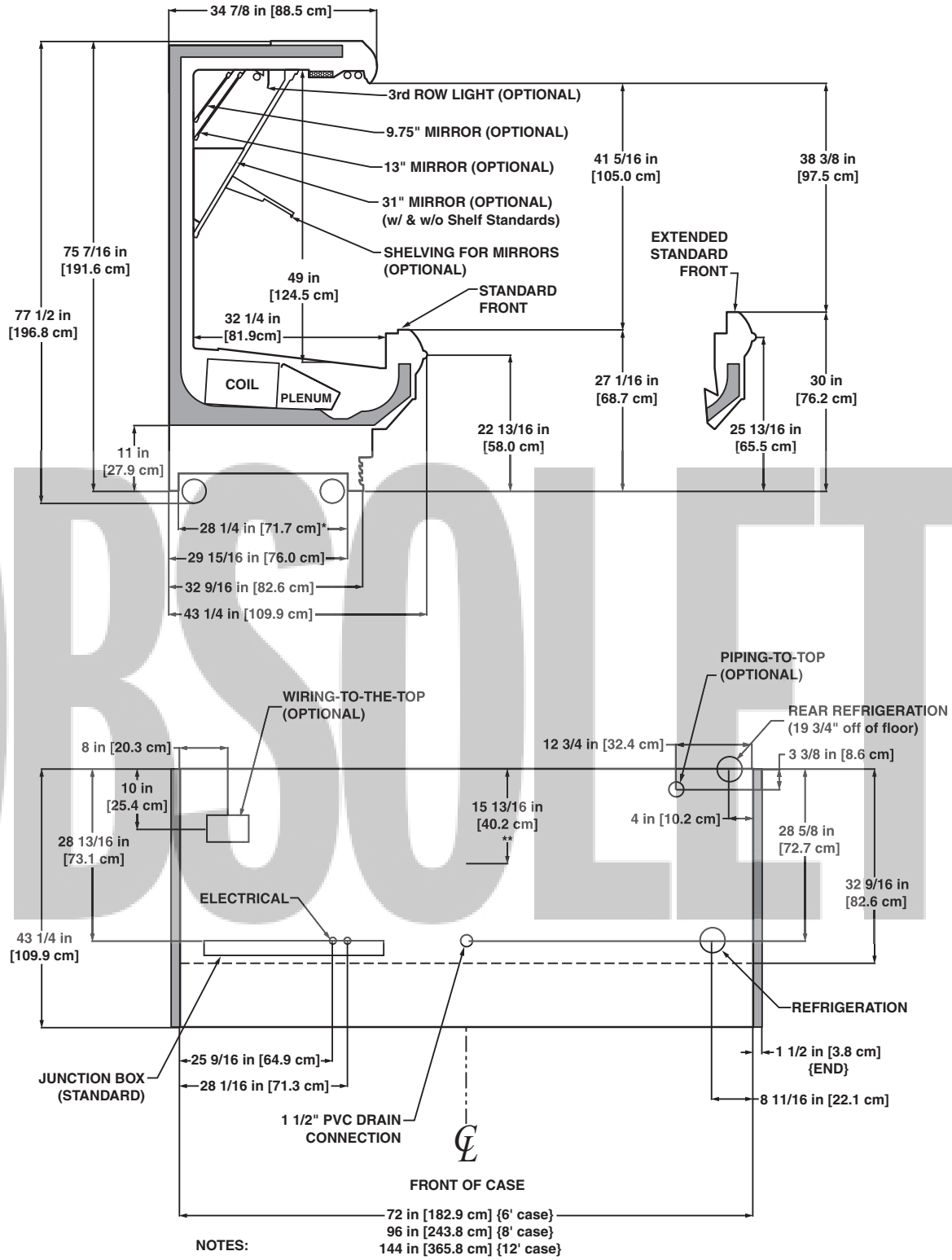

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- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"

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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	0.70	42	0.40	48	2.88	600	3.33	798
	8'	4	2.00	120	0.93	56	0.58	70	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	0.83	100	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	2	3'	0.37	44	2.93	352
	8'	2	4'	0.47	56	3.73	448
	12'	3	4'	0.70	84	5.60	672

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OHPH Cut Produce	1460	Std.	22	6-8	30	45	315
	1460	Enh.	26	6-8	30	45	315
OHPH Bulk Produce	1215	Std.	27	6-8	31	45	440
	1215	Enh.	29	6-8	31	45	440

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

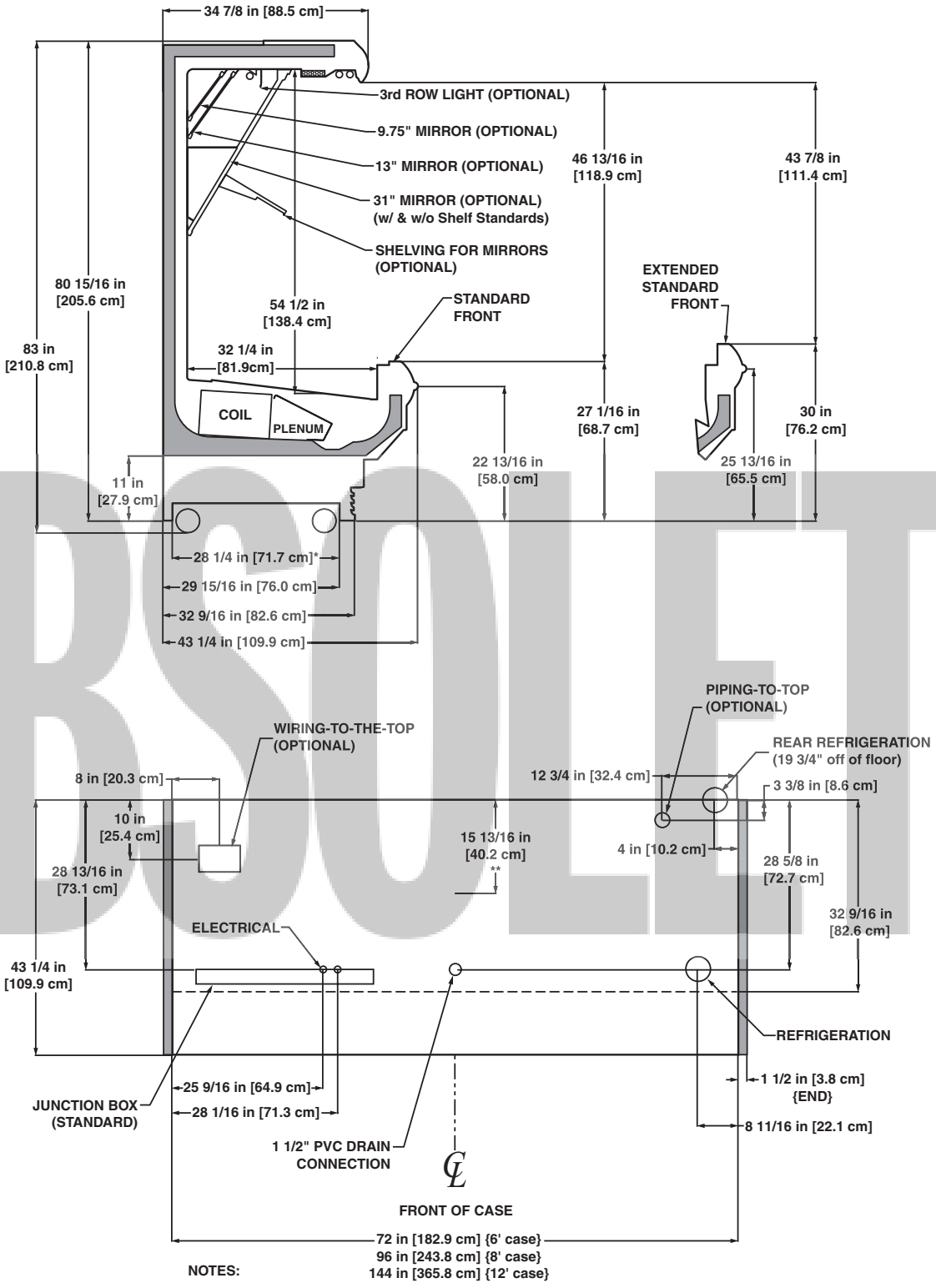
Defrost Controls

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)
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.



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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"

OBSOLETE

Wide Multi-Deck Produce Merchandiser

OWHP - 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
OWHP	8'	3	1.50	90	0.70	42	0.58[1]	70	3.85	800	4.44	1065
	12'	4	2.00	120	0.93	56	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OWHP	8'	2	4'	0.47	56	3.27	392
	12'	3	4'	0.70	84	4.90	588

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OWHP Cut Produce	1592	Std.	22	6-8	31	45	440
	1592	Enh.	26	6-8	31	45	440
OWHP Bulk Produce	1120	Std.	27	6-8	36	48	250
	1120	Enh.	29	6-8	36	48	250

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
OWHP	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.

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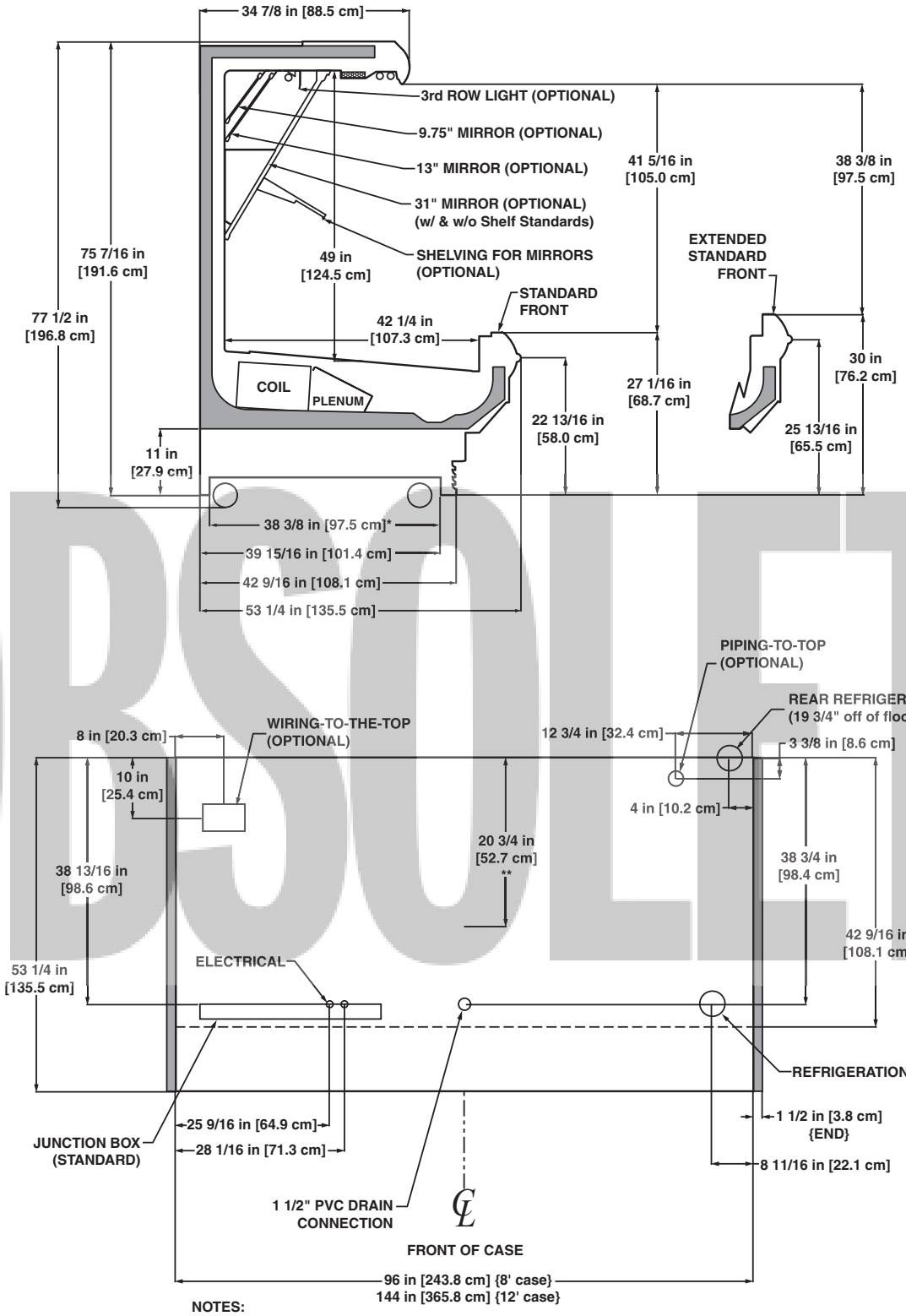

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** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"

Wide High Multi-Deck Produce Merchandiser

OWHPH - 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
OWHPH	8’	4	2.00	120	0.93	56	0.58	70	3.85	800	4.44	1065
	12’	5	2.50	150	1.17	70	0.83	100	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OWHPH	8’	2	4’	0.47	56	3.73	448
	12’	3	4’	0.70	84	5.60	672

Guidelines & Control Settings

Model	BTUH/ft[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OWHPH Cut Produce	1913	Std.	22	6-8	30	45	315
	1913	Enh.	26	6-8	30	45	315
OWHPH Bulk Produce	1592	Std.	27	6-8	31	45	440
	1592	Enh.	29	6-8	31	45	440

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
OWHPH	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.

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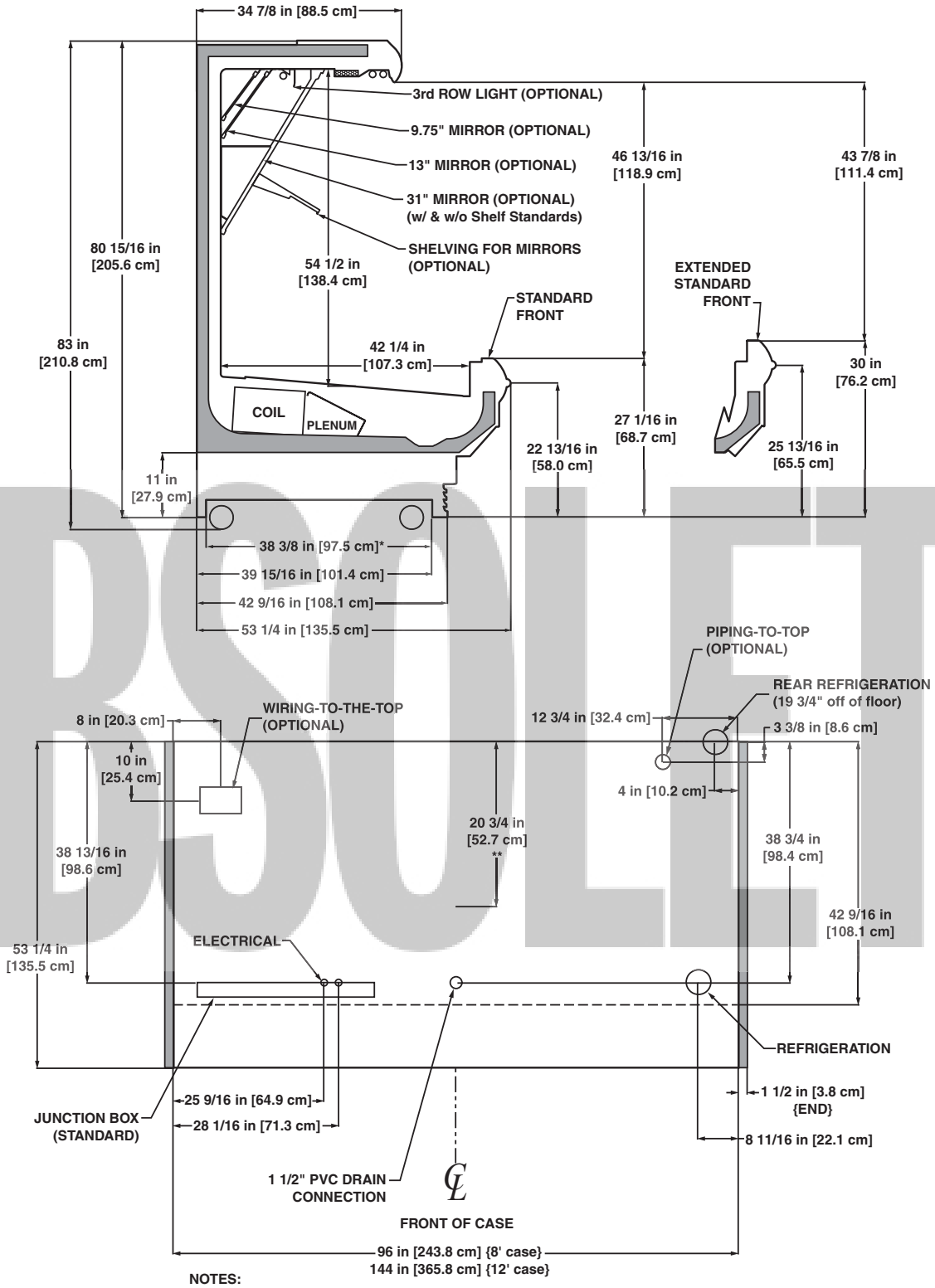

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- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"

OBSOLETE

Narrow Multi-Deck Self-Contained Dairy Merchandiser

ONNA

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
ONNA	47”	208	1	60	3 wire + ground	14.630	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 208 Volts Amps	Evap. Pan Heater 208 Volts Watts	Maximum Lights 120 Volts Amps	Maximum Lights 120 Volts Watts
ONNA	47”	3	1.02	51	0.85	88	0.9	54	7.21	1500	0.57	68

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
ONNA-47”	37.2	15.5	6-8	35	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.
ONNA-47”	208	1	60	3/4	6.8	33.5	R134A	3.5

[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.

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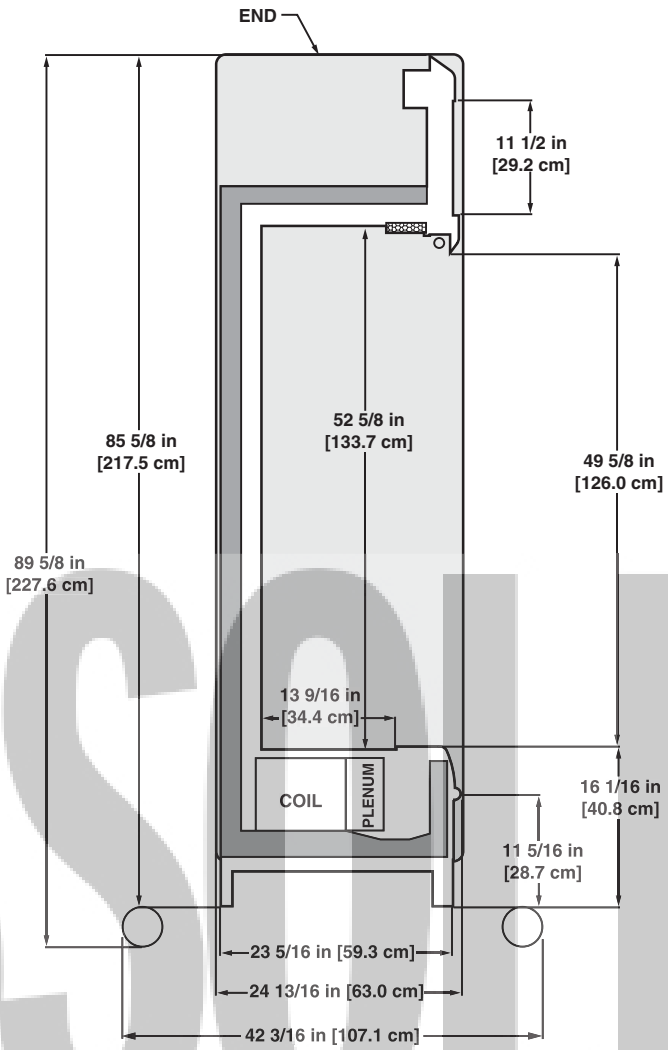

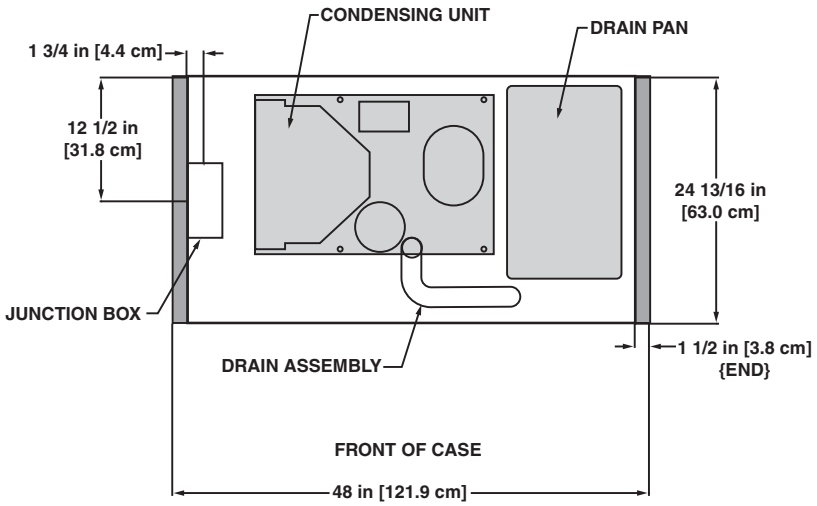

NOTES:

- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZES: 12"

A DOVER COMPANY

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

ONU- 4'/47" & 6'

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	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	3	1.50	90	0.70	42	- - -	- - -	2.88	600	3.33	798

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

Lighting Data

Model		Bulbs per Row	Bulb Length	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"	1	4'	0.23	28	1.87	224
	6'	2	3'	0.37	44	2.93	352

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONU	1450	17	6-8	30	40	310

[2] Model ONU only available for meat application with the 7 1/2"extended front w/ nose lights and no shelf lights.

[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)
ONU	4	6 - 8	35	47	45[5]	47[5]	25	45	- - -	- - -

[5] 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.

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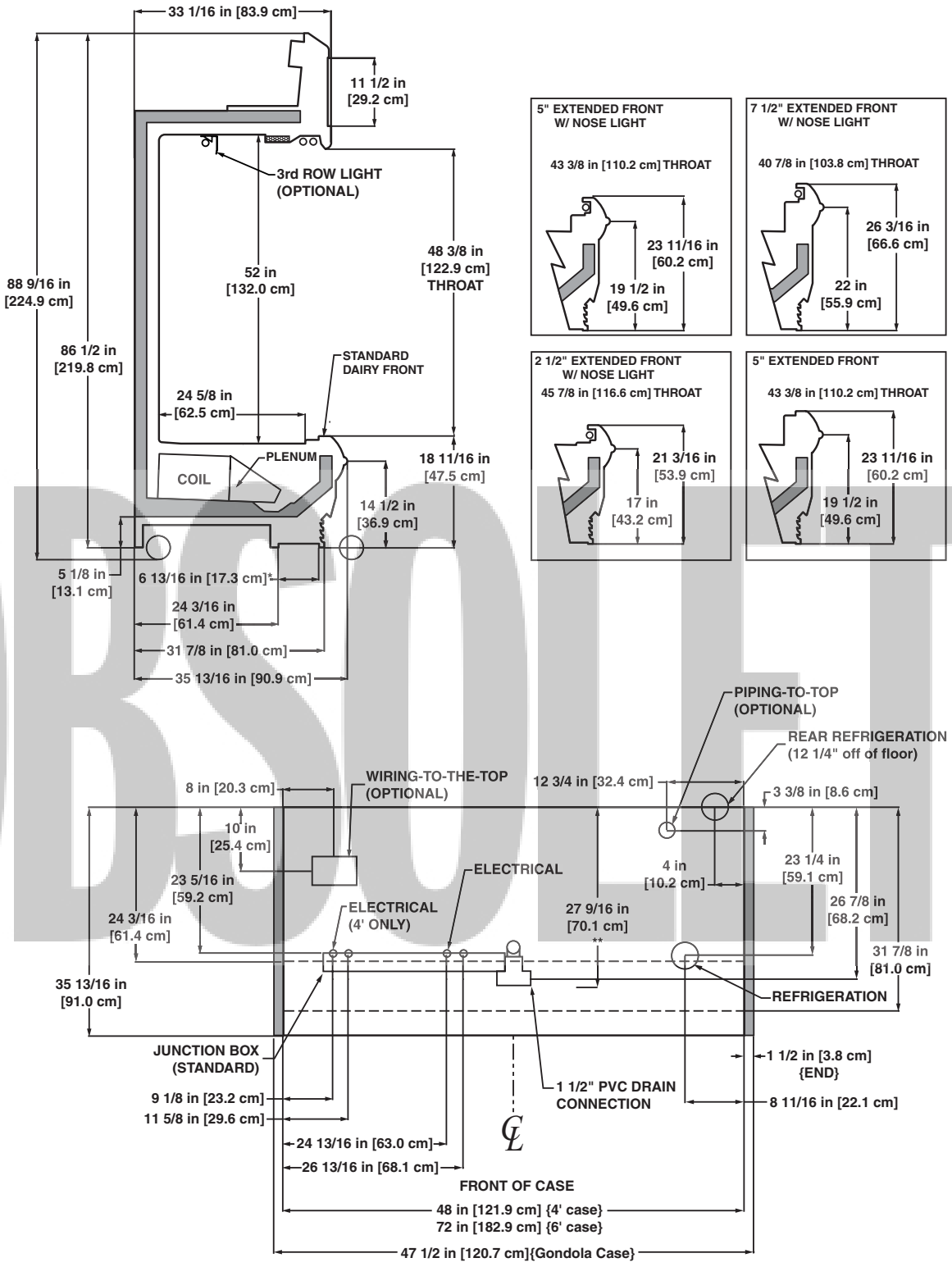

NOTES:

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE - 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

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

ONUA - 4'/47" & 6'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
ONUA	4'/47"	208	1	60	3 wire + ground	16.220	30
	6'	208	1	60	3 wire + ground	22.000	40

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		Condenser Fan 208 Volts		Drain Pump 120 Volts		Evap. Pan Heater 208 Volts		Maximum Lights 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONUA	4'/47"	2	1.00	60	2.60	130	0.90	108	7.21	1500	1.87	224
	6'	3	1.50	90	1.10	114	0.90	108	7.21	1500	2.93	352

OBSOLETE

Guidelines & Control Settings

Model[1]	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
ONUA-4'/47"	43.9	33	6-8	27.5	39	310
ONUA-6'	59.3	33	6-8	27.5	39	310

[1] Model ONUA only available for meat application with the 7 1/2"extended front w/ nose lights and no shelf lights.

[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.
ONUA-4'/47"	208	1	60	1	7.0	34.2	R22	5.9
ONUA-6'	208	1	60	1 1/2	10.4	48.2	R22	6.75

[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)
ONUA	4	- - - [5]	- - -	40	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.

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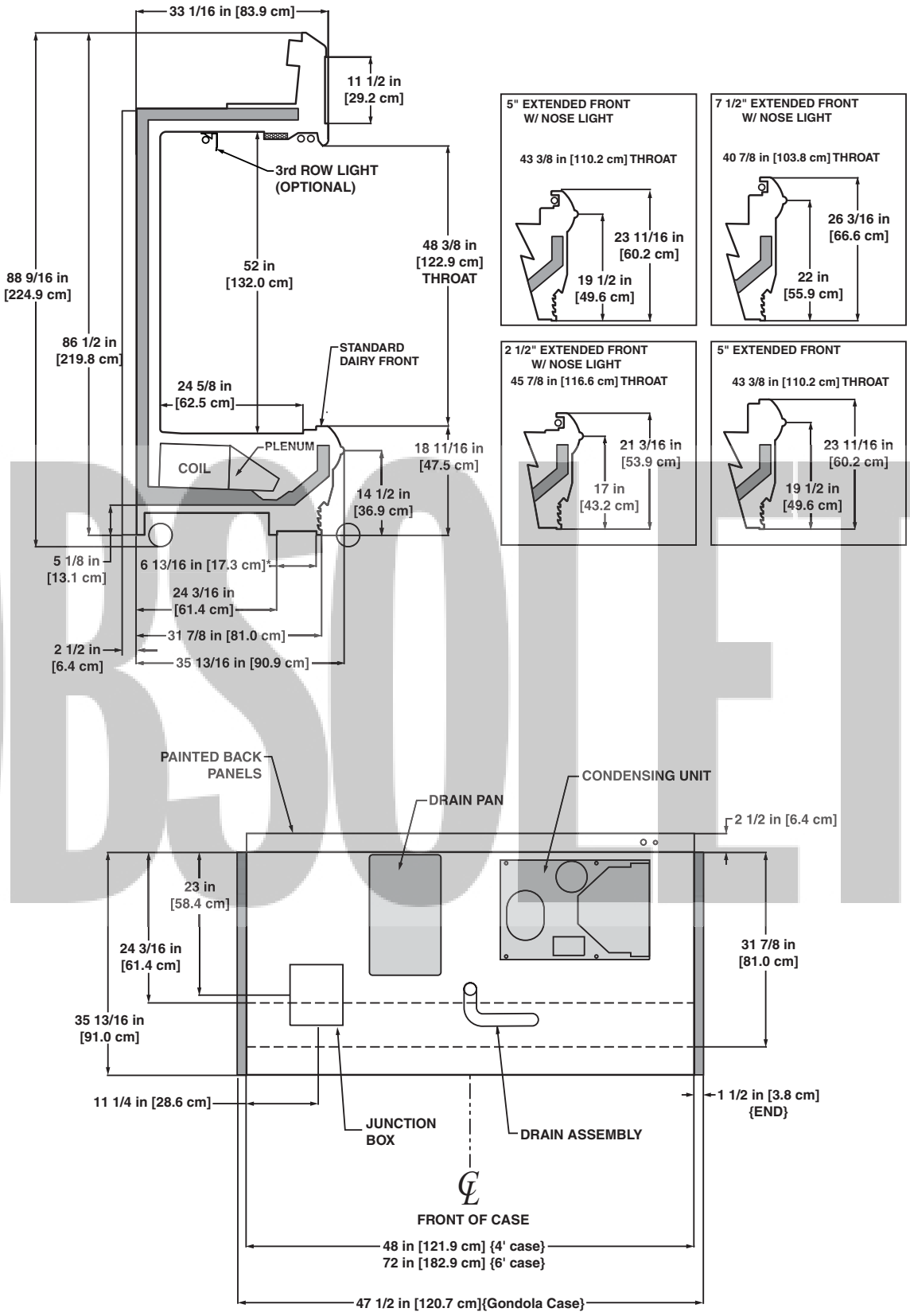

NOTES:

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

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Roll-In Rear Load Dairy Merchandiser

ORDR - 8’ & 12’ dairy

Electrical Data

Model		Fans per Case		Upper Standard Fans		Lower Standard Fans		Upper High Efficiency Fans		Lower High Efficiency Fans		Anti-Condensate Heaters	
				120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
		Upper	Lower	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ORDR	8’	3	4	1.50	90	1.80	68	0.90	60	0.60	44	0.58	70
	12’	4	6	2.00	120	2.70	102	1.20	80	0.90	66	0.83	100

Electrical Data (Continued)

Model		Defrost Heaters			
		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts
ORDR	8’	3.85	800	4.44	1066
	12’	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row		Maximum Lighting	
				120 Volts		120 Volts	
				Amps	Watts	Amps	Watts
ORDR	8’	2	4’	0.47	56	4.17	500
	12’	3	4’	0.70	84	6.33	760

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
ORDR[3]	739	17	6-8	28	44	310

[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] 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		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)
ORDR	4	6 - 8	30	47	30	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.

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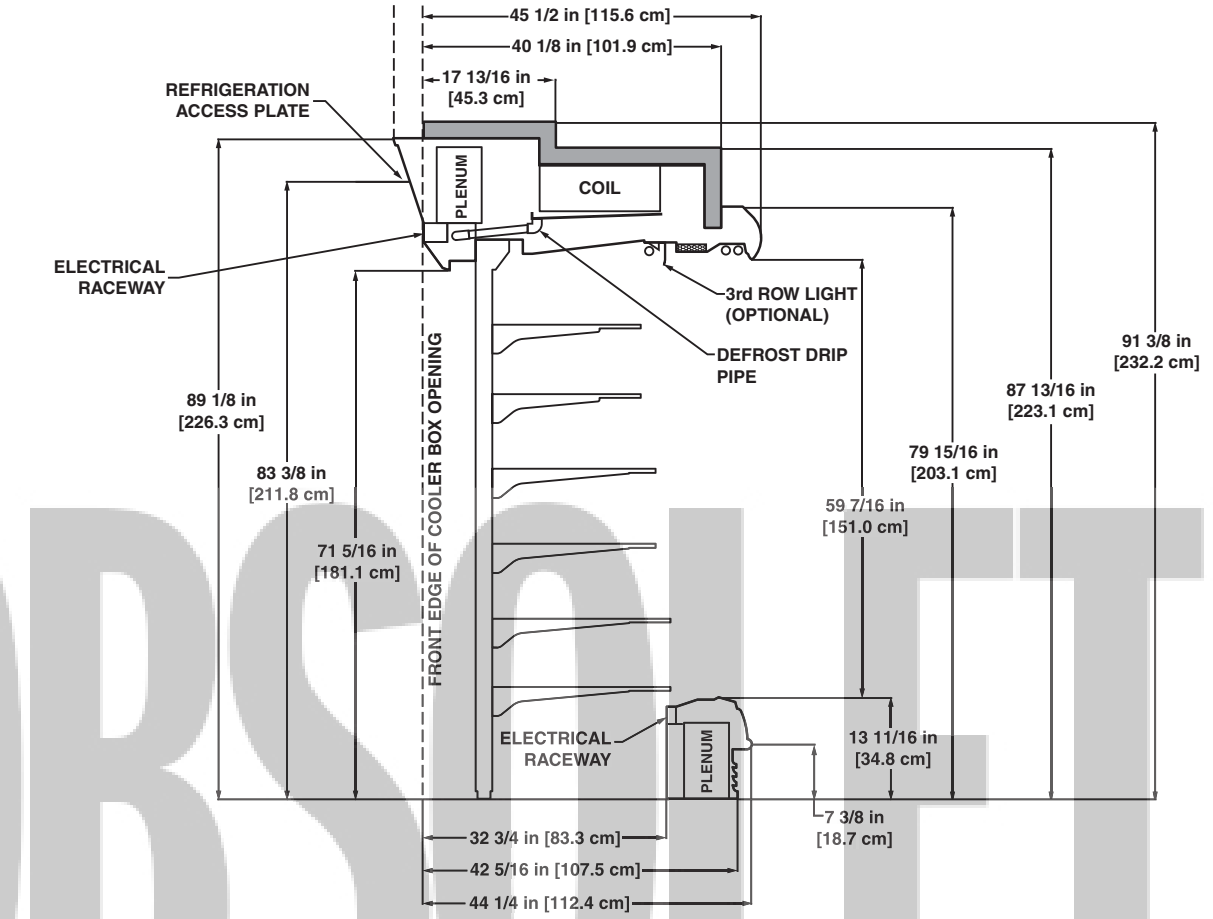

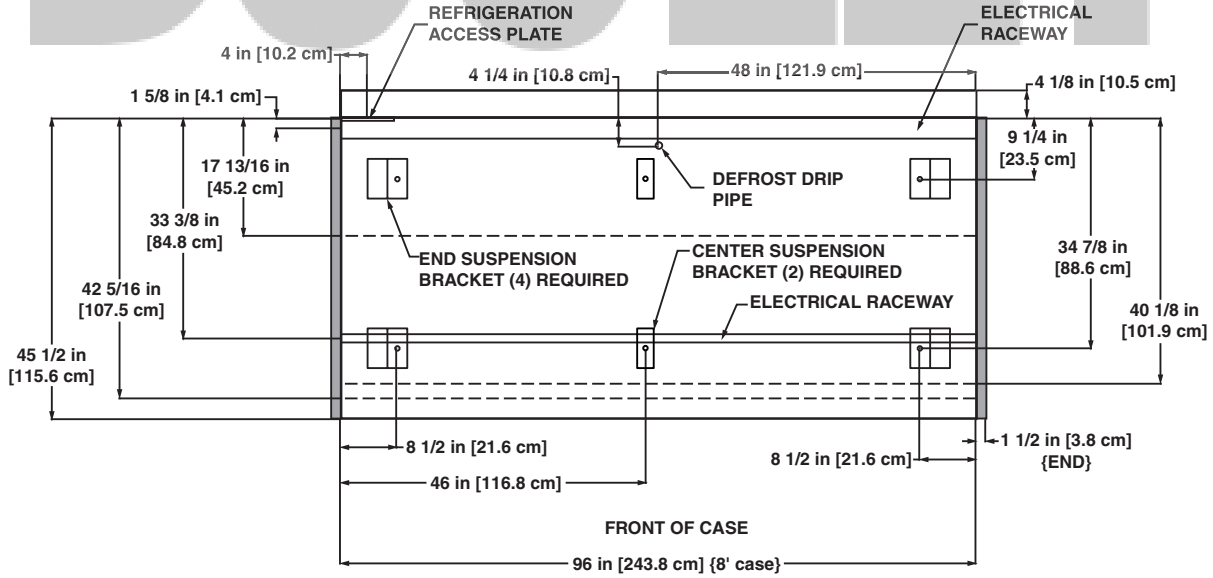

NOTES:

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 20", 22" & 24"

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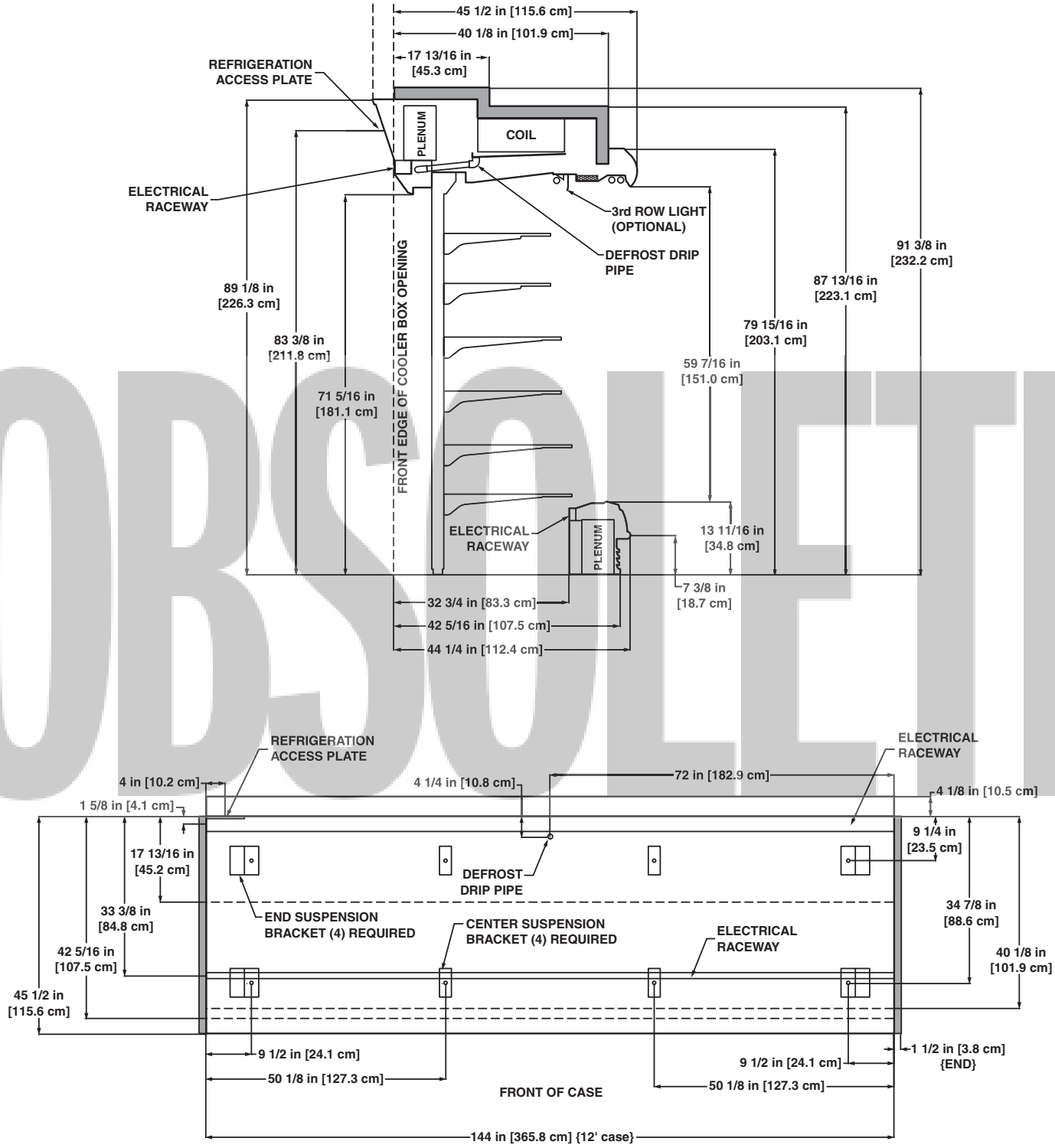

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NOTES:

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 20", 22" & 24"

END CAPS

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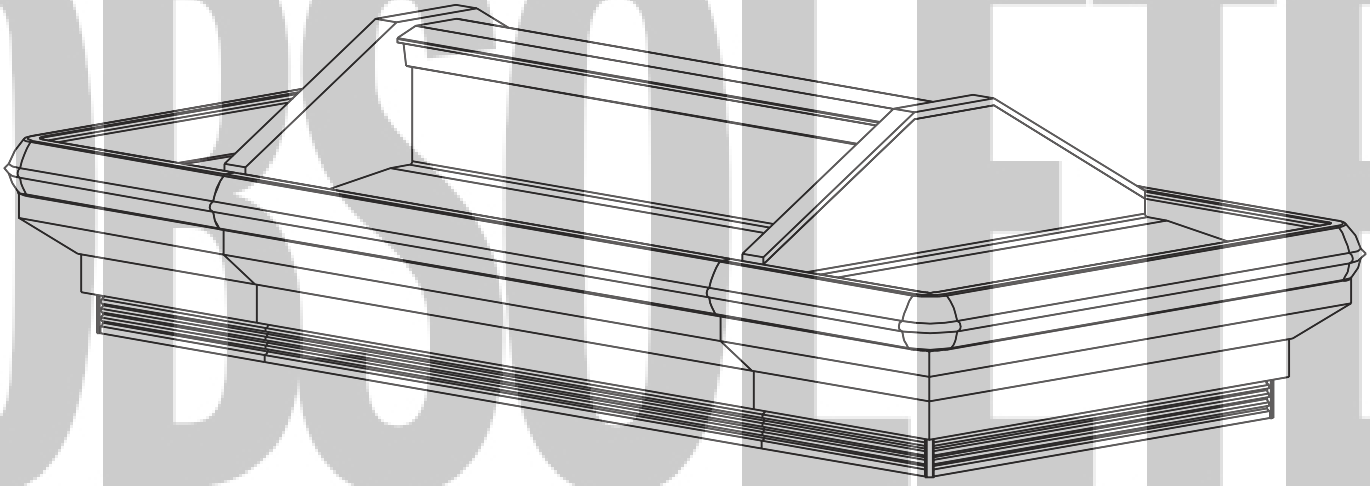


Notes:

- *Cases comply with ANSI / NSF* Standard 7. Units marked as components require remote refrigeration.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*
- *Front and rear sill heights vary with baseframe height.*

* *ANSI - American National Standard Institute*
NSF - National Sanitation Foundation

Narrow Single-Deck Frozen Meat End Cap Merchandiser

ONEMZ

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
ONEMZ	2	1.00	60	0.23	14	0.35	42	2.88	600	3.33	798

Lighting Data

Model	Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONEMZ	1	5'	- - -[1]	- - -	- - -	- - -

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

Guidelines & Control Settings

Model	BTUH/cs[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONEMZ	300	Std.	0	3-5	11	22	120

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

Defrost Controls

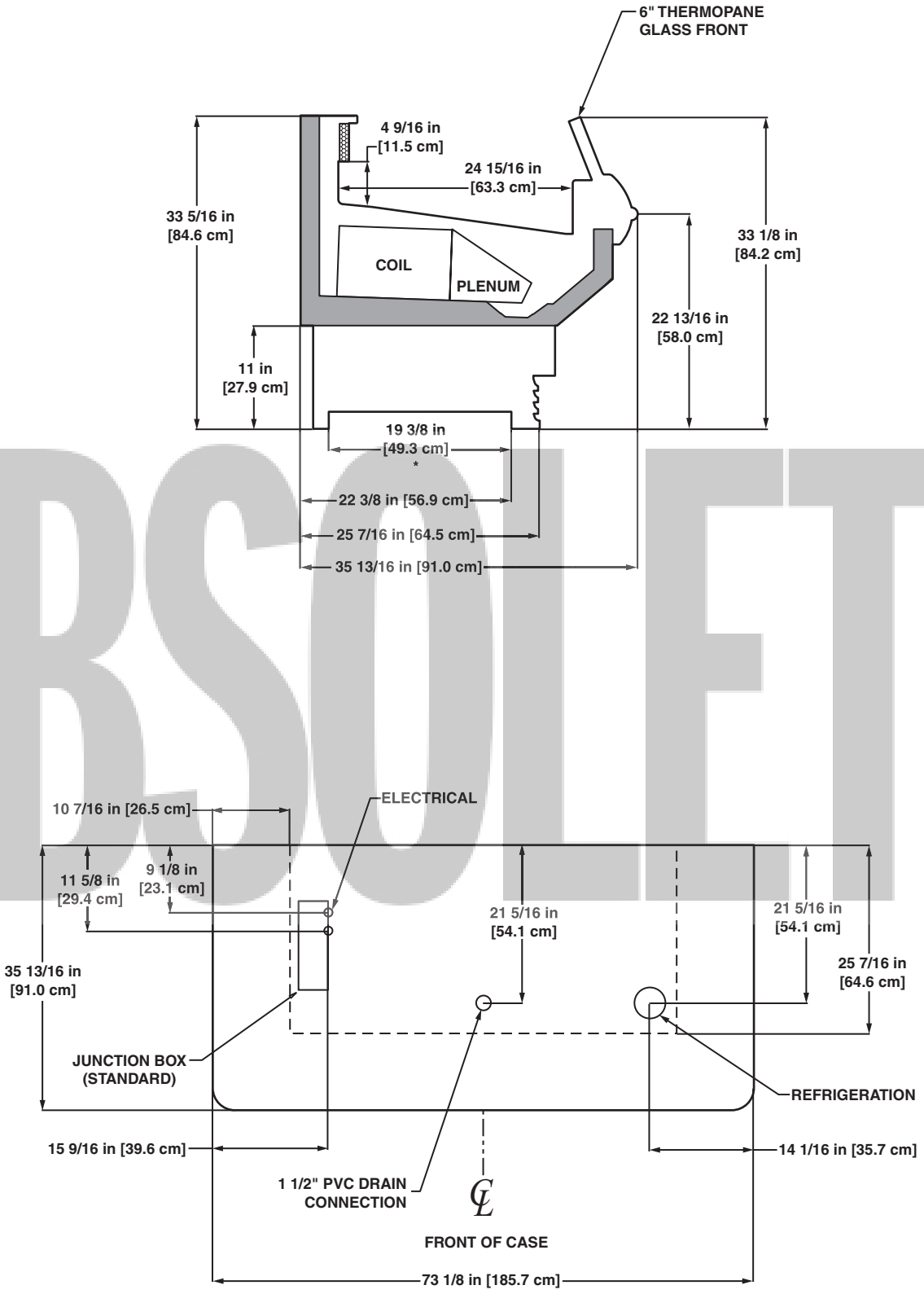
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONEMZ	2	13-15	45	47	- - -	- - -	20	60	- - -	- - -

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

OBSOLETE

All measurements are taken per CRMA specifications.



NOTES:

* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

OBSOLETE

The ONEMZs shown below are unitized with two ONMZ-8'cases with standard rear sills, and thermopane glass fronts.

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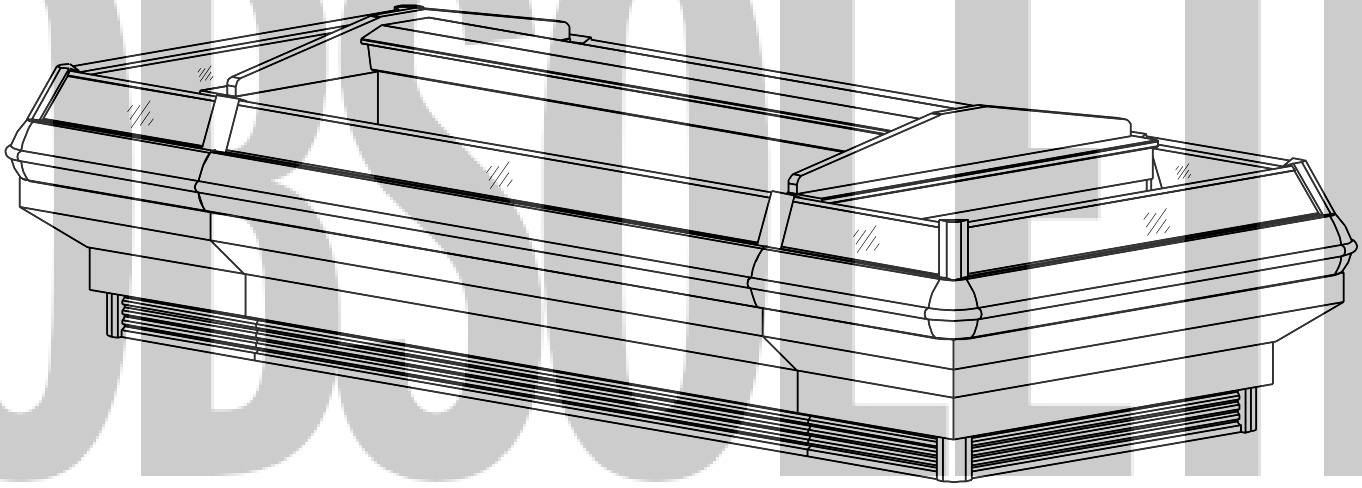

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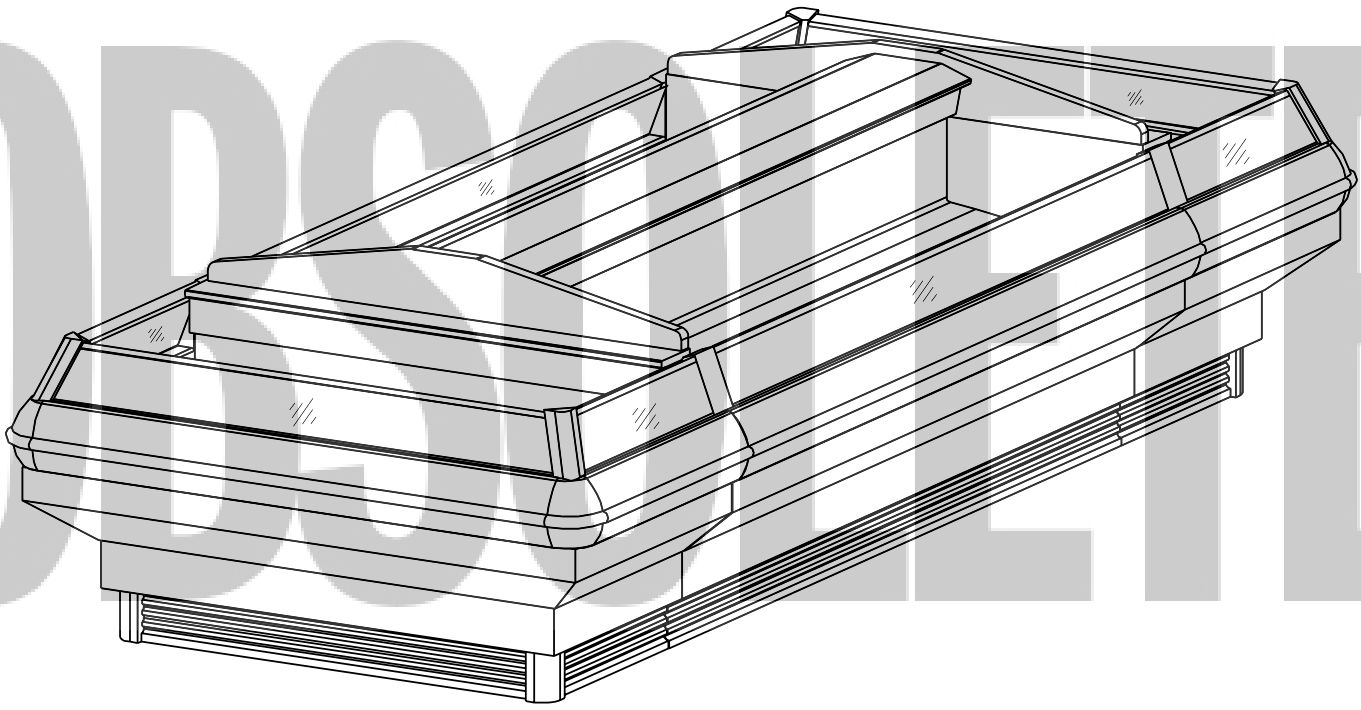

Single Deck Deli/Meat End Cap Merchandiser

OEM

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
OEM	2	1.00	60	0.15	9.2	0.35	42	2.88	600	3.33	798

Lighting Data

Model	Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OEM	2	3'	- - -[1]	- - -	- - -	- - -

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

Guidelines & Control Settings

Model	BTUH/cs[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OEM	2918	Std.	17	6-8	29	37	232
	2918	Enh.	22	6-8	29	37	232

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
OEM	2	6-8	40	49	70	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.

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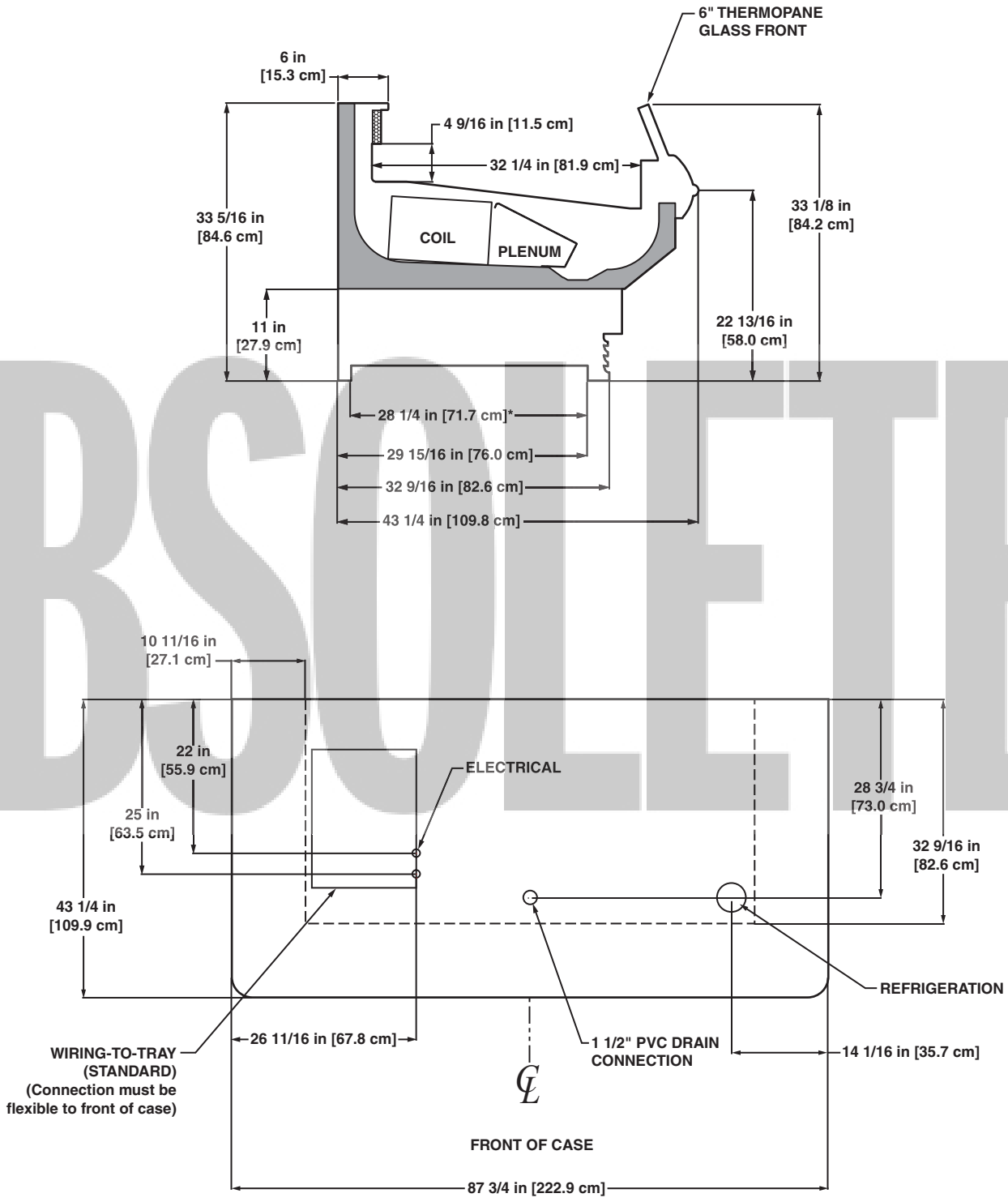

NOTES:

* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

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A DOVER COMPANY

The OEMs shown below are unitized with two O3UM-8'cases with lighted rear sills and thermopane glass fronts.

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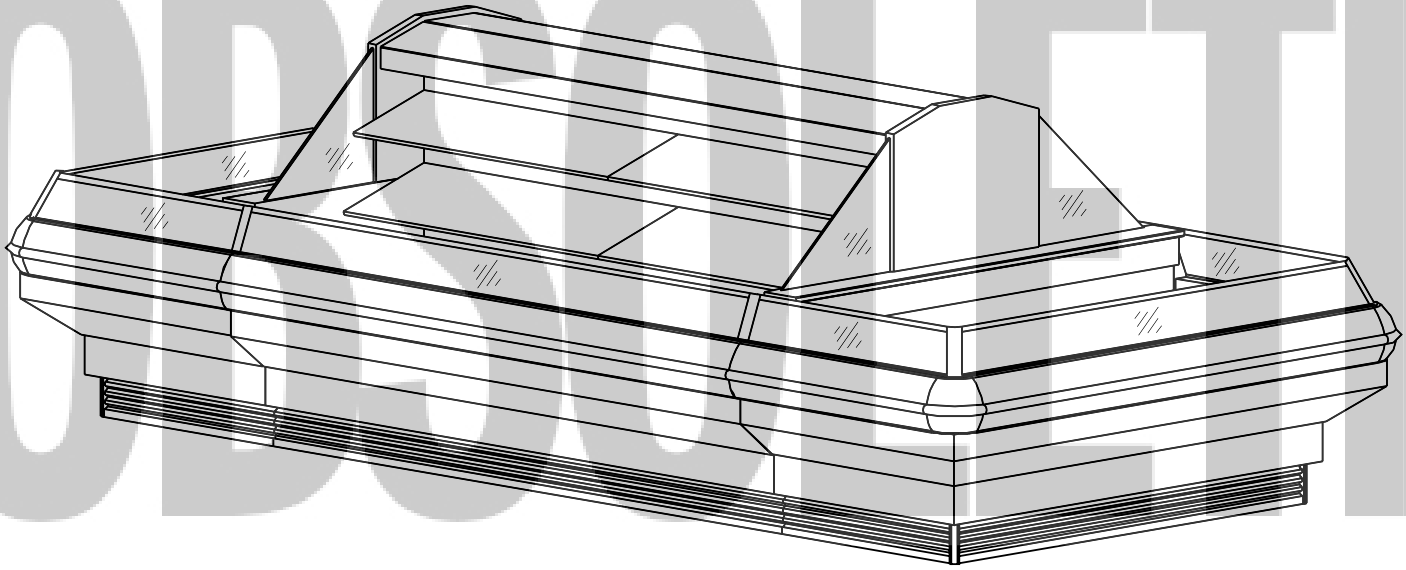

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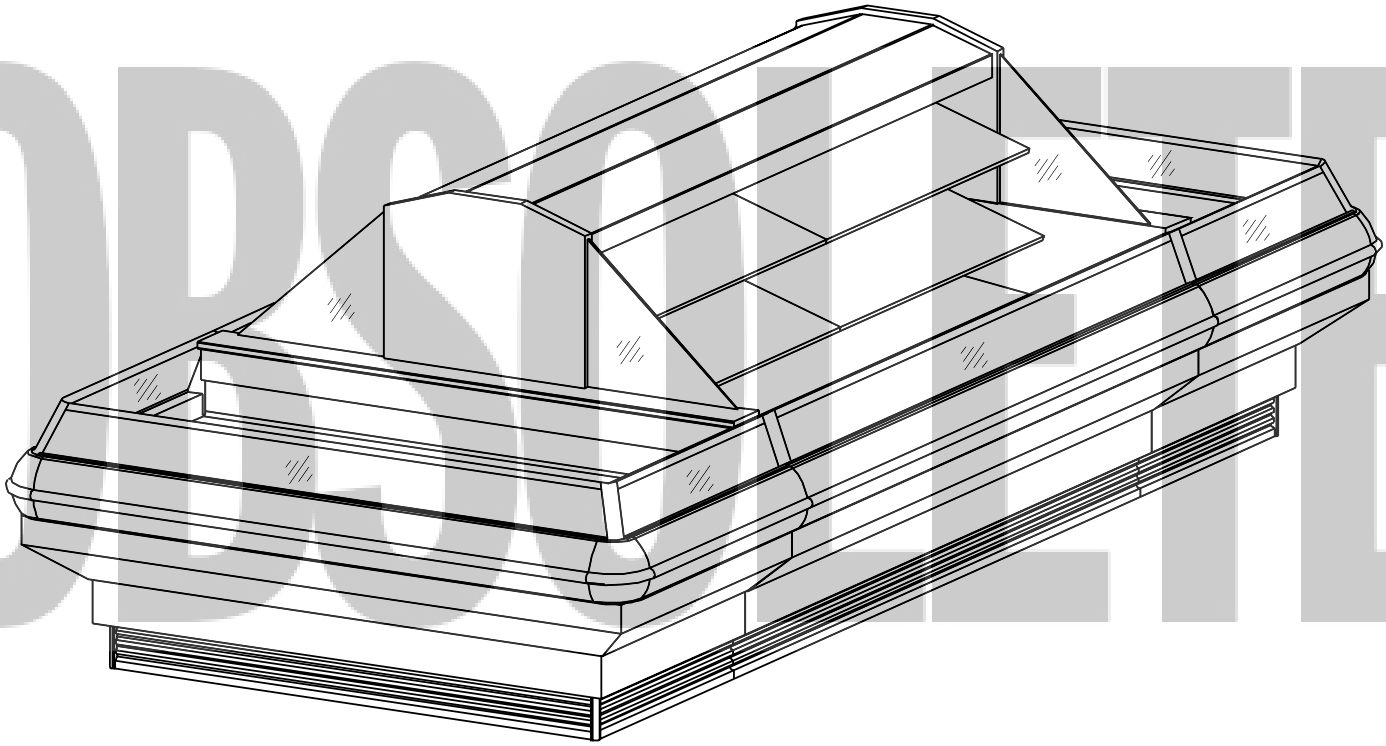


OBSOLETE

Narrow Multi-Deck Deli/Meat End Cap Merchandiser

ON3EM

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
ON3EM	2	1.00	60	0.23	14	1.89	227	2.31	480	2.66	640

Lighting Data

Model	Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ON3EM	1	5'	0.28	34	1.13	136

OBSOLETE

Guidelines & Control Settings

Model	BTUH/cs[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ON3EM	6000	Std.	17	6-8	33	45	275
	6000	Enh.	22	6-8	33	45	275

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

Defrost Controls

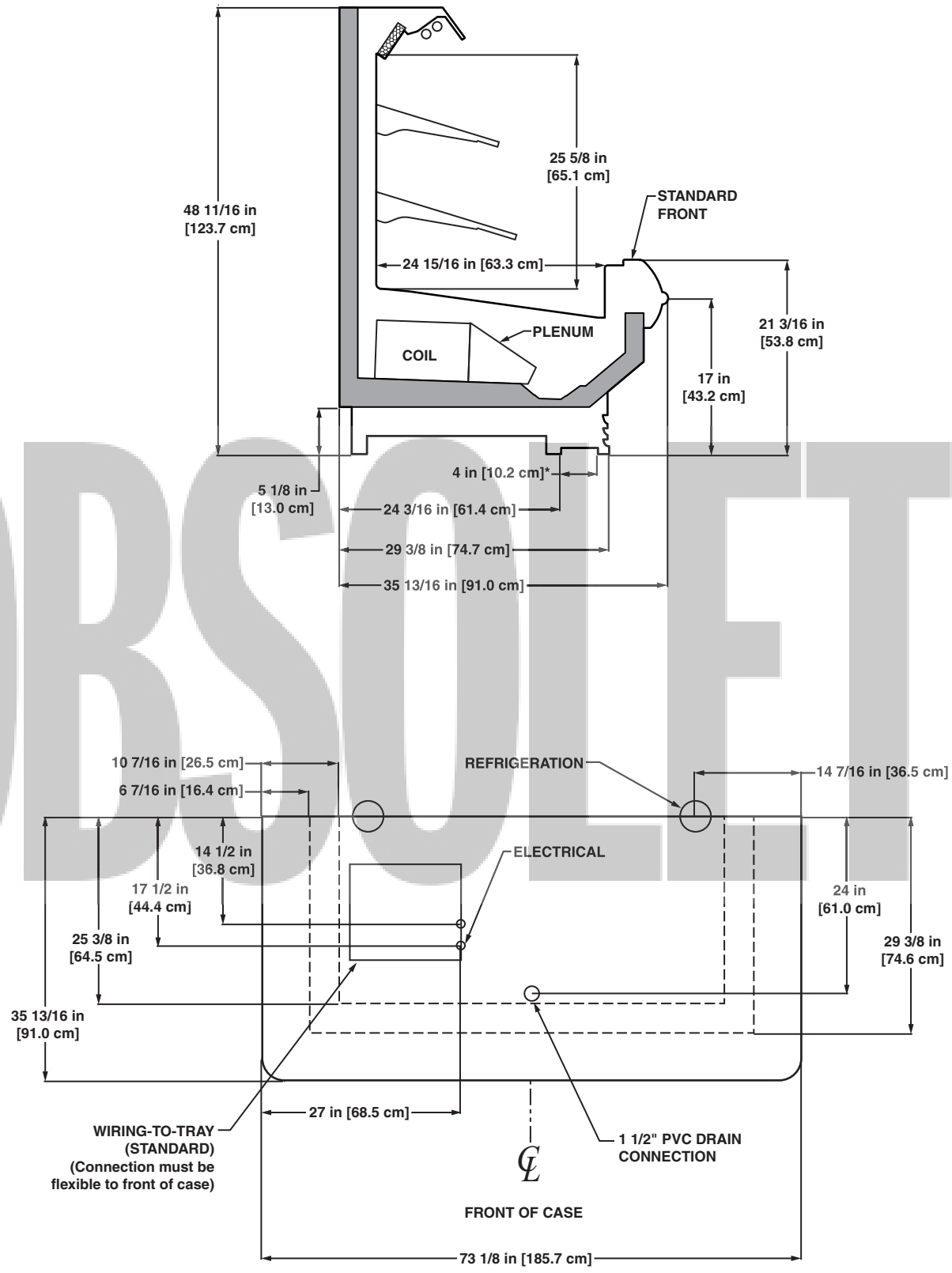
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ON3EM	4	6 - 8	40	47	45	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.



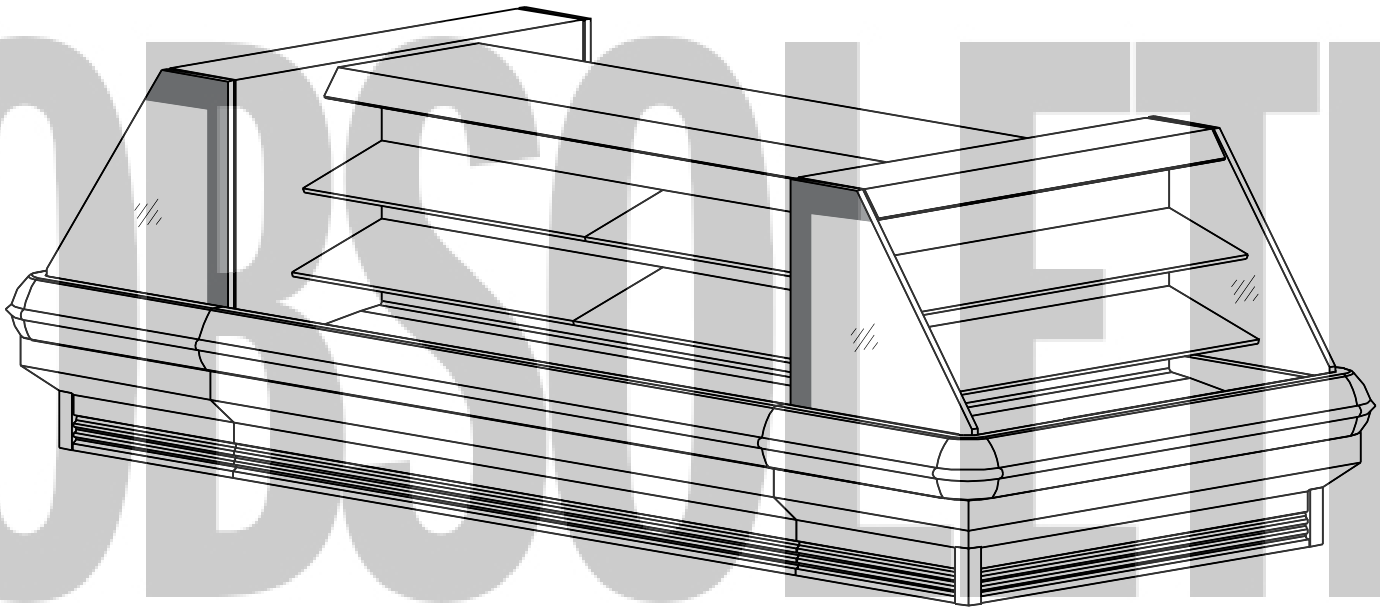
NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"

OBSOLETE

The ON3EMs shown below are unitized with two ON3UM-8'cases with lighted rear sills, standard fronts, and 14" & 16" shelves.



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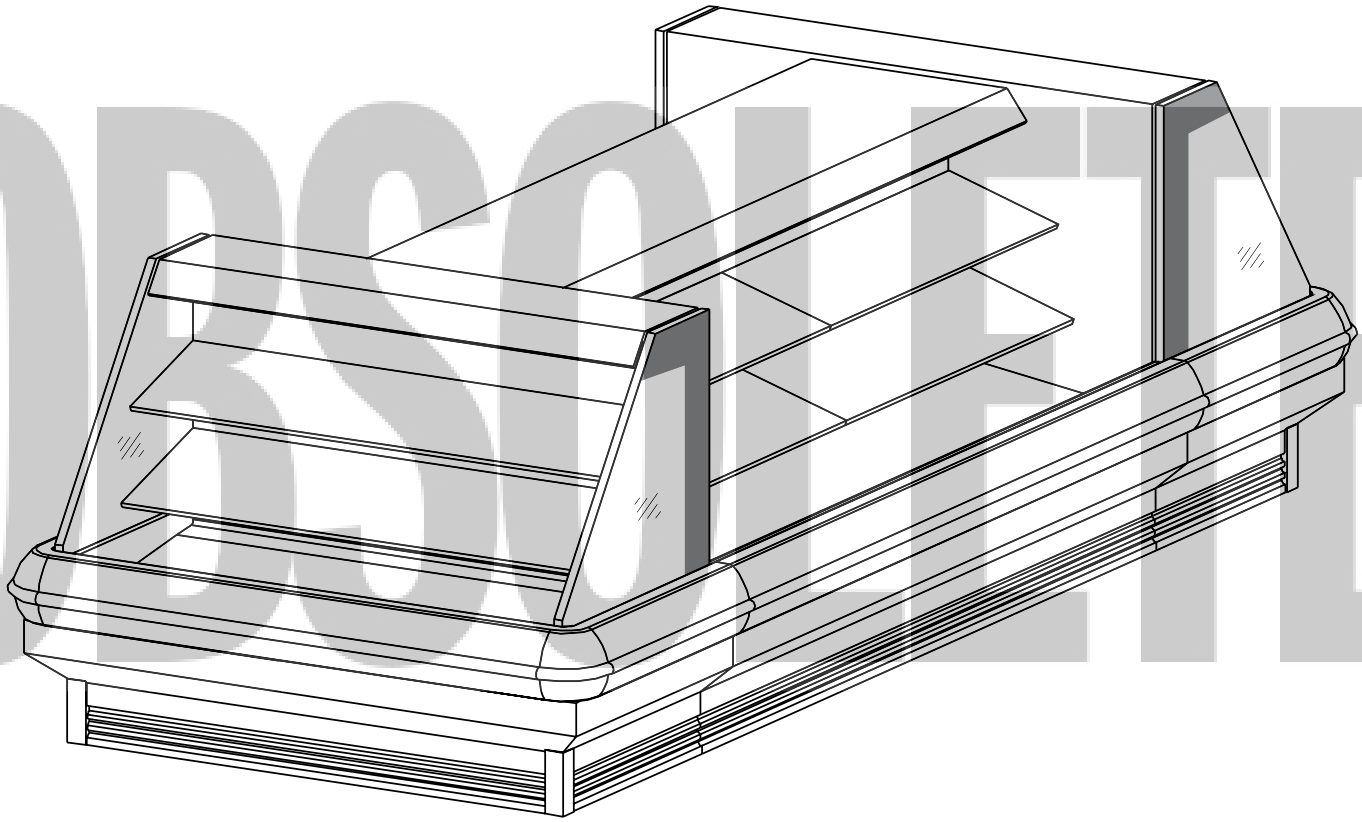
The ON3EMs shown below are unitized with two ON3UM-8'cases with lighted rear sills, standard fronts, and 14" & 16" shelves.



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Multi-Deck Deli/Meat End Cap Merchandiser

O3EM

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
O3EM	2	1.00	60	0.23	14	1.89	227	2.31	480	2.66	640

Lighting Data

Model	Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3EM	2	3'	0.37	44	1.47	176

OBSOLETE

Guidelines & Control Settings

Model	BTUH/cs[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O3EM	6900	Std.	17	6-8	33	45	275
	6900	Enh.	22	6-8	33	45	275

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

Defrost Controls

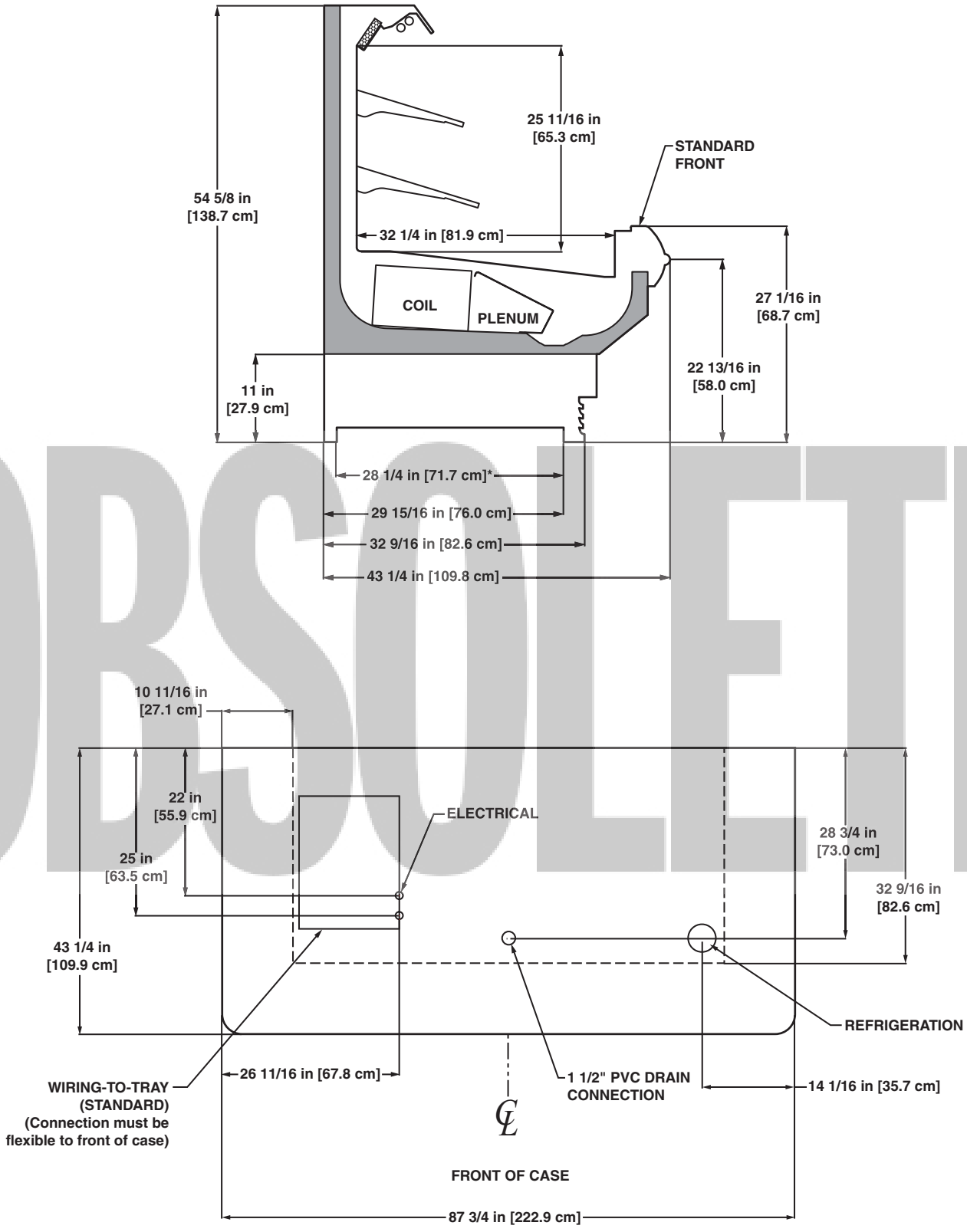
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3EM	4	6 - 8	40	47	45	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.



OBSOLETE

NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

NSF COMPONENT

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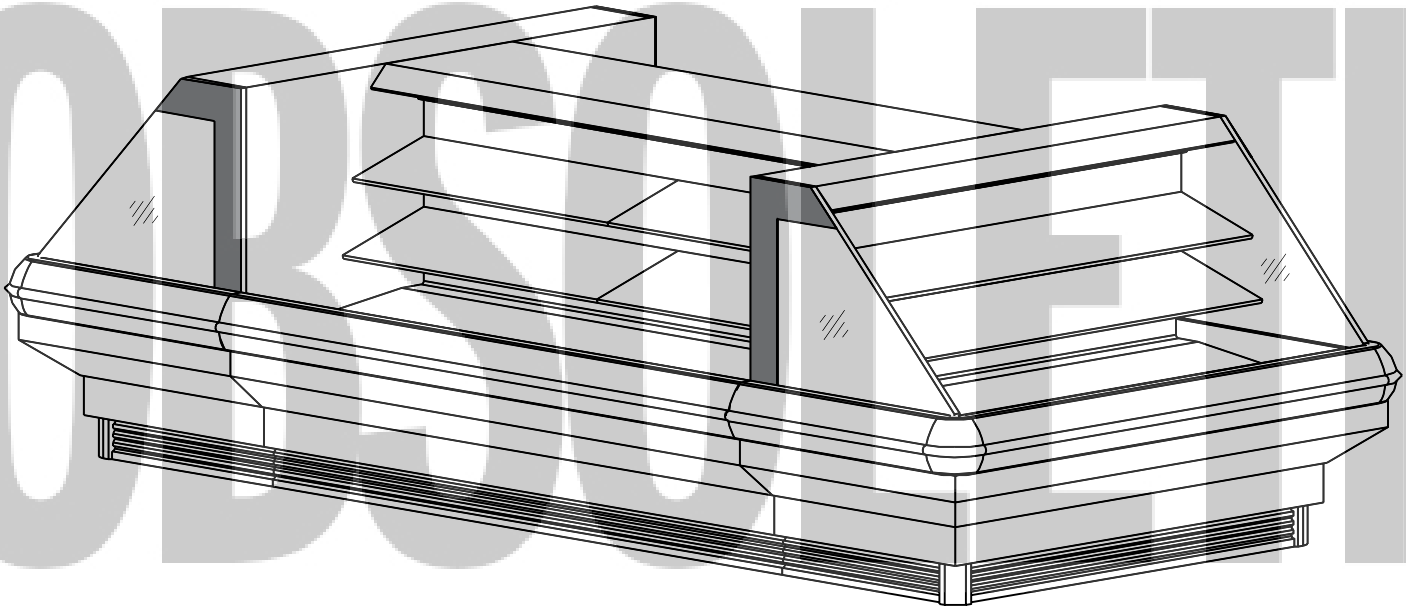
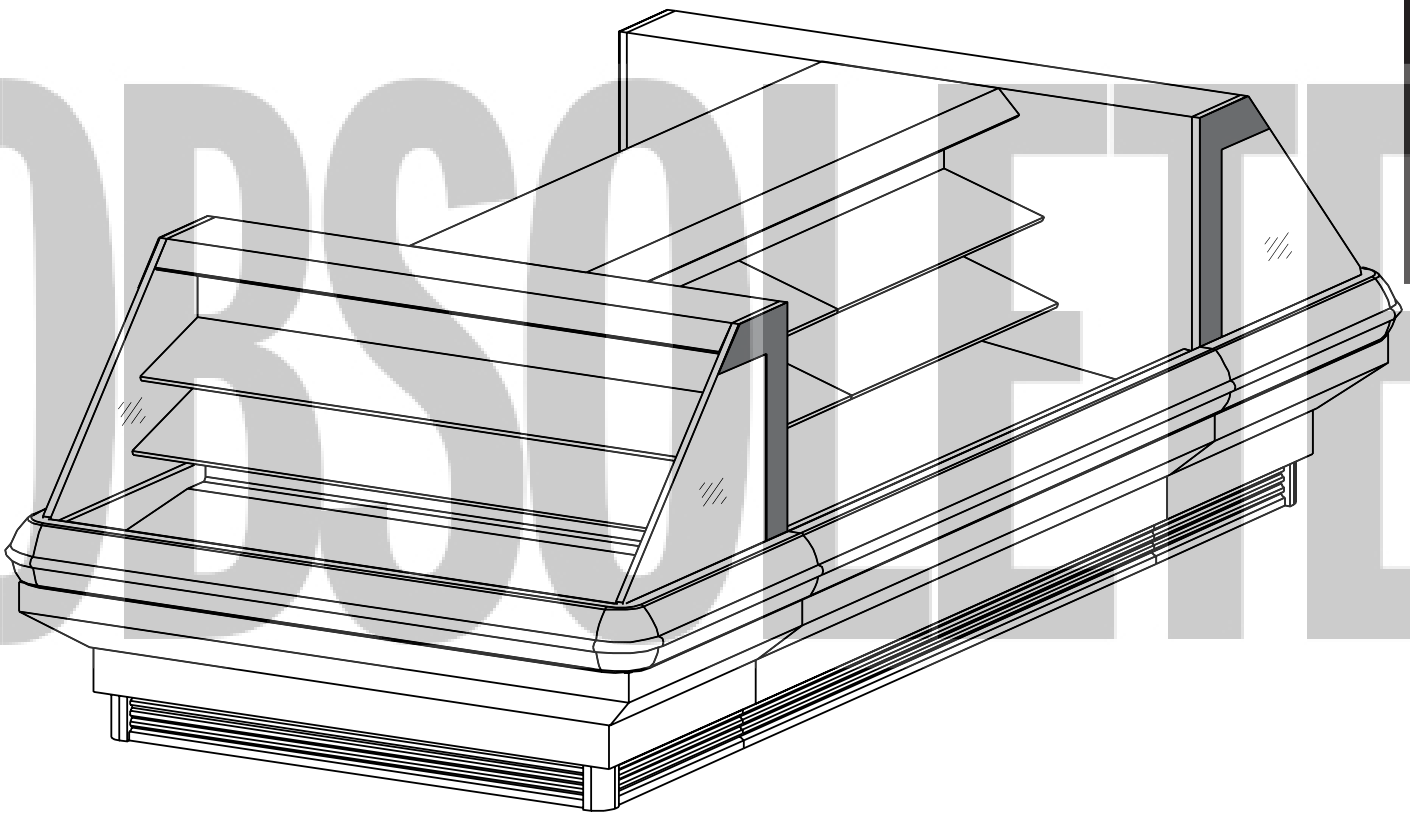
The O3EMs shown below are unitized with two O3UM-8'cases with lighted rear sills, standard fronts, and 14" & 16" shelves.

OBSOLETE



The O3EMs shown below are unitized with two O3UM-8'cases with lighted rear sills, standard fronts, and 14" & 16" shelves.



OBSOLETE

Multi-Deck Deli/Meat End Cap Merchandiser

O3.5EM

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
O3.5EM	2	1.00	60	0.39	23.4	1.89	227	2.31	480	2.66	640

Lighting Data

Model	Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3.5EM	2	3'	0.37	44	1.83	220

OBSOLETE

Guidelines & Control Settings

Model	BTUH/cs[1]	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O3.5EM	8709	Std.	17	6-8	33	45	275
	8709	Enh.	22	6-8	33	45	275

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

[2] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

Defrost Controls

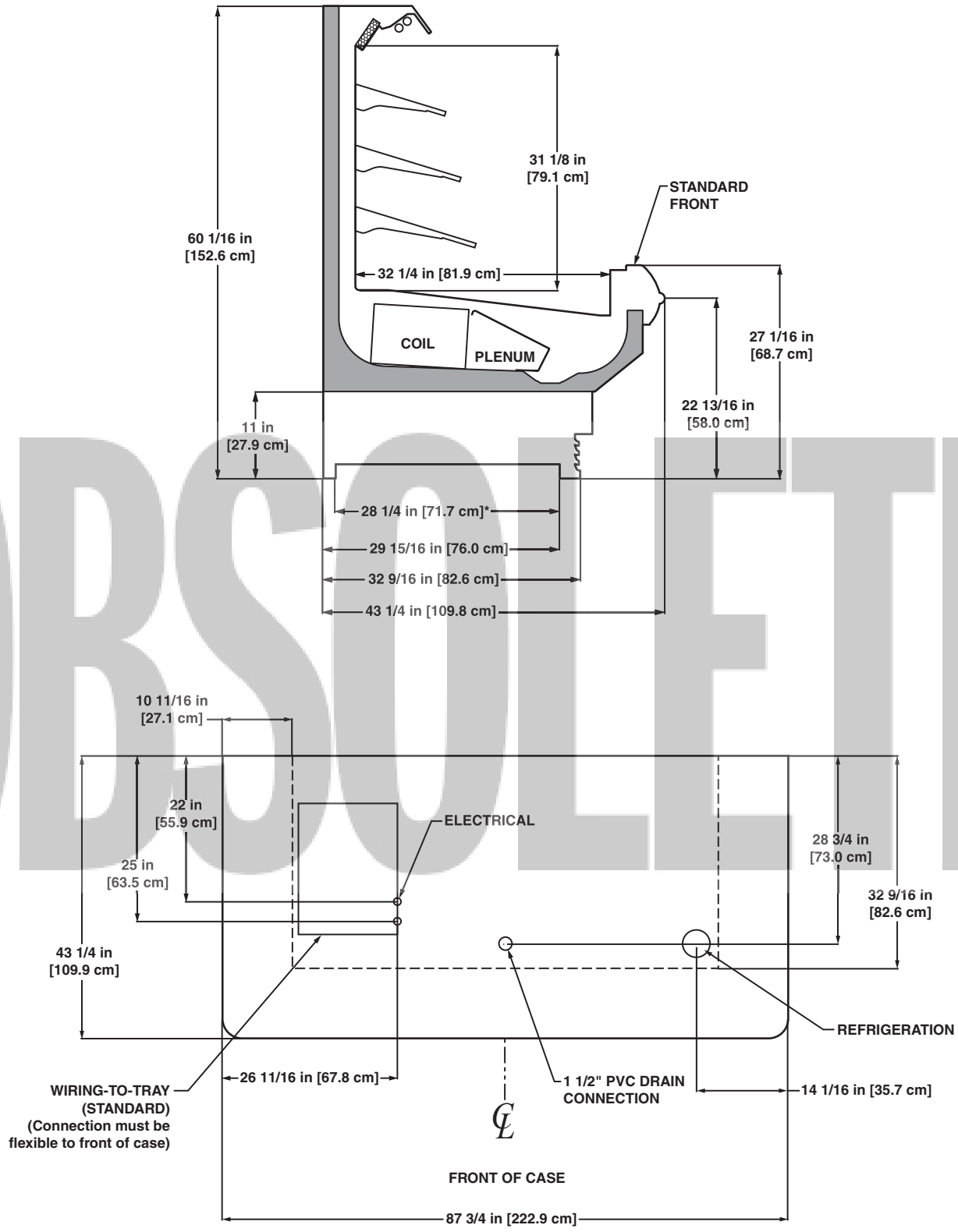
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3.5EM	4	6 - 8	40	47	45	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:

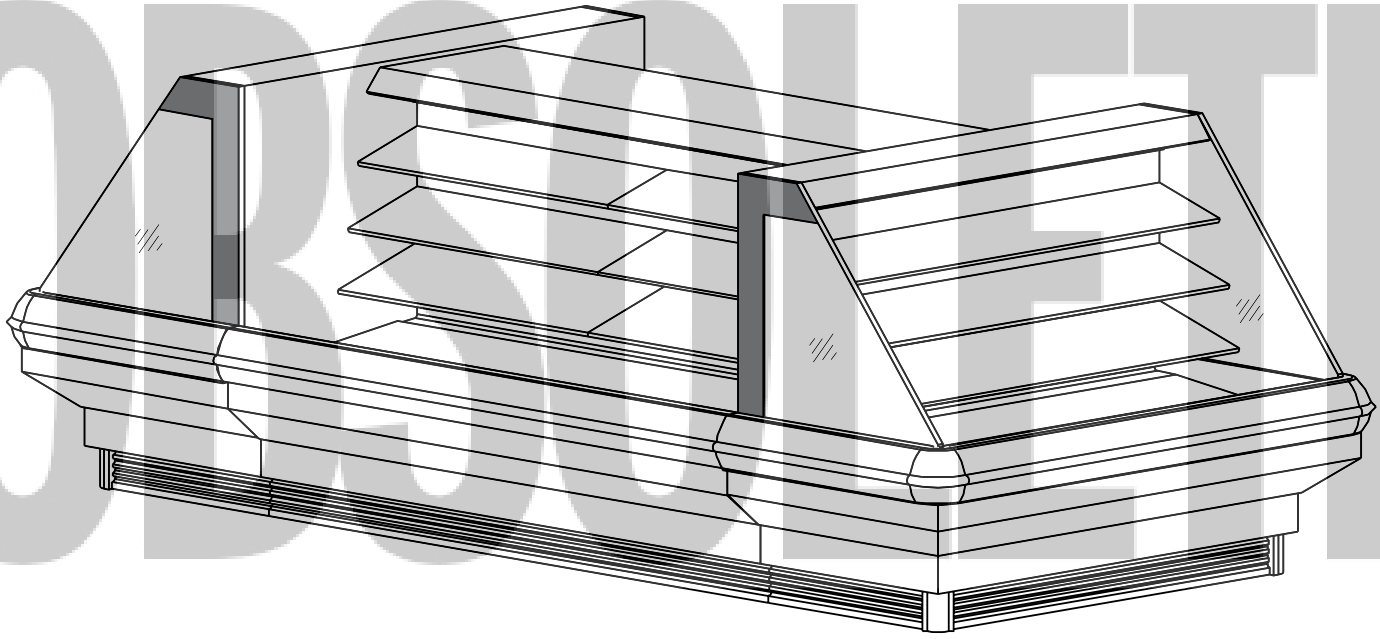
* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"

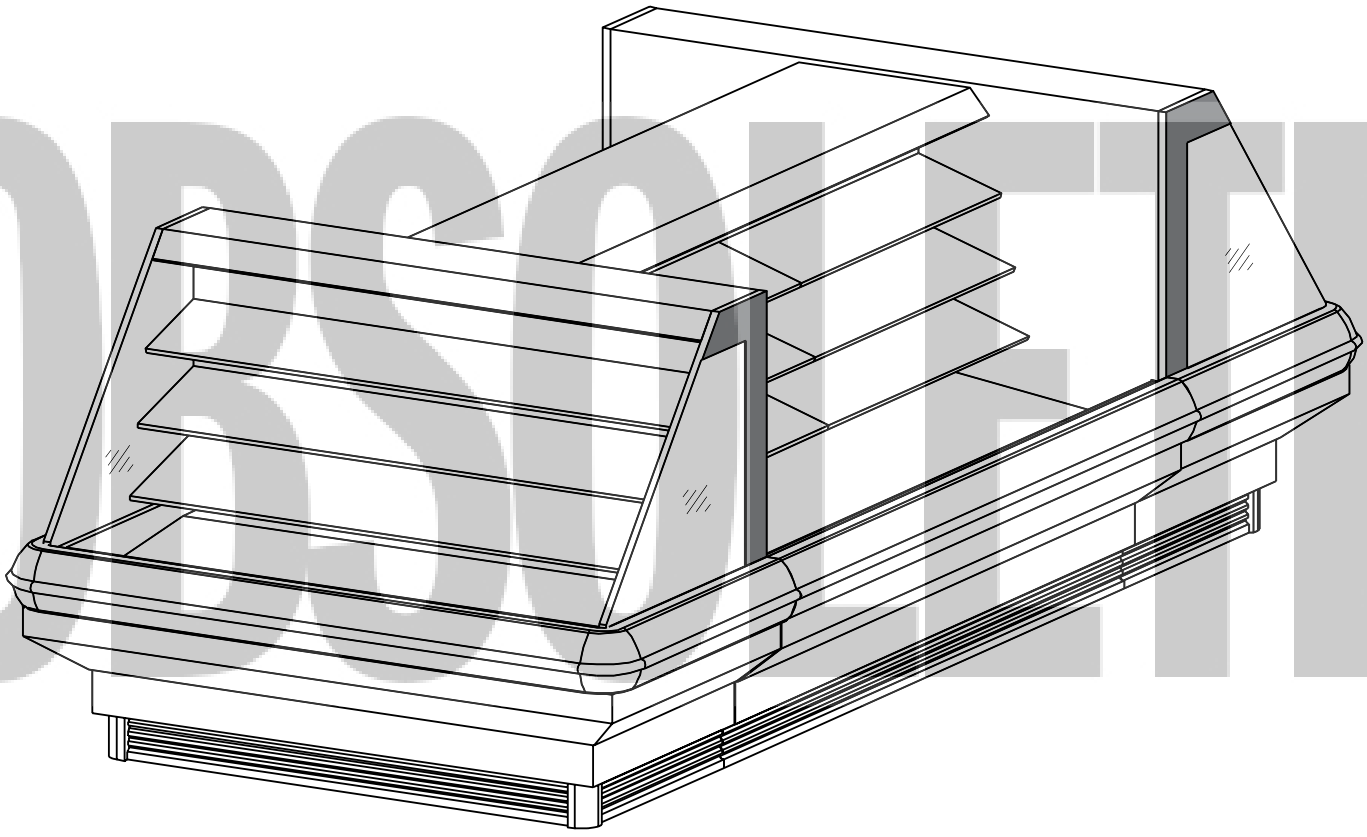
OBSOLETE

The O3.5EMs shown below are unitized with two O3.5UM-8'cases with lighted rear sills, standard fronts, and 12", 14" & 16" shelves.

OBSOLETE



The O3.5EMs shown below are unitized with two O3.5UM-8'cases with lighted rear sills, standard fronts, and 12", 14" & 16" shelves.



OBSOLETE

Single Deck Bulk Produce End Cap Merchandiser

OEP

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
OEP	2	1.00	60	0.23	14	- - -[1]	- - -	2.88	600	3.33	798

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

Lighting Data

Model	Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OEP	- - -	- - -	- - -	- - -	- - -	- - -

OBSOLETE

Guidelines & Control Settings

Model	BTUH/cs[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OEP Bulk Produce	2244	Std.	27	6-8	35	47	210
	2244	Enh.	29	6-8	35	47	210

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

Defrost Controls

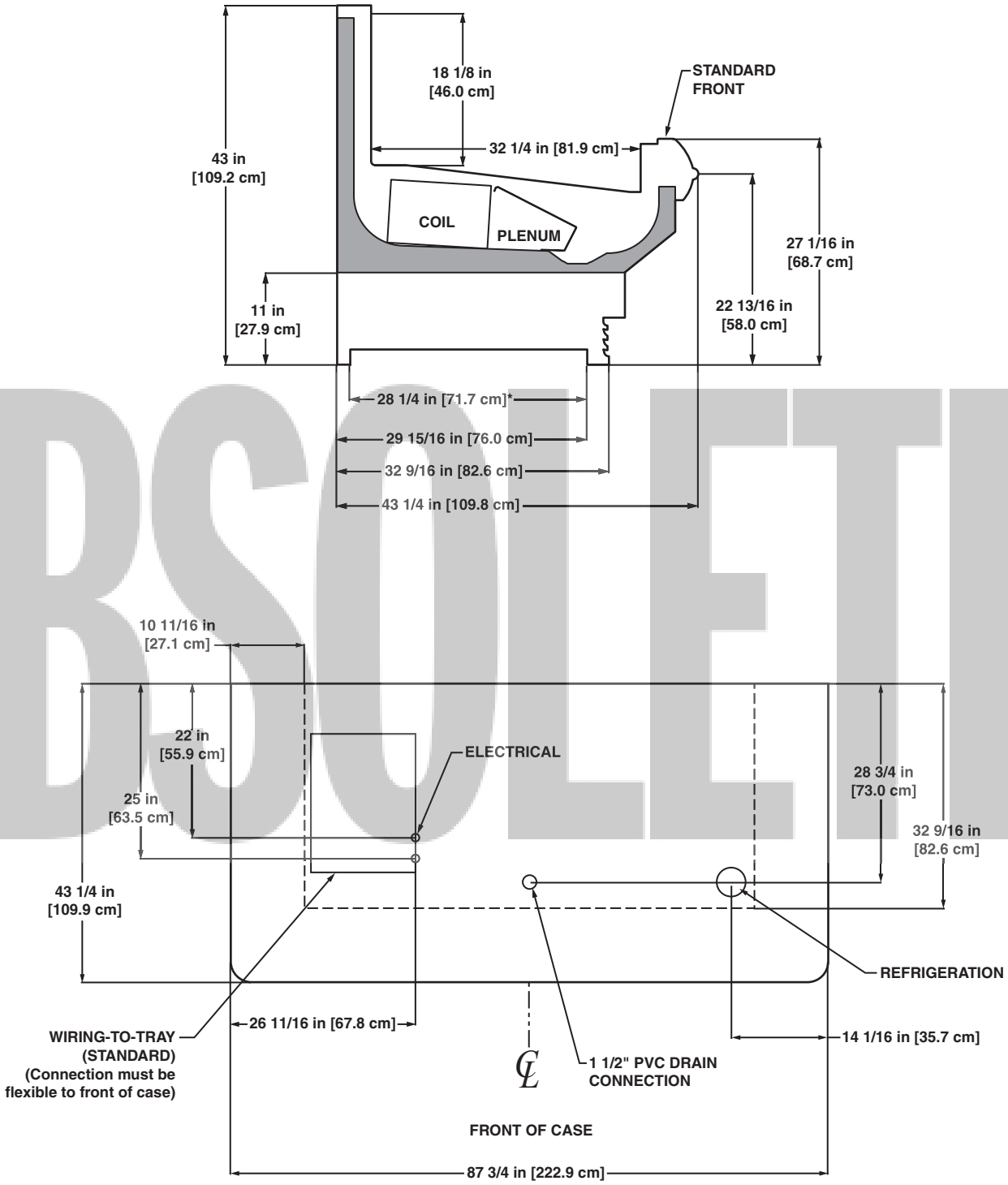
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse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

OBSOLETE



NOTES:

* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

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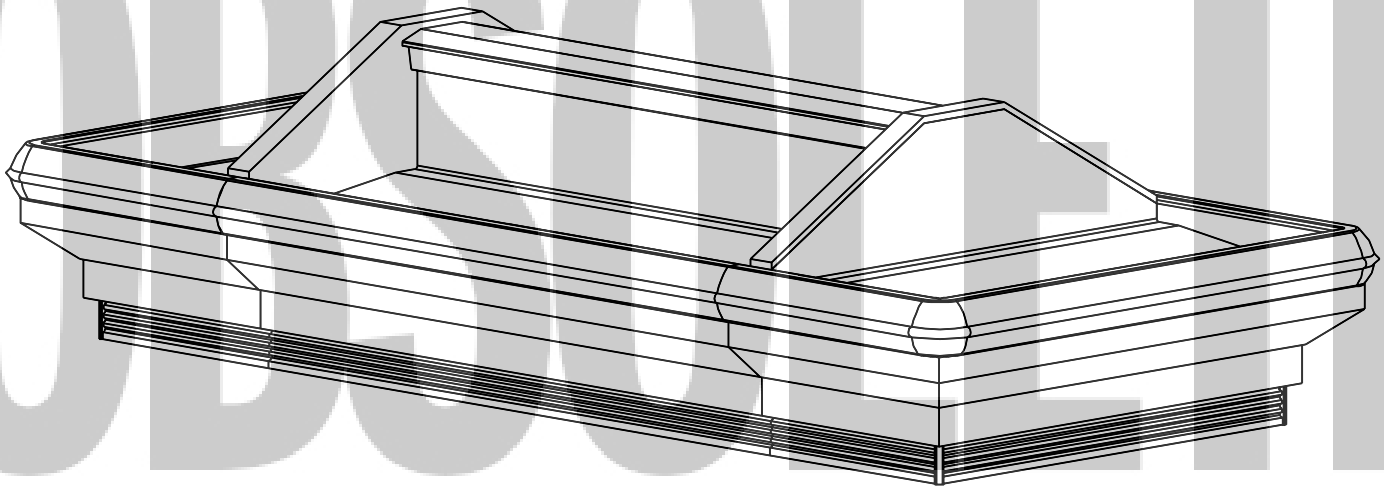
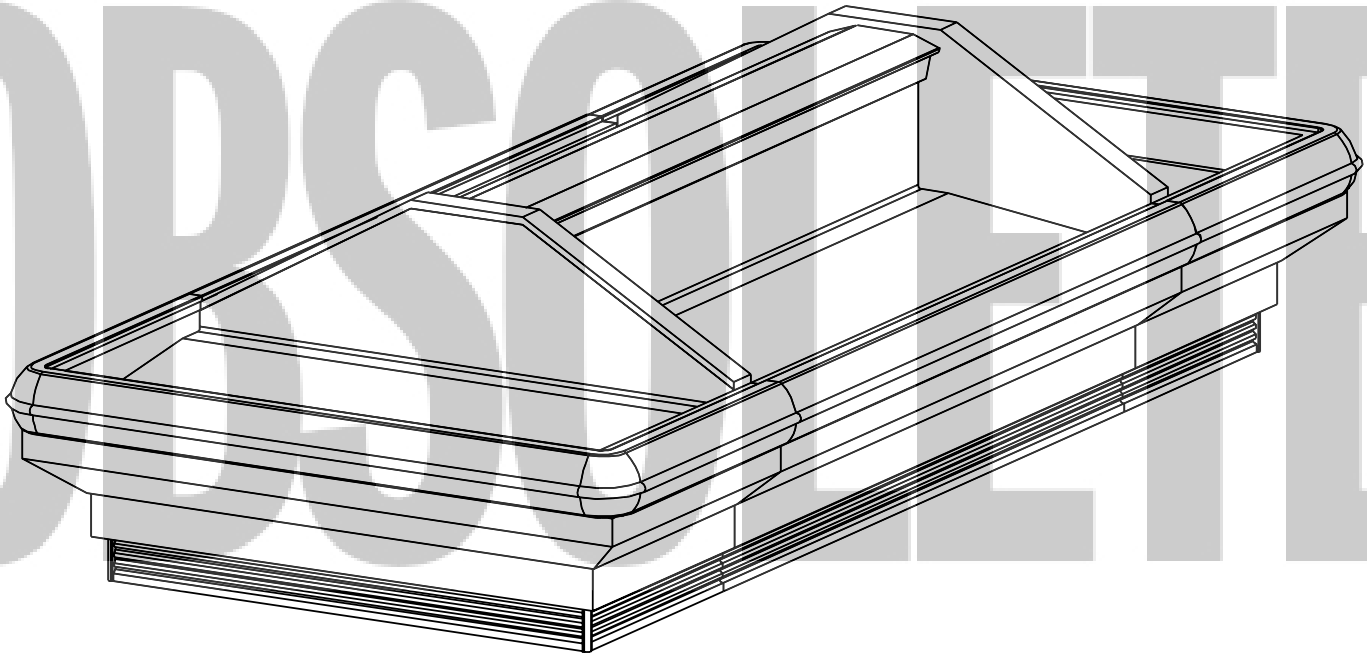
The OEPs shown below are unitized with two OP-8'cases with 43" rear sills and standard fronts.

OBSOLETE



The OEPs shown below are unitized with two OP-8'cases with 43" rear sills and standard fronts.

OBSOLETE



Multi-Deck Bulk Produce End Cap Merchandiser

O3EP

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
O3EP	2	1.00	60	0.15	9.2	- - -[1]	- - -	2.88	600	3.33	798

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

Lighting Data

Model	Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O3EP	- - -	- - -	- - -	- - -	- - -	- - -

OBSOLETE

Guidelines & Control Settings

Model	BTUH/cs[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3EP Bulk Produce	2917	Std.	27	6-8	36	47	200
	2917	Enh.	29	6-8	36	47	200

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

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

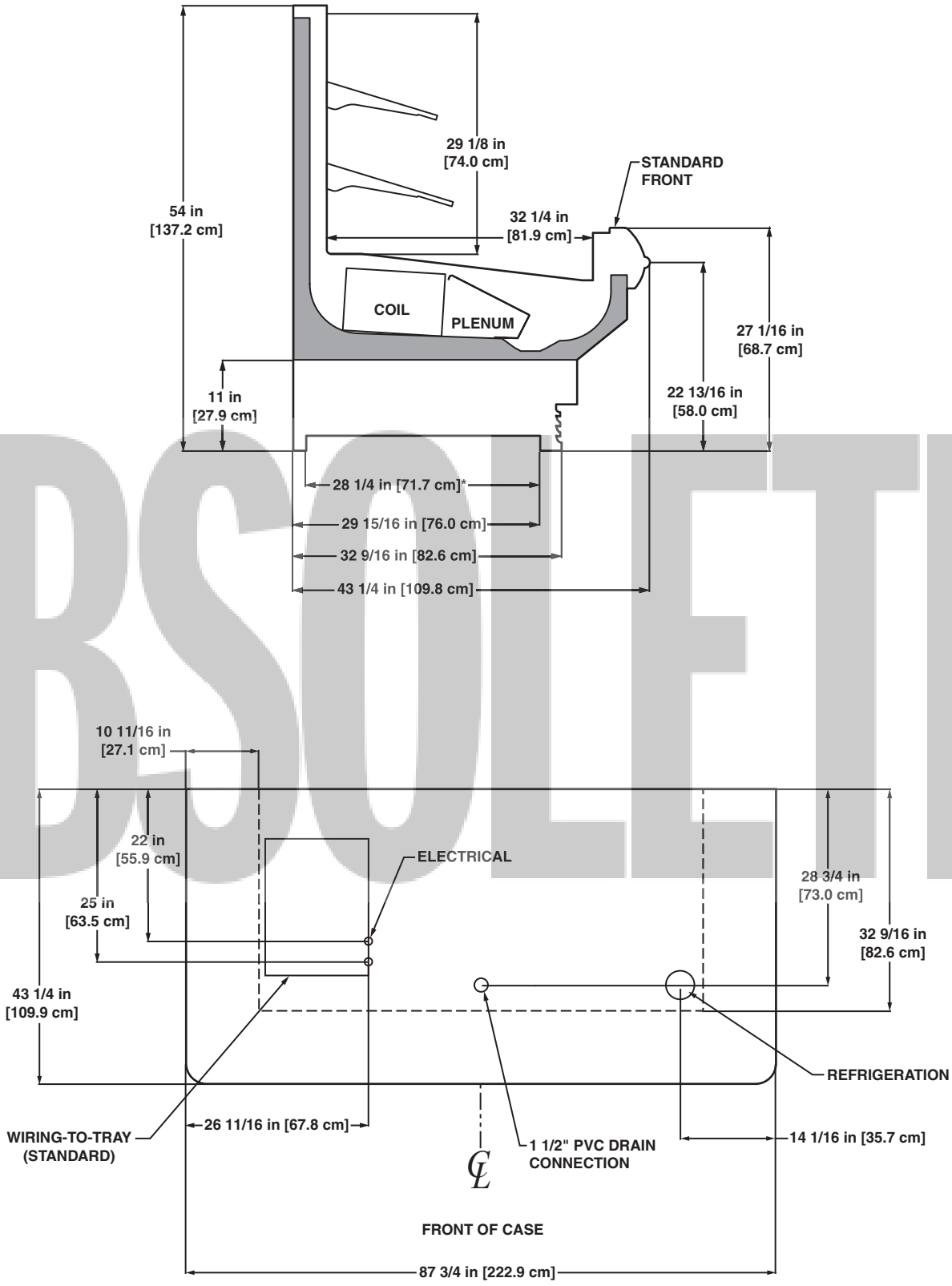
Defrost Controls

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)
O3EP	2	6 - 8	40	49	60	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.



OBSOLETE

NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

NSF COMPONENT

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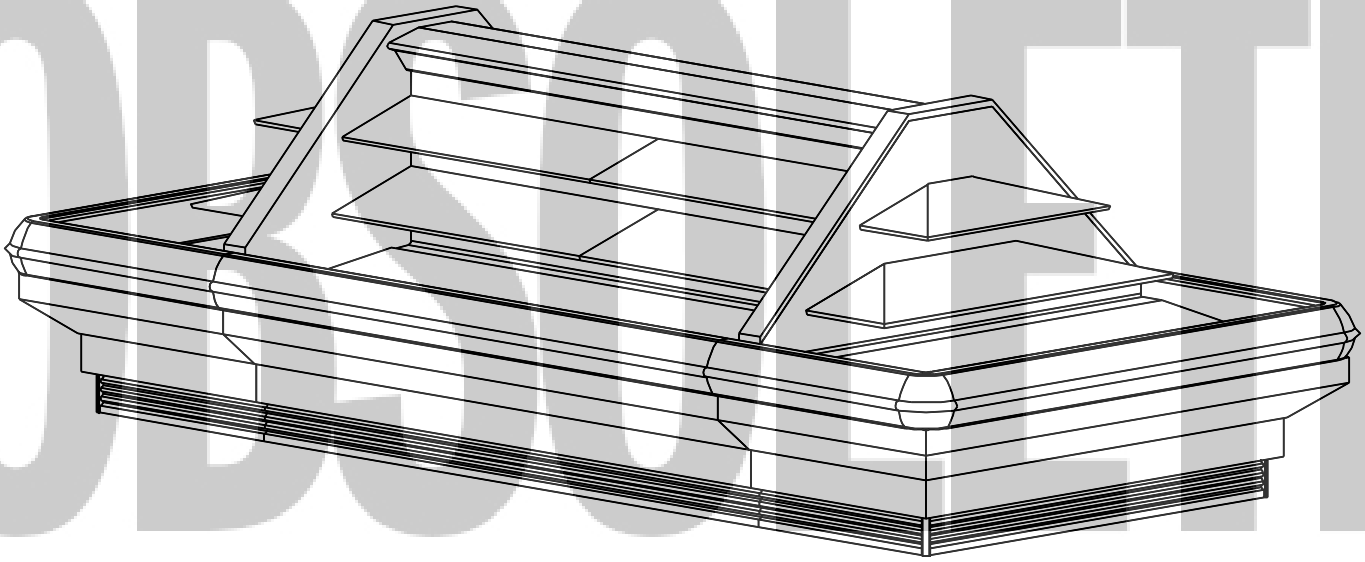
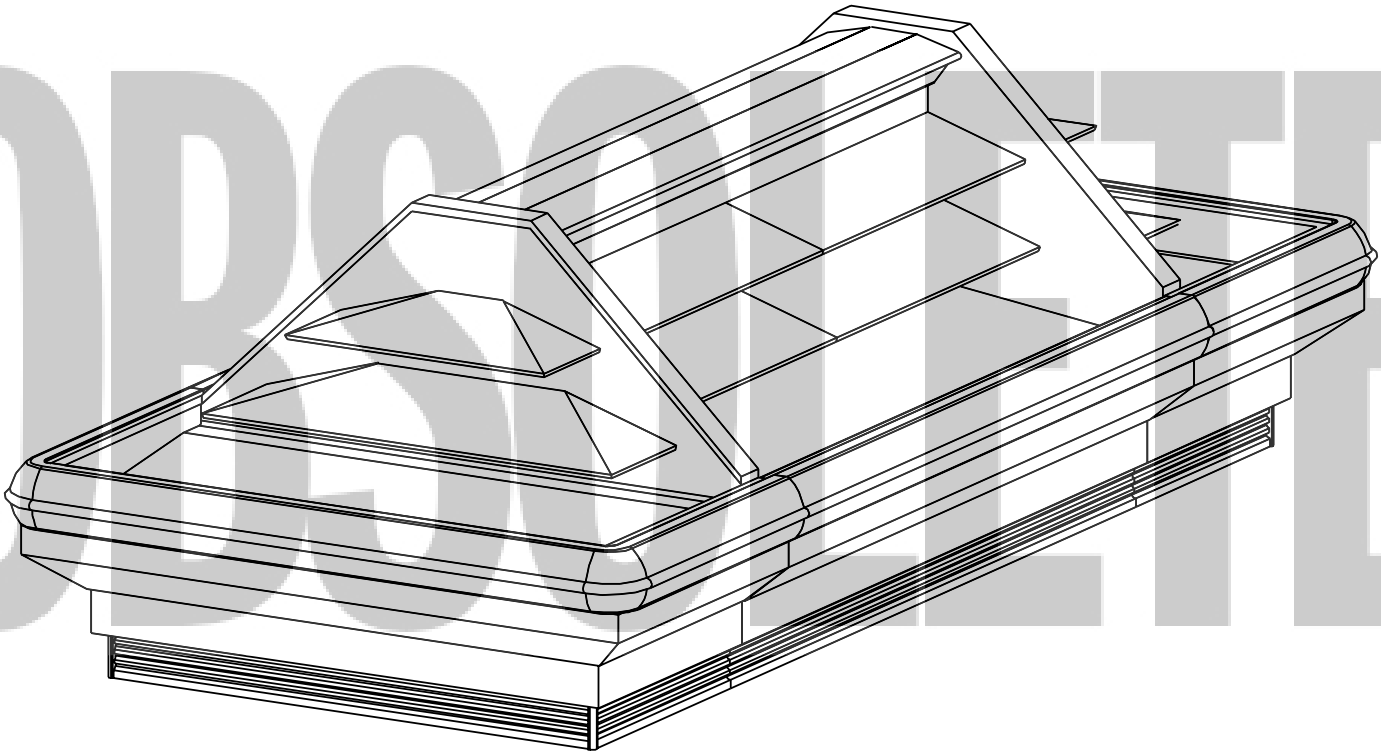
A DOVER COMPANY

The O3EPs shown below are unitized with two O3UM-8'cases with standard rear sills, standard fronts, and 14" & 16" shelves.

OBSOLETE



The O3EPs shown below are unitized with two O3UM-8'cases with standard rear sills, standard fronts, and 14" & 16" shelves.



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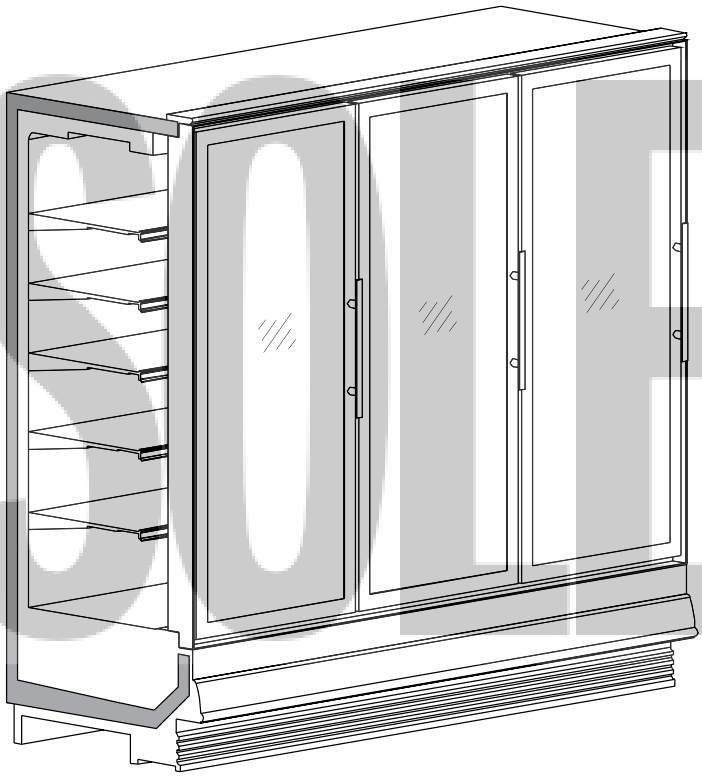
REACH-IN

OBSOLETE



Notes:

- *Cases comply with ANSI / NSF* Standard 7. Units marked as components require remote refrigeration.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*
- *Front and rear sill heights vary with baseframe height.*

* *ANSI - American National Standard Institute*
NSF - National Sanitation Foundation

Glass Door Reach-in Frozen Food/Ice Cream Merchandiser

KRZH - 2, 3, 4 & 5-door reach in freezer

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Drain Pan Heaters 208 Volts Amps	Drain Pan Heaters 208 Volts Watts	Drain Pan Heaters 240 Volts Amps	Drain Pan Heaters 240 Volts Watts
KRZH	2-door	2	2.20	167	6.06	727	0.86	179	0.99	238
	3-door	3	3.30	250	8.48	1018	0.86	179	0.99	238
	4-door	4	4.40	333	10.82	1298	0.86	179	0.99	238
	5-door	5	5.50	417	12.88	1545	0.86	179	0.99	238

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

Lighting Data

Model		Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
KRZH	2-door	1.88	226
	3-door	2.50	300
	4-door	3.13	376
	5-door	3.75	450

Defrost Heater Data

Model		Defrost Heaters[2] Hot Gas Defrost 208 Volts Amps	208 Volts Watts	240 Volts Amps	240 Volts Watts	Defrost Heaters Electric Defrost 208 Volts Amps	208 Volts Watts	240 Volts Amps	240 Volts Watts
KRZH	2-door	1.92	400	2.22	533	5.77	1200	6.66	1593
	3-door	1.92	400	2.22	533	7.69	1600	8.88	2128
	4-door	1.92	400	2.22	533	12.02	2500	13.87	3355
	5-door	2.40	500	2.78	666	15.39	3200	17.75	4260

[2]Note: Hot gas defrost requires electric assist heaters.

Guidelines & Control Settings

Model	BTUH/door[4]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
KRZH - F[3]	1850	-12	3-5	-8	-3	420
KRZH - C[3]	2200	-22	3-5	-12	-7	420

[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)
KRZH	1	13 - 15	60	73	- - -[6]	- - -	24	73	- - -	- - -

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

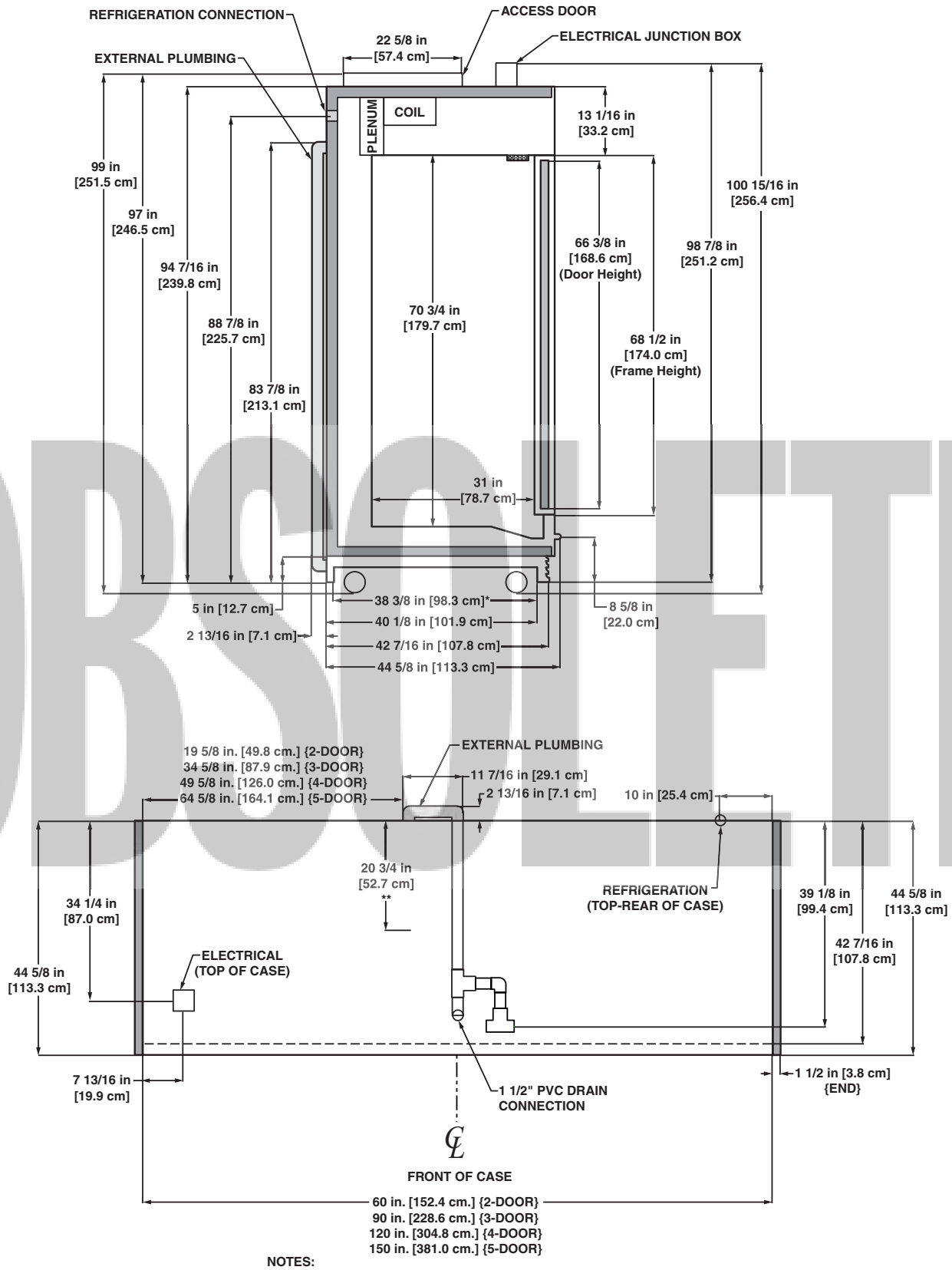
Low Temperature Defrost Schedule

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.

OBSOLETE



NOTES:

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

- SUCTION LINE 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22" & 23 1/2"
  SOLID SHELVES 18", 20", 22", 24" & 27"

OBSOLETE

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	0.31	18.4	2.40	288	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	27.6	3.28	394	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	36.8	4.33	520	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46.0	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)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONRB[2]	900	22	6-8	32	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]	- - -

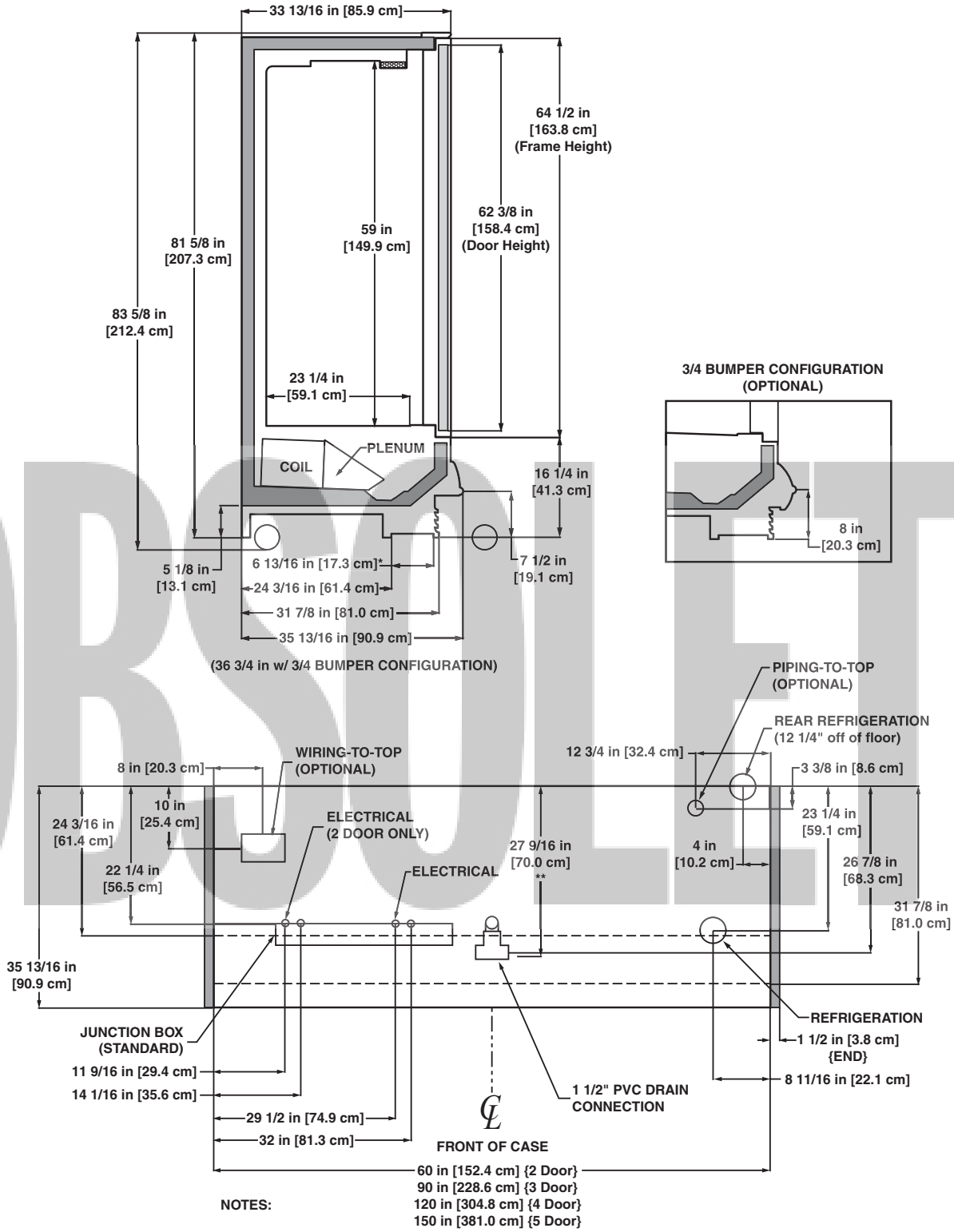
[5] NOTE: - - - not an option on this case model.

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.

OBSOLETE



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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20" & 22"
  SOLID SHELVES 18", 20" & 22"
  (TOP SHELF MUST BE 20" OR SHORTER. RECOMMENDED CONFIGURATION IS 20" SHELF AND 4 22" SHELVES BELOW TOP SHELF)

OBSOLETE

NSF COMPONENT

c UL us

A DOVER COMPANY

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	0.31	18.4	2.45	294	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	27.6	3.35	402	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	36.8	4.42	530	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46.0	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)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONRBH[2]	900	22	6-8	32	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.

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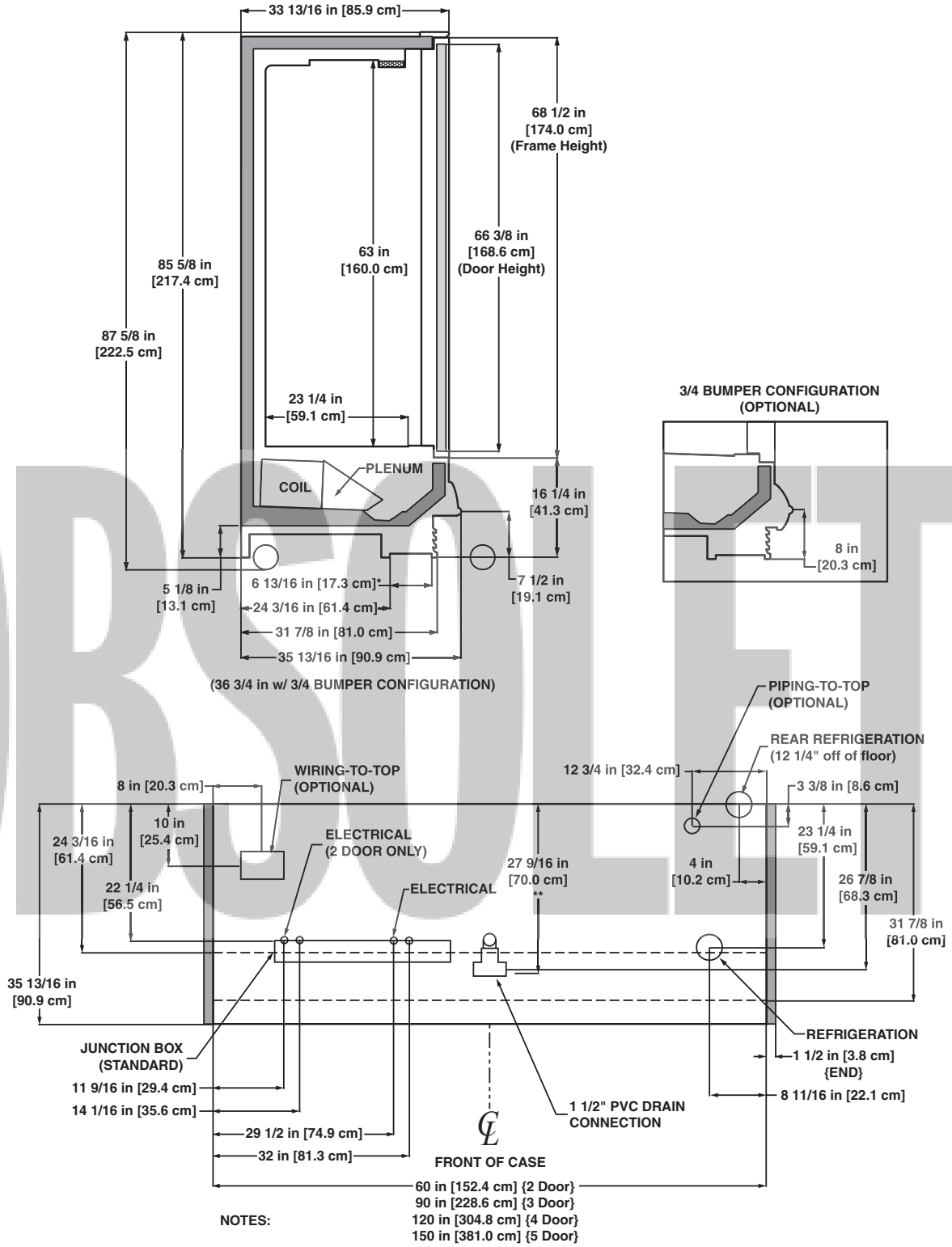

NOTES:

* STUB-UP AREA

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20" & 22"
  SOLID SHELVES 18", 20" & 22"
  (TOP SHELF MUST BE 20" OR SHORTER. RECOMMENDED CONFIGURATION IS 20" SHELF AND 4 22" SHELVES BELOW TOP SHELF)

OBSOLETE

Glass Door Reach-in Beverage Merchandiser

ORB - 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
ORB	2-door	2	1.00	60	0.31	18.4	2.40	288	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	27.6	3.28	394	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	36.8	4.33	520	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46.0	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
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)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ORB	900	22	6-8	27	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.

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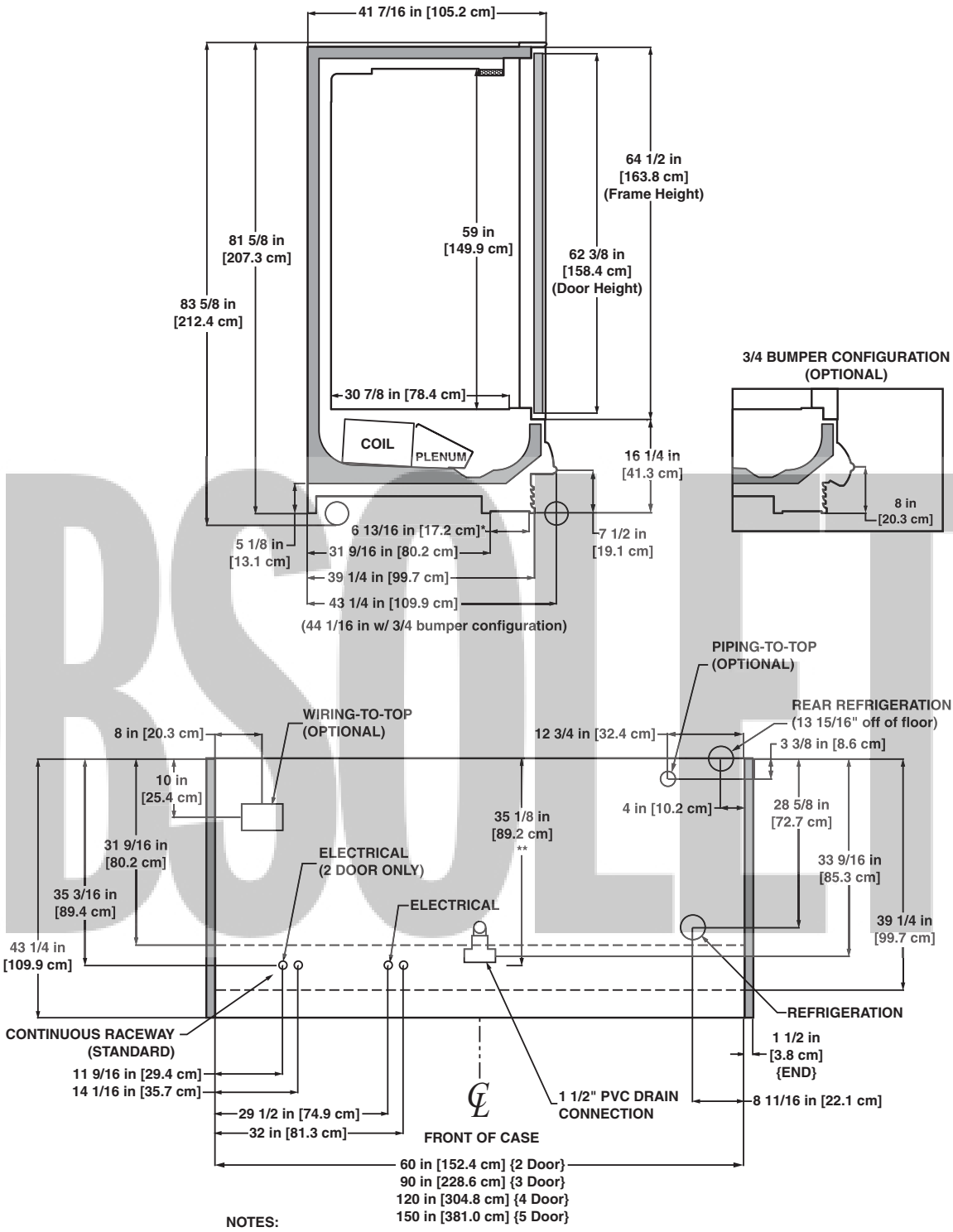


NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 1/2", 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" & 27"
  (TOP SHELF MUST BE 24" OR SHORTER WHEN USING 27" SHELVES.
  RECOMMENDED CONFIGURATION IS 1 - 24" SHELF AND 4 - 27" SHELVES BELOW TOP SHELF)

ORSOLETE

Glass Door Reach-in Rear Load Beverage Merchandiser

ORBR - 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
ORBR	8’	4	2.00	120	0.93	56	3.35	402	3.85	800	4.44	1065
	12’	5	2.50	150	1.17	70	4.42	530	5.78	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
ORBR	8’	NA[1]	NA	1.94	233
	12’	NA	NA	2.42	290

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ORBR[2]	1150	22	6-8	27	30	380

[2] ORBR-8’ has 3 doors, ORBR-12’ has 4 doors.

[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)
ORBR	1	6 - 8	30	47	45	47	24	45	- - -[5]	- - -

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

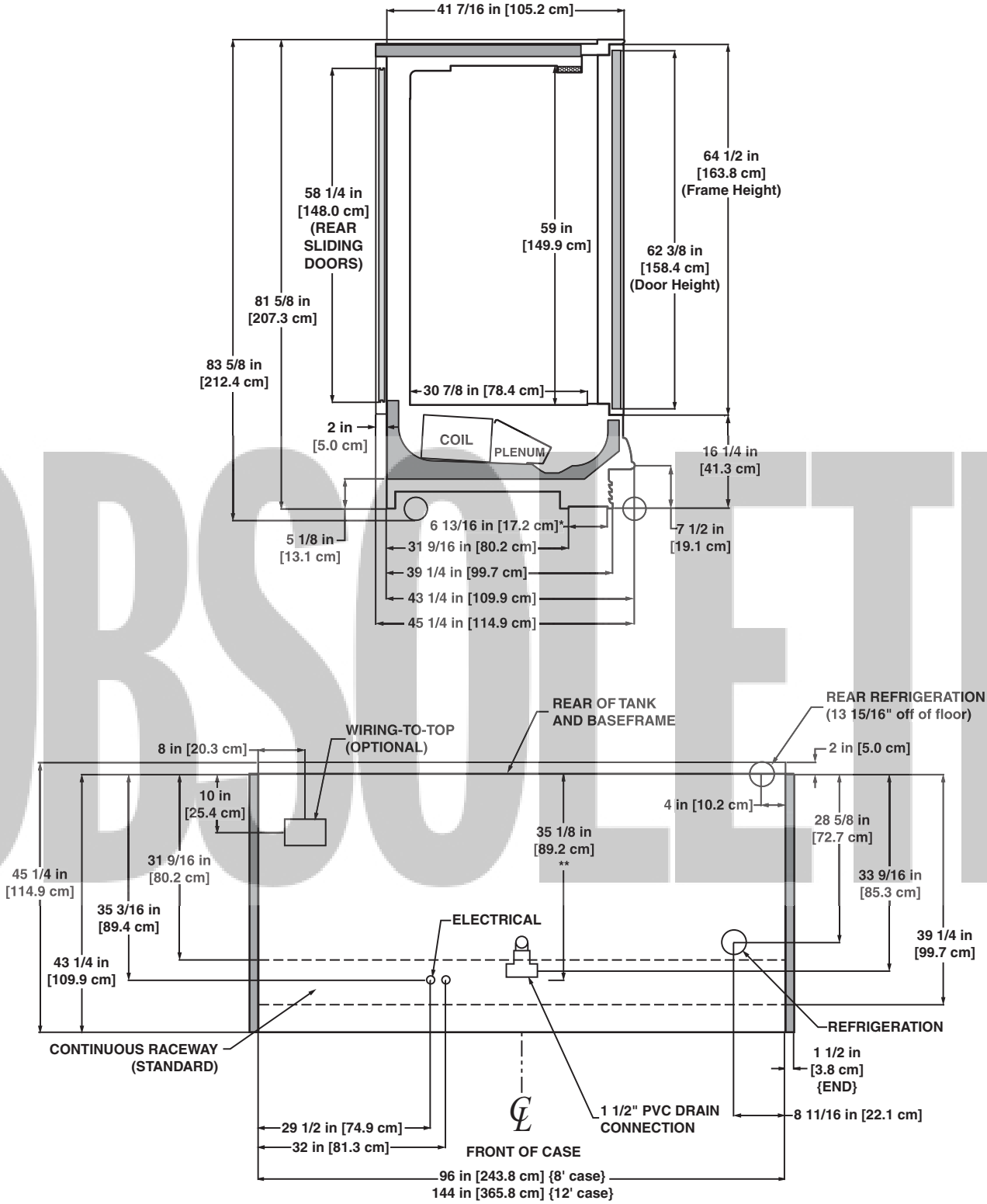
Medium Temperature Defrost Schedule

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.

OBSOLETE

ORSOLETE



NOTES:

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

- FRONT SILL HEIGHT AND OVERALL CASE HEIGHT VARYS WITH BASEFRAME HEIGHT
- 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 - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"

High Glass Door Reach-in Beverage Merchandiser

ORBH - 2, 3, 4, 5-door, 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
ORBH	2-door	2	1.00	60	0.31	18.4	2.45	294	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	27.6	3.35	402	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	36.8	4.42	530	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46.0	5.41	649	7.96	1655	9.17	2201
	8'	3	1.50	90	0.70	42	3.35	402	3.85	800	4.44	1065
	12'	4	2.00	120	0.93	56	4.42	530	5.78	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
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
	8'	NA	NA	1.94	233
	12'	NA	NA	2.42	290

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ORBH-2,3,4 & 5 door	900	22	6-8	27	30	280
ORBH-8' & 12'	1080[3]	22	6-8	27	30	280

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

[3] ORBH-8' has 3 doors, ORBH-12' has 4 doors.

[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)
ORBH	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.

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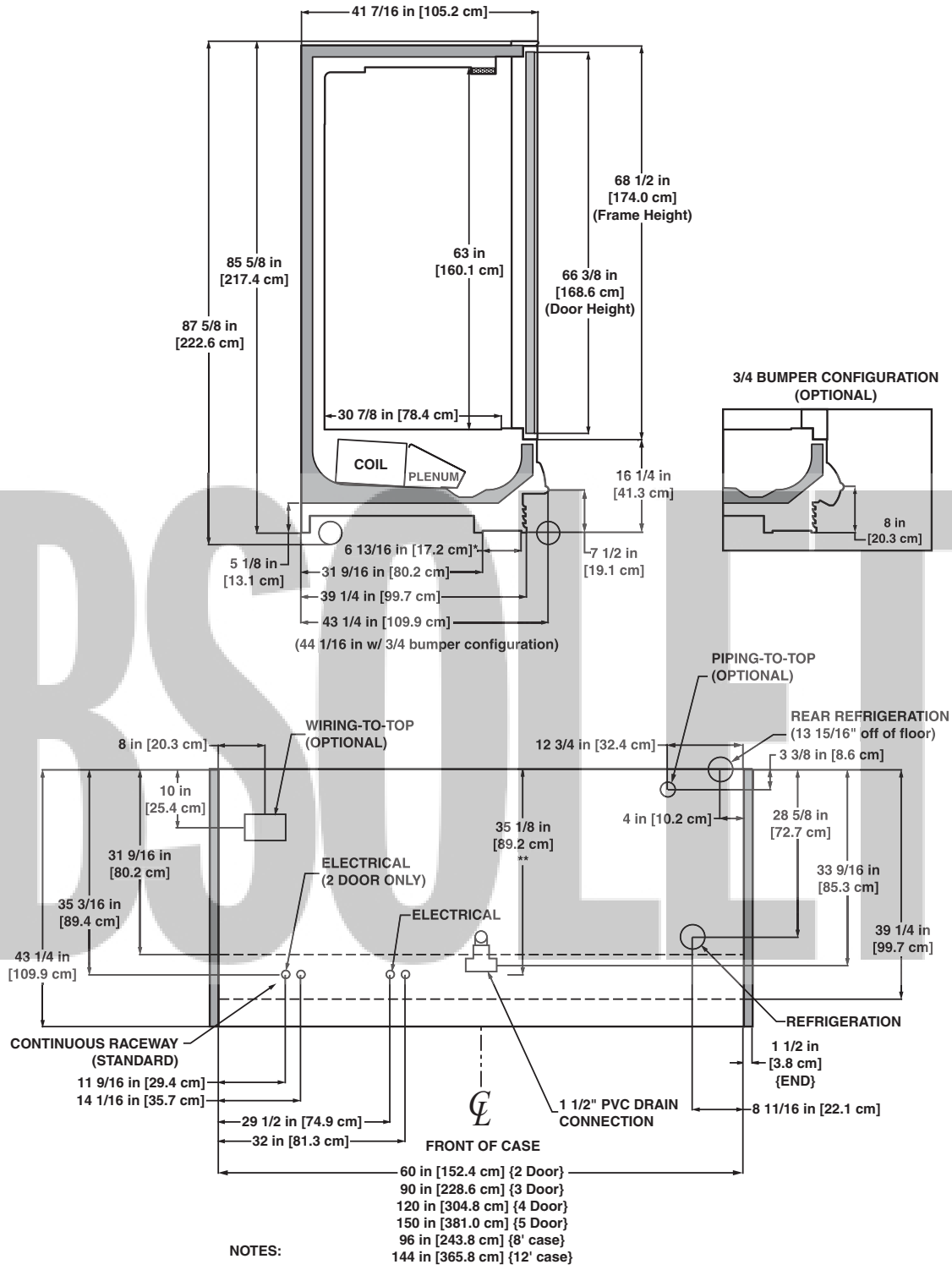

NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 1/2", 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" & 27"
  (TOP SHELF MUST BE 24" OR SHORTER WHEN USING 27" SHELVES.
  RECOMMENDED CONFIGURATION IS 1 - 24" SHELF AND 4 - 27" SHELVES BELOW
  TOP SHELF)

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A DOVER COMPANY

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	Anti-Condensate Heaters (ELIM)[1] 120 Volts Amps	Anti-Condensate Heaters (ELIM)[1] 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	0.31	18.4	3.82	458	2.15	258	7.61[2]	2742	8.77[2]	3645
	3-door	3	1.50	90	0.46	27.6	5.31	637	2.99	359	8.59[2]	3096	9.89[2]	4110
	4-door	4	2.00	120	0.61	36.8	6.93	832	3.93	471	11.28[2]	4065	13.08[2]	5439
	5-door	5	2.50	150	0.77	46.0	8.56	1027	4.93	591	13.78[2]	4965	15.88[2]	6603

[1] Anti-Condensate heater load for cases with Eliminator Doors.

[2] 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[3]	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

[3] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[6]	Coil[7] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
ONRZ - F[4]	1500	Std.	-12	3-5	-2	2	460
ONRZ - F[4]	1345	Enh.	-11	3-5	-3	0	460
ONRZ - C[4]	1600	Std.	-22	3-5	-12	-8	460
ONRZ - C[4]	1405	Enh.	-17	3-5	-8	-5	460
ONRZ - F ELIM[5]	1335	Std.	-12	3-5	-2	2	460
ONRZ - F ELIM[5]	1191	Enh.	-11	3-5	-3	0	460
ONRZ - C ELIM[5]	1424	Std.	-22	3-5	-12	-8	460
ONRZ - C ELIM[5]	1229	Enh.	-17	3-5	-8	-5	460

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

[5] Data given for cases with Eliminator Doors.

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

[7] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[8] 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	- - -[9]	- - -	24	73	- - -	- - -

[9] 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.

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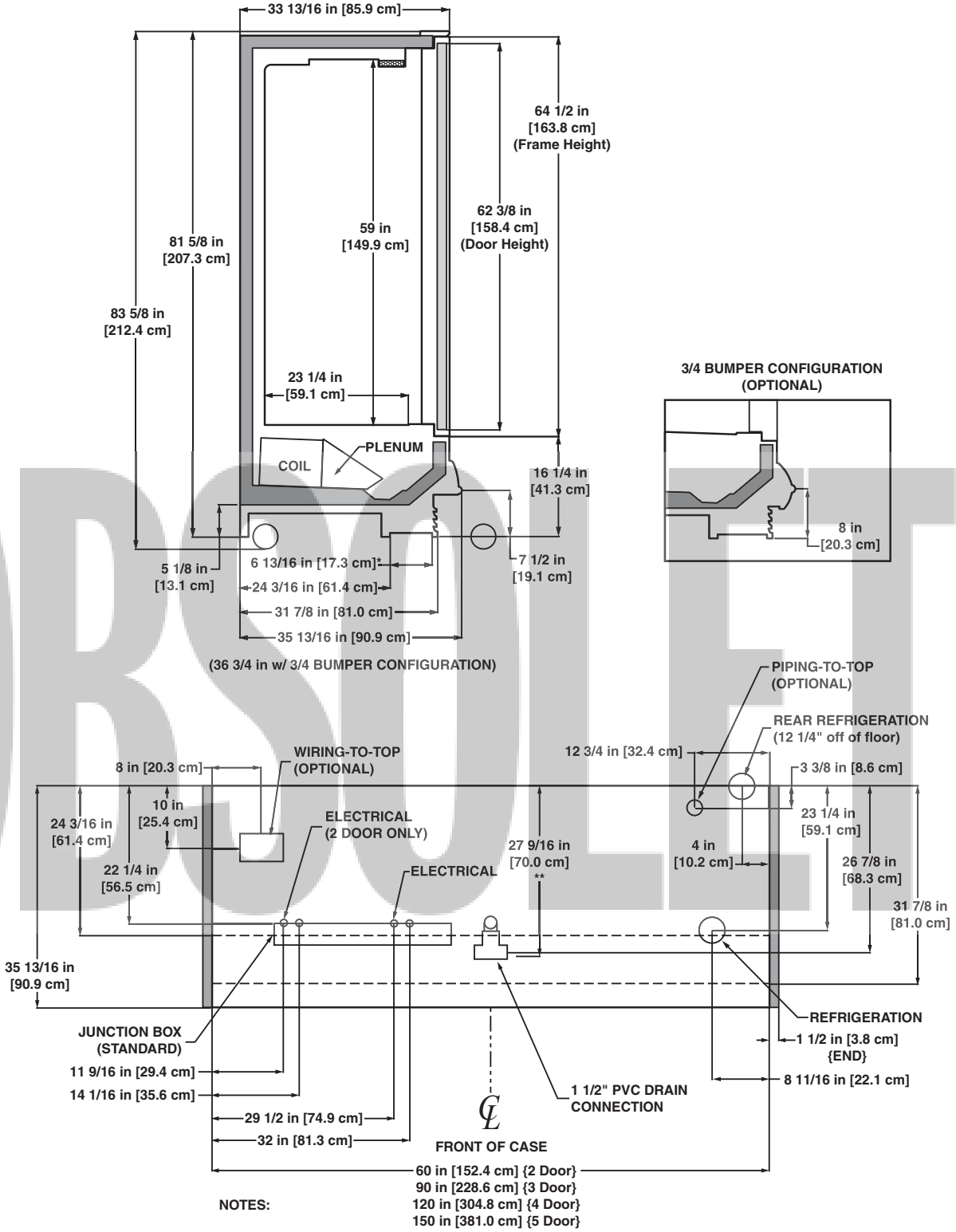

NOTES:

* STUB-UP AREA

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20" & 22"
  SOLID SHELVES 18", 20" & 22"
  (TOP SHELF MUST BE 20" OR SHORTER. RECOMMENDED CONFIGURATION IS 20" SHELF AND 4 22" SHELVES BELOW TOP SHELF)

OBSOLETE

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	Anti-Condensate Heaters (ELIM)[1] 120 Volts Amps	Anti-Condensate Heaters (ELIM)[1] 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	0.31	18.4	3.84	457	2.18	262	7.61[2]	2742	8.77[2]	3645
	3-door	3	1.50	90	0.46	27.6	5.40	648	3.02	362	8.59[2]	3096	9.89[2]	4110
	4-door	4	2.00	120	0.61	36.8	6.97	836	4.00	480	11.28[2]	4065	13.08[2]	5439
	5-door	5	2.50	150	0.77	46.0	8.64	1037	5.02	602	13.78[2]	4965	15.88[2]	6603

[1] Anti-Condensate heater load for cases with Eliminator Doors.

[2] 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[3]	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

[3] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[6]	Coil[7] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
ONRZH - F[4]	1500	Std.	-12	3-5	-8	-4	405
ONRZH - F[4]	1345	Enh.	-11	3-5	-3	0	405
ONRZH - C[4]	1600	Std.	-22	3-5	-12	-4	405
ONRZH - C[4]	1405	Enh.	-17	3-5	-8	-5	405
ONRZH - F ELIM[5]	1335	Std.	-12	3-5	-8	-4	405
ONRZH - F ELIM[5]	1191	Enh.	-11	3-5	-3	0	405
ONRZH - C ELIM[5]	1424	Std.	-22	3-5	-12	-4	405
ONRZH - C ELIM[5]	1229	Enh.	-17	3-5	-8	-5	405

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

[5] Data given for cases with Eliminator Doors.

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

[7] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[8] 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	- - -[9]	- - -	24	73	- - -	- - -

[9] 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.

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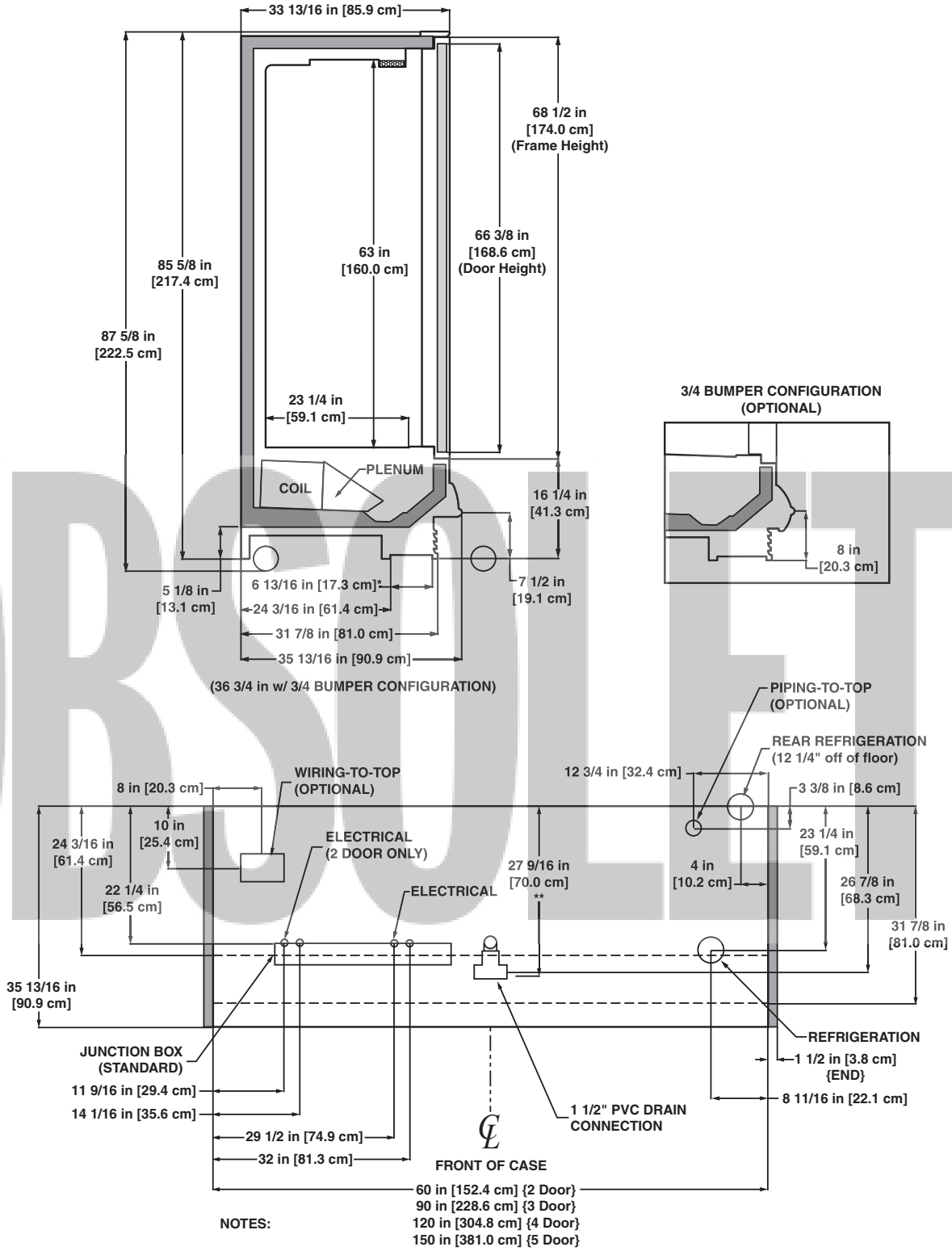


NOTES:

* STUB-UP AREA

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- 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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20" & 22"
  SOLID SHELVES 18", 20" & 22"
  (TOP SHELF MUST BE 20" OR SHORTER. RECOMMENDED CONFIGURATION IS 20" SHELF AND 4 22" SHELVES BELOW TOP SHELF)

OBSOLETE

Glass Door Reach-in Frozen Food/Ice Cream Merchandiser

ORZ - 2, 3, 4, 5 & 6-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	Anti-Condensate Heaters (ELIM)[1] 120 Volts Amps	Anti-Condensate Heaters (ELIM)[1] 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	0.31	18.4	3.82	458	2.15	258	7.61[2]	2742	8.77[2]	3645
	3-door	3	1.50	90	0.46	27.6	5.31	637	2.99	359	8.59[2]	3096	9.89[2]	4110
	4-door	4	2.00	120	0.61	36.8	6.93	832	3.93	471	11.28[2]	4065	13.08[2]	5439
	5-door	5	2.50	150	0.77	46.0	8.56	1027	4.93	591	13.78[2]	4965	15.88[2]	6603
	6-door	6	3.00	180	0.92	55.2	10.19	1223	5.89	707	16.28[2]	5865	18.68[2]	7767

[1] Anti-Condensate heater load for cases with Eliminator Doors.

[2] 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[3]	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
	6-door	NA	NA	3.40	408

[3] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[6]	Coil[7] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
ORZ - F[4]	1400	Std.	-12	3-5	-8	-5	380
ORZ - F[4]	1345	Enh.	-11	3-5	-3	0	380
ORZ - C[4]	1600	Std.	-22	3-5	-12	-4	380
ORZ - C[4]	1405	Enh.	-17	3-5	-8	-5	380
ORZ - F ELIM[5]	1246	Std.	-12	3-5	-8	-5	380
ORZ - F ELIM[5]	1191	Enh.	-11	3-5	-3	0	380
ORZ - C ELIM[5]	1424	Std.	-22	3-5	-12	-4	380
ORZ - C ELIM[5]	1229	Enh.	-17	3-5	-8	-5	380

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

[5] Data given for cases with Eliminator Doors.

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

[7] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[8] 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	- - -[9]	- - -	24	73	- - -	- - -

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

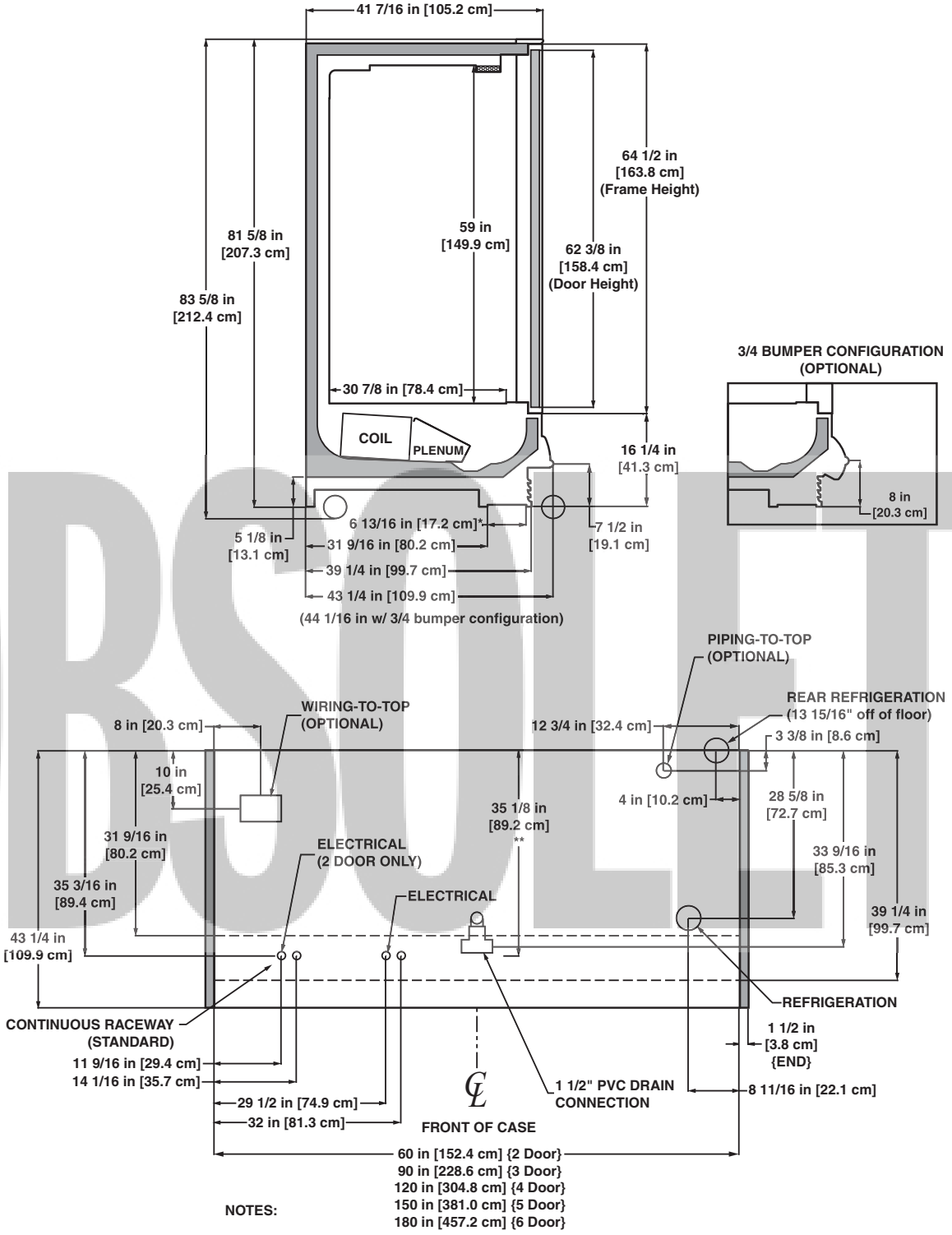
Low Temperature Defrost Schedule

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.

OBSOLETE



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
- BACK PANELS ADD APPROXIMATELY 1" TO THE REAR OF THE CASE
- SUCTION LINE 7/8", LIQUID LINE - 1/2", 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" & 27"
  (TOP SHELF MUST BE 24" OR SHORTER WHEN USING 27" SHELVES.
  RECOMMENDED CONFIGURATION IS 1 - 24" SHELF AND 4 - 27" SHELVES BELOW TOP SHELF)

ORSOLETE

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

ORZH - 2, 3, 4, 5 & 6-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	Anti-Condensate Heaters (ELIM)[1] 120 Volts Amps	Anti-Condensate Heaters (ELIM)[1] 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	0.31	18.4	3.84	457	2.18	262	7.61[2]	2742	8.77[2]	3645
	3-door	3	1.50	90	0.46	27.6	5.40	648	3.02	362	8.59[2]	3096	9.89[2]	4110
	4-door	4	2.00	120	0.61	36.8	6.97	836	4.00	480	11.28[2]	4065	13.08[2]	5439
	5-door	5	2.50	150	0.77	46.0	8.64	1037	5.02	602	13.78[2]	4965	15.88[2]	6603
	6-door	6	3.00	180	0.92	55.2	8.72	1046	5.97	716	16.28[2]	5865	18.68[2]	7767

[1] Anti-Condensate heater load for cases with Eliminator Doors.

[2] 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[3]	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
	6-door	NA	NA	3.40	408

[3] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[6]	Coil[7] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
ORZH - F[4]	1500	Std.	-12	3-5	-8	-4	405
ORZH - F[4]	1345	Enh.	-11	3-5	-3	0	405
ORZH - C[4]	1600	Std.	-22	3-5	-12	-4	405
ORZH - C[4]	1405	Enh.	-17	3-5	-8	-5	405
ORZH - F ELIM[5]	1335	Std.	-12	3-5	-8	-4	405
ORZH - F ELIM[5]	1191	Enh.	-11	3-5	-3	0	405
ORZH - C ELIM[5]	1424	Std.	-22	3-5	-12	-4	405
ORZH - C ELIM[5]	1229	Enh.	-17	3-5	-8	-5	405

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

[5] Data given for cases with Eliminator Doors.

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

[7] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[8] 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	- - -[9]	- - -	24	73	- - -	- - -

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

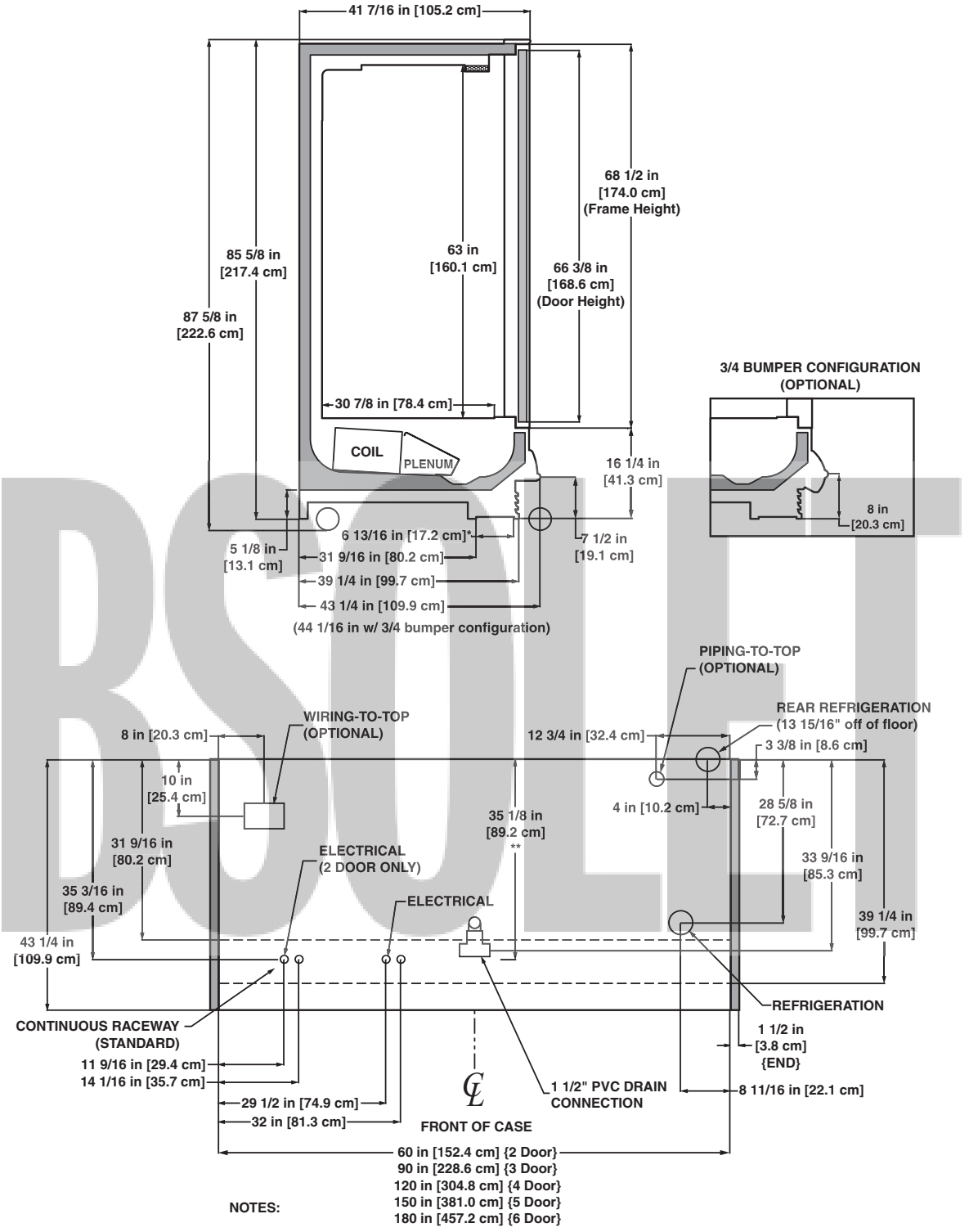
Low Temperature Defrost Schedule

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

** Or immediately after store closing hour

OBSOLETE

All measurements are taken per CRMA specifications.



NOTES:

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- SUCTION LINE 7/8", LIQUID LINE - 1/2", 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" & 27"
  (TOP SHELF MUST BE 24" OR SHORTER WHEN USING 27" SHELVES.
  RECOMMENDED CONFIGURATION IS 1 - 24" SHELF AND 4 - 27" SHELVES BELOW TOP SHELF)

ORSOLETE

NSF COMPONENT

c UL us

A DOVER COMPANY

Narrow Glass Door Reach-in Back-to-Back Frozen Food/Ice Cream Merchandiser

ONRIZ - 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	Anti-Condensate Heaters (ELIM)[1] 120 Volts Amps	Anti-Condensate Heaters (ELIM)[1] 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONRIZ	2-door	4	2.00	120	0.61	36.8	7.64	916	4.30	516	15.22[2]	5484	17.54[2]	7290
	3-door	6	3.00	180	0.92	55.2	10.62	1274	5.98	718	17.18[2]	6192	1978[2]	8220
	4-door	8	4.00	240	1.22	73.6	13.86	1664	7.85	942	22.56[2]	8130	26.16[2]	10878
	5-door	10	5.00	300	1.53	92.0	17.12	2054	9.85	1182	27.56[2]	9930	31.76[2]	13206

[1] Anti-Condensate heater load for cases with Eliminator Doors.

[2] 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
ONRIZ	2-door	NA[3]	NA	2.90	348
	3-door	NA	NA	3.88	466
	4-door	NA	NA	4.84	580
	5-door	NA	NA	5.82	698

[3] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[6]	Coil[7] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
ONRIZ - F[4]	1210	Std.	-12	3-5	-2	2	460
ONRIZ - F[4]	1162	Enh.	-11	3-5	-3	0	460
ONRIZ - C[4]	1405	Std.	-22	3-5	-12	-8	460
ONRIZ - C[4]	1234	Enh.	-17	3-5	-8	-5	460
ONRIZ - F ELIM[5]	1077	Std.	-12	3-5	-2	2	460
ONRIZ - F ELIM[5]	1062	Enh.	-11	3-5	-3	0	460
ONRIZ - C ELIM[5]	1250	Std.	-22	3-5	-12	-8	460
ONRIZ - C ELIM[5]	1079	Enh.	-17	3-5	-8	-5	460

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

[5] Data given for cases with Eliminator Doors.

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

[7] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[8] 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)
ONRIZ	1	13 - 15	46	73	- - -[9]	- - -	24	73	- - -	- - -

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

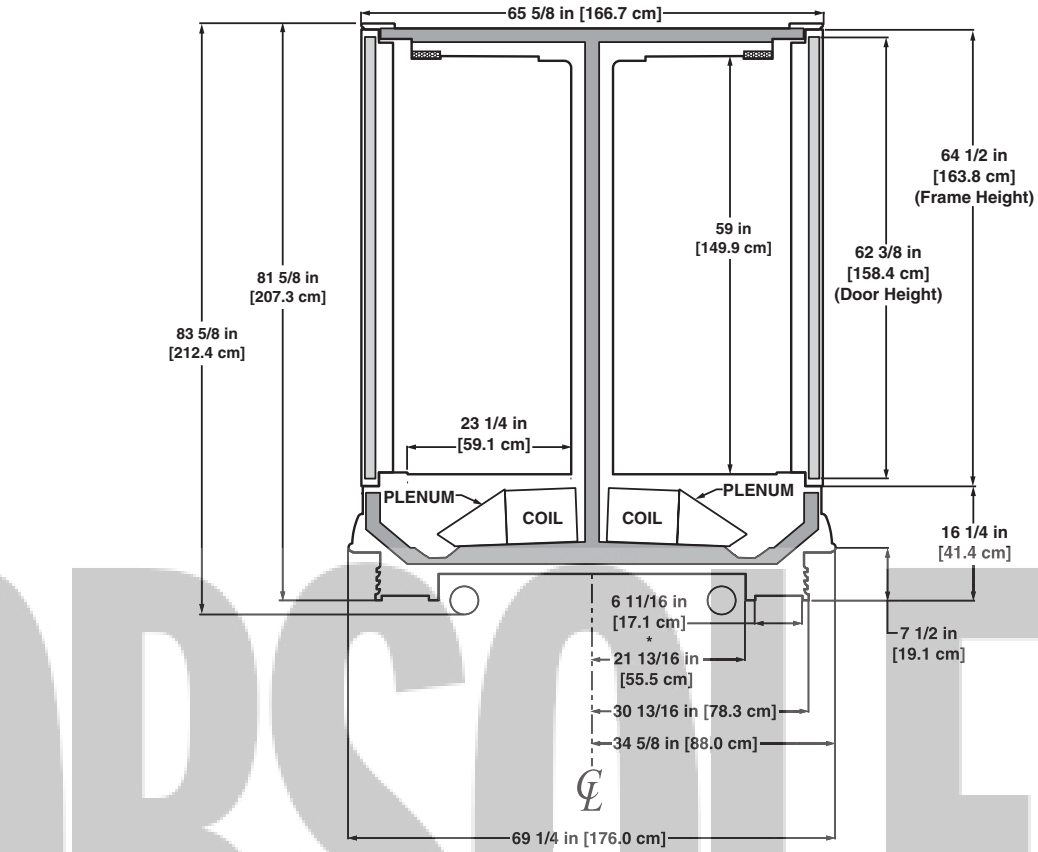
Low Temperature Defrost Schedule

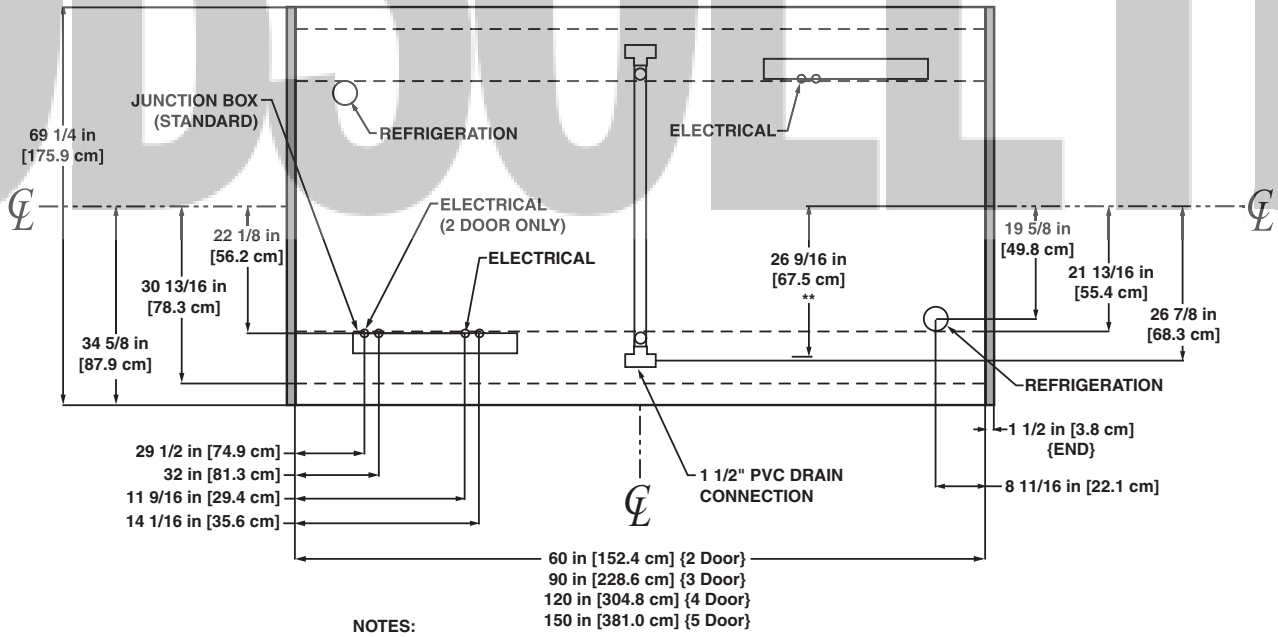
No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

OBSOLETE

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
- SUCTION LINE 7/8", LIQUID LINE - 1/2", LIQUID LINE PIPED TO TOP 5/8"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20" & 22"
  SOLID SHELVES 18", 20" & 22"
  (TOP SHELF MUST BE 20" OR SHORTER. RECOMMENDED CONFIGURATION IS 20" SHELF AND 4 22" SHELVES BELOW TOP SHELF)

OBSOLETE

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

ONRIZH - 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	Anti-Condensate Heaters (ELIM)[1] 120 Volts Amps	Anti-Condensate Heaters (ELIM)[1] 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONRIZH	2-door	4	2.00	120	0.61	36.8	7.68	922	4.36	523	15.22[2]	5484	17.54[2]	7290
	3-door	6	3.00	180	0.92	55.2	10.80	1296	6.04	725	17.18[2]	6192	1978[2]	8220
	4-door	8	4.00	240	1.22	73.6	13.94	1673	7.99	959	22.56[2]	8130	26.16[2]	10878
	5-door	10	5.00	300	1.53	92.0	17.28	2074	10.03	1204	27.56[2]	9930	31.76[2]	13206

[1] Anti-Condensate heater load for cases with Eliminator Doors.

[2] 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
ONRIZH	2-door	NA[3]	NA	2.90	348
	3-door	NA	NA	3.88	466
	4-door	NA	NA	4.84	580
	5-door	NA	NA	5.82	698

[3] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[6]	Coil[7] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
ONRIZH - F[4]	1210	Std.	-12	3-5	-2	2	460
ONRIZH - F[4]	1162	Enh.	-11	3-5	-3	0	460
ONRIZH - C[4]	1405	Std.	-22	3-5	-12	-8	460
ONRIZH - C[4]	1234	Enh.	-17	3-5	-8	-5	460
ONRIZH - F ELIM[5]	1077	Std.	-12	3-5	-2	2	460
ONRIZH - F ELIM[5]	1062	Enh.	-11	3-5	-3	0	460
ONRIZH - C ELIM[5]	1250	Std.	-22	3-5	-12	-8	460
ONRIZH - C ELIM[5]	1079	Enh.	-17	3-5	-8	-5	460

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

[5] Data given for cases with Eliminator Doors.

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

[7] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[8] 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)
ONRIZH	1	13 - 15	46	73	- - -[6]	- - -	24	73	- - -	- - -

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

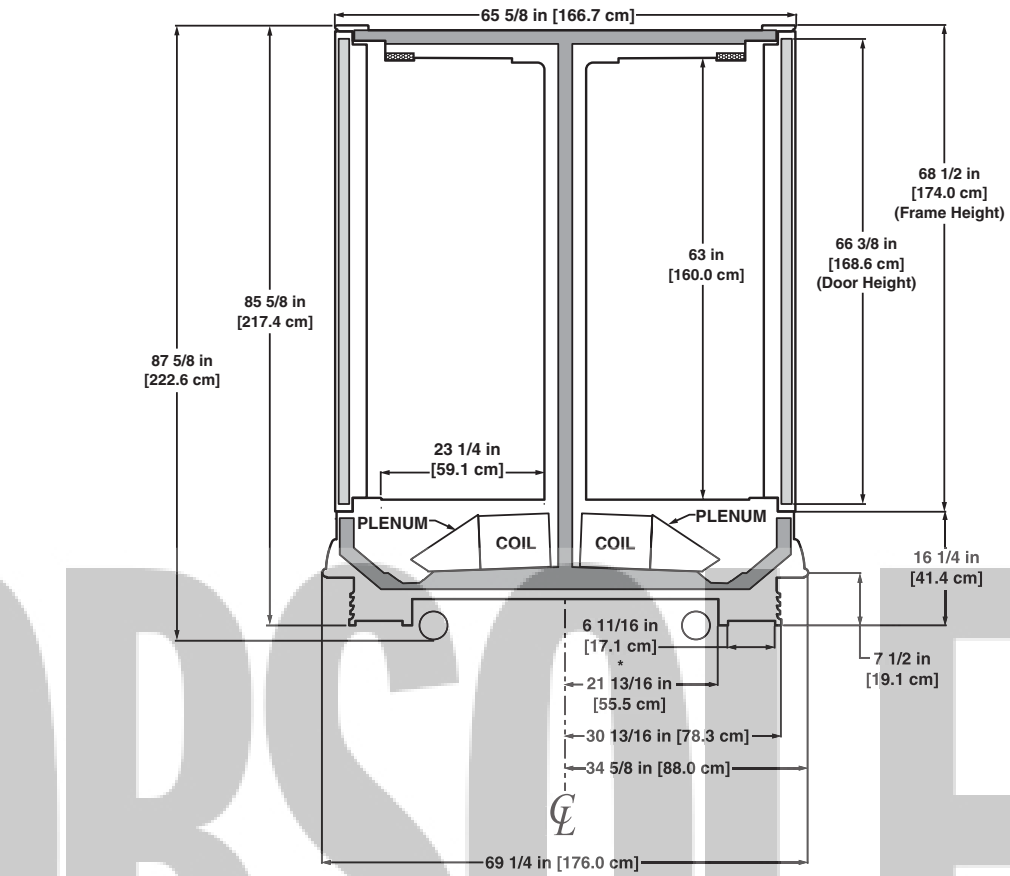
Low Temperature Defrost Schedule

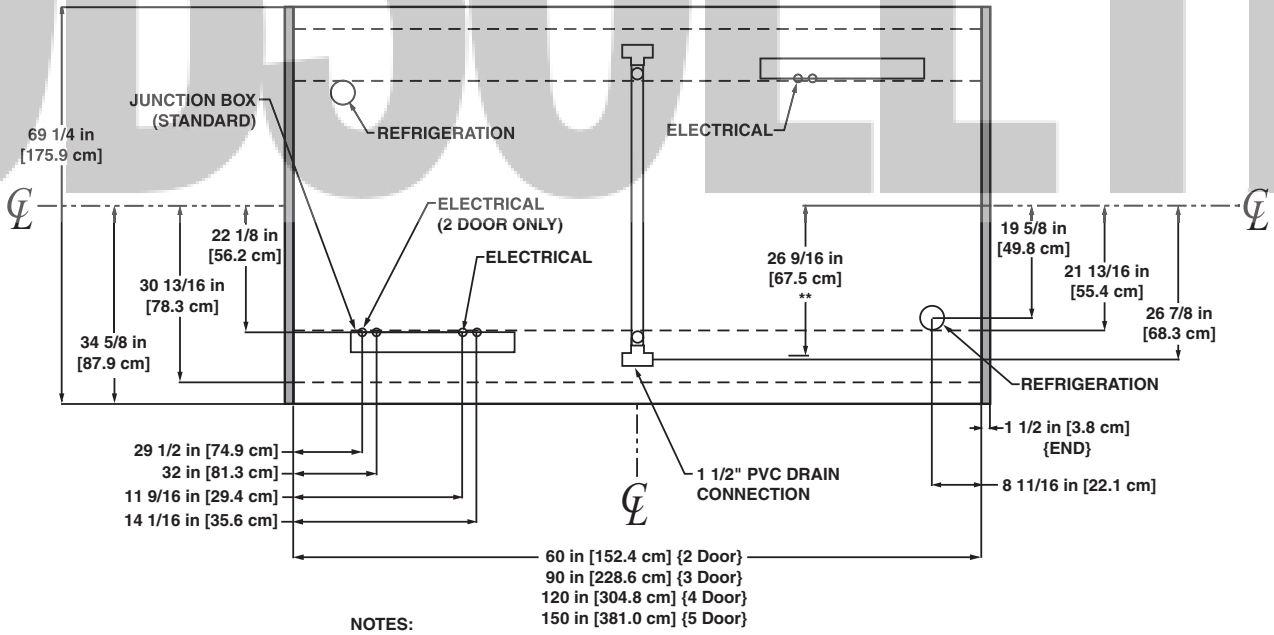
No. Per Day	Hours
1	10 pm
2	6 am - 10 pm**

** Or immediately after store closing hour

OBSOLETE

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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- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20" & 22"
  SOLID SHELVES 18", 20" & 22"
  (TOP SHELF MUST BE 20" OR SHORTER. RECOMMENDED CONFIGURATION IS 20" SHELF AND 4 22" SHELVES BELOW TOP SHELF)

OBSOLETE

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A DOVER COMPANY

OBSOLETE

SINGLE DECK ISLAND

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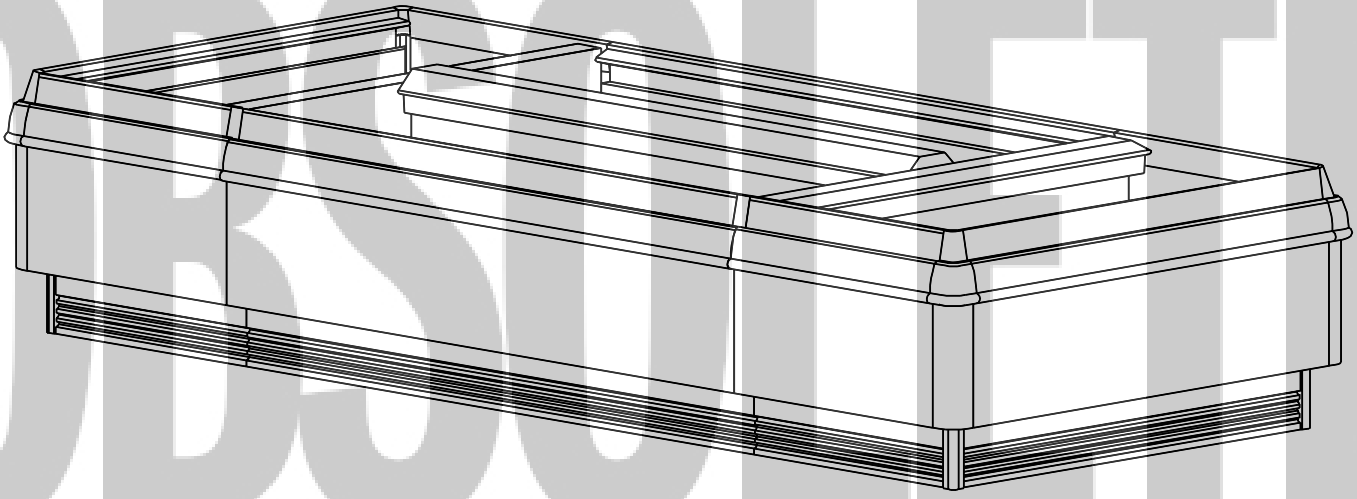

Notes:

- *Cases comply with ANSI / NSF* Standard 7. Units marked as components require remote refrigeration.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*
- *Front and rear sill heights vary with baseframe height.*

* *ANSI - American National Standard Institute*
NSF - National Sanitation Foundation

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	2.04	102	0.90	66	0.82	98	4.34	902	5.00	1200
	12’	8	2.72	136	1.20	88	1.08	130	7.22	1502	8.33	2000
ONIMB	8’	6	2.04	102	0.90	66	0.75	90	4.34	902	5.00	1200
	12	8	2.72	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)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
ONIM/ONIMB Meat	885[4]	12	6-8	25	34	180
ONIM/ONIMB Deli	860[5]	17	6-8	28	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.

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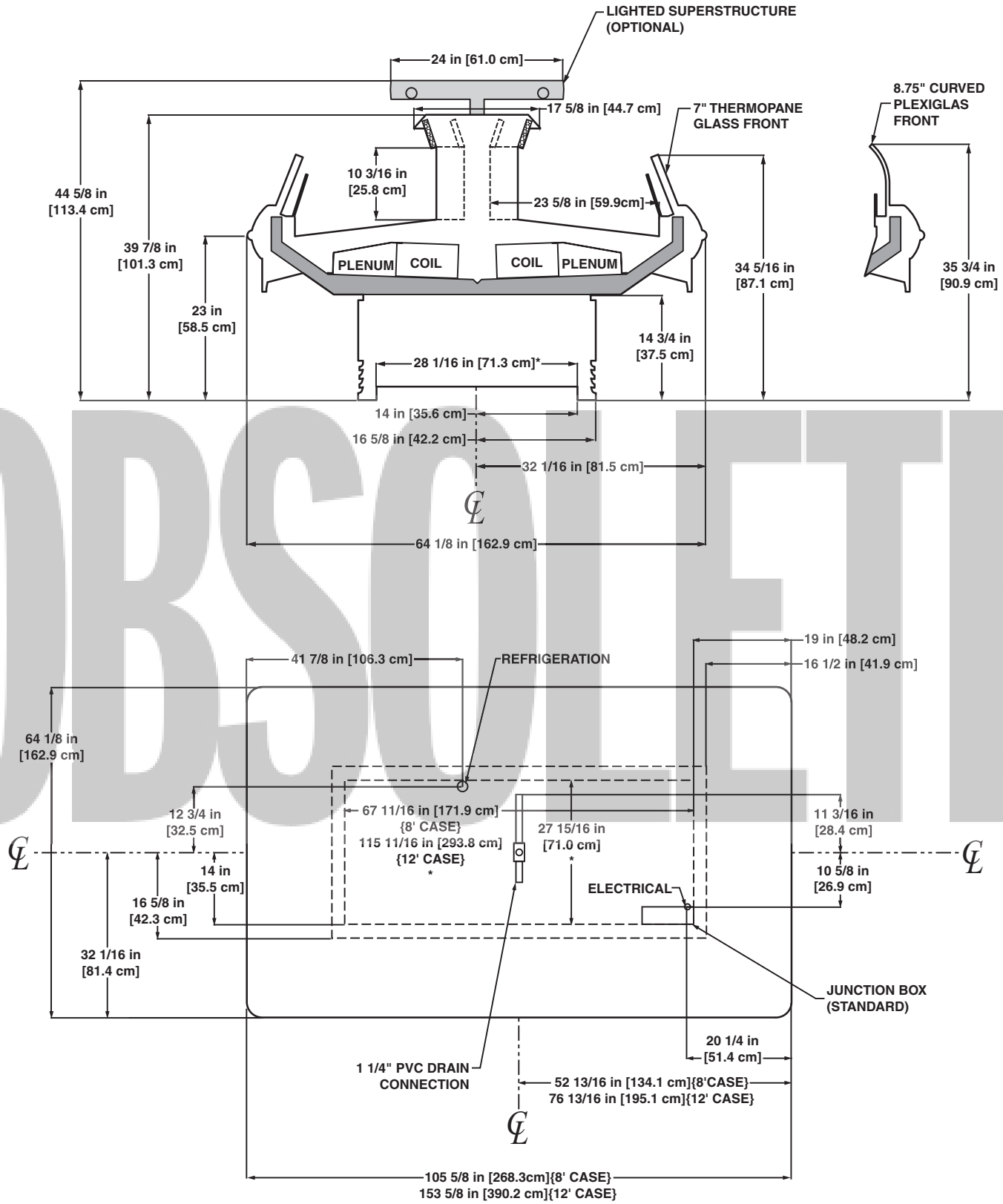

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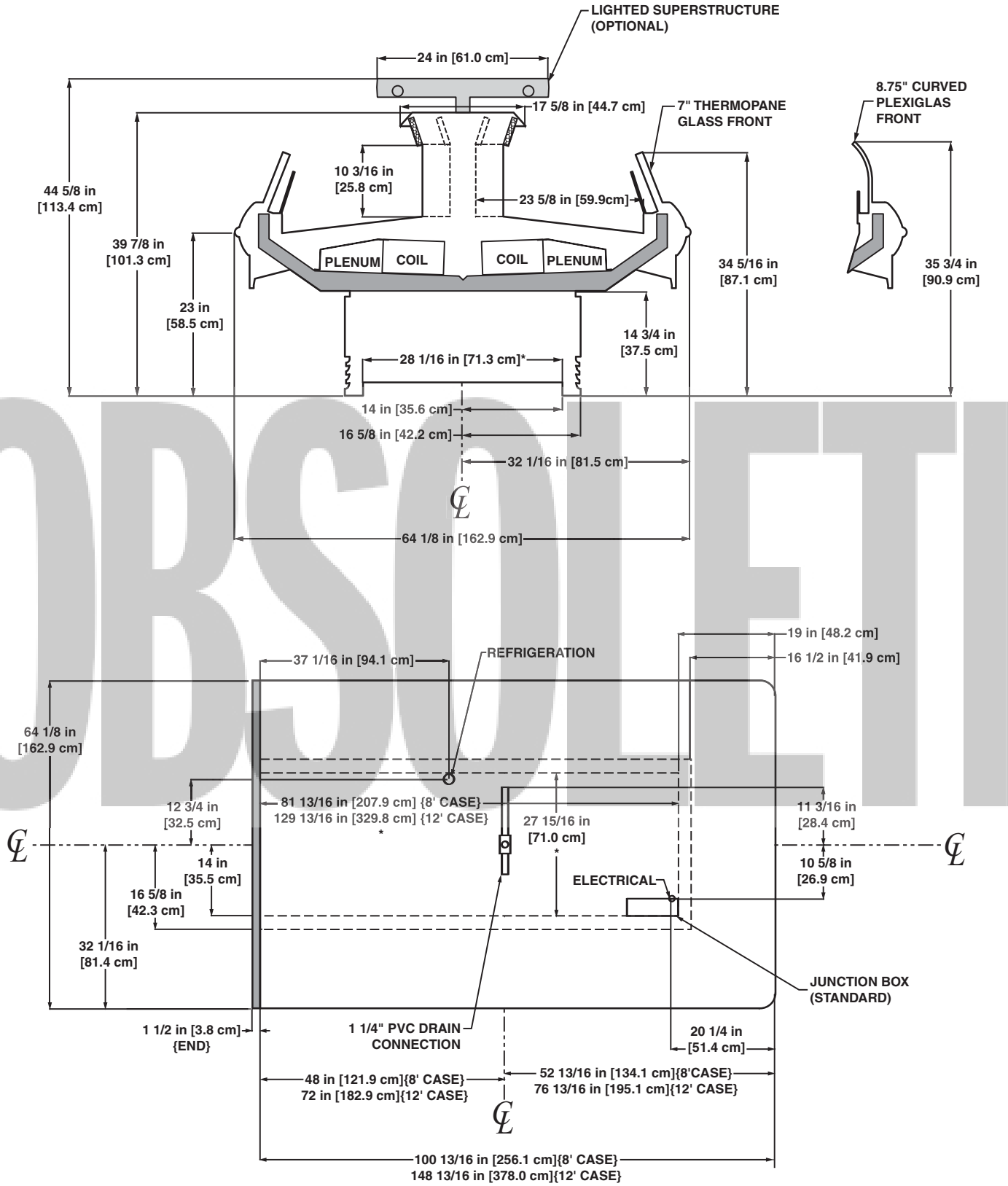
NOTES:

* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"



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NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

OBSOLETE

Narrow Island Self-Contained Deli/Meat Merchandiser

ONIMA - 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
ONIMA	8'	208	1	60	3 wire + ground	19.325	35
	12'	208	1	60	3 wire + ground	23.343	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 208 Volts		Maximum Lights 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONIMA	8'	6	2.04	102	0.85	88	0.82	98	4.34	902	5.00	1200	4.81	1000	1.26	151
	12'	8	2.72	136	2.60	270	1.08	130	7.22	1502	8.33	2000	4.81	1000	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)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
ONIMA-8'		35	6-8	25	34	180
ONIMA-12'		35	6-8	25	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.
ONIMA-8'	208	1	60	1	10.36	48.2	R22	8.2
ONIMA-12'[2]	208	1	60	1	7.0	34.2	R22	12.6

[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)
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.

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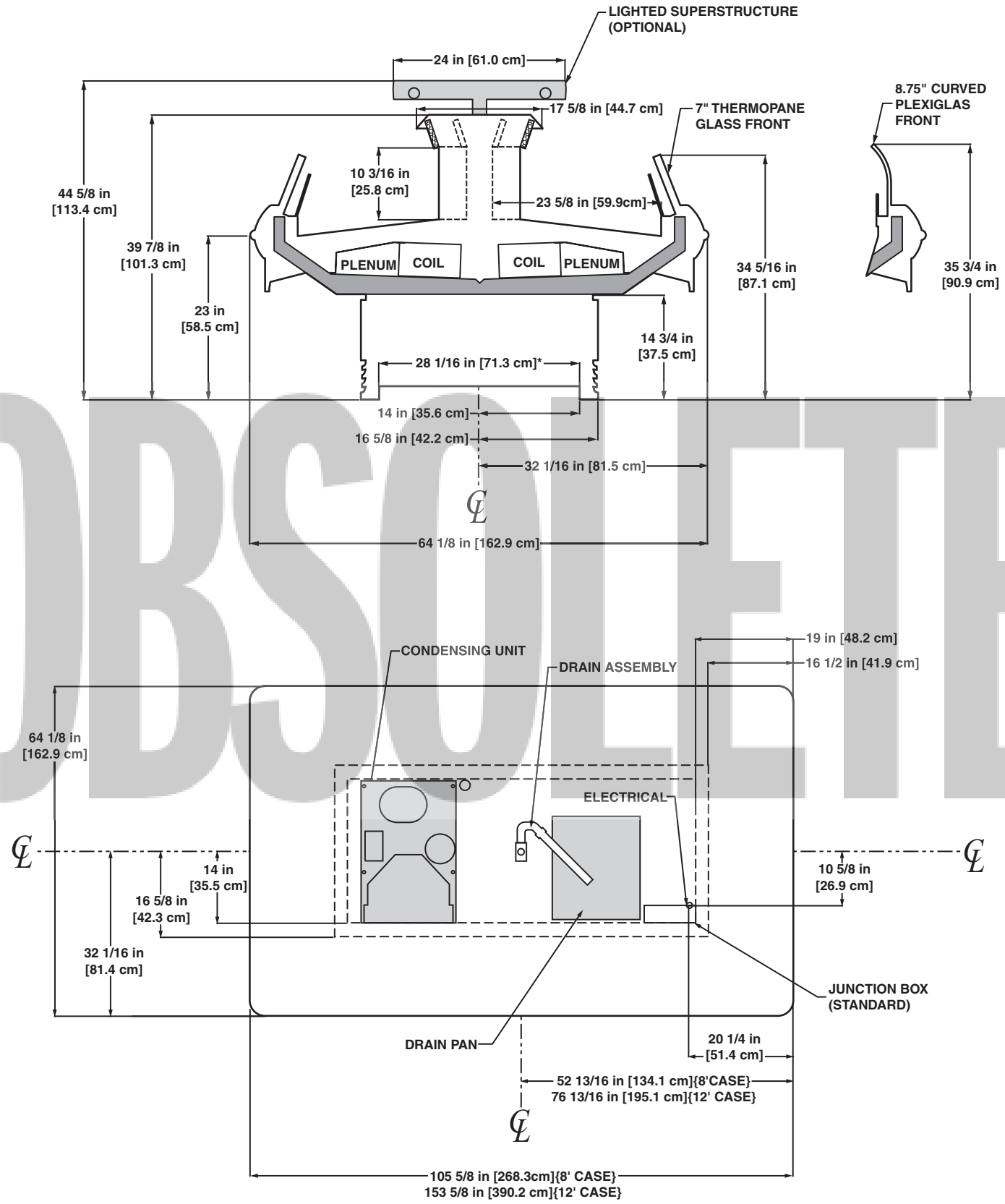

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NOTES:

* STUB-UP AREA

Narrow Island Self-Contained Deli/Meat Merchandiser

ONIMBA - 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
ONIMBA	8'	208	1	60	3 wire + ground	17.999	35
	12'	208	1	60	3 wire + ground	26.619	45

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		208 Volts		120 Volts	
Model			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONIMBA	8'	6	2.04	102	0.85	88	0.75	90	4.34	902	5.00	1200	4.81	1000	- - -	- - -
	12'	8	2.72	136	2.60	270	1.23	148	7.22	1502	8.33	2000	7.21	1500	- - -	- - -

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
ONIMBA-8'		35	6-8	25	34	180
ONIMBA-12'		35	6-8	25	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.
ONIMBA-8'	208	1	60	1	10.36	48.2	R22	8.2
ONIMBA-12'[2]	208	1	60	1	7.0	34.2	R22	12.6

[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.

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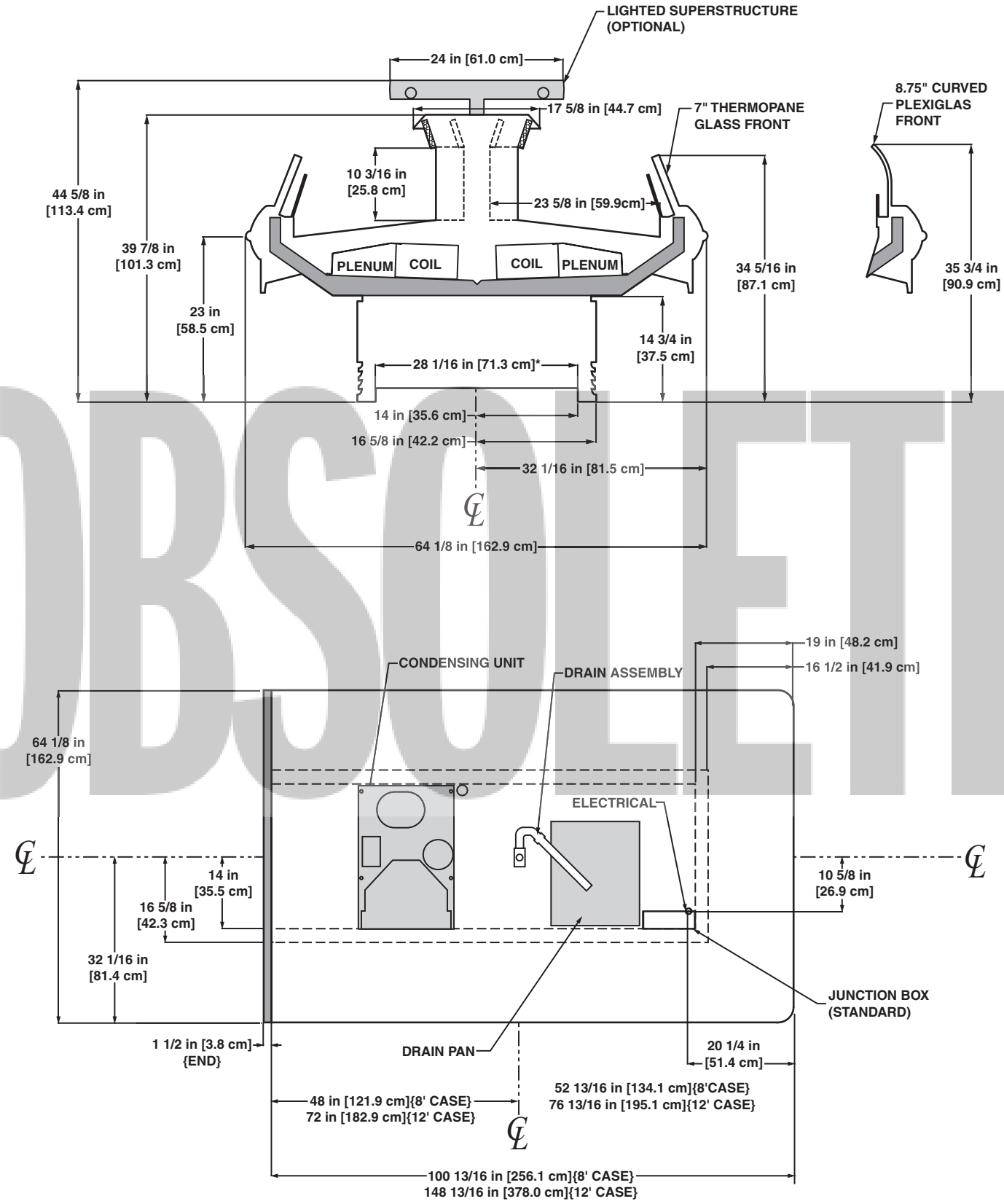

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NOTES:

* 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	2.04	102	0.90	66	0.82	98	4.34	902	5.00	1200
	12’	8	2.72	136	1.20	88	1.08	130	7.22	1502	8.33	2000
OIMB	6’	4	1.36	76	0.60	44	0.57	68	3.25	676	3.75	900
	8’	6	2.04	102	0.90	66	0.75	90	4.34	902	5.00	1200
	12’	8	2.72	136	1.20	88	1.23	148	7.22	1502	8.33	2000
OIMBB	8’	6	2.04	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	3.78	454
	8’	NA	NA	4.61	553
	12’	NA	NA	5.24	629
OIMBB	8’	NA	NA	3.25	390

[1] Not applicable.

OBSOLETE

Guidelines & Control Settings

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

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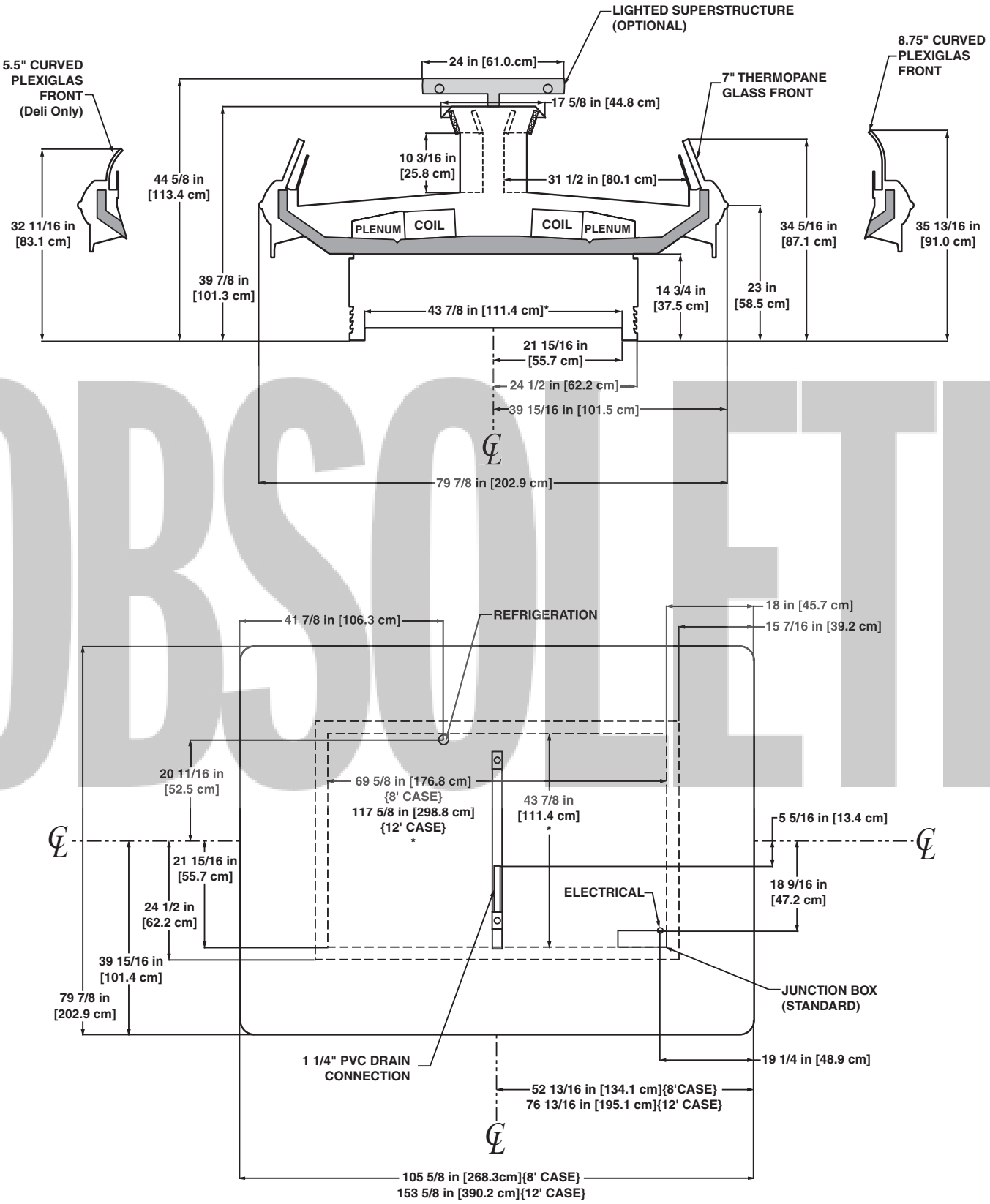

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NOTES:

* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

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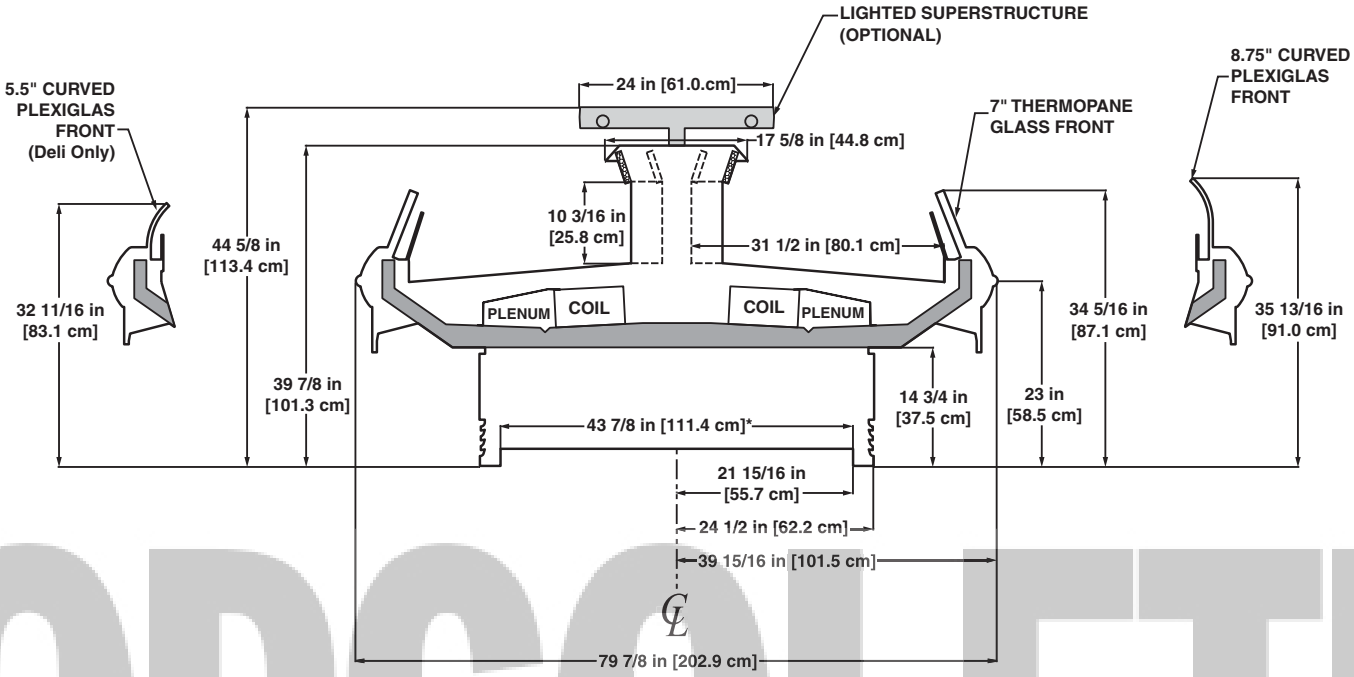

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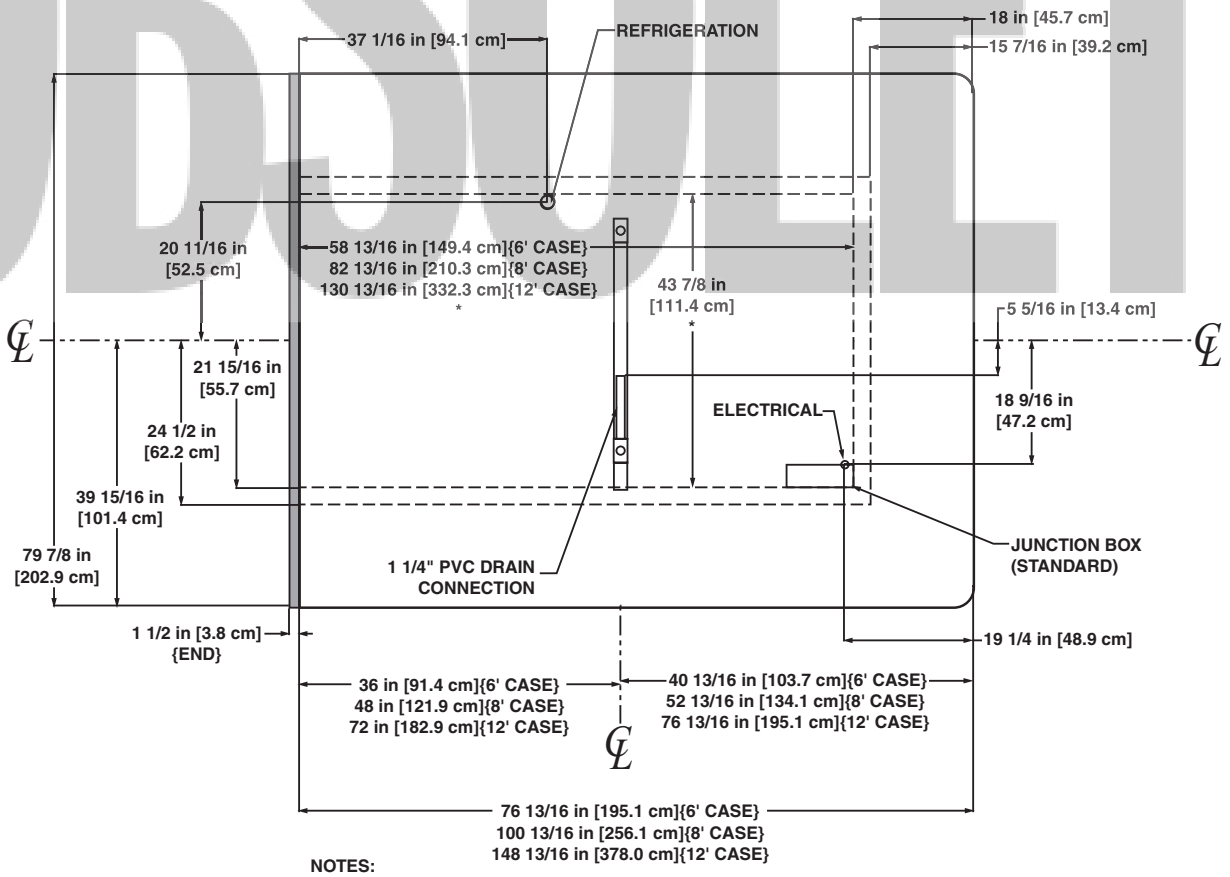

NOTES:

* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

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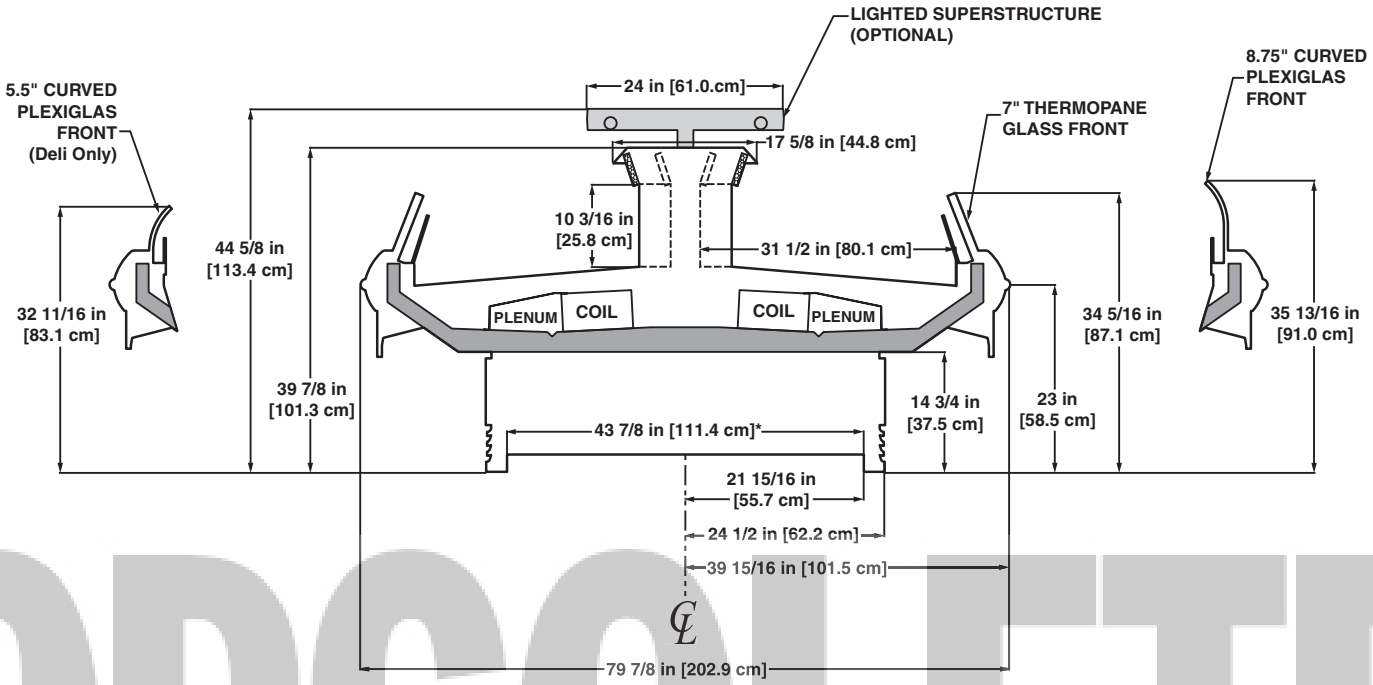

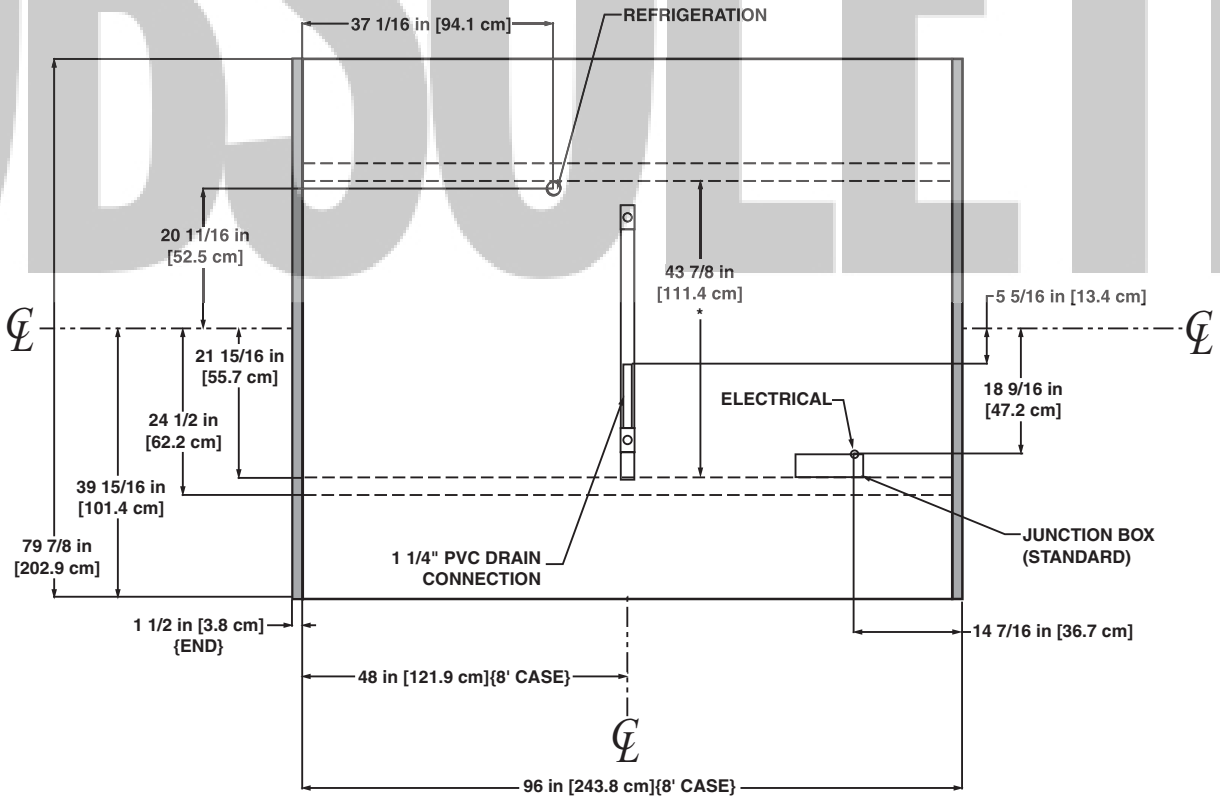

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NOTES:

* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

Wide Island Self-Contained Deli/Meat Merchandiser

OIMA - 8' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
OIMA	8'	208	1	60	3 wire + ground	23.655	40
	12'	208	1	60	3 wire + ground	28.435	45

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 208 Volts		Maximum Lights 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OIMA	8'	6	2.04	102	0.85	88	0.71	85	4.34	9.02	5.00	1200	4.81	1000	5.04	606
	12'	8	2.72	136	2.60	270	0.79	95	7.22	1502	8.33	2000	4.81	1000	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)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OIMA-8'		35	6-8	26	31	140
OIMA-12'		35	6-8	26	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.
OIMA-8'	208	1	60	1	10.36	48.2	R22	8.2
OIMA-12'[2]	208	1	60	1	7.0	34.2	R22	12.6

[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.

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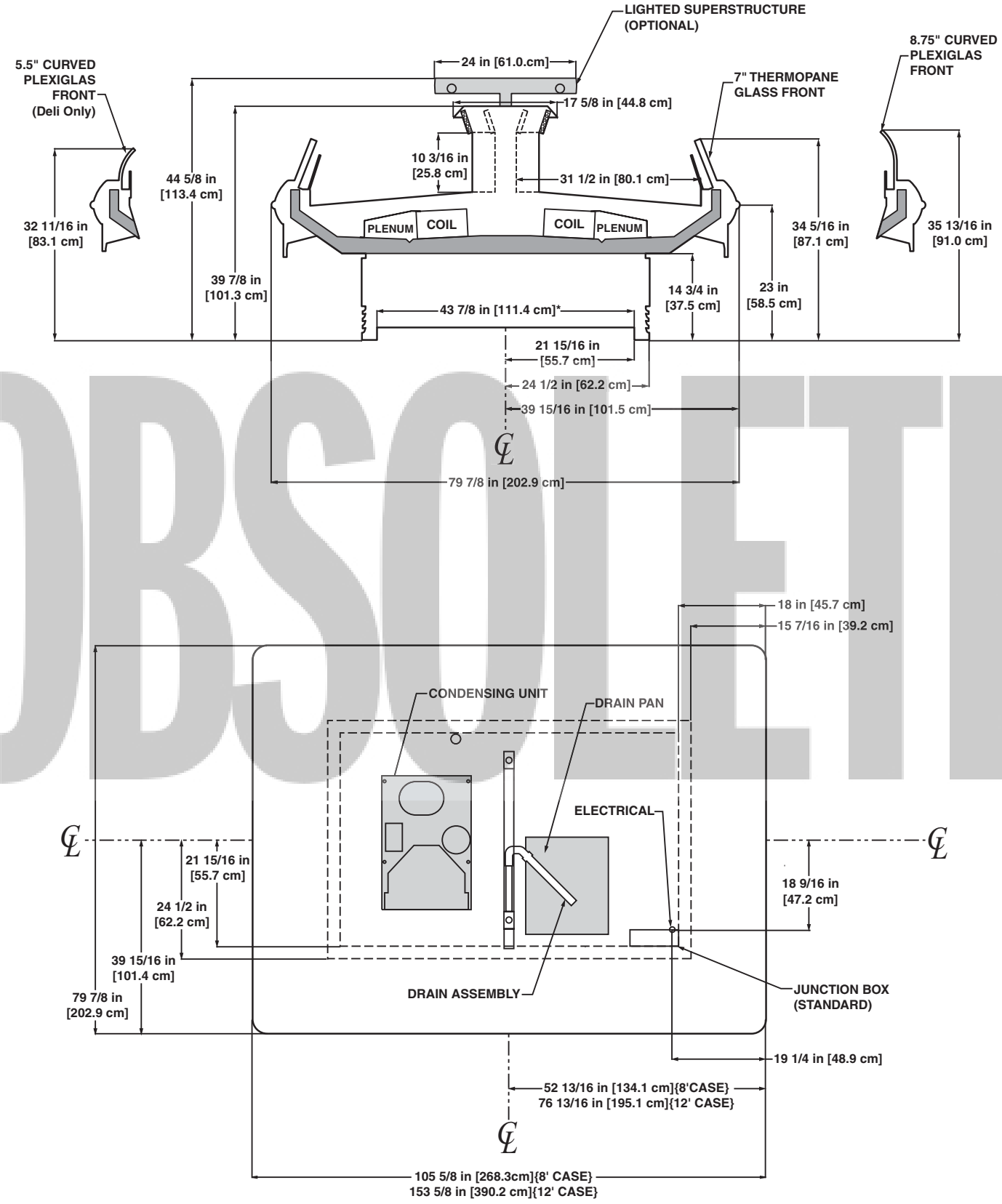

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NOTES:

* STUB-UP AREA

Wide Island Self-Contained Deli/Meat Merchandiser

OIMBA - 6' & 12'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
OIMBA	6'	208	1	60	3 wire + ground	17.047	30
	12'	208	1	60	3 wire + ground	26.619	45

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		208 Volts		120 Volts	
Model			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OIMBA	6'	4	1.36	76	2.60	270	0.57	68	3.25	676	3.75	900	7.21	1500	1.26	151
	12'	8	2.72	136	2.60	270	1.23	148	7.22	1502	8.33	2000	7.21	1500	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)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OIMBA-6'		35	6-8	26	31	140
OIMBA-12'		35	6-8	26	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.
OIMBA-6'	208	1	60	1	7.0	34.2	R22	8.2
OIMBA-12'[2]	208	1	60	1	7.0	34.2	R22	12.6

[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.

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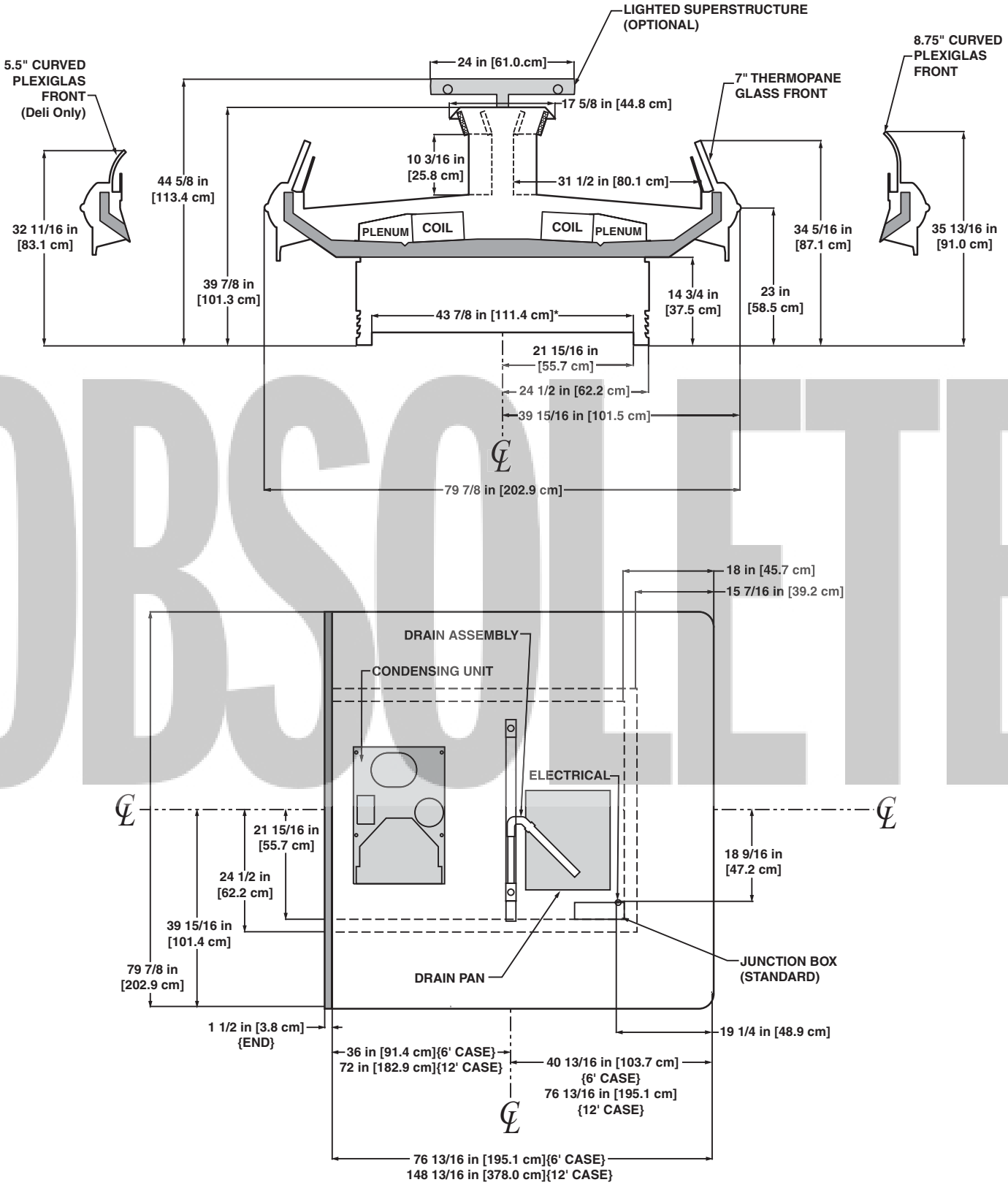

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NOTES:

* 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	2.04	102	0.90	66	0.23	28	- - -[1]	- - -	- - -	- - -
	12'	8	2.72	136	1.20	88	0.55	66	- - -	- - -	- - -	- - -
OIPB	6'	4	1.36	76	0.60	44	0.31	37	- - -	- - -	- - -	- - -
	8'	6	2.04	102	0.90	66	0.46	55	- - -	- - -	- - -	- - -
	10'	6	2.04	102	0.90	66	0.66	79	- - -	- - -	- - -	- - -
	12'	8	2.72	136	1.20	88	0.78	94	- - -	- - -	- - -	- - -
OIPBB	8'	6	2.04	102	0.90	66	0.84	101	- - -	- - -	- - -	- - -
	12'	8	2.72	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

OBSOLETE

Guidelines & Control Settings

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

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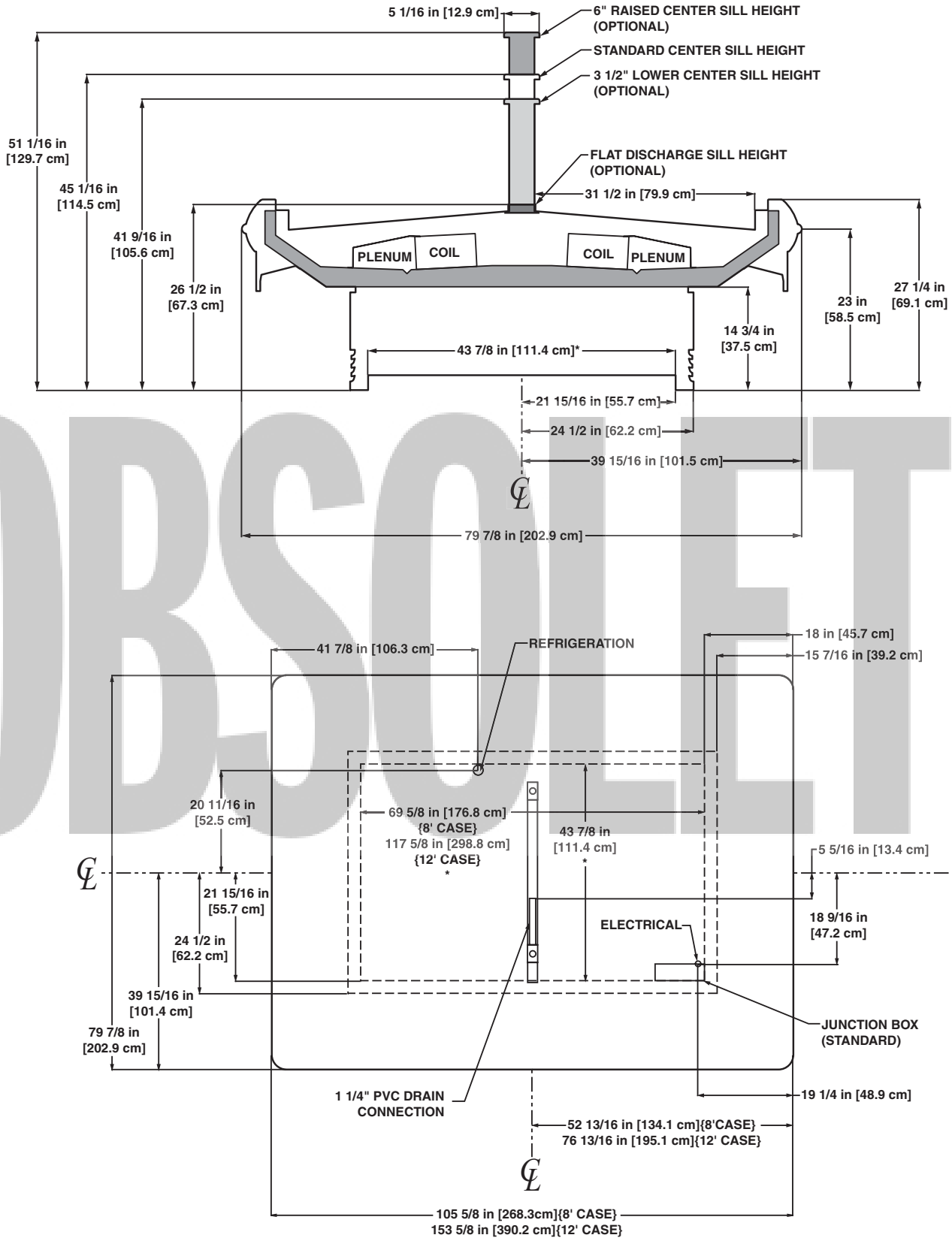

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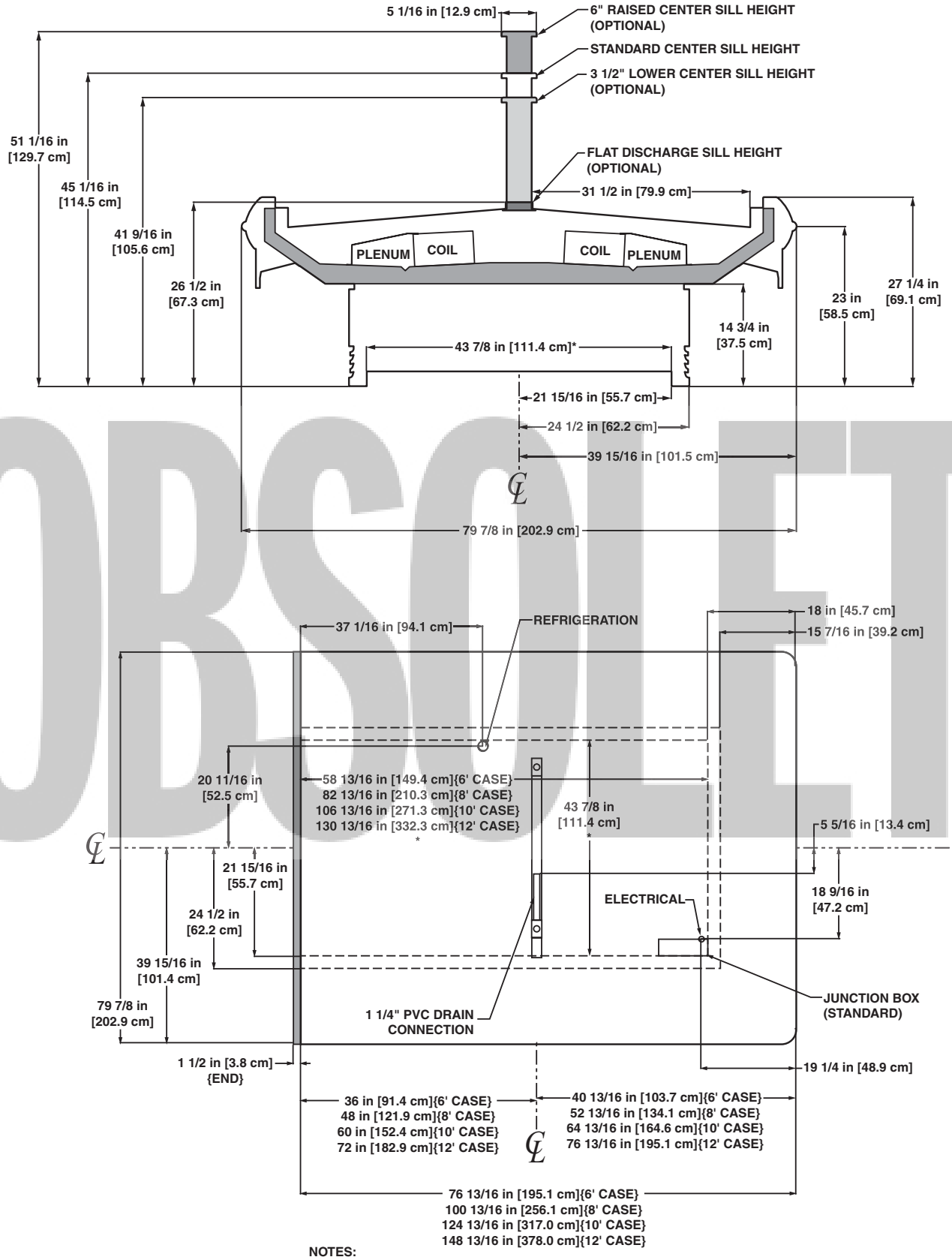
NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"



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NOTES:

* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

NSF COMPONENT

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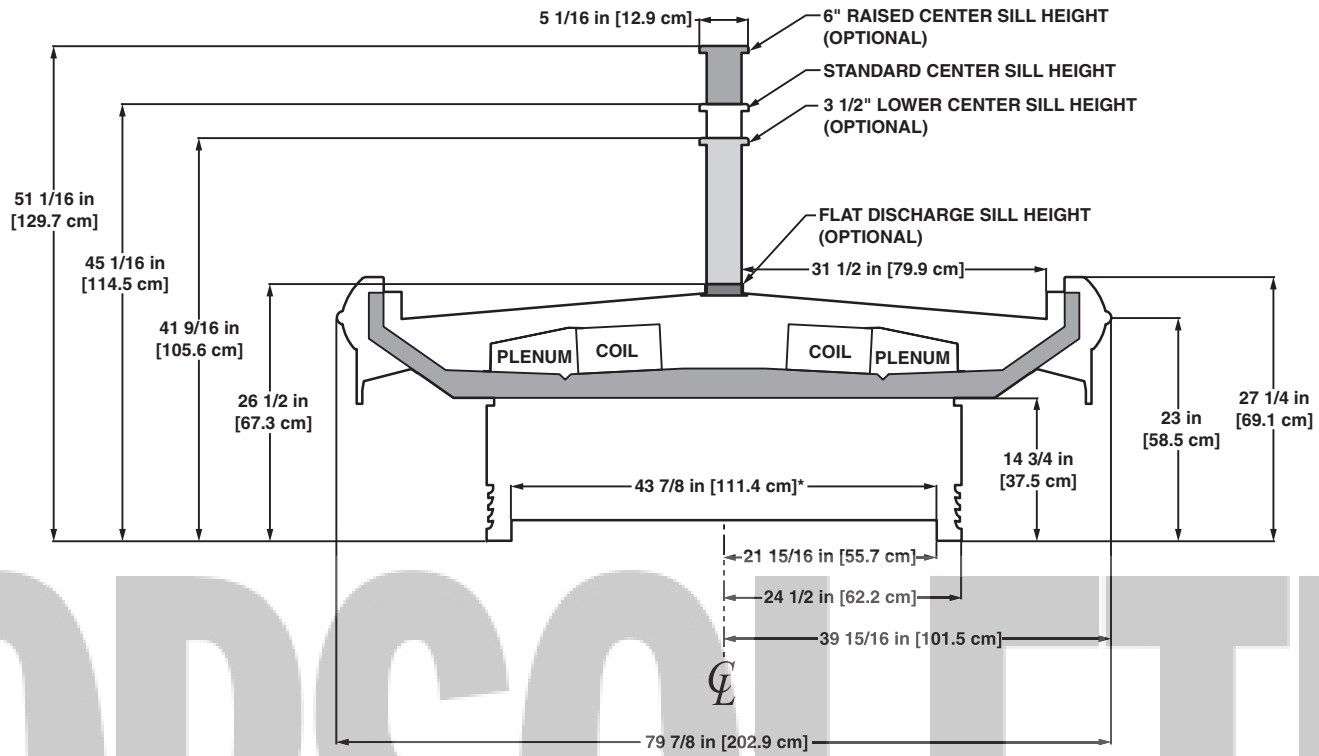

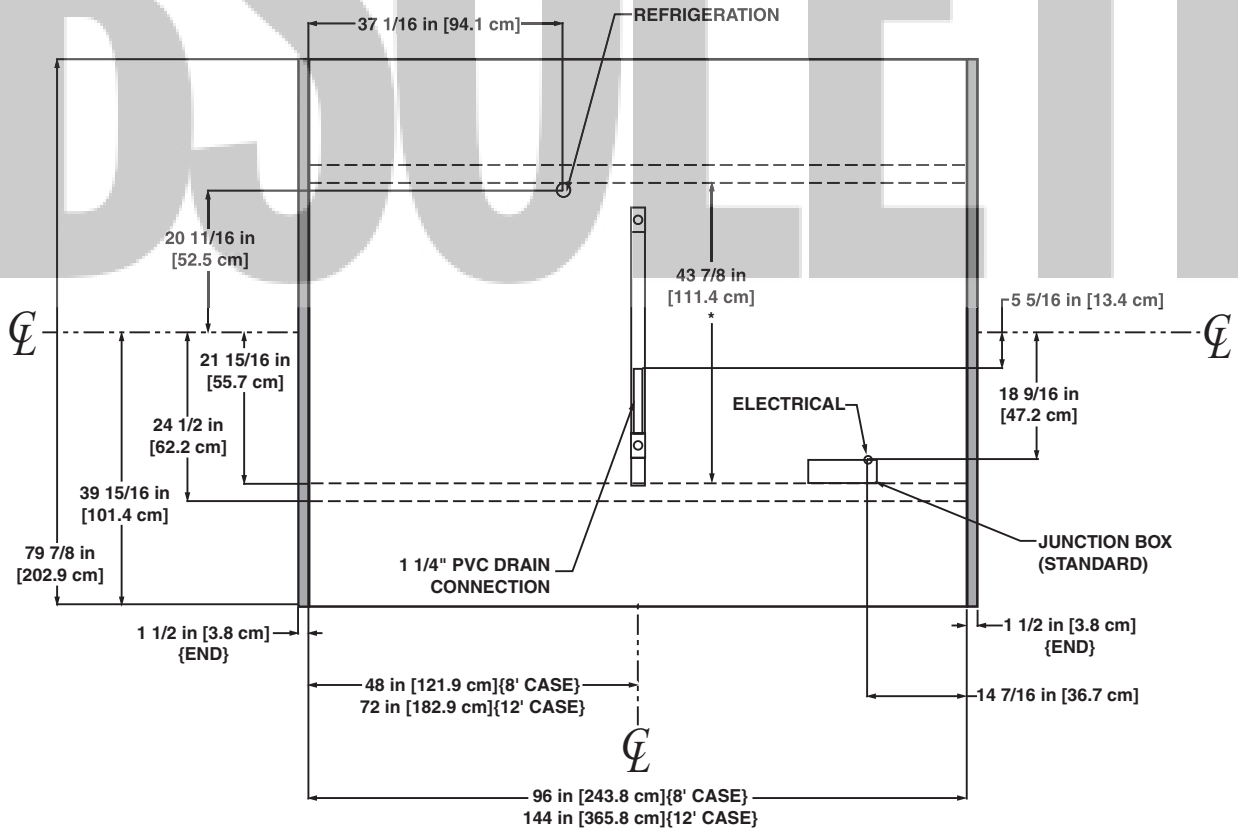

NOTES:

* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

OBSOLETE

Wide Island Self-Contained Bulk Produce Merchandiser

OIPA - 8’ & 12’

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
OIPA	8’	208	1	60	3 wire + ground	8.973	20
	12’	208	1	60	3 wire + ground	29.119	40

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	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 Heater 208 Volts Amps	Drain Heater 208 Volts Watts	Maximum Lights 120 Volts Amps	Maximum Lights 120 Volts Watts
OIPA	8’	6	2.04	102	0.85	88	0.23	28	- - - [1]	- - -	- - -	- - -	4.81	1000	3.78	454
	12’	8	2.72	136	2.60	270	0.55	66	- - -	- - -	- - -	- - -	4.81	1000	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)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OIPA-8’		45	6-8	34	48	140
OIPA-12’		45	6-8	34	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.
OIPA-8’	208	1	60	1	6.7	33.5	R22	7.8
OIPA-12’[3]	**208**	**1**	**60**	**3/4**	**7.14**	**35.5**	**R22**	**11.9**

[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.

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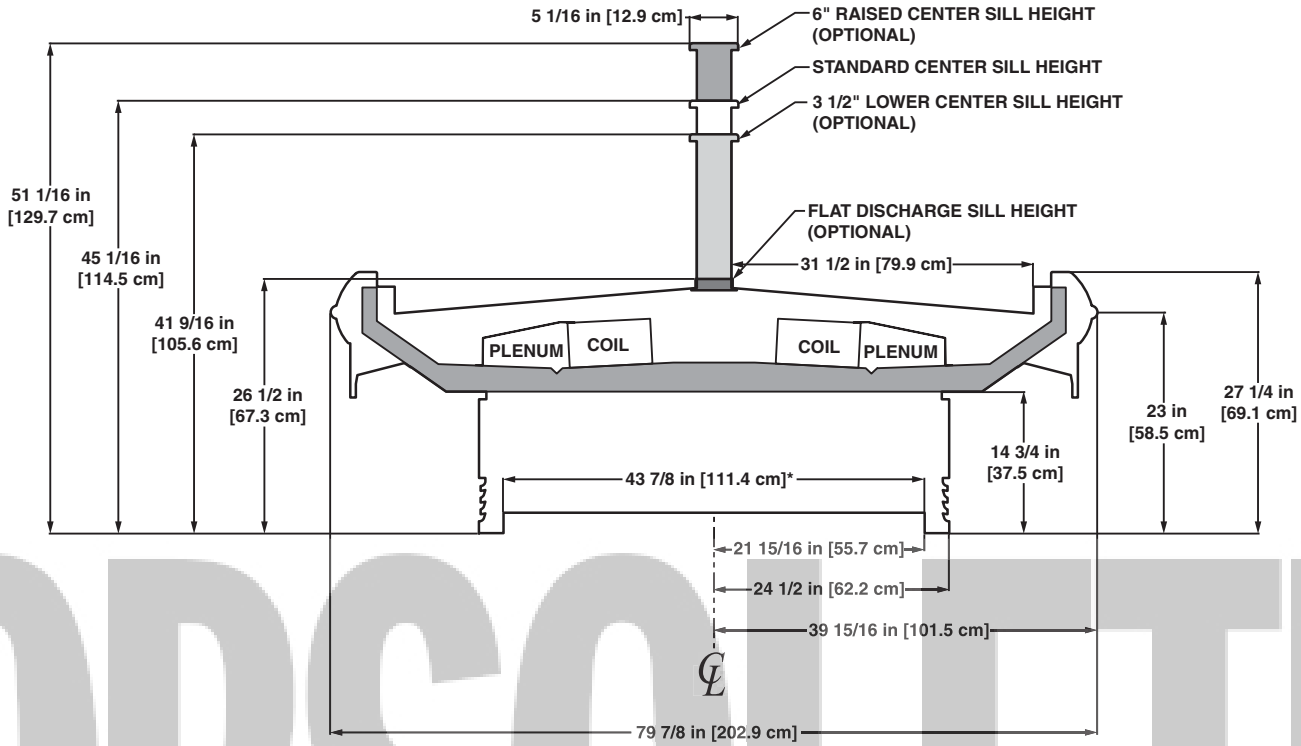

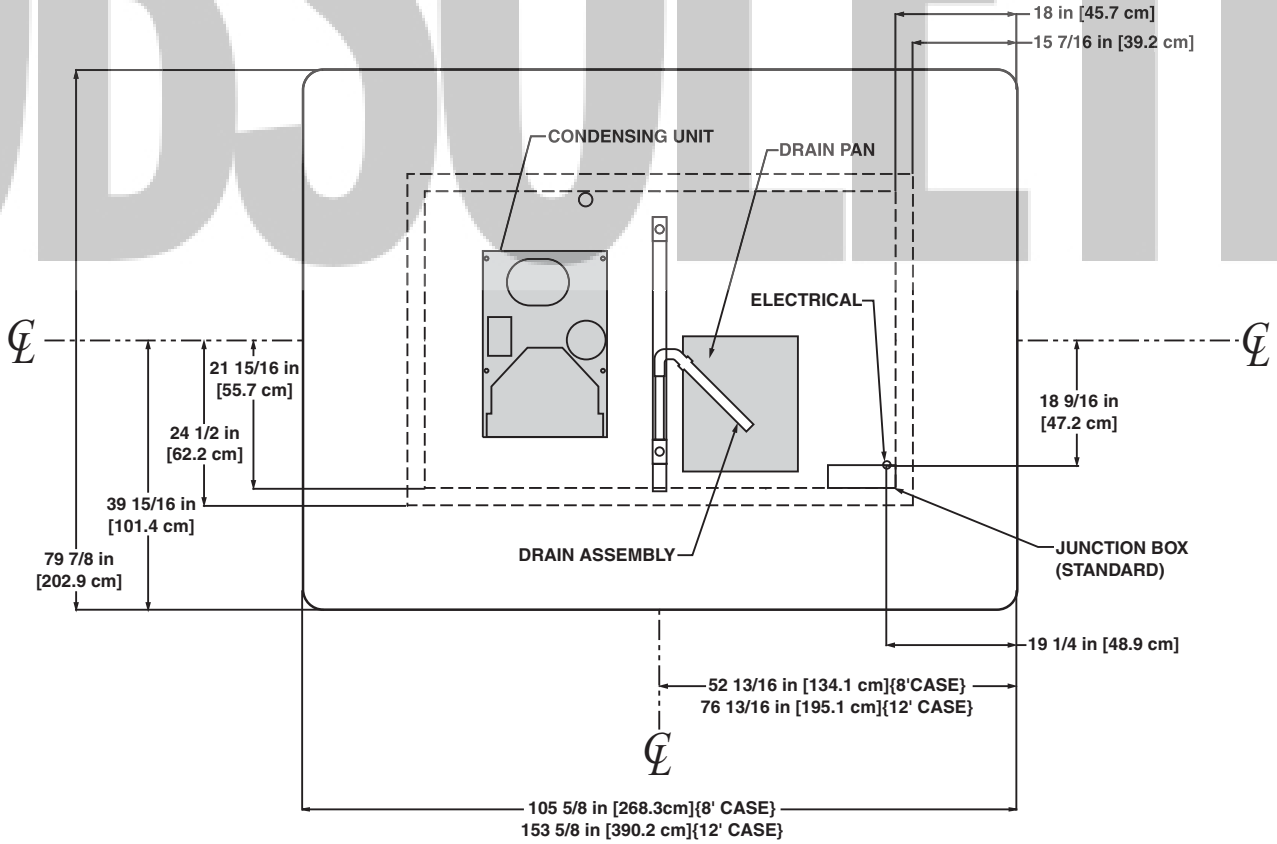

NOTES:

* STUB-UP AREA

OBSOLETE

Narrow 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]	3	1.02	51	0.45	33	1.93	232	7.69	1600	8.88	2130	0.13	15
	F-12'	4	1.36	68	0.60	44	2.70	324	11.54	2400	13.31	3195	0.13	15
	C-8'	3	1.02	51	0.45	33	1.93	232	15.38	3200	17.75	4260	0.13	15
	C-12'	4	1.36	68	0.60	44	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)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONZ - F	440	-12	3-5	-2	7	393
ONZ - C	500	-22	3-5	-13	-3	400

[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	2	13 - 15	35	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.

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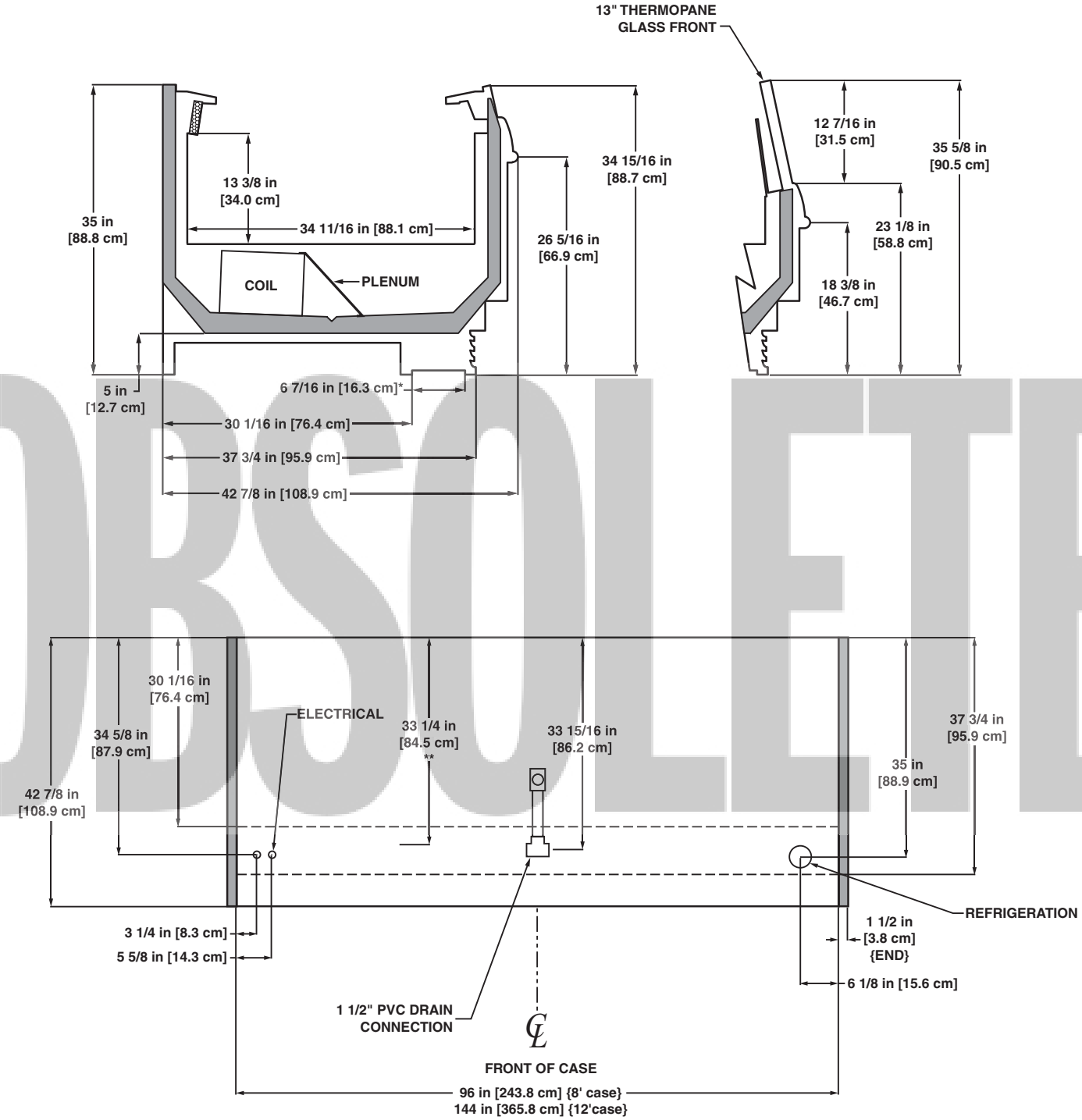
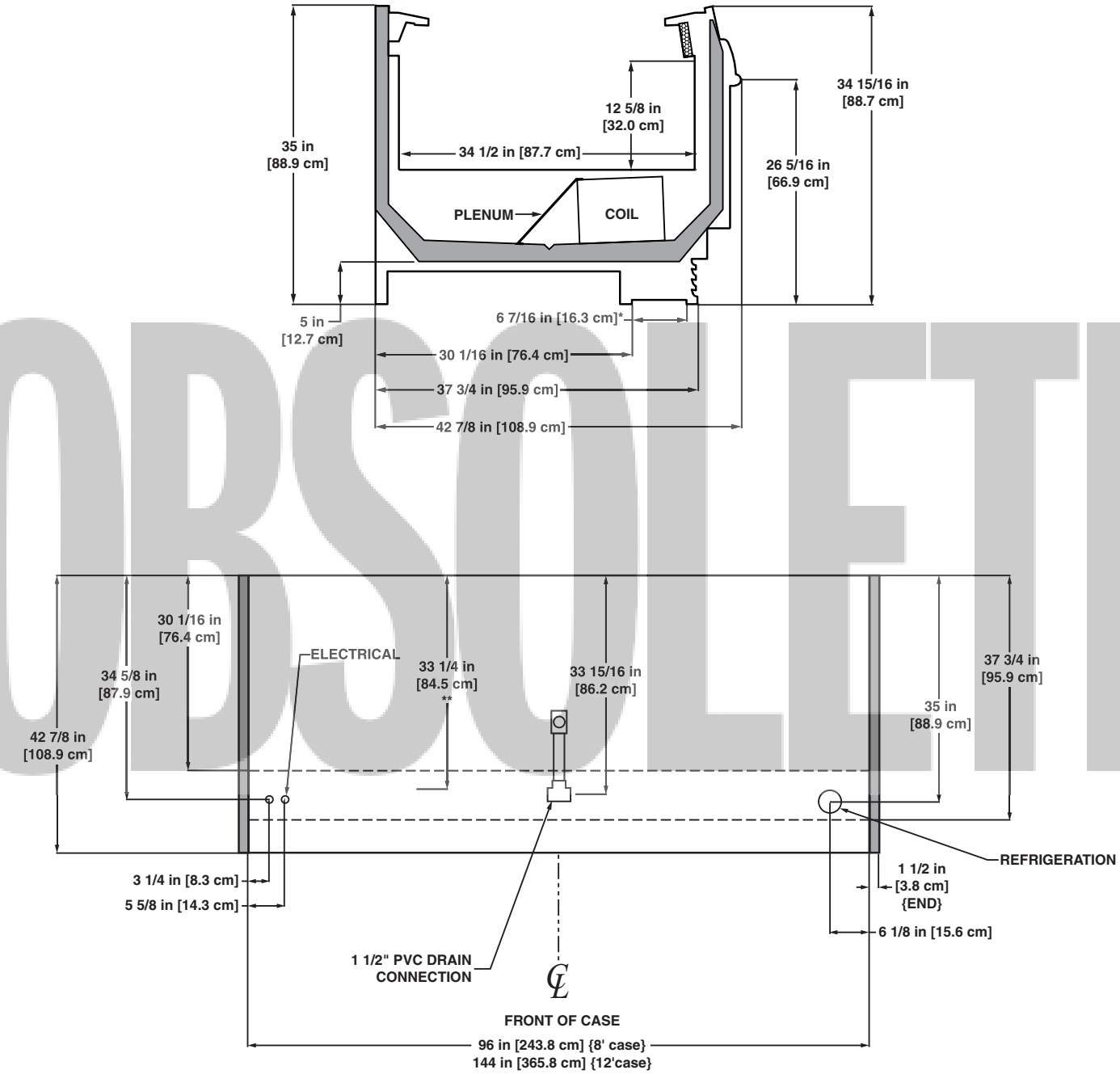


OBSOLETE

NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"



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- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

OBSOLETE

Narrow Island Frozen Food/Ice Cream Merchandiser

ONIZ - 6', 8', 10' & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts		Drain Heaters 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONIZ	F-6'[1]	2	0.68	34	0.30	22	5.77	1200	6.66	1598	0.13	15
	F-8'	3	1.02	51	0.45	33	7.69	1600	8.88	2130	0.13	15
	F-10'	3	1.02	51	0.45	33	9.62	2000	11.10	2663	0.13	15
	F-12'	4	1.36	68	0.60	44	11.54	2400	13.31	3195	0.13	15
	C-6'[1]	2	0.68	34	0.30	22	11.54	2400	13.32	3196	0.13	15
	C-8'	3	1.02	51	0.45	33	15.38	3200	17.75	4260	0.13	15
	C-10'	3	1.02	51	0.45	33	16.13	3355	18.65	4476	0.13	15
	C-12'	4	1.36	68	0.60	44	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-6'	- - -[2]	- - -	- - -	- - -
ONIZ-8'	- - -	- - -	- - -	- - -
ONIZ-10'	- - -	- - -	- - -	- - -
ONIZ-12'	- - -	- - -	- - -	- - -

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

Anti-Condensate Heater Data

Model	Solid Front 120 Volts Amps	Solid Front 120 Volts Watts	Solid Front[3] Glass Cap 120 Volts Amps	Solid Front[3] Glass Cap 120 Volts Watts	Solid Wrap[4] End 120 Volts Amps	Solid Wrap[4] End 120 Volts Watts	Glass Front 120 Volts Amps	Glass Front 120 Volts Watts	Glass Front[3] Glass Cap 120 Volts Amps	Glass Front[3] Glass Cap 120 Volts Watts	Glass Wrap[4] End 120 Volts Amps	Glass Wrap[4] End 120 Volts Watts
ONIZ-6'	0.91	109	0.42	50	0.26	31	1.69	203	0.37	44	0.57	68
ONIZ-8'	0.86	103	0.90	108	0.26	31	1.66	199	0.42	50	0.57	68
ONIZ-10'	1.00	120	1.20	144	0.26	31	1.95	234	0.62	74	0.57	68
ONIZ-12'	1.27	152	1.42	170	0.26	31	2.35	282	0.74	89	0.57	68

[3] Glass cap heater for stainless steel glass cap option only.

[4] Data given for one glass wrap-around end.

Guidelines & Control Settings

Model	BTUH/ft[5]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ONIZ-F	440	-12	3-5	-2	7	393
ONIZ-C	500	-22	3-5	-13	-3	400

[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)
ONIZ	2	13 - 15	35	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.

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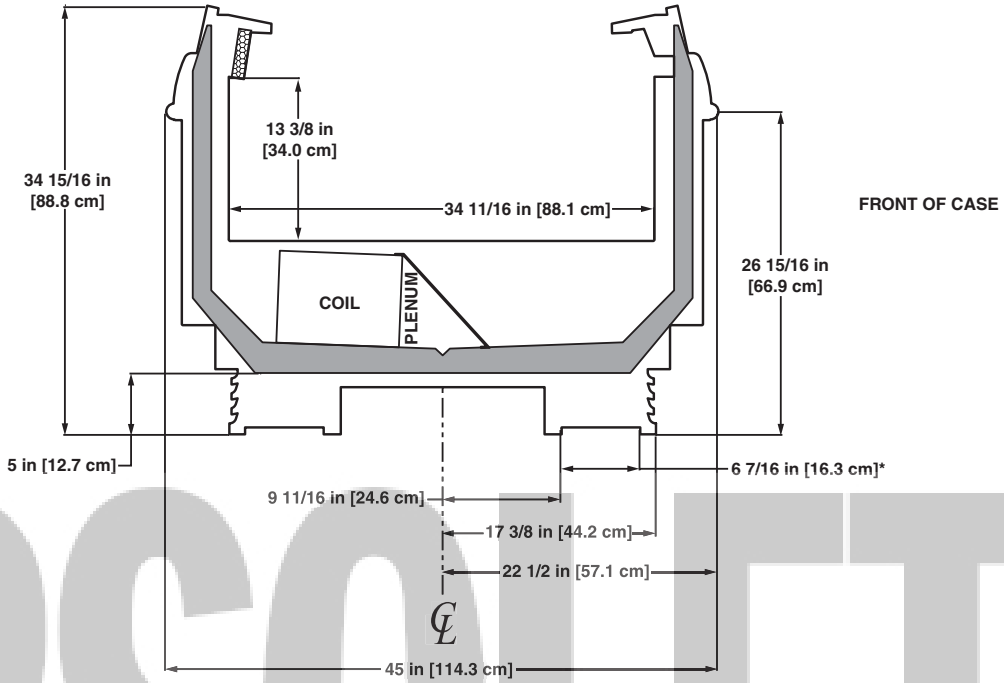
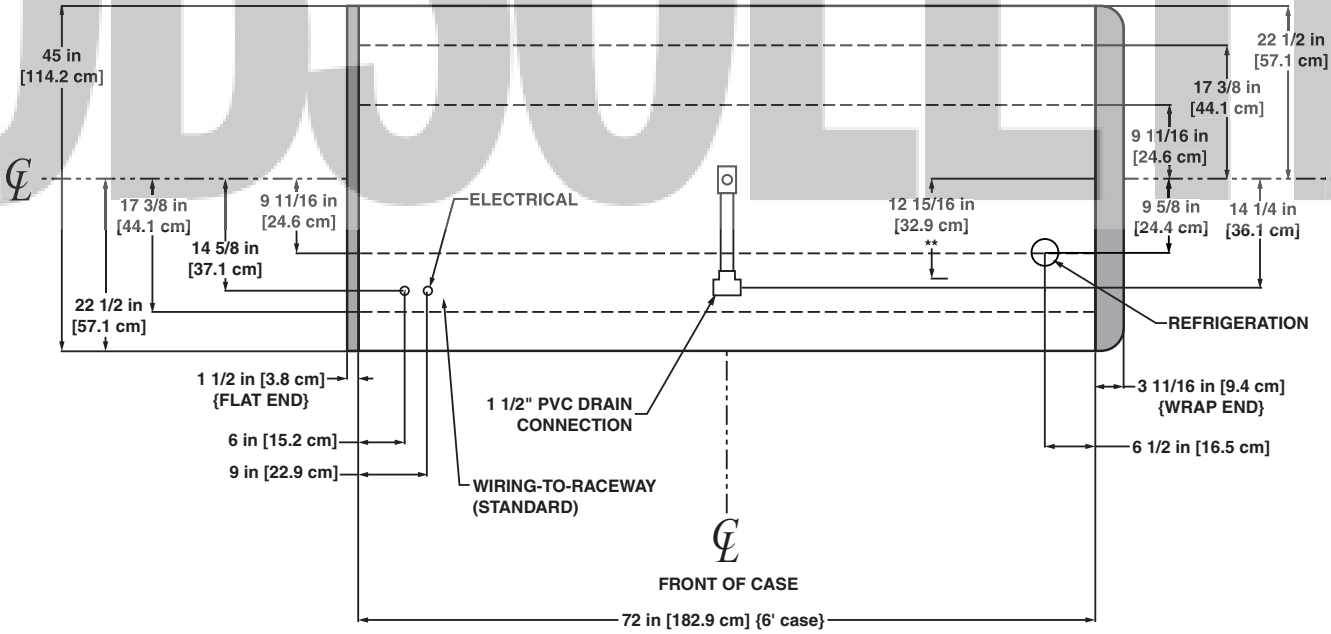




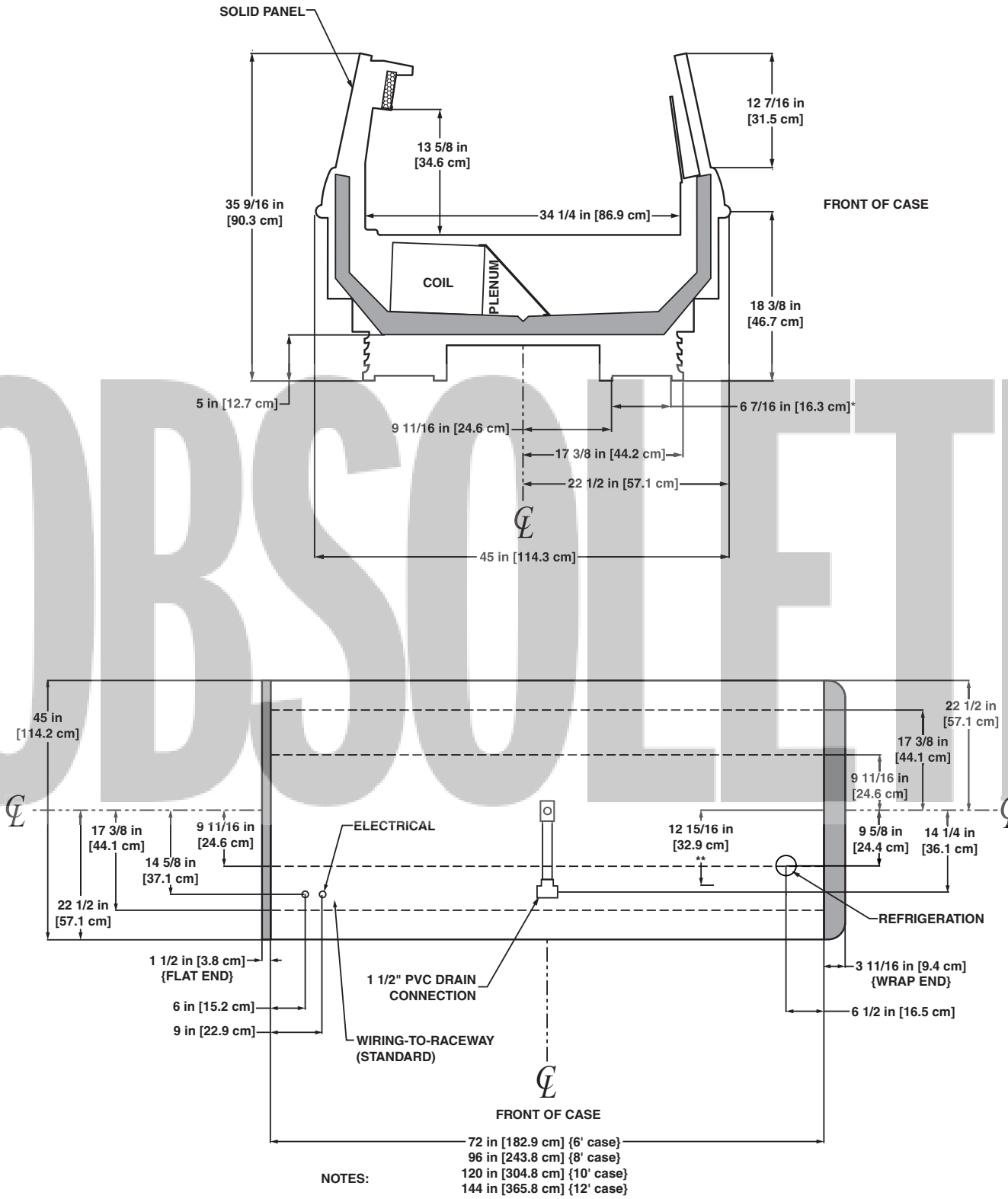
NOTES:

* STUB-UP AREA

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

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

OBSOLETE



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NOTES:

* STUB-UP AREA

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

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

OBSOLETE

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	1.02	51	0.45	33	3.14	377	7.69	1600	8.88	2130	0.13	15
	12'	4	1.36	68	0.60	44	3.97	476	11.54	2400	13.31	3195	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)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OIZ[4]	520	-22	3-5	-12	-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.

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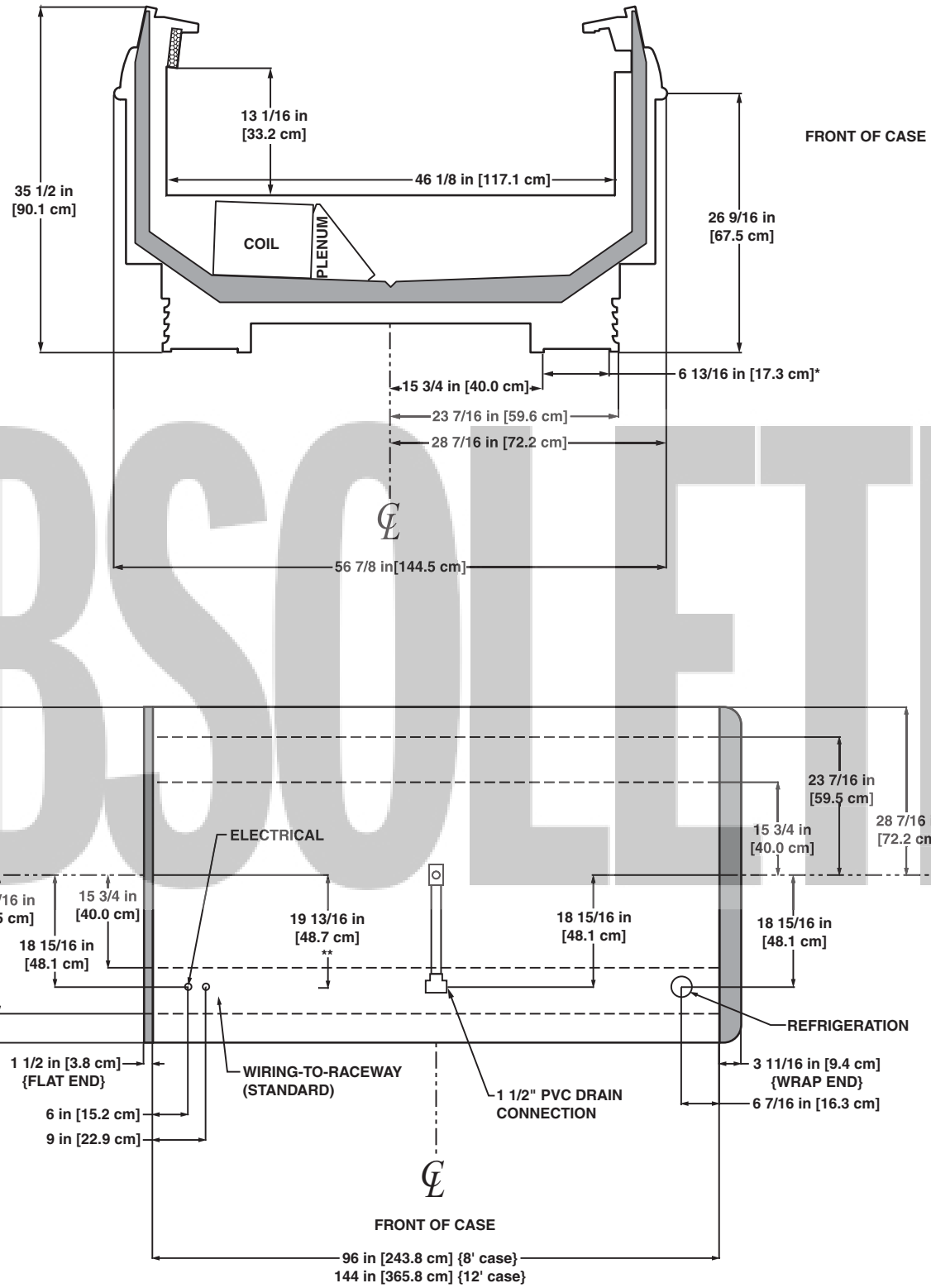

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SINGLE DECK ISLAND Frozen Food

NOTES:

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

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

NSF COMPONENT c UL us

A DOVER COMPANY

Wide Island Frozen Food/Ice Cream Merchandiser

OWIZ - 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	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	1.36	68	0.60	44	7.69[2]	1600	8.88[2]	2130	0.26	30
	F-12'	6	2.04	102	0.90	66	11.54[2]	2400	13.31[2]	3195	0.26	30
	C-8'	4	1.36	68	0.60	44	11.54[2]	2400	13.31[2]	3195	0.26	30
	C-12'	6	2.04	102	0.90	66	17.31[2]	3600	19.98[2]	4795	0.26	30

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

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

Lighting Data[3]

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'	NA[4]	NA	5.20	624
OWIZ-12'	NA	NA	7.48	898

[3] Lighting is for cases with superstructures.

[4] Not applicable.

Anti-Condensate Heater Data

Model	Solid[5] Front 120 Volts Amps	Solid[5] Front 120 Volts Watts	Glass Front 120 Volts Amps	Glass Front 120 Volts Watts	Glass[6] Cap 120 Volts Amps	Glass[6] Cap 120 Volts Watts	Glass Wrap[7] End 120 Volts Amps	Glass Wrap[7] End 120 Volts Watts	Super Structure 120 Volts Amps	Super Structure 120 Volts Watts
OWIZ-8'	2.62	314	3.02	362	0.50	60	0.68	82	0.50	60
OWIZ-12'	3.96	475	4.38	526	0.74	89	0.68	82	0.76	91

[5] Solid wrap-around ends have no anti-condensate heaters.

[6] Glass cap heater for stainless steel glass cap option only.

[7] Data given for one glass wrap-around end.

Guidelines & Control Settings

Model	BTUH/ft[8]	Coil[9] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[10] (FPM)
OWIZ - F	600	Std.	-17	3-5	-12	0	180
OWIZ - F	635	Enh.	-12	3-5	-6	0	180
OWIZ - C	700	Std.	-32	3-5	-20	-12	180
OWIZ - C	740	Enh.	-22	3-5	-16	-10	180

[8] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04. BTUH's/ft listed are for both sides of the case.

[9] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[10] 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	1	13 - 15	60	49	- - -[11]	- - -	20	60	- - -	- - -

[11] 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.

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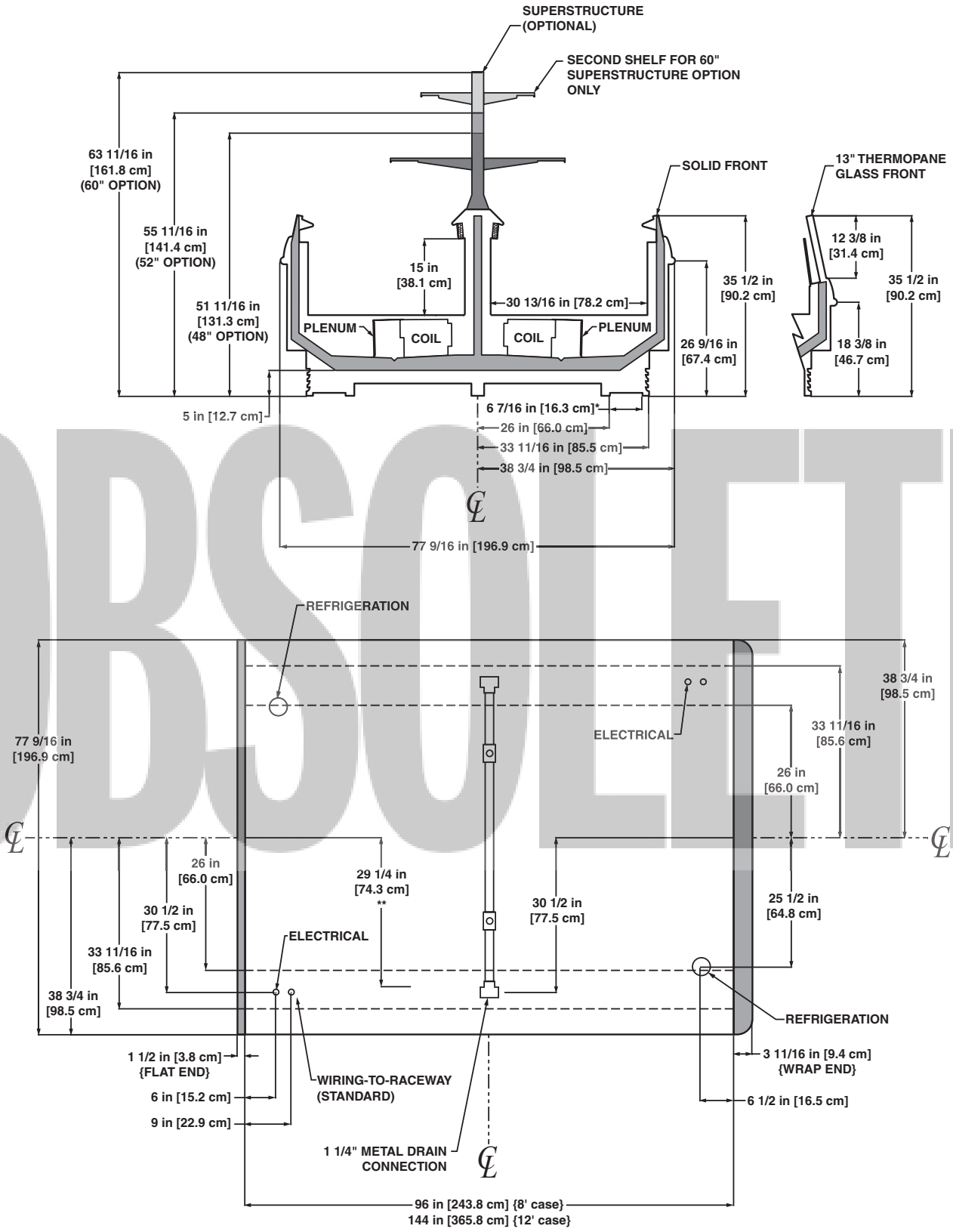

OBSOLETE

NOTES:

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

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14", & 16"

Wide Island End Cap Frozen Food/Ice Cream Merchandiser

OWEZ

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	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	0.68	34	0.30	22	5.77	1200	6.65	1596	0.13	15
	C	2	0.68	34	0.30	22	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]	- - -	- - -	- - -

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

Anti-Condensate Heater Data

Model	Solid Front 120 Volts Amps	Solid Front 120 Volts Watts	Glass Front 120 Volts Amps	Glass Front 120 Volts Watts	Glass[3] Cap 120 Volts Amps	Glass[3] Cap 120 Volts Watts
OWEZ	1.56	187	1.96	235	0.51	61

[3] Glass cap heater for stainless steel glass cap option only.

Guidelines & Control Settings

Model	BTUH/cs[4]	Coil[5] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
OWEZ - F	2700	Std.	-17	3-5	-12	0	200
OWEZ - F	2855	Enh.	-12	3-5	-6	0	200
OWEZ - C	3300	Std.	-32	3-5	-22	-12	200
OWEZ - C	3490	Enh.	-22	3-5	-16	-10	200

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

[5] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
OWEZ	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.

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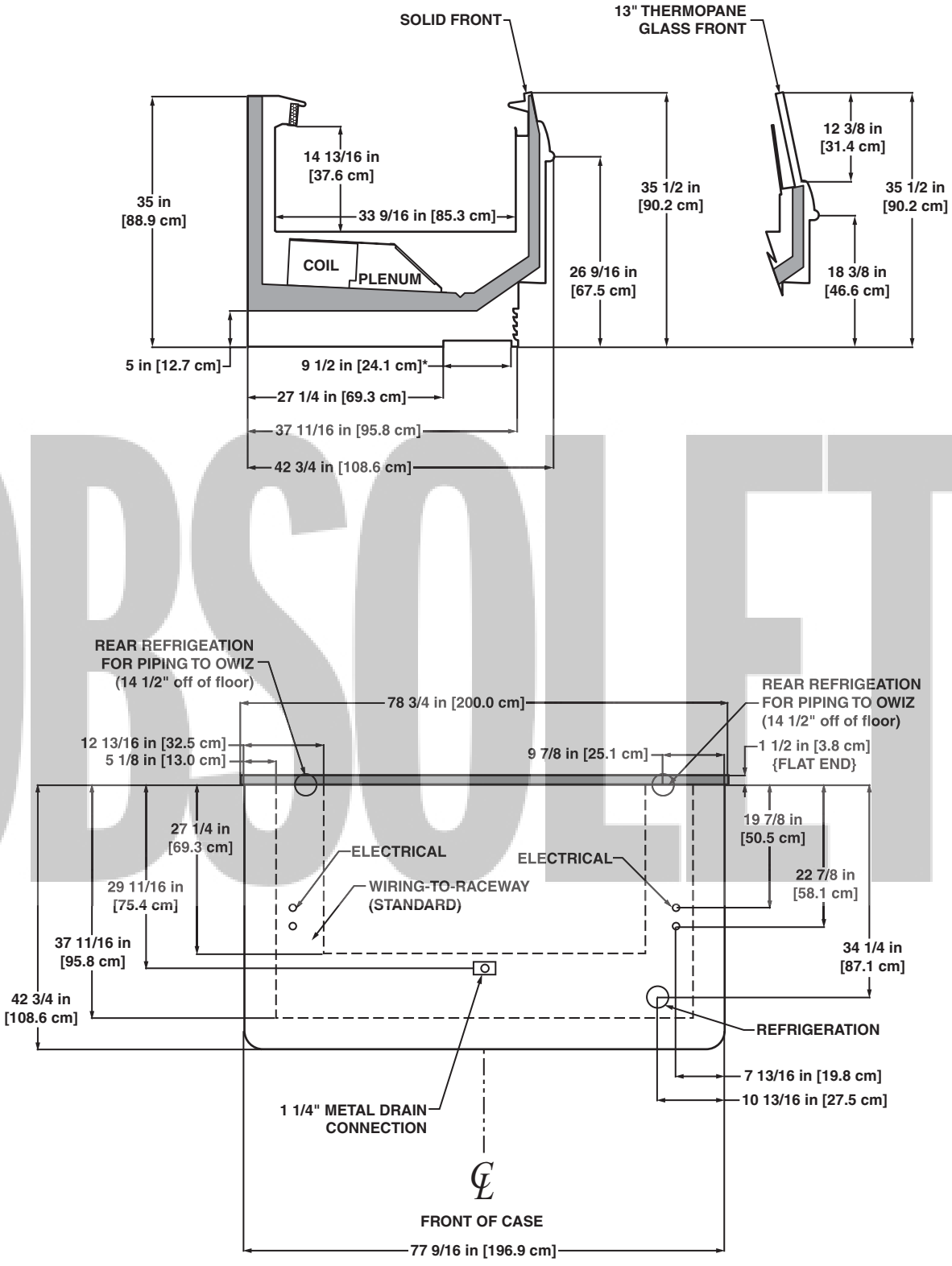

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NOTES:

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

• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

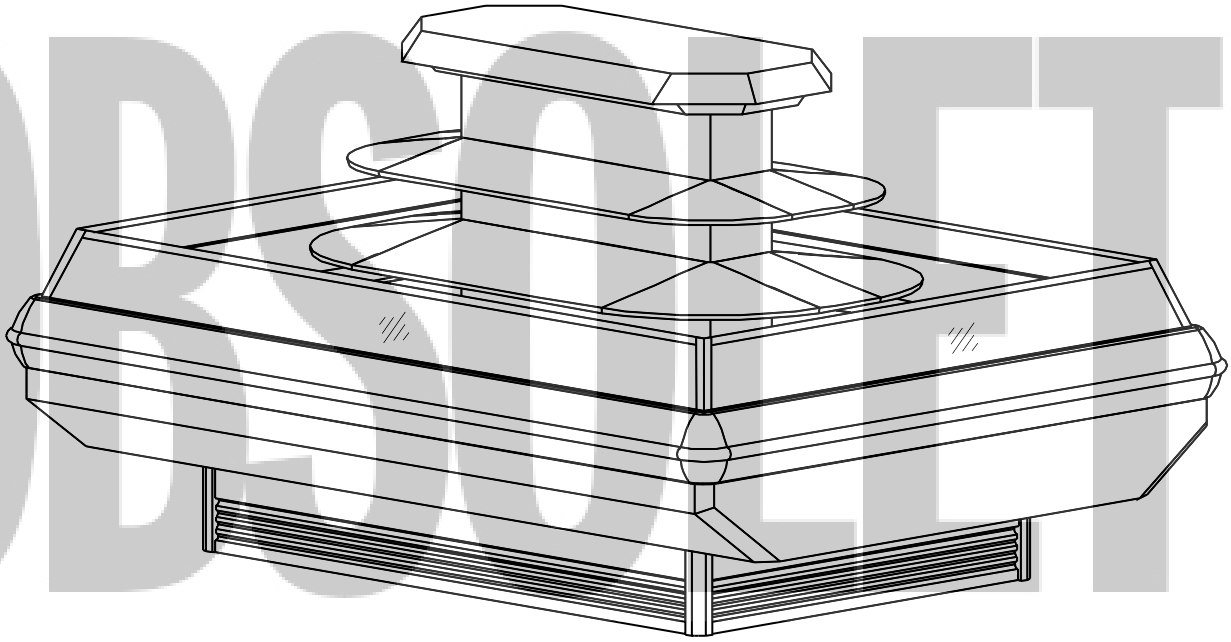
NSF COMPONENT c UL us

A DOVER COMPANY

OBSOLETE

MULTI-DECK ISLAND

OBSOLETE



Notes:

- *Cases comply with ANSI / NSF* Standard 7. Units marked as components require remote refrigeration.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*
- *Front and rear sill heights vary with baseframe height.*

* *ANSI - American National Standard Institute*
NSF - National Sanitation Foundation

Wide Island Multi-Deck Deli/Meat Merchandiser

O3IM - 8' & 12' double wraparound end
O3IMB - 6', 8' & 12' single wraparound end
O3IMBB - 8' double joint 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
O3IM	8'	6	3.00	180	0.46	27.6	0.67	80	7.70	1600	8.88	2130
	12'	8	4.00	240	0.62	36.8	1.06	127	11.54	2400	13.32	3200
O3IMB	6'	4	2.00	120	0.31	18.4	0.63	76	5.77	1200	6.66	1596
	8'	6	3.00	180	0.46	27.6	0.88	106	7.70	1600	8.88	2130
	12'	8	4.00	240	0.62	36.8	1.24	149	11.54	2400	13.32	3200
O3IMBB	8'	6	3.00	180	0.46	27.6	0.91	109	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	5.69	683
O3IMB	6'	NA	NA	1.40	168
	8'	NA	NA	2.02	242
	12'	NA	NA	3.24	389
O3IMBB	8'	NA	NA	1.84	221

[1] Not applicable.

Guidelines & Control Settings

Model	Application	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3IM	Meat	1600	Std.	12	6-8	26	38	270
	Meat	1600	Enh.	17	6-8	26	38	270
	Deli	1470	Std.	17	6-8	30	40	270
	Deli	1470	Enh.	22	6-8	30	40	270
O3IMB	Meat	1600	Std.	12	6-8	26	38	270
	Meat	1600	Enh.	17	6-8	26	38	270
	Deli	1470	Std.	17	6-8	30	40	270
	Deli	1470	Enh.	22	6-8	30	40	270
O3IMBB	Meat	1378	Std.	12	6-8	26	38	270
	Meat	1378	Enh.	17	6-8	26	38	270
	Deli	1266	Std.	17	6-8	30	40	270
	Deli	1266	Enh.	22	6-8	30	40	270

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
O3IM/O3IMB/O3IMBB	4	6 - 8	30	47	45[5]	45[5]	26	45	- - -[6]	- - -

[5] Only recommended with the high efficiency coil at a 22ºF evaporator

[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.

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A DOVER COMPANY

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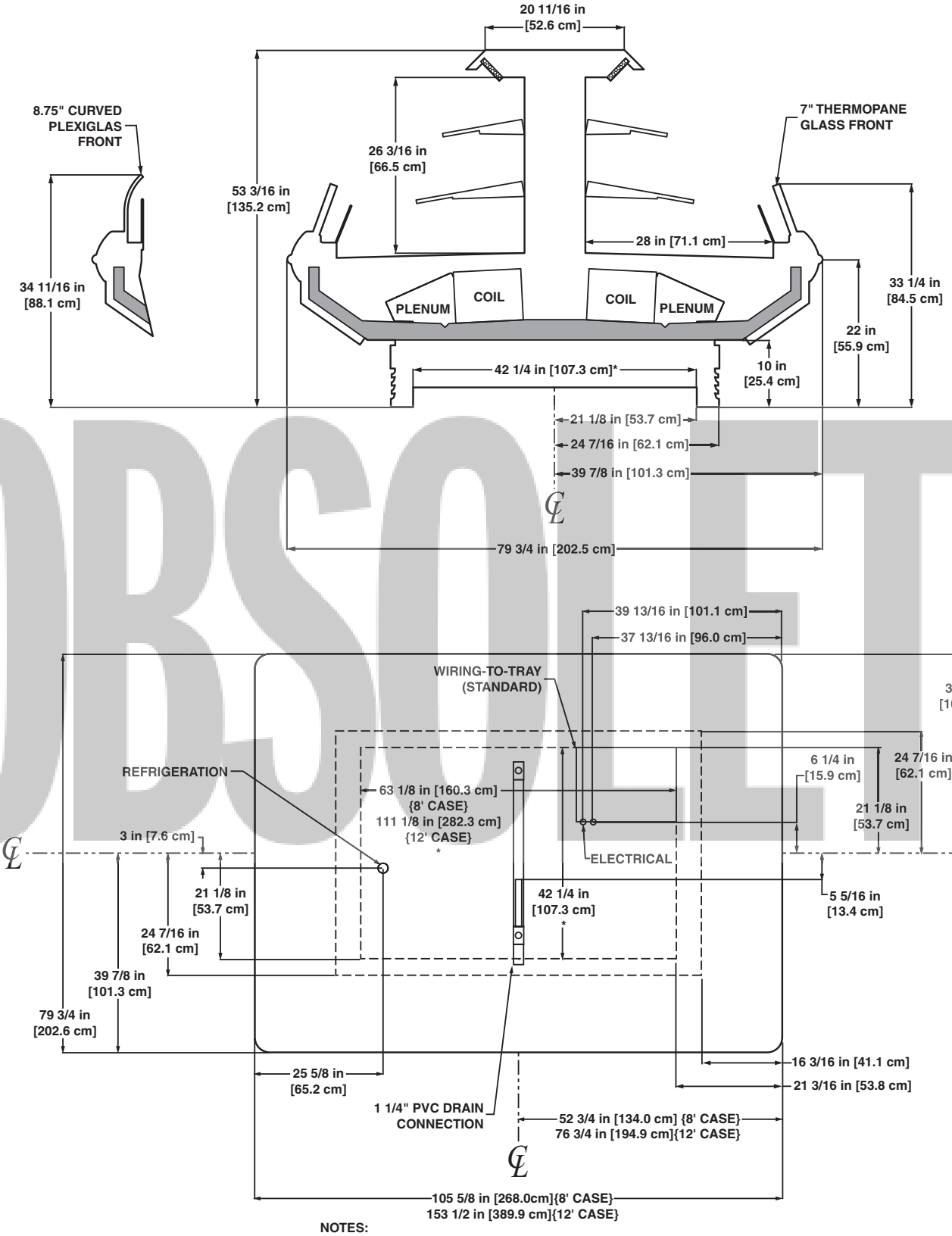

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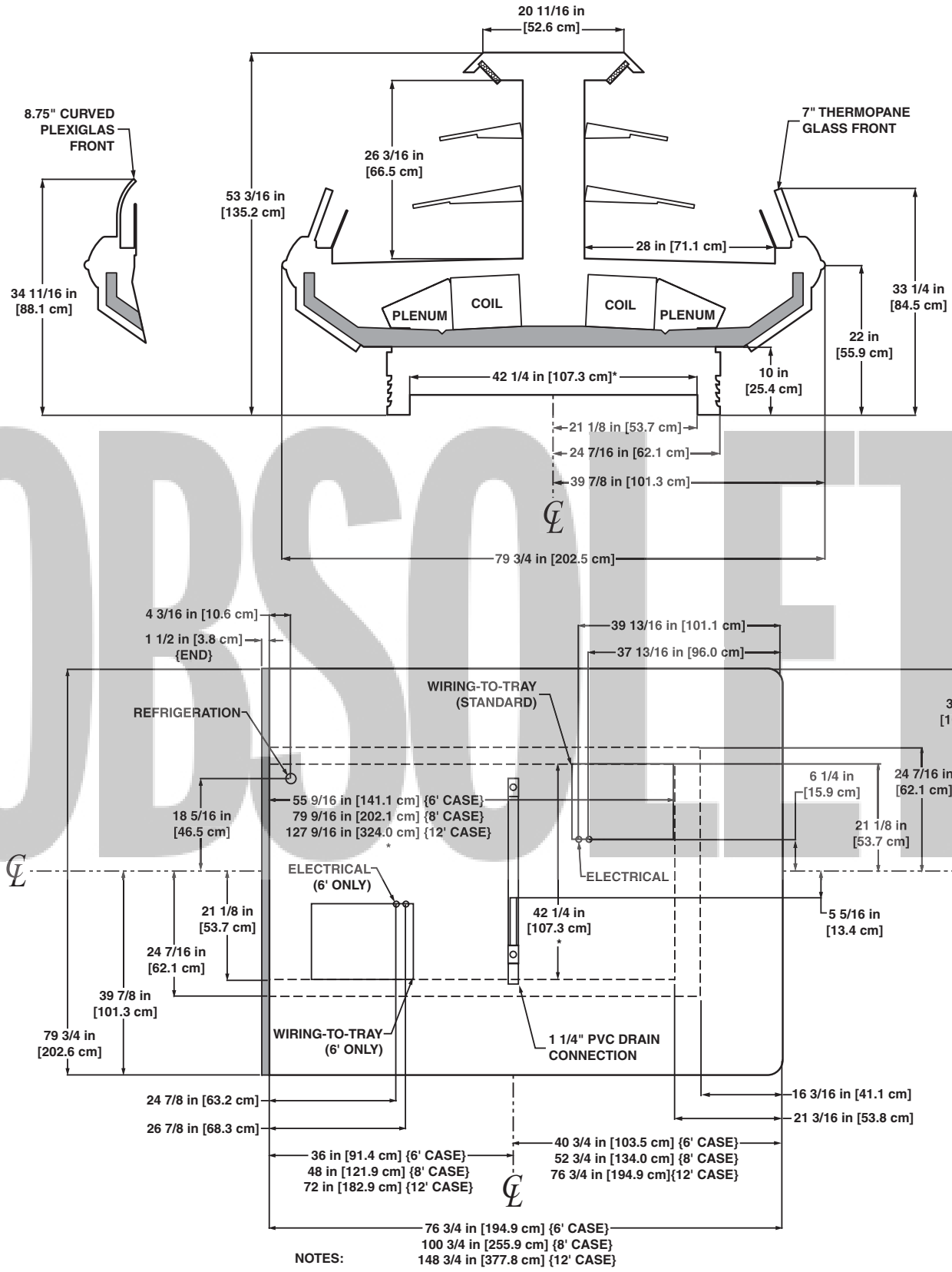
NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 12" & 16"



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NOTES:

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- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
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- AVAILABLE SHELF SIZES: 12" & 16"

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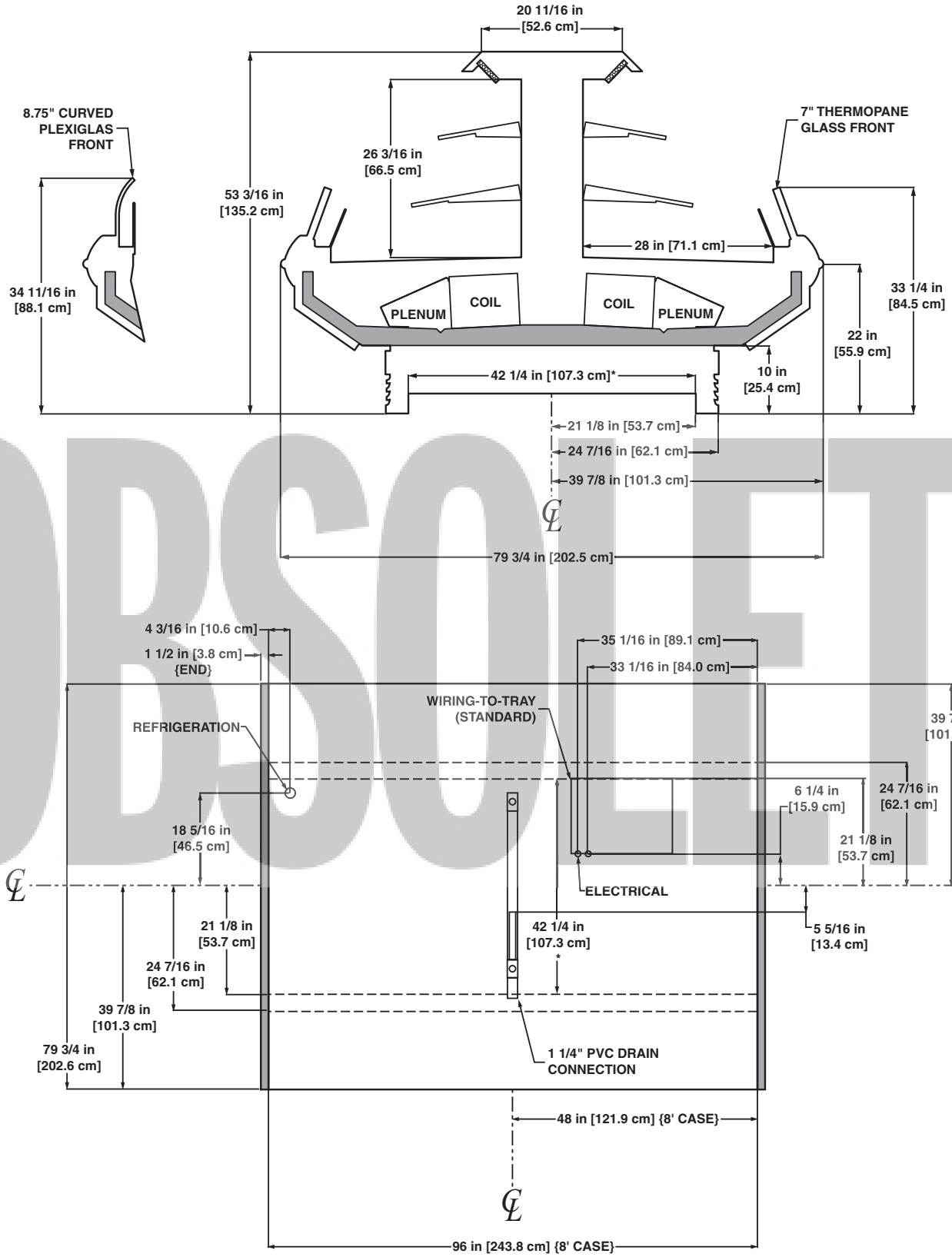

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NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
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- AVAILABLE SHELF SIZES: 12" & 16"

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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	2.04	102	0.90	66	0.82	98	4.34	902	5.00	1200
	12’	8	2.72	136	1.20	88	1.08	130	7.22	1502	8.33	2000
O3IPB	8’	6	2.04	102	0.90	66	0.75	90	4.34	902	5.00	1200
	12’	8	2.72	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
O3IP	8’	NA[1]	NA	5.71	546
	12’	NA	NA	7.46	779
O3IPB	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)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
O3IP/O3IPB	1050[4]	22	6-8	34	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 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	30	47	44	38	- - -[5]	- - -	- - -	- - -

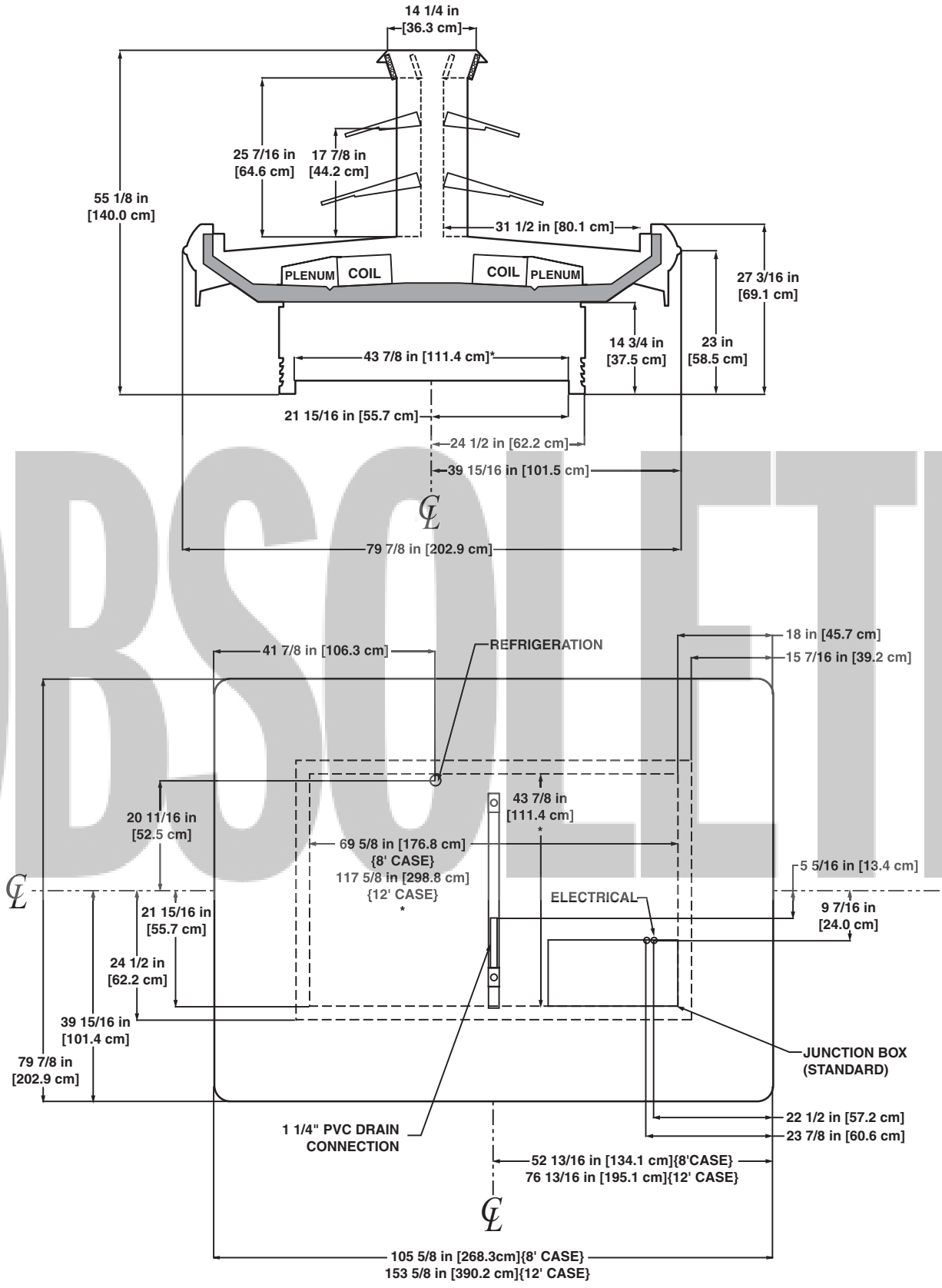
[5] NOTE: --- not an option on this case model.

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.

OBSOLETE



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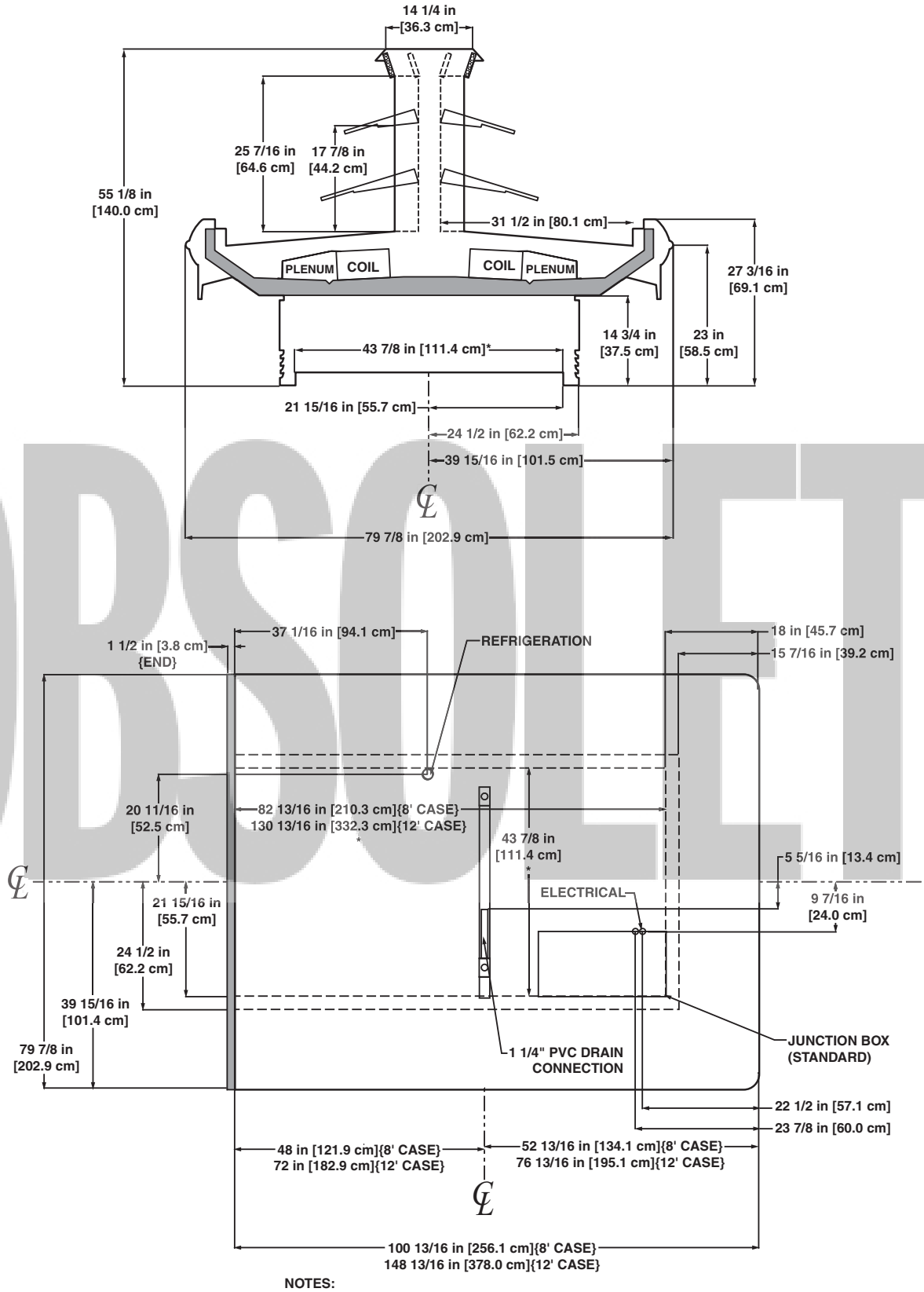
NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 12" & 16"



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NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 12" & 16"

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Wide Island Multi-Deck Deli Merchandiser

O4ID - 8’ & 12’ double wraparound end
O4IDB - 6’, 8’ & 12’ single wraparound end
O4IDBB - 8’ double joint 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
O4ID	8’	6	3.00	180	0.70	42.0	0.67	80	7.70	1600	8.88	2130
	12’	8	4.00	240	0.94	56.0	1.06	127	11.54	2400	13.32	3200
O4IDB	6’	4	2.00	120	0.47	28.0	0.63	76	5.77	1200	6.66	1596
	8’	6	3.00	180	0.70	42.0	0.88	106	7.70	1600	8.88	2130
	12’	8	4.00	240	0.94	56.0	1.24	149	11.54	2400	13.32	3200
O4IDBB	8’	6	3.00	180	0.70	42.0	0.91	109	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
O4ID	8’	NA[1]	NA	3.90	468
	12’	NA	NA	6.06	727
O4IDB	6’	NA	NA	3.07	368
	8’	NA	NA	3.79	455
	12’	NA	NA	5.53	664
O4IDBB	8’	NA	NA	4.00	480

[1] Not applicable.

Guidelines & Control Settings

Model	Application	BTUH/ft[2]	Coil[3] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O4ID	Meat	2100	Std.	12	6-8	25	40	130
	Meat	2100	Enh.	17	6-8	25	40	130
	Deli	1950	Std.	17	6-8	28	43	130
	Deli	1950	Enh.	22	6-8	28	43	130
O4IDB	Meat	2100	Std.	12	6-8	25	40	130
	Meat	2100	Enh.	17	6-8	25	40	130
	Deli	1950	Std.	17	6-8	28	43	130
	Deli	1950	Enh.	22	6-8	28	43	130
O4IDBB	Meat	1809	Std.	12	6-8	25	40	130
	Meat	1809	Enh.	17	6-8	25	40	130
	Deli	1679	Std.	17	6-8	28	43	130
	Deli	1679	Enh.	22	6-8	28	43	130

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

[3] Coil Type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.).

[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)
O4ID/O4IDB/O4IDBB	4	6 - 8	30	47	45[5]	45[5]	26	45	- - -[6]	- - -

[5] Only recommended with the high efficiency coil at a 22ºF evaporator

[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.

NSF COMPONENT

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Hill PHOENIX EXCELLENCE

A DOVER COMPANY

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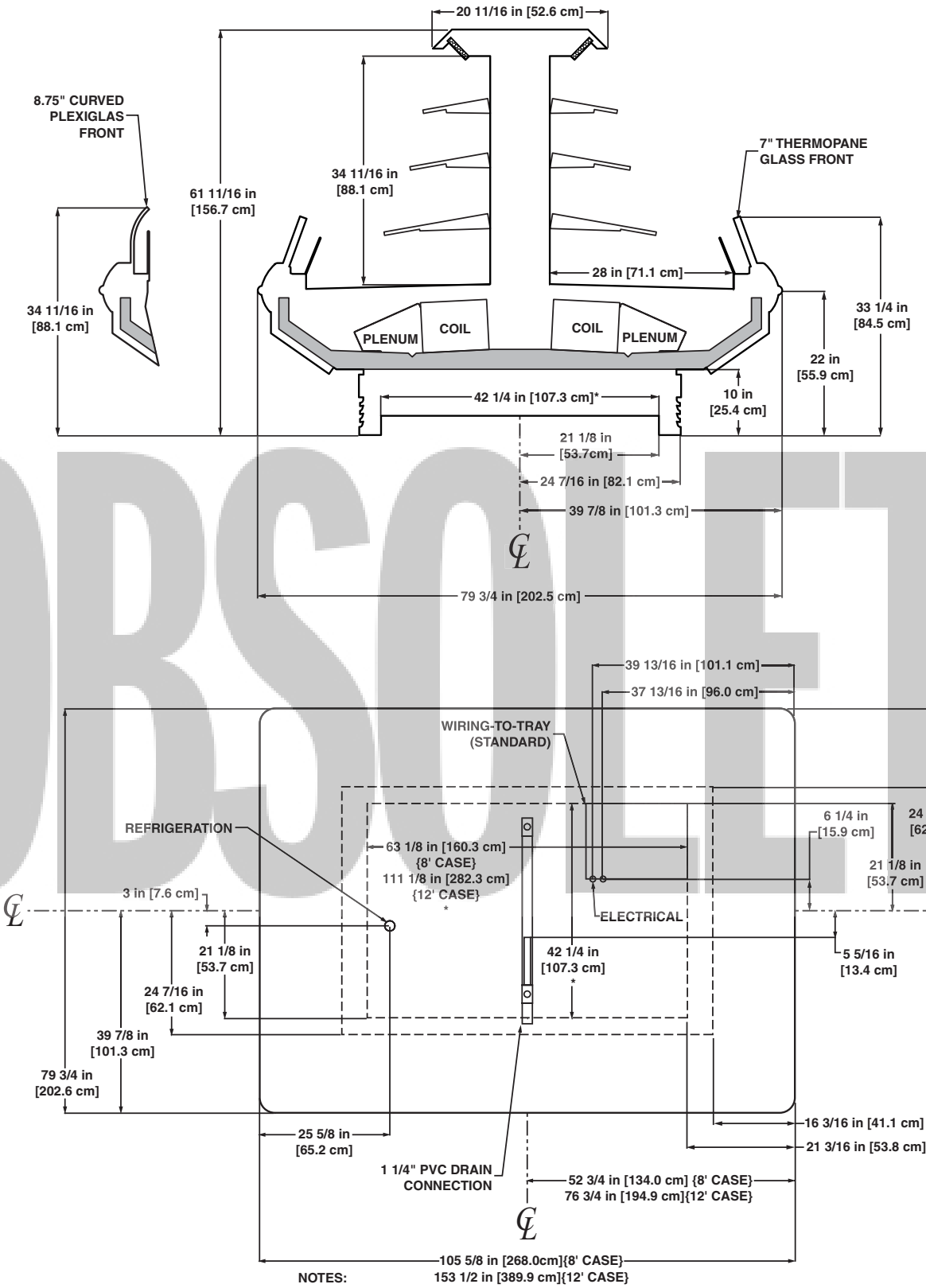

NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12" & 14"

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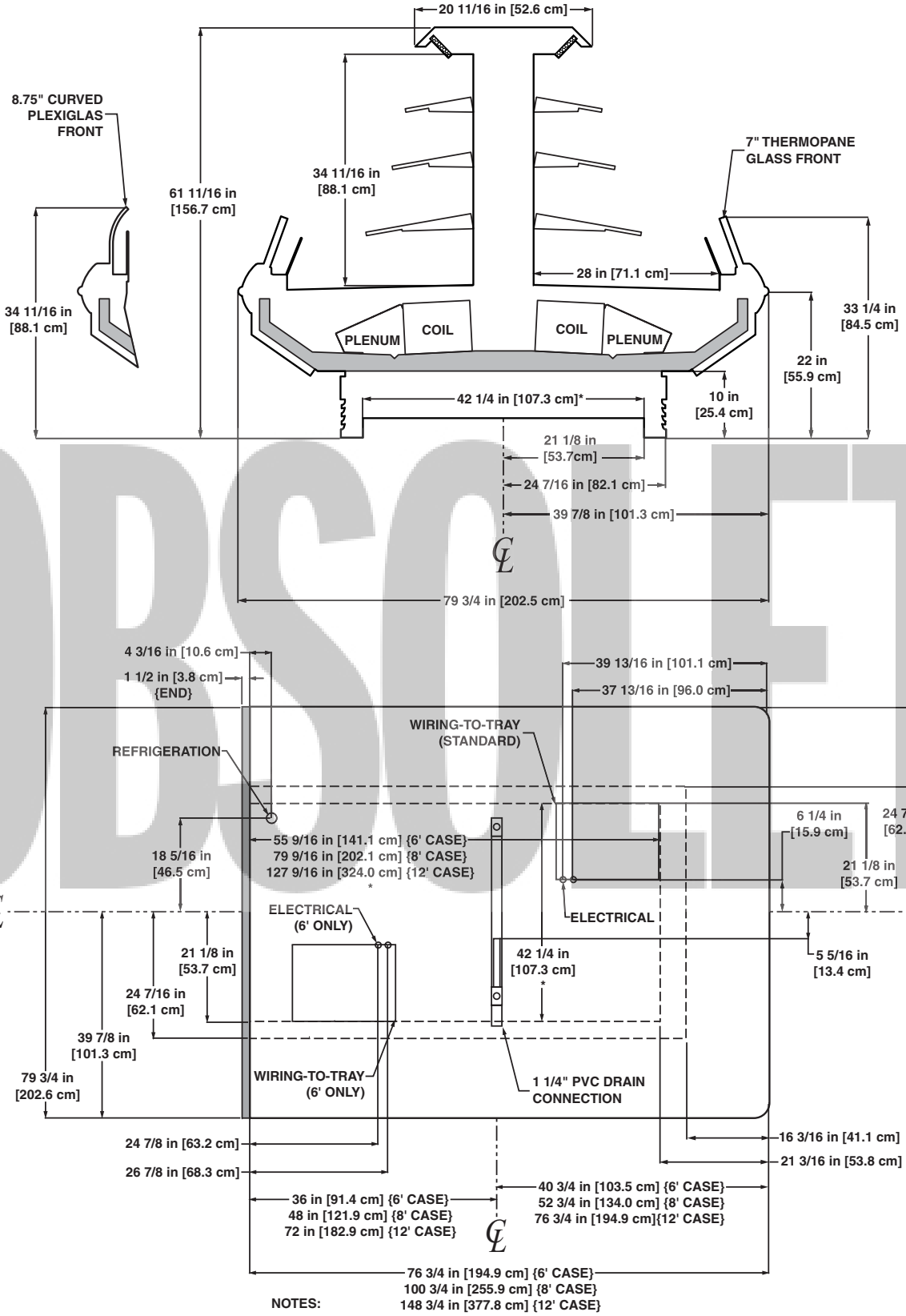

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NOTES:

* STUB-UP AREA

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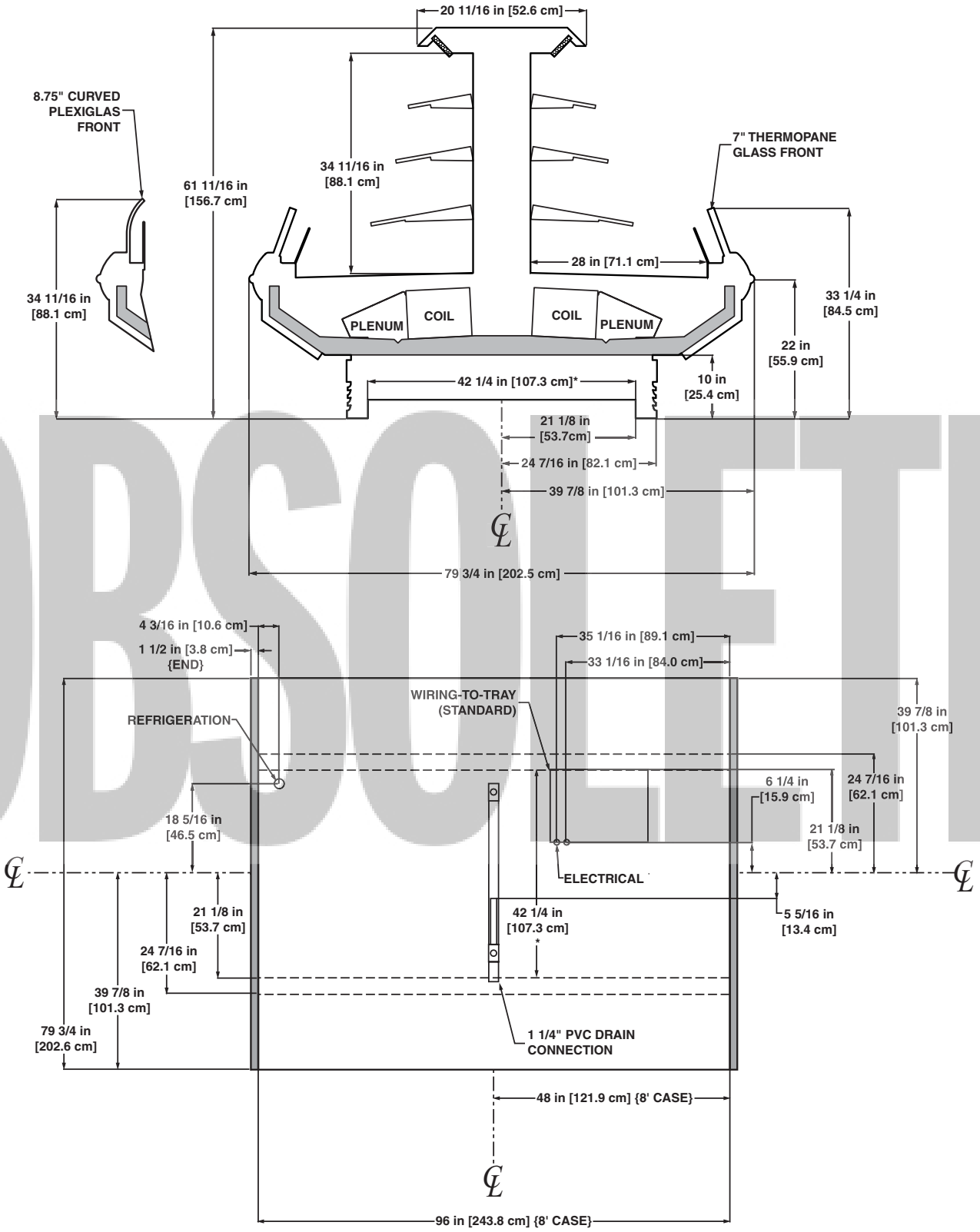

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NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12" & 14"

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SERVICE

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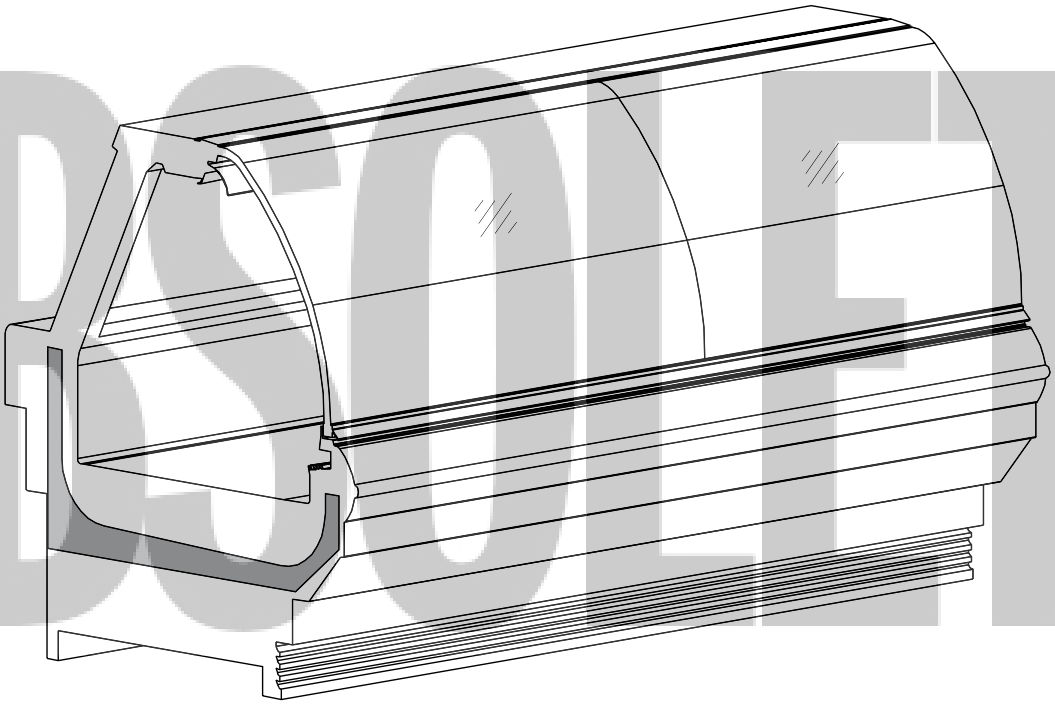

Notes:

- *Cases comply with ANSI / NSF* Standard 7. Units marked as components require remote refrigeration.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*
- *Front and rear sill heights vary with baseframe height.*

* *ANSI - American National Standard Institute*
NSF - National Sanitation Foundation

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 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
OSA	4'	2	0.68	34	0.30	22	1.08	130	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	1.33	160	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	2.11	253	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	2.93	352	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	1.17	140
	6'	2	3'	0.37	44	1.83	220
	8'	2	4'	0.47	56	2.33	280
	12'	3	4'	0.70	84	3.50	420

OBSOLETE

Guidelines & Control Settings

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

All measurements are taken per CRMA specifications.

Hill PHOENIX EXCELLENCE

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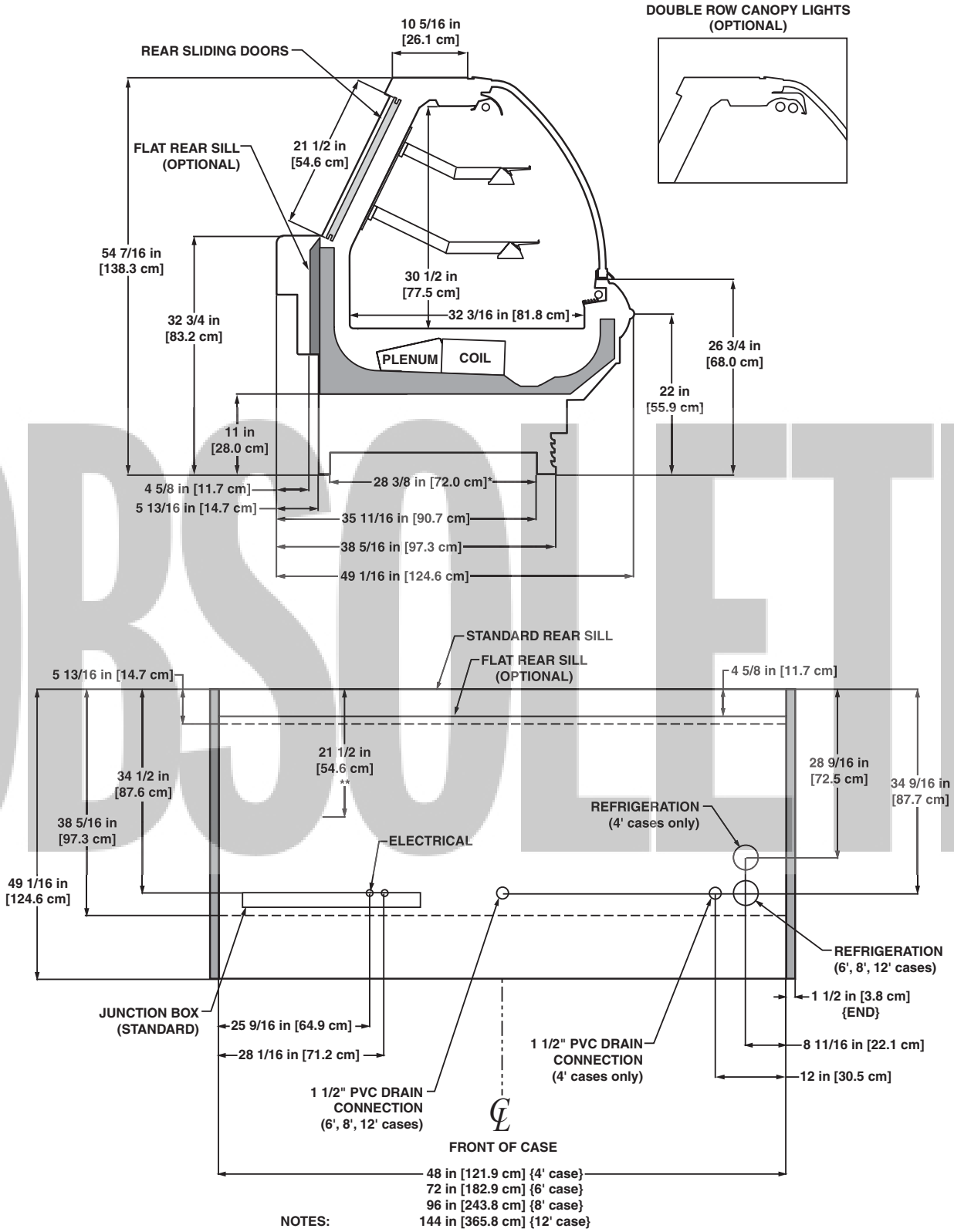
OSA
(11" BASEFRAME)



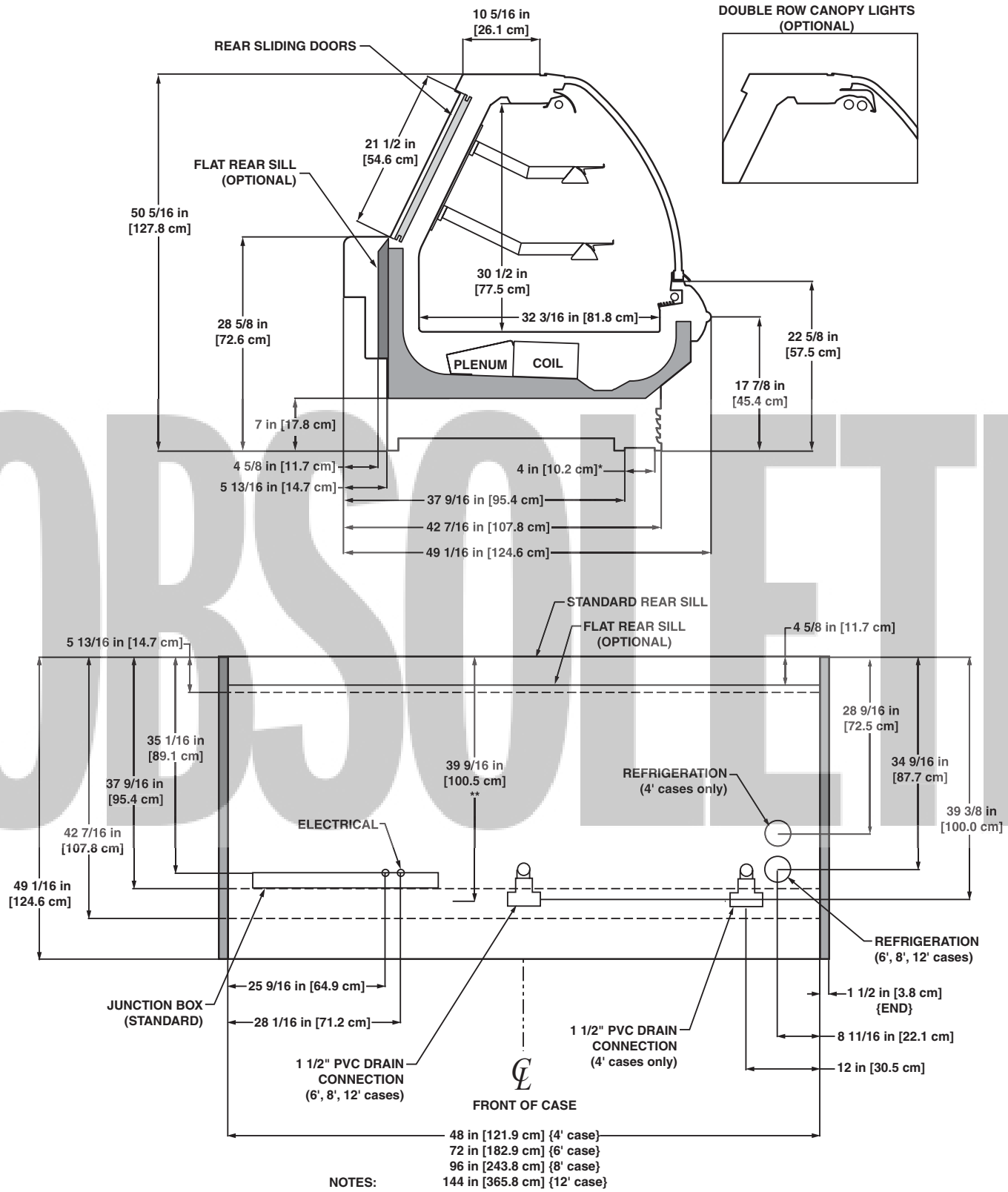
NOTES:

* STUB-UP AREA

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"

OBSOLETE



NOTES:

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"

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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 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
OSAG	4'	2	0.68	34	0.30	22	1.08	130	- - -[1]	- - -	- - -	- - -
	6'	2	0.68	34	0.30	22	1.33	160	- - -	- - -	- - -	- - -
	8'	3	1.02	51	0.45	33	2.11	253	- - -	- - -	- - -	- - -
	12'	4	1.36	68	0.60	44	2.93	352	- - -	- - -	- - -	- - -

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

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	1.17	140
	6'	2	3'	0.37	44	1.83	220
	8'	2	4'	0.47	56	2.33	280
	12'	3	4'	0.70	84	3.50	420

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OSAG[4]	270	15	6-8	21-31	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. If a suction stop solenoid is not provided at the rack a suction stop solenoid is required at the case. A liquid line solenoid alone will not allow the case to cycle properly and is not recommended for control of this case. The thermostat probe should be located on the inlet of the top coil. The cut out point should be set to 15°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	20	45	- - -	- - -

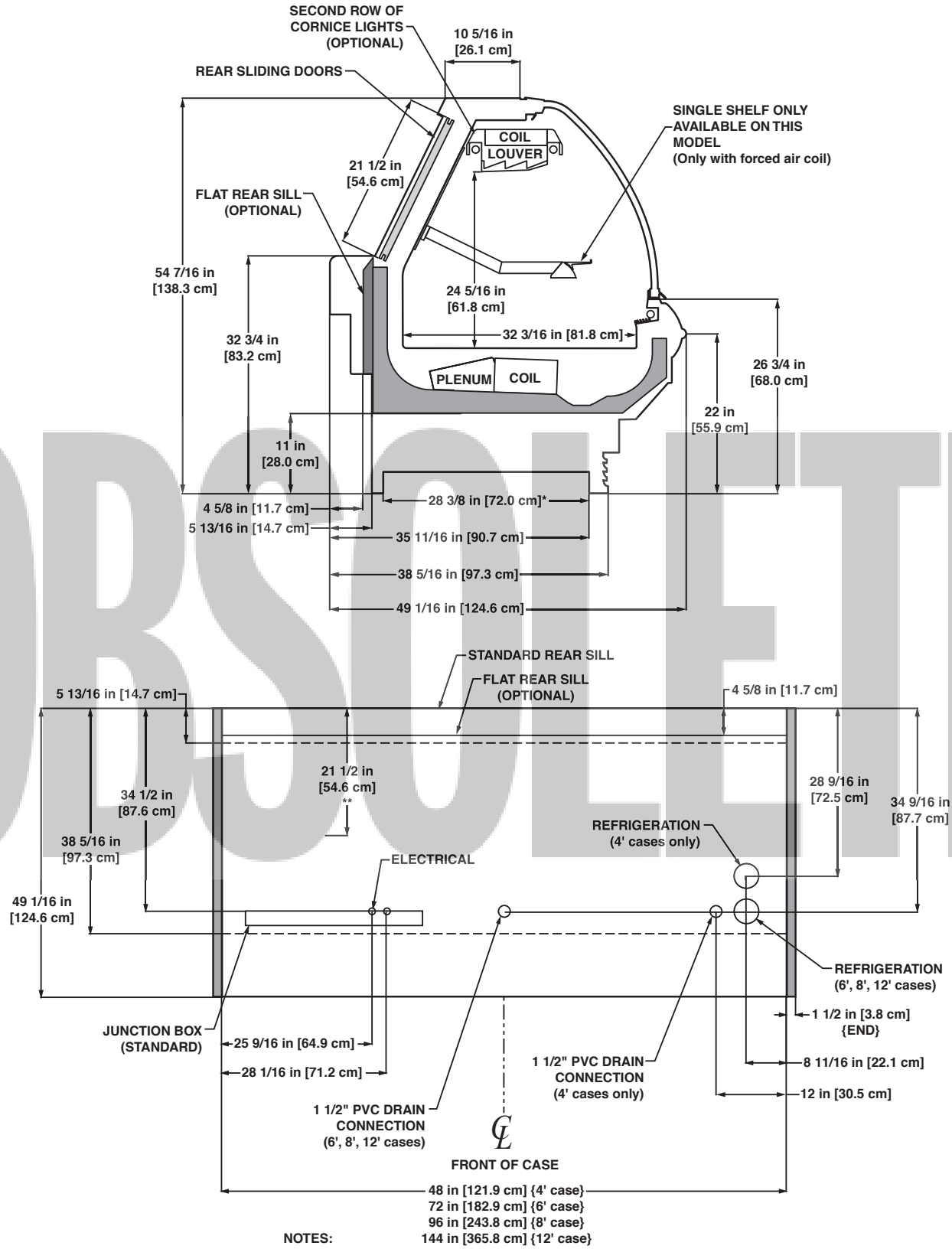
Medium Temperature Defrost Schedule

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.

OBSOLETE

OSAG
(11" BASEFRAME)



NOTES:

* STUB-UP AREA

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"

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NSF COMPONENT c UL us

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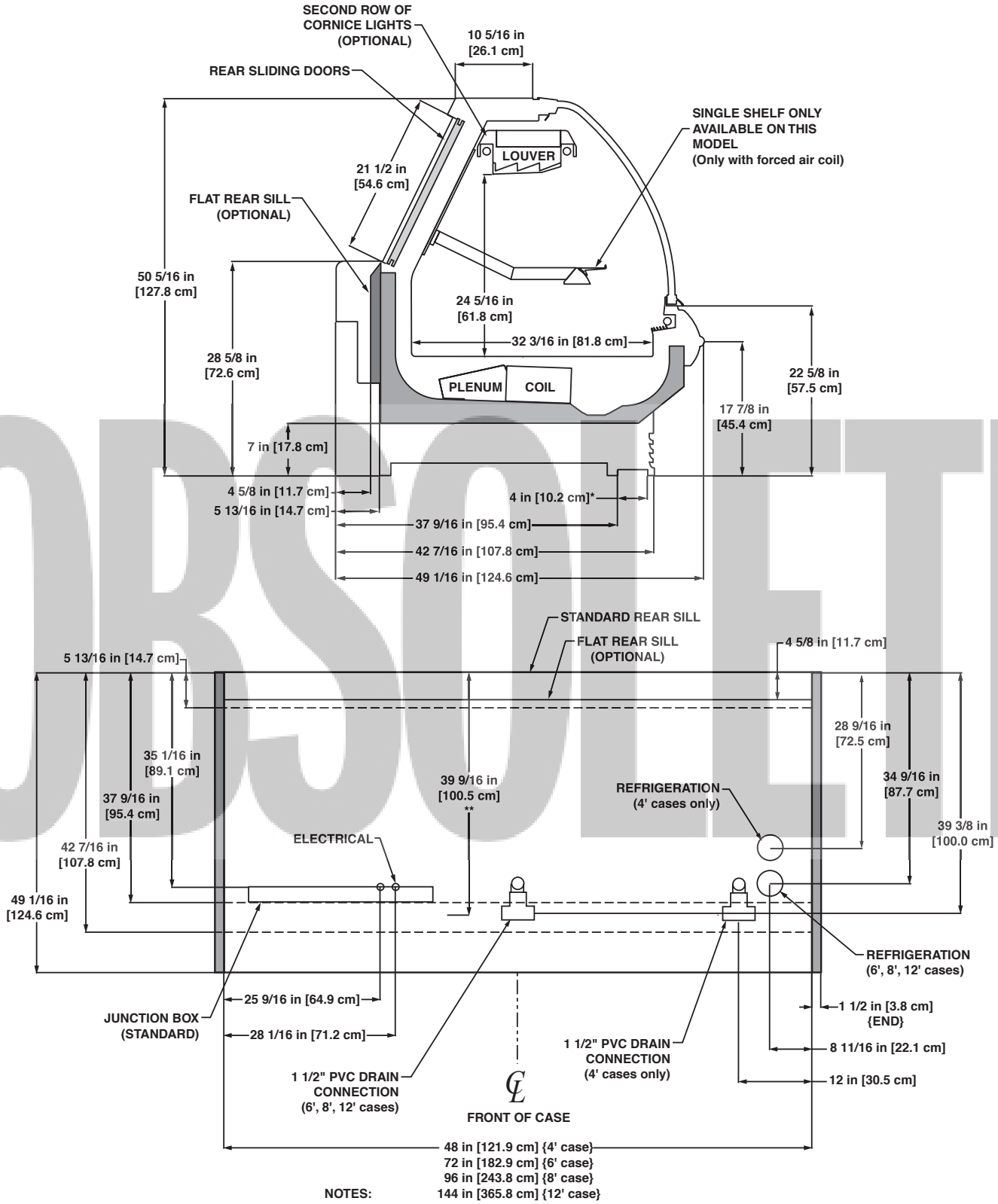


NOTES:

* STUB-UP AREA

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"

OBSOLETE

OBSOLETE

American Style Vertical Glass Service Deli Merchandiser

OSM - 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
OSM	6'	2	0.68	34	0.30	22	1.33	160	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	2.11	253	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	2.93	352	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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	6'	2	3'	0.37	44	1.83	220
	8'	2	4'	0.47	56	2.33	280
	12'	3	4'	0.70	84	3.50	420

OBSOLETE

Guidelines & Control Settings

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

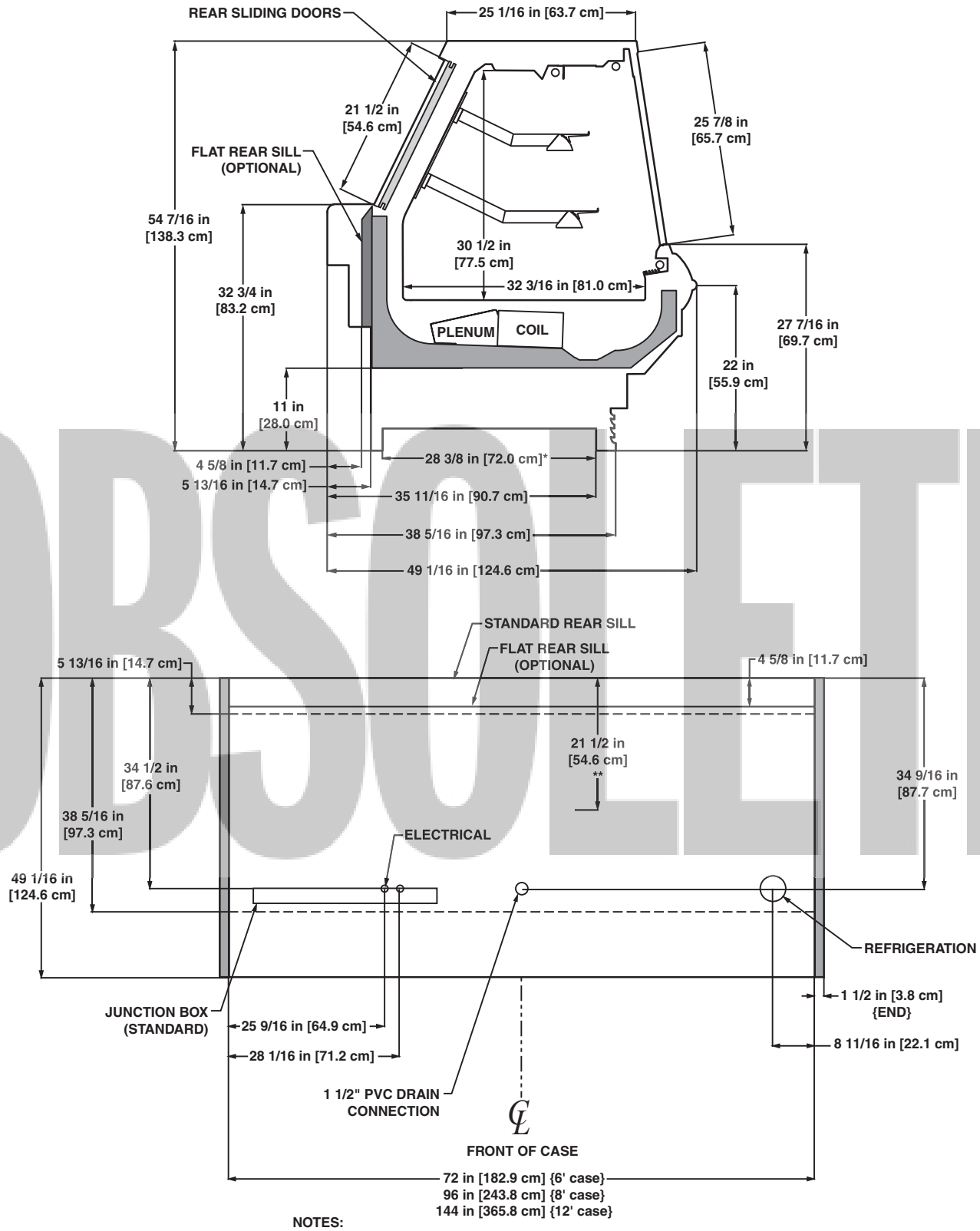
NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

OSM
(11" BASEFRAME)

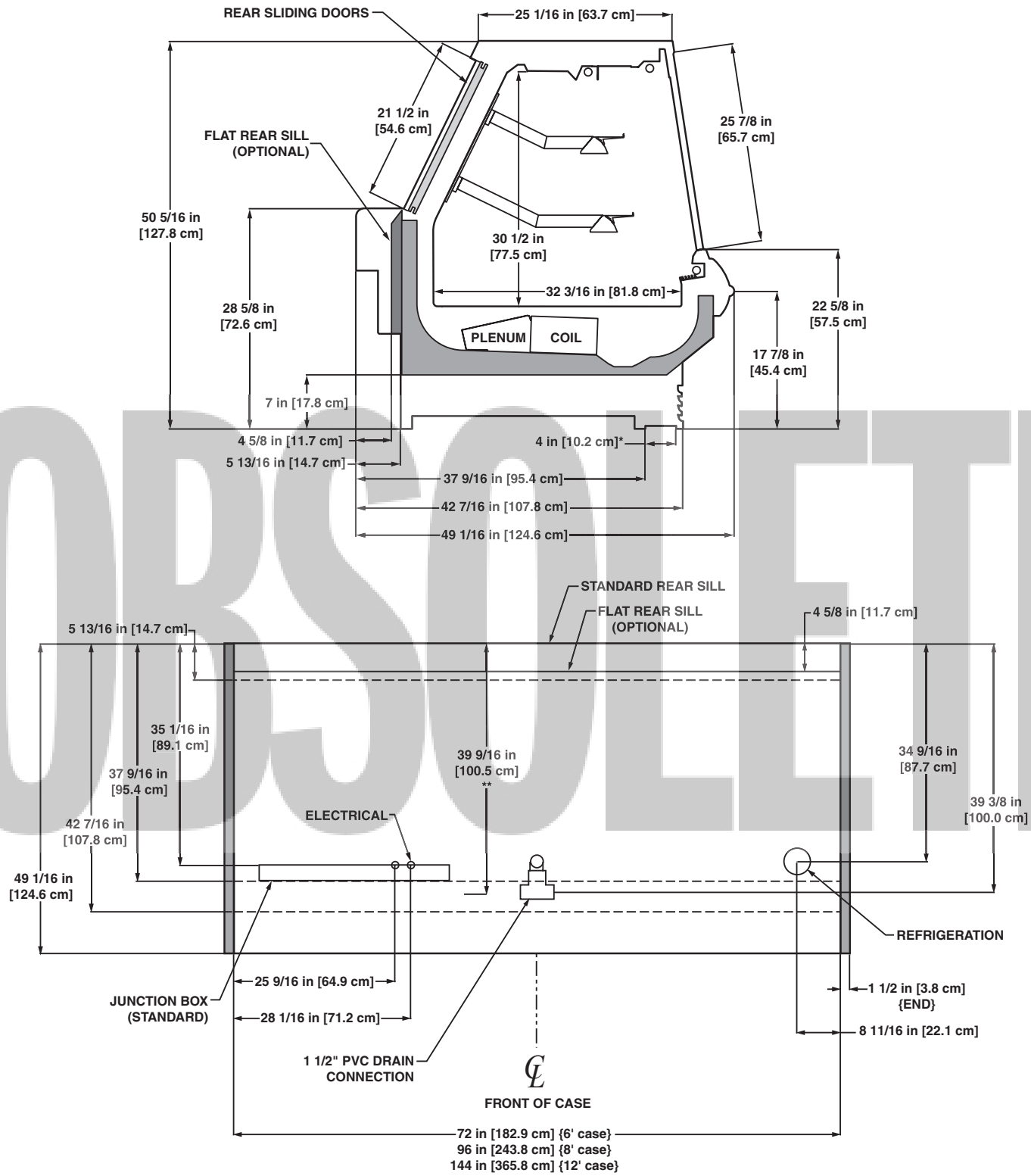


OBSOLETE

NOTES:

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"



OBSOLETE

NOTES:

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"

NSF COMPONENT
c UL us

A DOVER COMPANY

OBSOLETE

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

OGM - 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
OGM	6'	NA[1]	- - -[2]	- - -	- - -	- - -	1.33	160	- - -	- - -	- - -	- - -
	8'	NA	- - -	- - -	- - -	- - -	2.11	253	- - -	- - -	- - -	- - -
	12'	NA	- - -	- - -	- - -	- - -	2.93	352	- - -	- - -	- - -	- - -

[1] Not applicable.

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

Lighting Data

Model		Bulbs per Row	Bulb Length	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	6'	2	3'	0.37	44	1.83	220
	8'	2	4'	0.47	56	2.33	280
	12'	3	4'	0.70	84	3.50	420

Guidelines & Control Settings

Model	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OGM[5]	226	17	6-8	NA	NA	NA

[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] If the OGM is piped to a suction header lower than 15°F an EPR with a suction stop solenoid is required. If a suction stop solenoid is not provided at the rack a suction stop solenoid is required at the case. A liquid line solenoid alone will not allow the case to cycle properly and is not recommended for control of this case. The thermostat probe should be located on the inlet of the top coil. The cut out point should be set to 17°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)
OGM	2	6 - 8	- - -	- - -	65	46	20	45	- - -	- - -

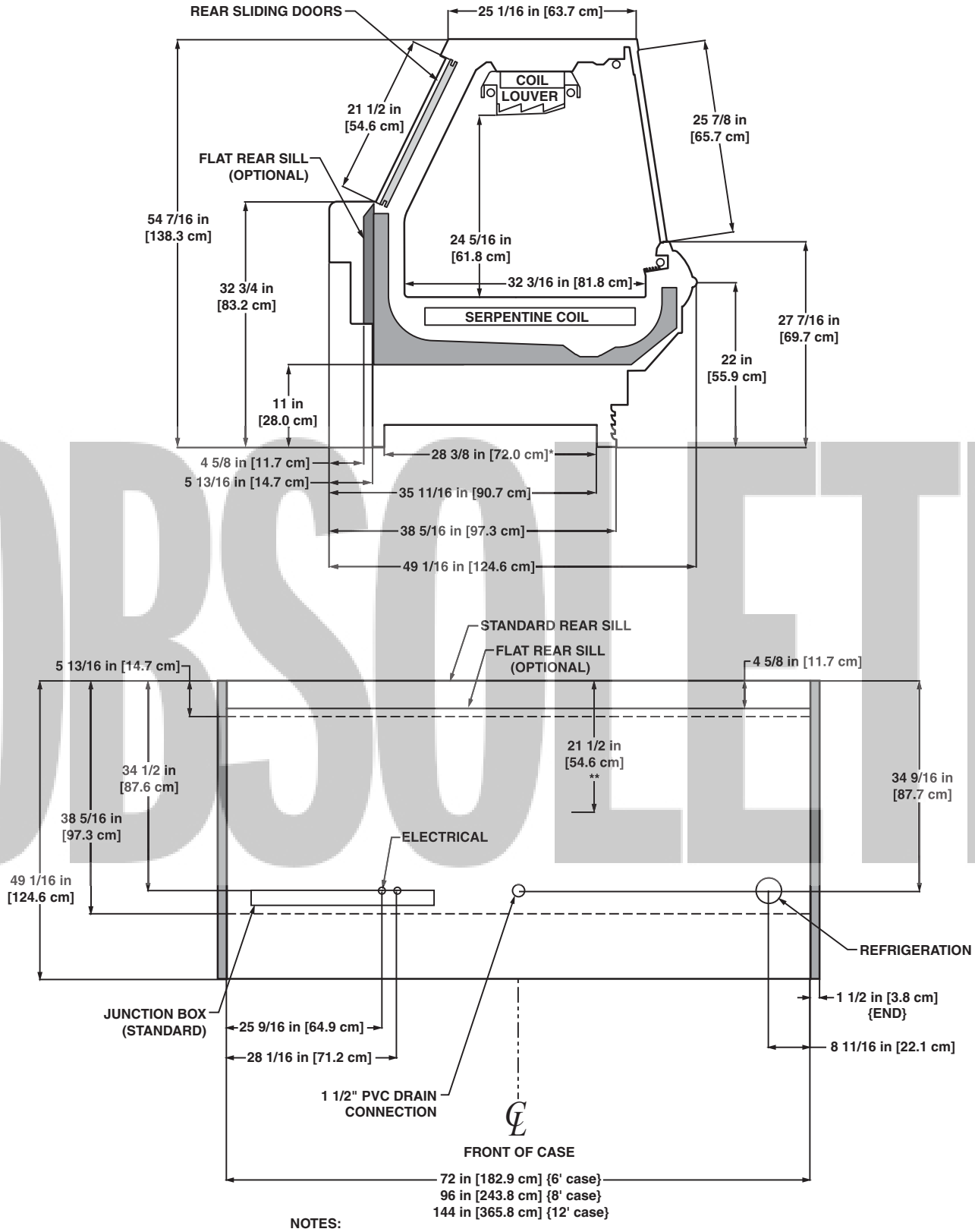
Medium Temperature Defrost Schedule

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.

OBSOLETE

OGM
(11" BASEFRAME)



NOTES:

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

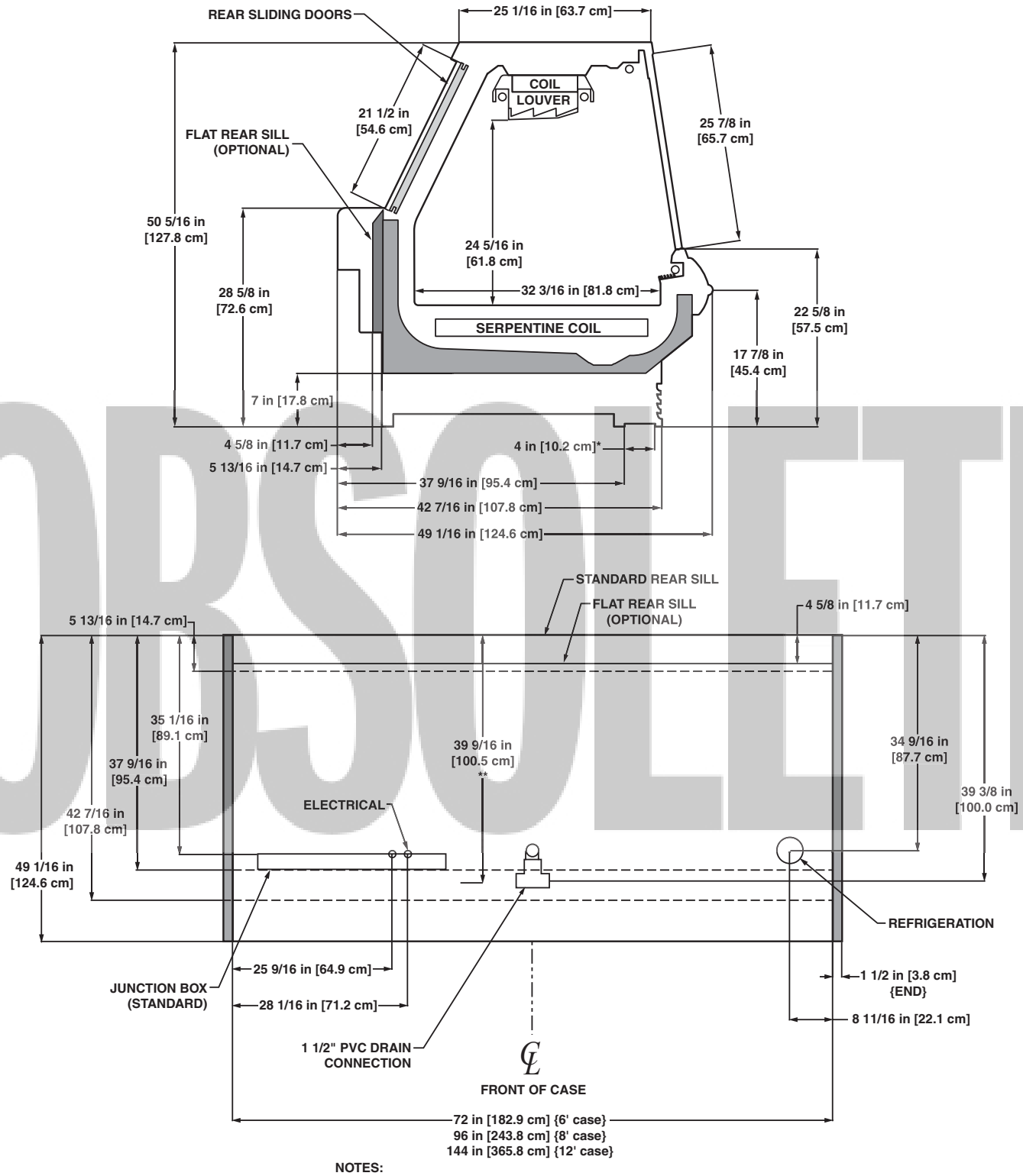
- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12" (SINGLE ROW OF SHELVES PER CASE)

OBSOLETE

NSF COMPONENT c UL us

A DOVER COMPANY

OGM
(7" BASEFRAME)



OBSOLETE

NOTES:

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"

NSF COMPONENT
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OBSOLETE

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	0.68	34	0.30	22	0.55	66	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	0.99	119	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	1.49	179	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	0.23	28
	6'	2	3'	0.37	44	0.37	44
	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSIO	695	17	6-8	24	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.

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	- - -[3]	- - -

[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.

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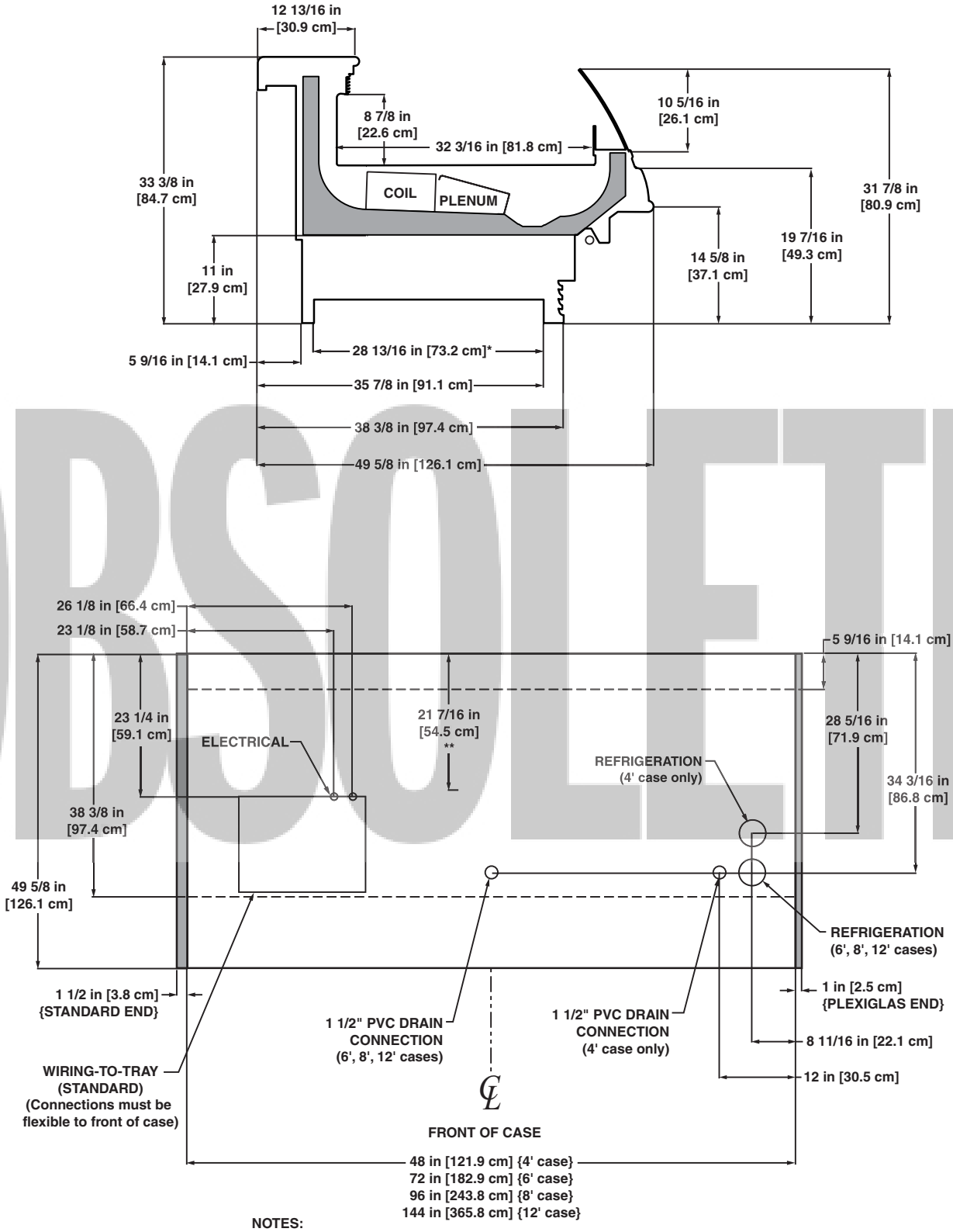
A DOVER COMPANY



OBSOLETE

NOTES:

* STUB-UP AREA

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

Wide International Style Single Deck Deli/Meat/Seafood Merchandiser

OWSIO - 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
OWSIO	4'	2	0.68	34	0.30	22	0.55	66	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	0.99	119	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	1.49	179	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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	4'	1	4'	0.23	28	0.23	28
	6'	2	3'	0.37	44	0.37	44
	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OWSIO	795	17	6-8	24	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.

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	- - -[3]	- - -

[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.

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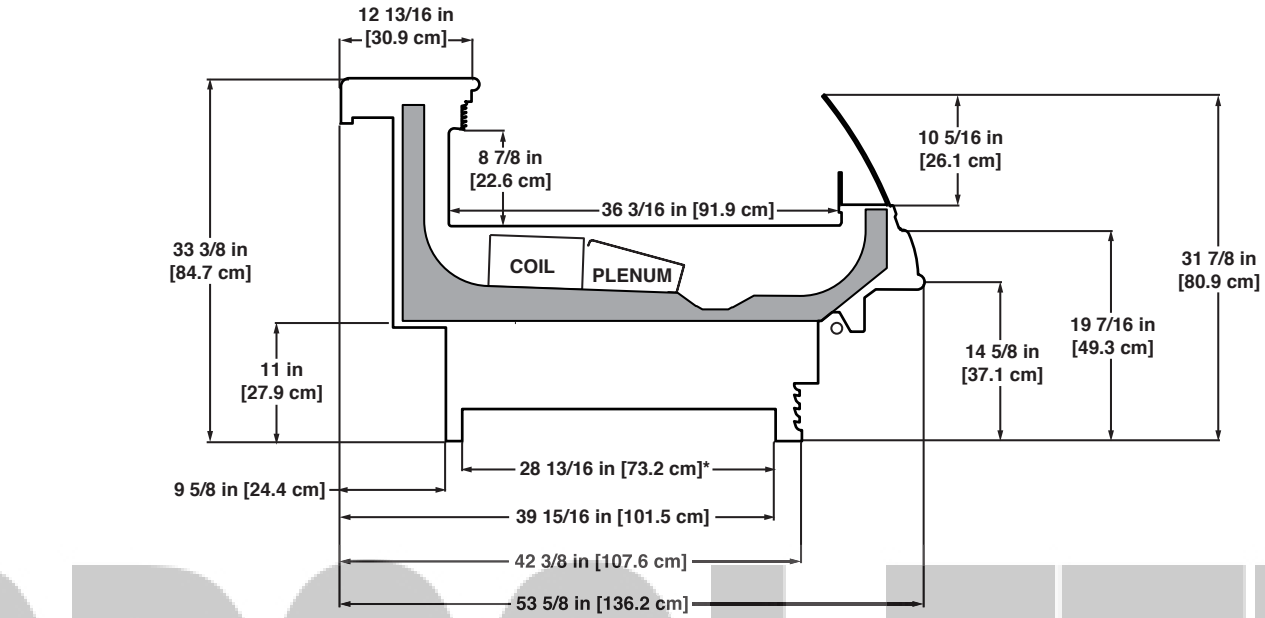
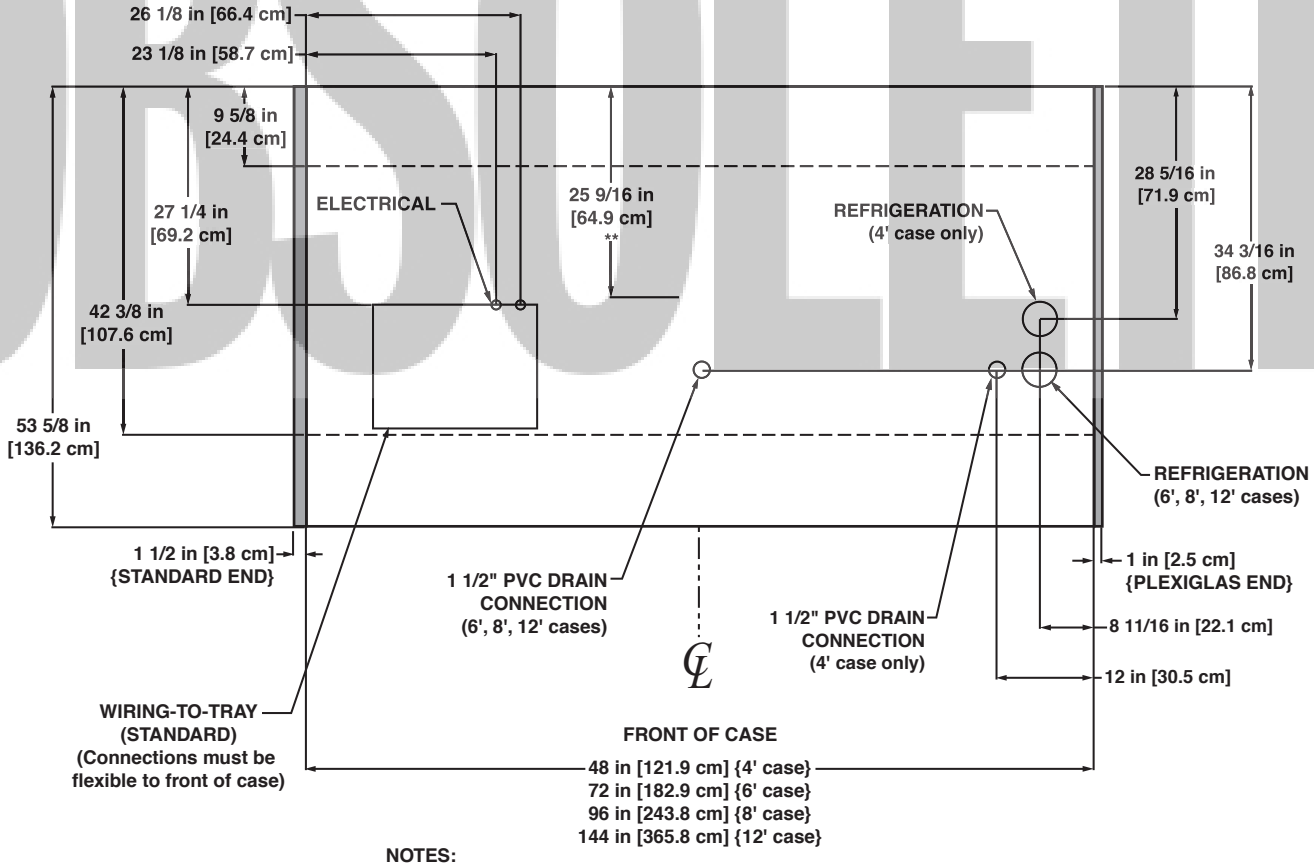
A DOVER COMPANY





NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

OBSOLETE

International Style Single Deck Deli/Meat/Seafood Prep. Merchandiser

OSIOP - 4'

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
OSIOP	4'	2	0.68	34	0.30	22	0.62	74	1.92	400	2.22	532

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
OSIOP	4'	- - -	- - -	0.48	58

OBSOLETE

Guidelines & Control Settings

Model		BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSIOP	Meat	475	12	6 - 8	32	36	200
OSIOP	Deli	425	17	6 - 8	34	36	200

[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)
OSIOP	2	6 - 8	40	47	- - -[3]	- - -	- - -	- - -	- - -	- - -

[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.

Hill PHOENIX EXCELLENCE

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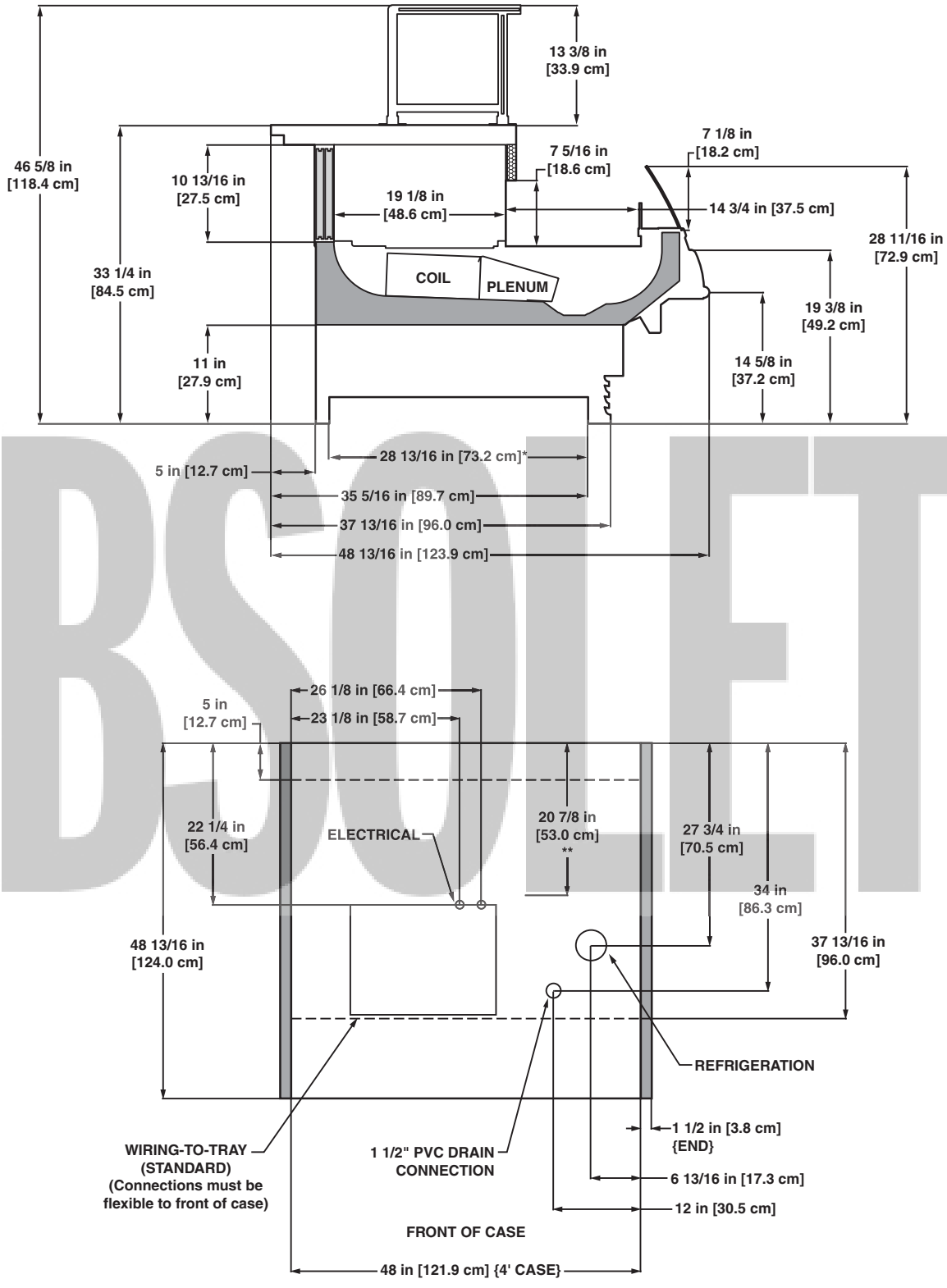


OBSOLETE

NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

International Style Single Deck Dual Temp. Merchandiser

OSIOZ - 4’

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
OSIOZ	4’	2	0.68	34	0.30	22	1.10	132	1.92	400	2.22	532

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OSIOZ	4’	1	4’	0.23	28	0.23	28

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSIOZ	560	-32	3 - 5	-24	-10	220

[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)
OSIOZ	2	13 - 15	47	45	- - -[3]	- - -	- - -	- - -	- - -	- - -

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

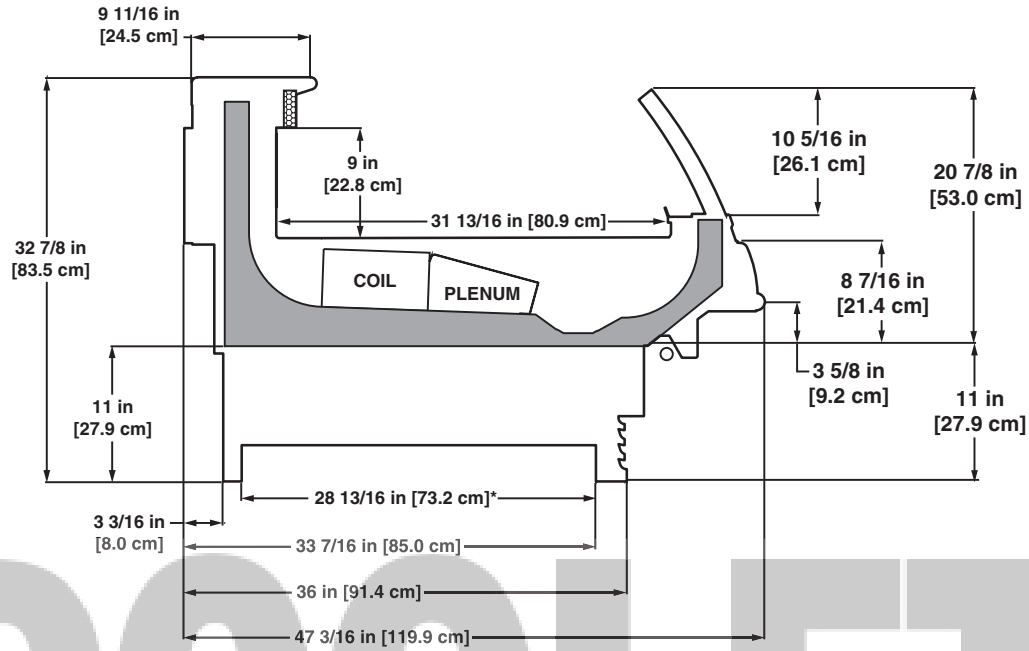
Medium Temperature Defrost Schedule

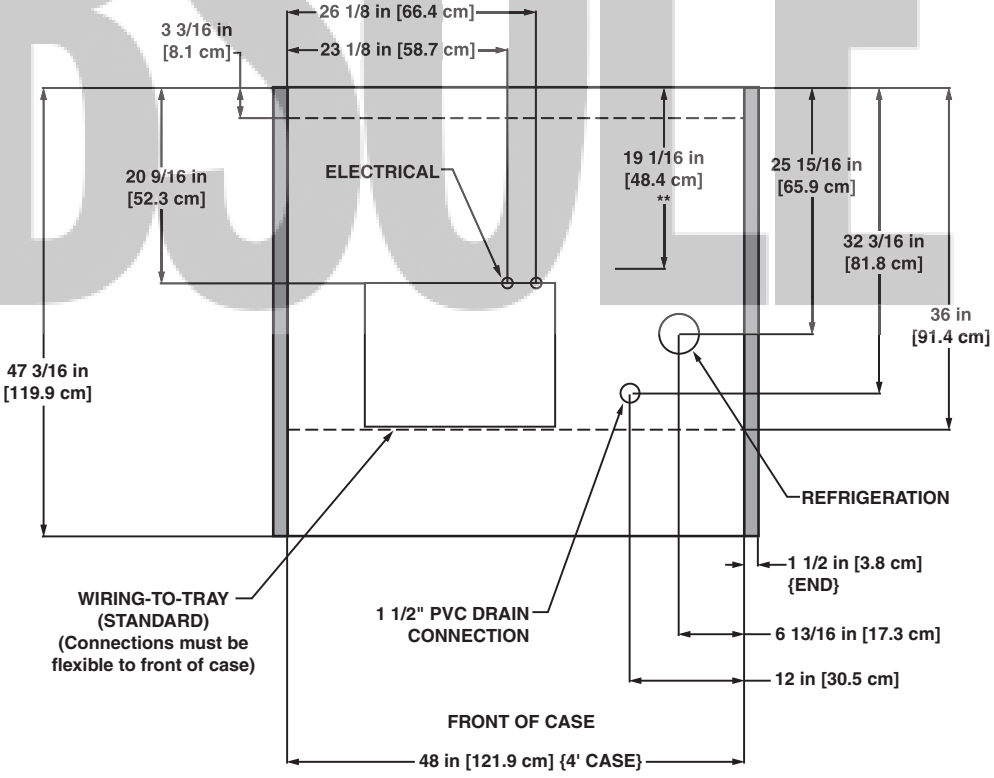
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

Hill PHOENIX EXCELLENCE

A DOVER™ COMPANY





NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

OBSOLETE

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	0.68	34	0.30	22	0.55	66	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	0.99	119	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	1.49	179	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	0.70	84
	6'	2	3'	0.37	44	1.10	132
	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

Guidelines & Control Settings

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

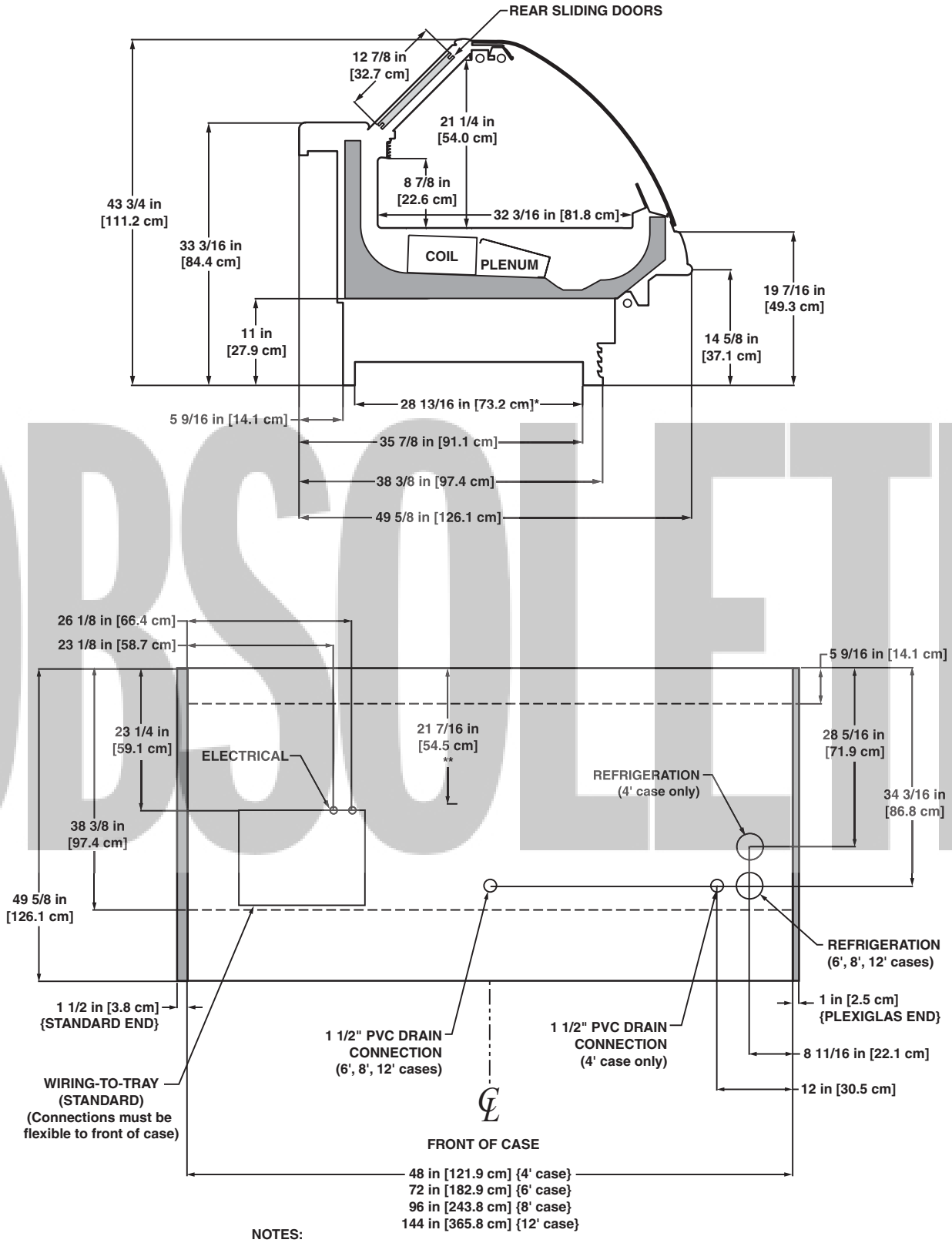
[5] NOTE: - - - not an option on this case model.

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.

OBSOLETE



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NOTES:

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

NSF COMPONENT c UL us

A DOVER COMPANY

Wide International Style Service Deli/Meat/Seafood Merchandiser

OWSI - 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
OWSI	4'	2	0.68	34	0.30	22	0.55	66	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	0.99	119	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	1.49	179	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	0.70	84
	6'	2	3'	0.37	44	1.10	132
	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

Guidelines & Control Settings

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

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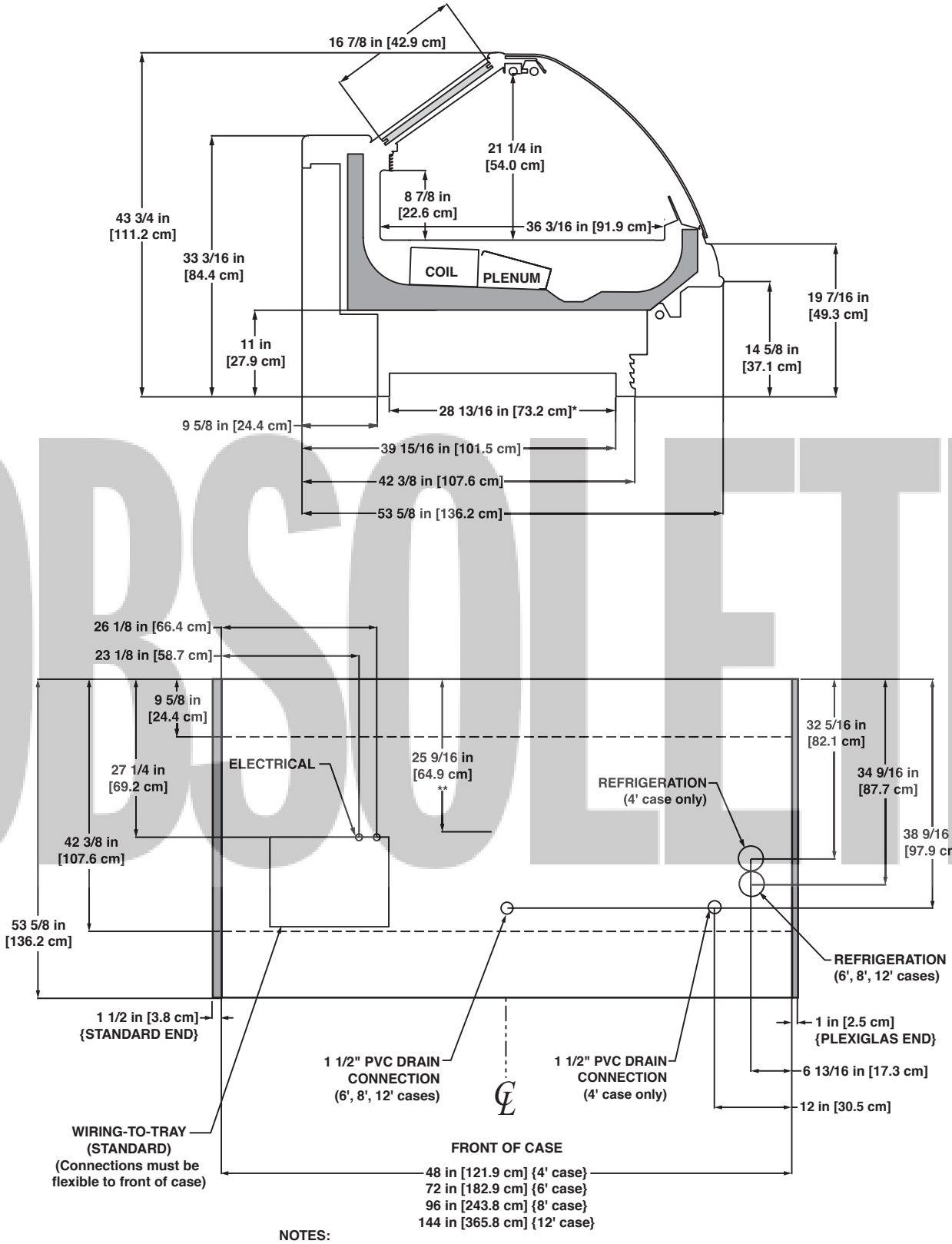

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NOTES:

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

NSF COMPONENT
c UL us

A DOVER COMPANY

International Style Service Deli/Meat/Seafood Merchandiser

O2SI - 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
O2SI	8'	3	1.02	51	0.45	33	0.99	119	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	1.49	179	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O2SI	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
O2SI[3]	508	17	6-8	24	35	540

[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)
O2SI	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.

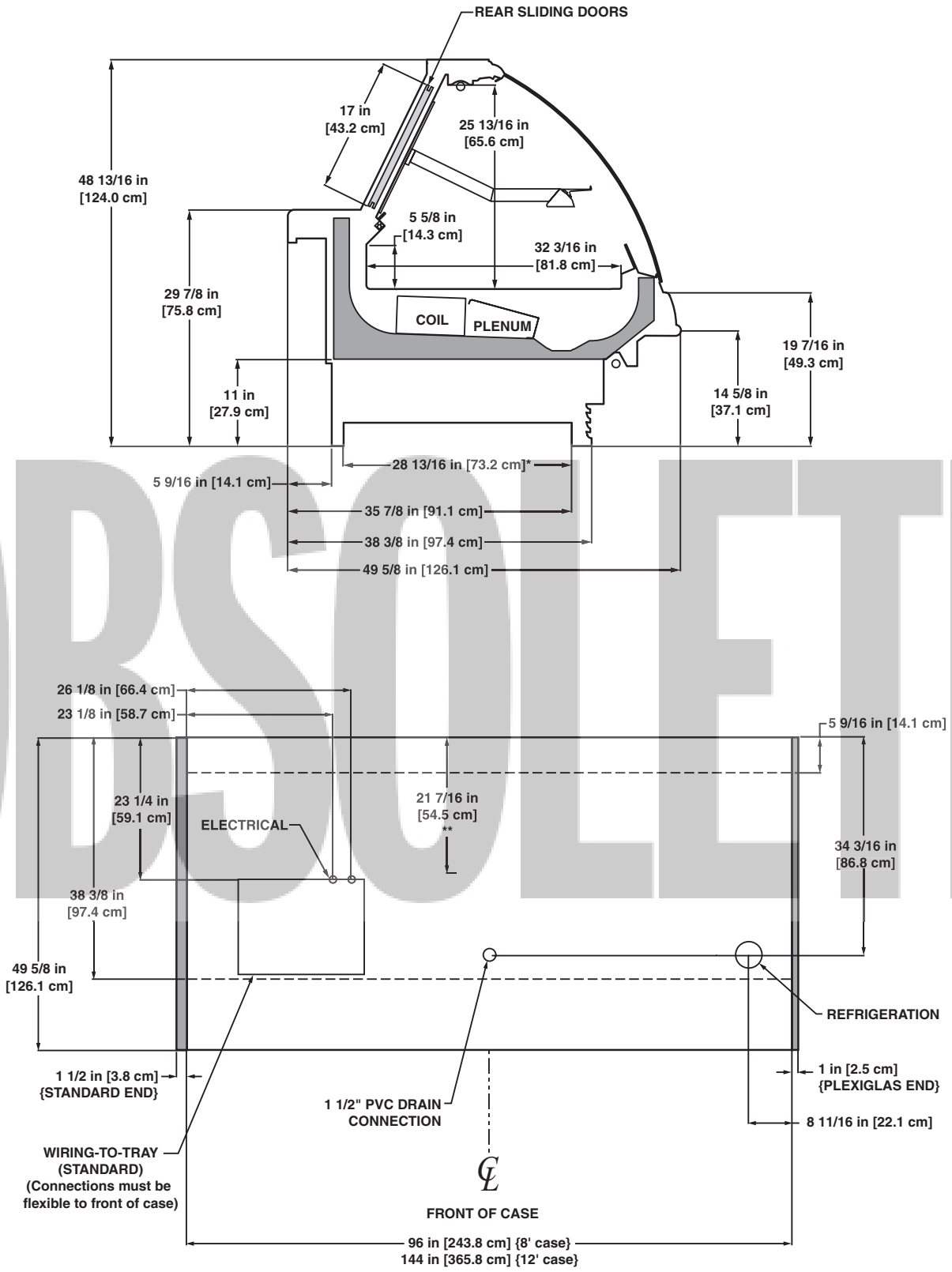
Medium Temperature Defrost Schedule

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.

Hill PHOENIX EXCELLENCE

A DOVER COMPANY



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NOTES:

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

NSF COMPONENT c UL us

A DOVER COMPANY

International Style Service Hot Foods Merchandiser

OSIH - 4', 6', & 8'

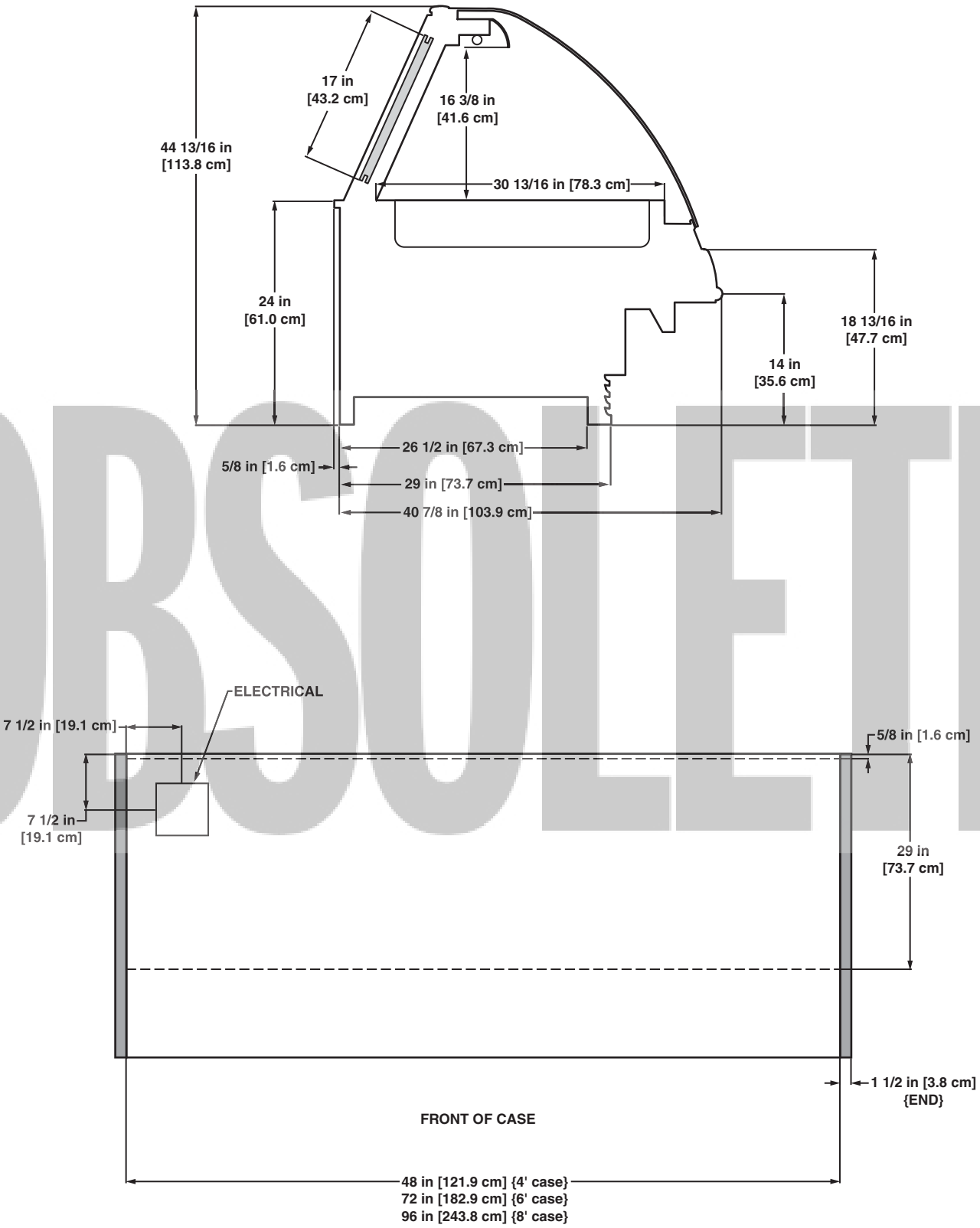
Electrical Data (Domestic)

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

OBSOLETE

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



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NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- HOT WELLS ARE 27 3/16" X 12" X 5"

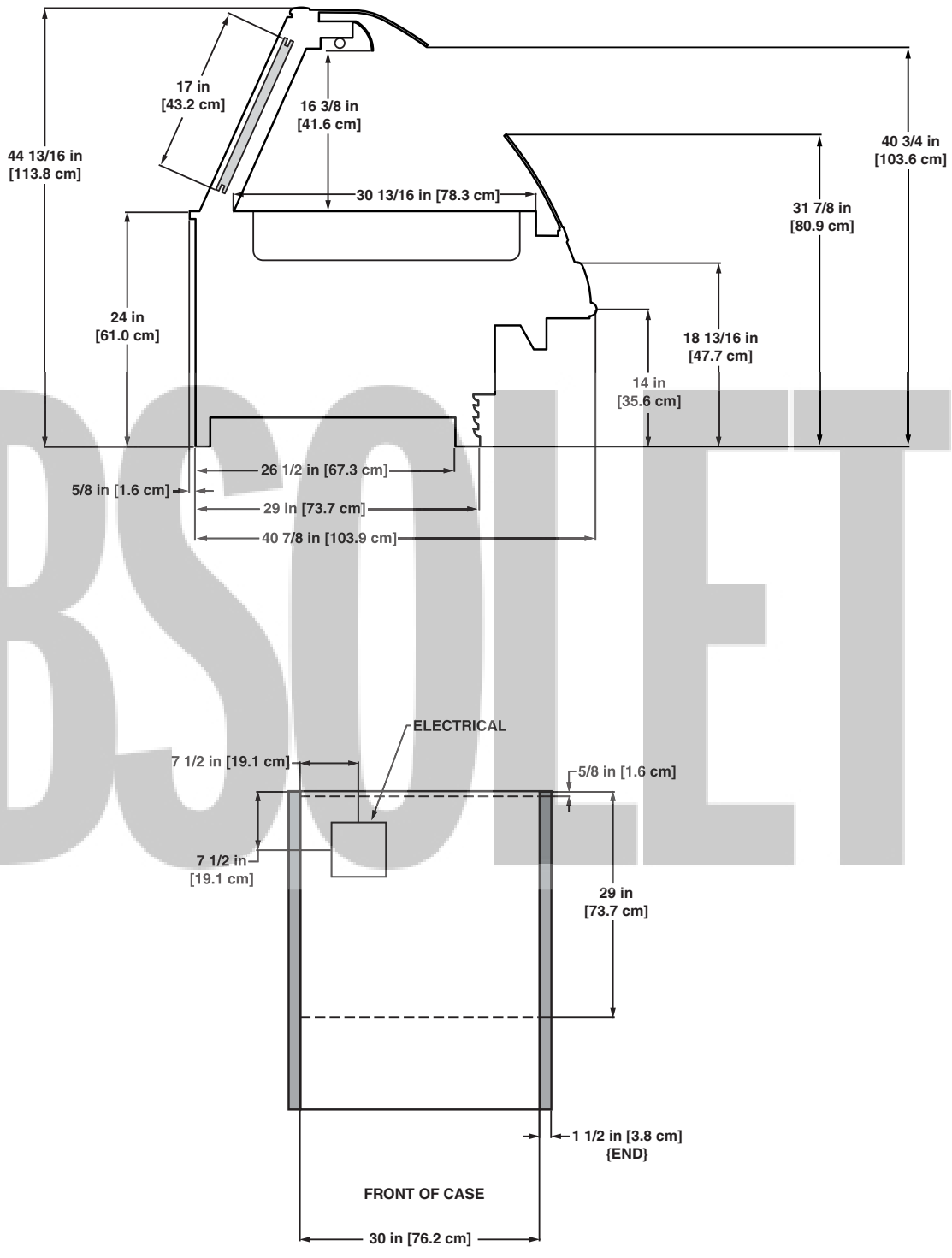
International Style Self Service Hot Foods Merchandiser

OSIHO - 30”

Electrical Data (Domestic)

Model		Number of Hot Wells	Single Phase					
			208 Volts			220 Volts		
			Amps	Watts	Breaker	Amps	Watts	Breaker
OSIHO	30”	2	11	2244	15	12	2536	15

OBSOLETE



OBSOLETE

NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- HOT WELLS ARE 27 3/16" X 12" X 5"

Multi-Deck Self Service Hot Foods Merchandiser

ON3W - 4', 6' & 8'

Electrical Data

Model		Single Phase 240 Volts Amps	Single Phase 240 Volts Watts	Single Phase 240 Volts Breaker	Three Phase 240 Volts Amps	Three Phase 240 Volts Watts	Three Phase 240 Volts Breaker
ON3W[1]	4'	18.2	4340	30	- - -	- - -	- - -
	6'	- - -[2]	- - -	- - -	19	6480	30
	8'	- - -	- - -	- - -	25	8680	40

[1] Wiring configuration is 3 wire + ground on 4' models and 4 wire + ground on 6' & 8' models.

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

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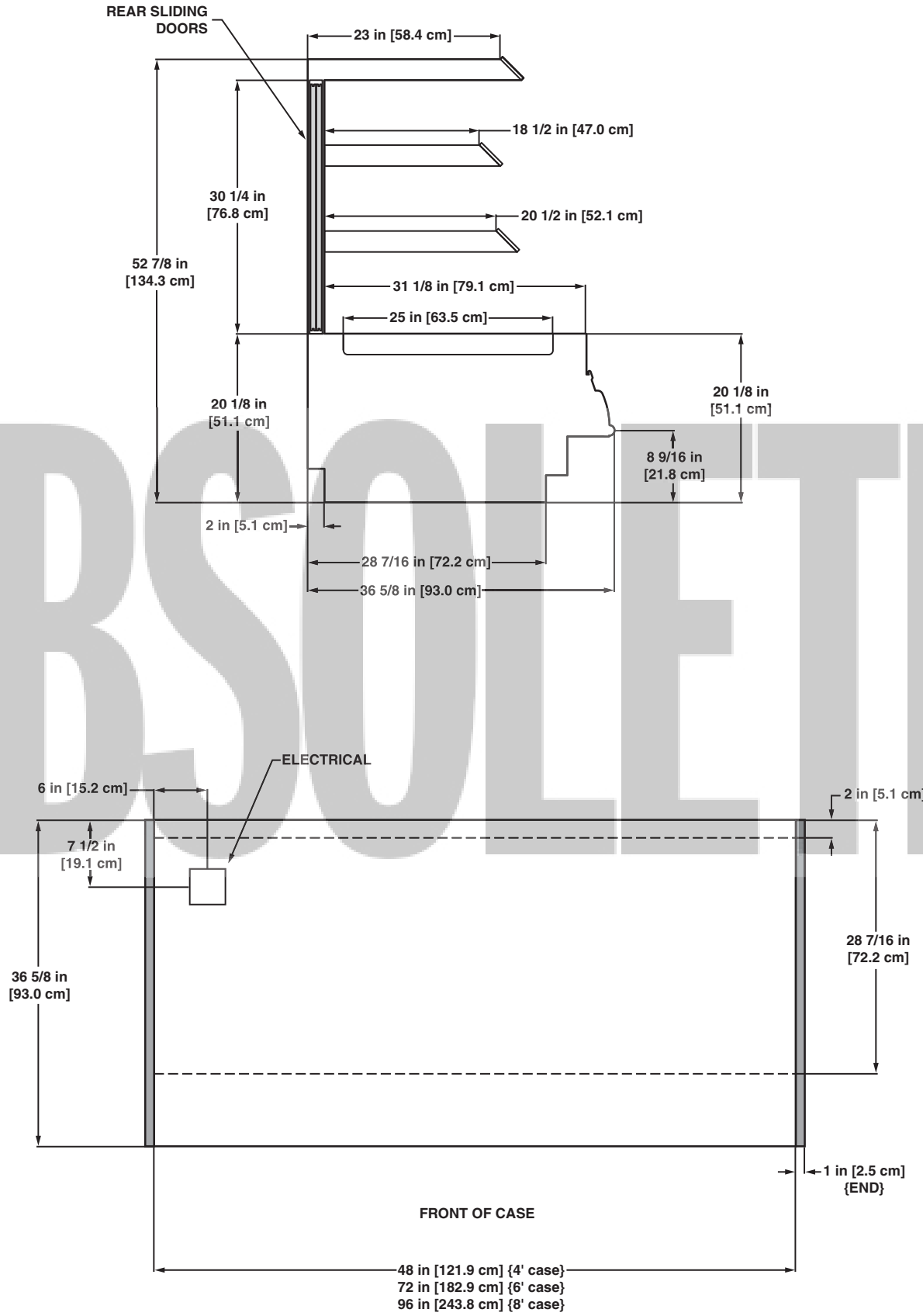

REAR SLIDING DOORS
23 in [58.4 cm]
18 1/2 in [47.0 cm]
30 1/4 in [76.8 cm]
20 1/2 in [52.1 cm]
52 7/8 in [134.3 cm]
31 1/8 in [79.1 cm]
25 in [63.5 cm]
20 1/8 in [51.1 cm]
20 1/8 in [51.1 cm]
8 9/16 in [21.8 cm]
2 in [5.1 cm]
28 7/16 in [72.2 cm]
36 5/8 in [93.0 cm]
ELECTRICAL
6 in [15.2 cm]
2 in [5.1 cm]
7 1/2 in [19.1 cm]
28 7/16 in [72.2 cm]
36 5/8 in [93.0 cm]
1 in [2.5 cm] {END}
FRONT OF CASE
48 in [121.9 cm] {4' case}
72 in [182.9 cm] {6' case}
96 in [243.8 cm] {8' case}

OBSOLETE

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	0.68	34	0.30	22	0.55	66	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	1.03	124	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	0.99	119	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	1.49	179	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	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'	1	4'	0.23	28	0.70	84
	6'	2	3'	0.37	44	1.10	132
	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSIF[3]	350	22	6-8	31	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
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

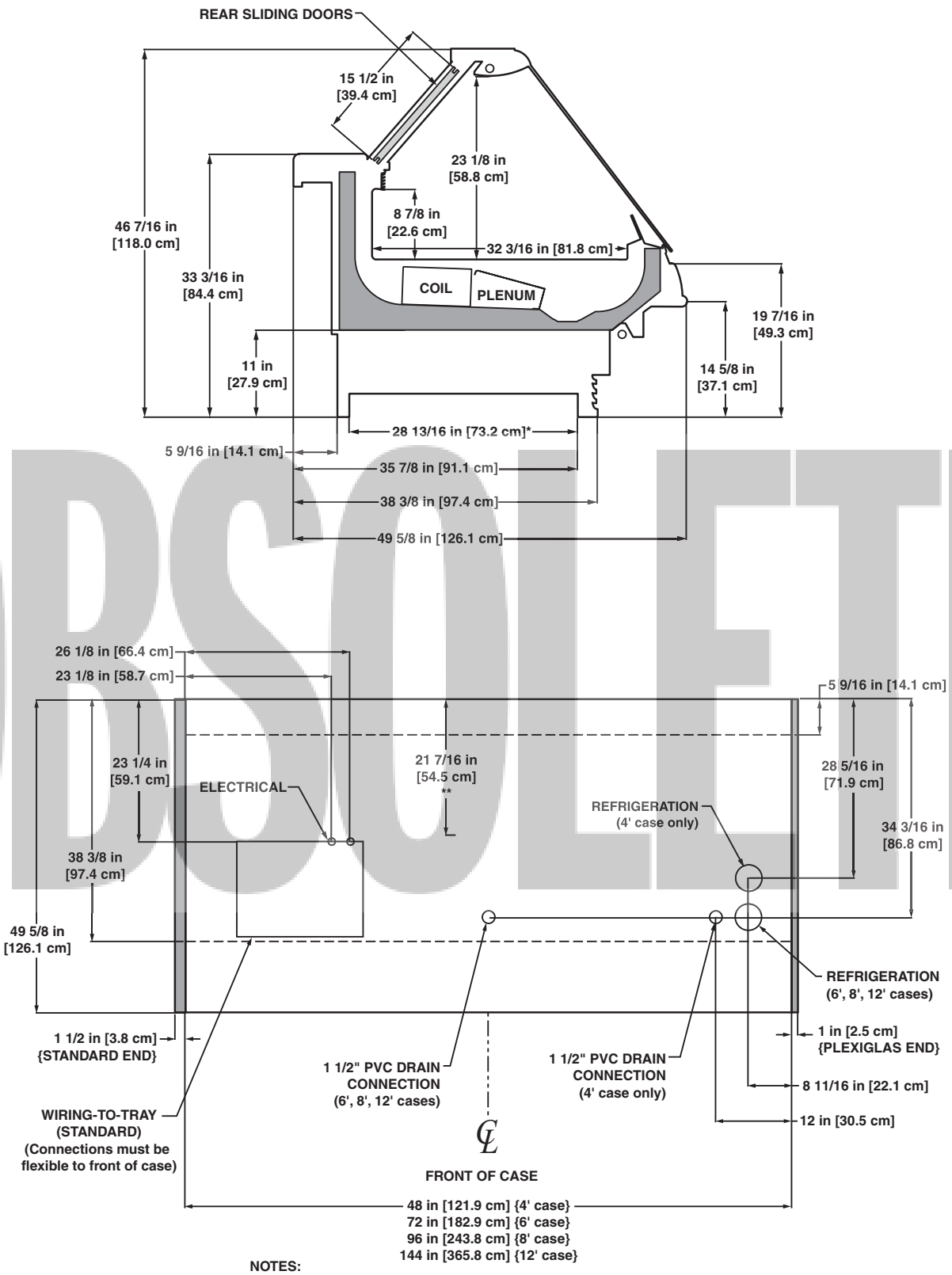
All measurements are taken per CRMA specifications.

NSF COMPONENT

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

OBSOLETE



OBSOLETE

NOTES:

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

International Style Flat Glass Service Deli/Meat/Seafood Merchandiser

O2SIF - 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
O2SIF	8'	3	1.02	51	0.45	33	0.99	119	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	1.49	179	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
O2SIF	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
O2SIF[3]	508	17	6-8	24	35	540

[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)
O2SIF	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.

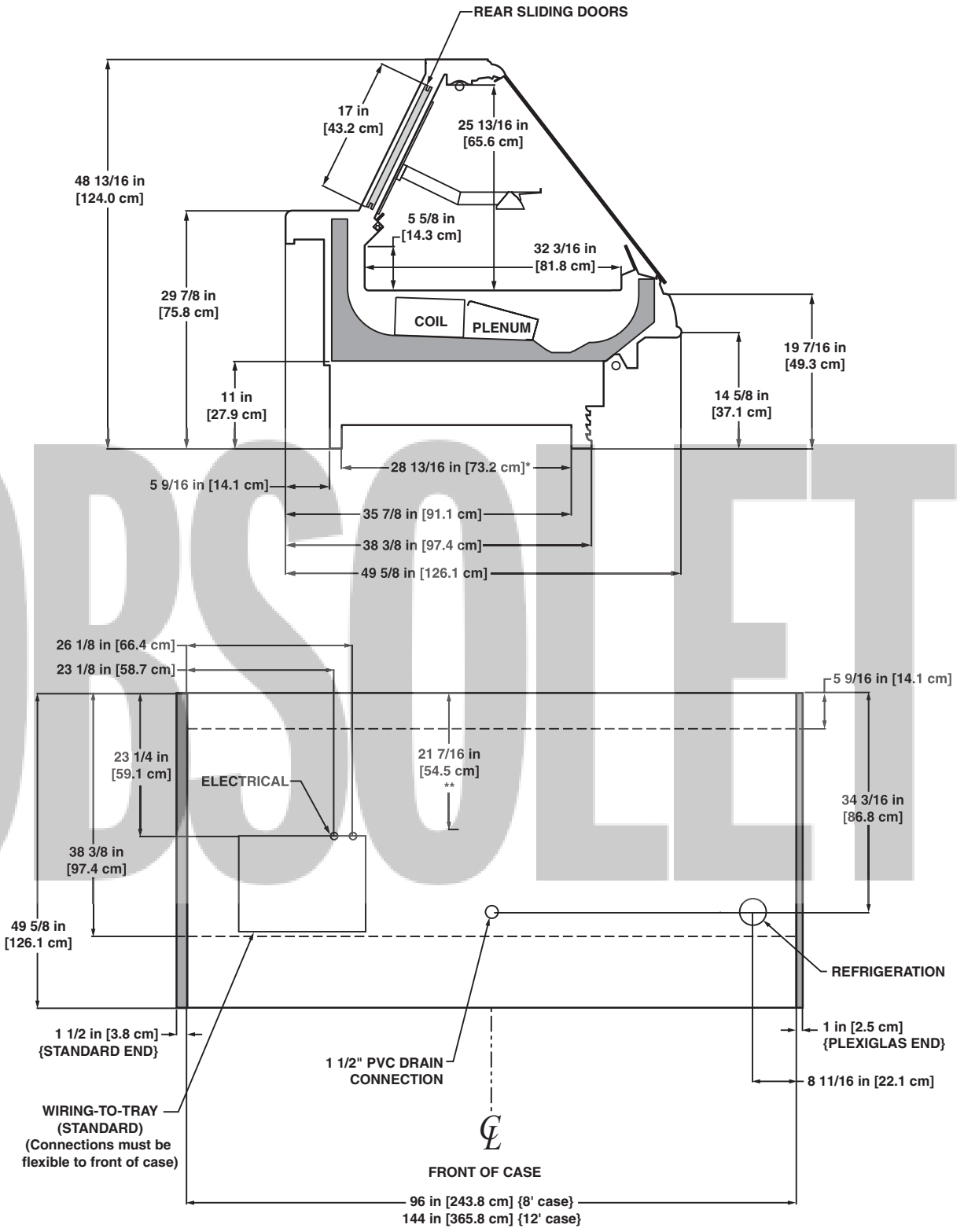
Medium Temperature Defrost Schedule

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

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

All measurements are taken per CRMA specifications.



OBSOLETE

NOTES:

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

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"

A DOVER COMPANY

Flat Glass Service Deli Merchandiser

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

Electrical Data

Model		Fans per Case		Ambient Fans[1] 120 Volts		Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 220 Volts	
		Pri.	Amb.	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OLF	4'	2	2	0.30	11	0.68	34	0.30	22	3.33	400	1.92	400	2.22	532
	6'	2	3	0.45	17	0.68	34	0.30	22	5.00	600	2.88	600	3.33	798
	8'	3	4	0.60	22	1.02	51	0.45	33	6.66	800	3.85	800	4.44	1065
	12'	4	6	0.90	33	1.36	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OLF	4'	1	4'	0.23	28	1.40	168
	6'	2	3'	0.37	44	2.20	264
	8'	2	4'	0.47	56	2.80	336
	12'	3	4'	0.70	84	4.20	504

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OLF	431	17	6-8	27	34	235

[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.

OBSOLETE

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)
OLF	2	6 - 8	35	47	50[4]	47[4]	20	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

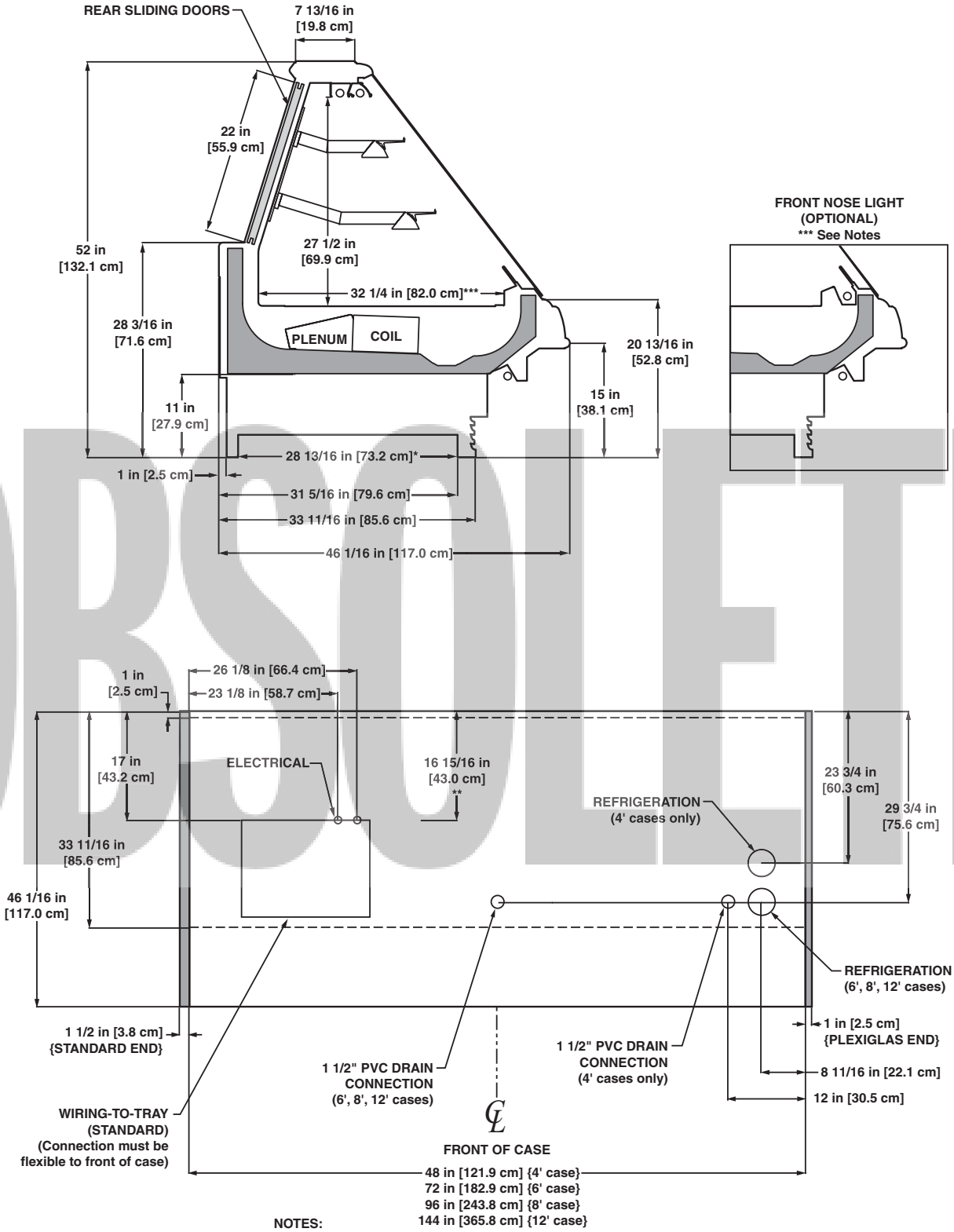
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per CRMA specifications.

NSF COMPONENT

Hill PHOENIX EXCELLENCE

A DOVER COMPANY



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 11/16"

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12"

OBSOLETE

Flat Glass Service Deli Gravity Coil Merchandiser

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

Electrical Data

Model		Fans per Case		Ambient Fans[1] 120 Volts		Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 220 Volts	
		Pri.	Amb.	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OLFG	4'	2	2	0.30	11	0.68	34	0.30	22	3.33	400	1.92	400	2.22	532
	6'	2	3	0.45	17	0.68	34	0.30	22	5.00	600	2.88	600	3.33	798
	8'	3	4	0.60	22	1.02	51	0.45	33	6.66	800	3.85	800	4.44	1065
	12'	4	6	0.90	33	1.36	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		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OLFG	4'	1	4'	0.23	28	1.40	168
	6'	2	3'	0.37	44	2.20	264
	8'	2	4'	0.47	56	2.80	336
	12'	3	4'	0.70	84	4.20	504

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OLFG[4]	275	15	6-8	31	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. If a suction stop solenoid is not provided at the rack a suction stop solenoid is required at the case. A liquid line solenoid alone will not allow the case to cycle properly and is not recommended for control of this case. The thermostat probe should be located on the inlet of the top coil. The cut out point should be set to 15°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)
OLFG	2	6 - 8	35	47	65	47	20	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

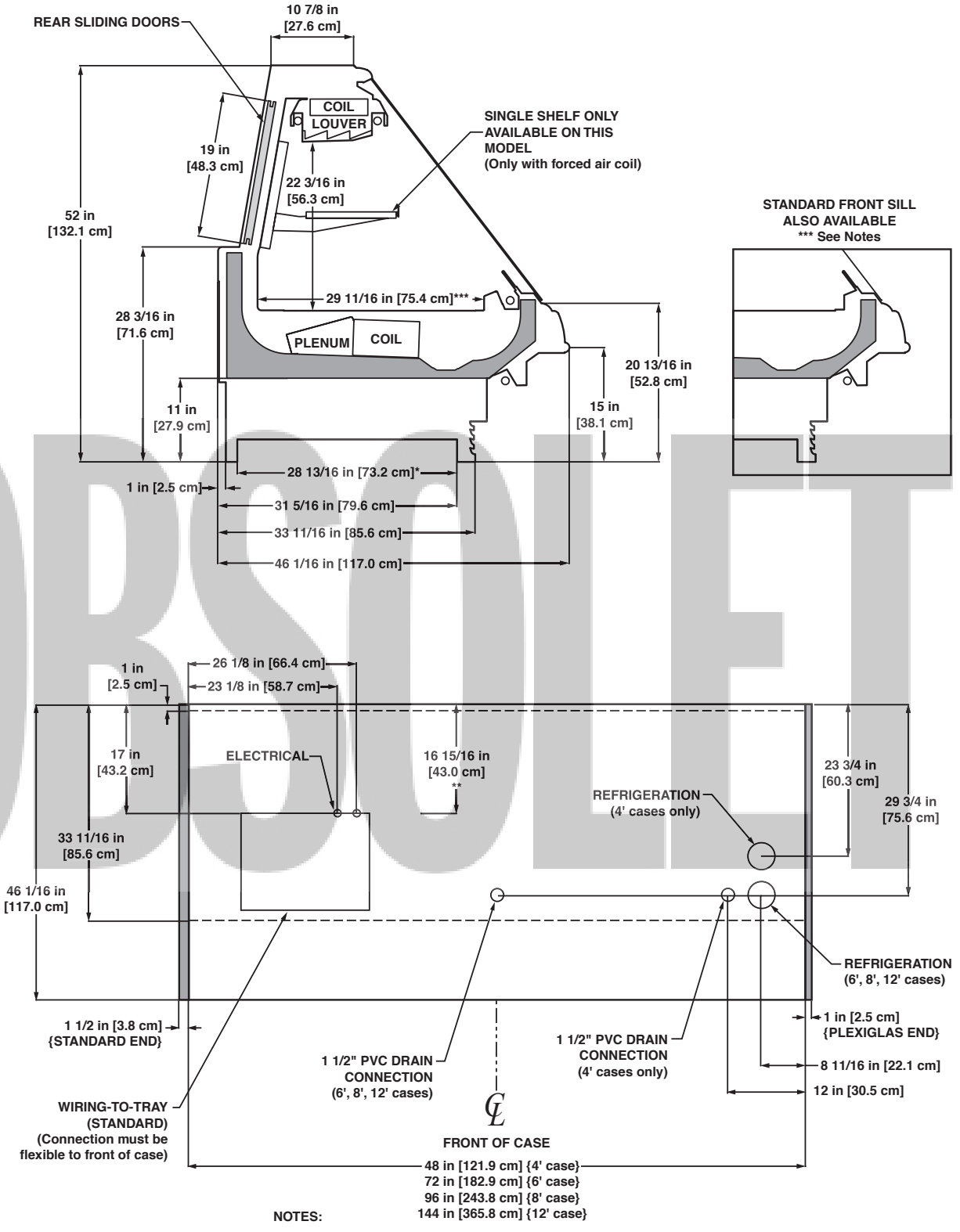
All measurements are taken per CRMA specifications.

NSF COMPONENT

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

OBSOLETE



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 11/16"

- FRONT, REAR AND TOP SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 12" (SINGLE ROW OF SHELVES PER CASE)

OBSOLETE

Full Service Flat Glass Deli Merchandiser

PDIF - 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
PDIF	8'	3	1.02	51	0.45	33	2.10	252	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	3.20	384	5.77	1200	6.67	1600

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
PDIF	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
PDIF	300	22	6-8	28	39	100

[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)
PDIF	4	6 - 8	30	47	40	47	26	45	- - -[3]	- - -

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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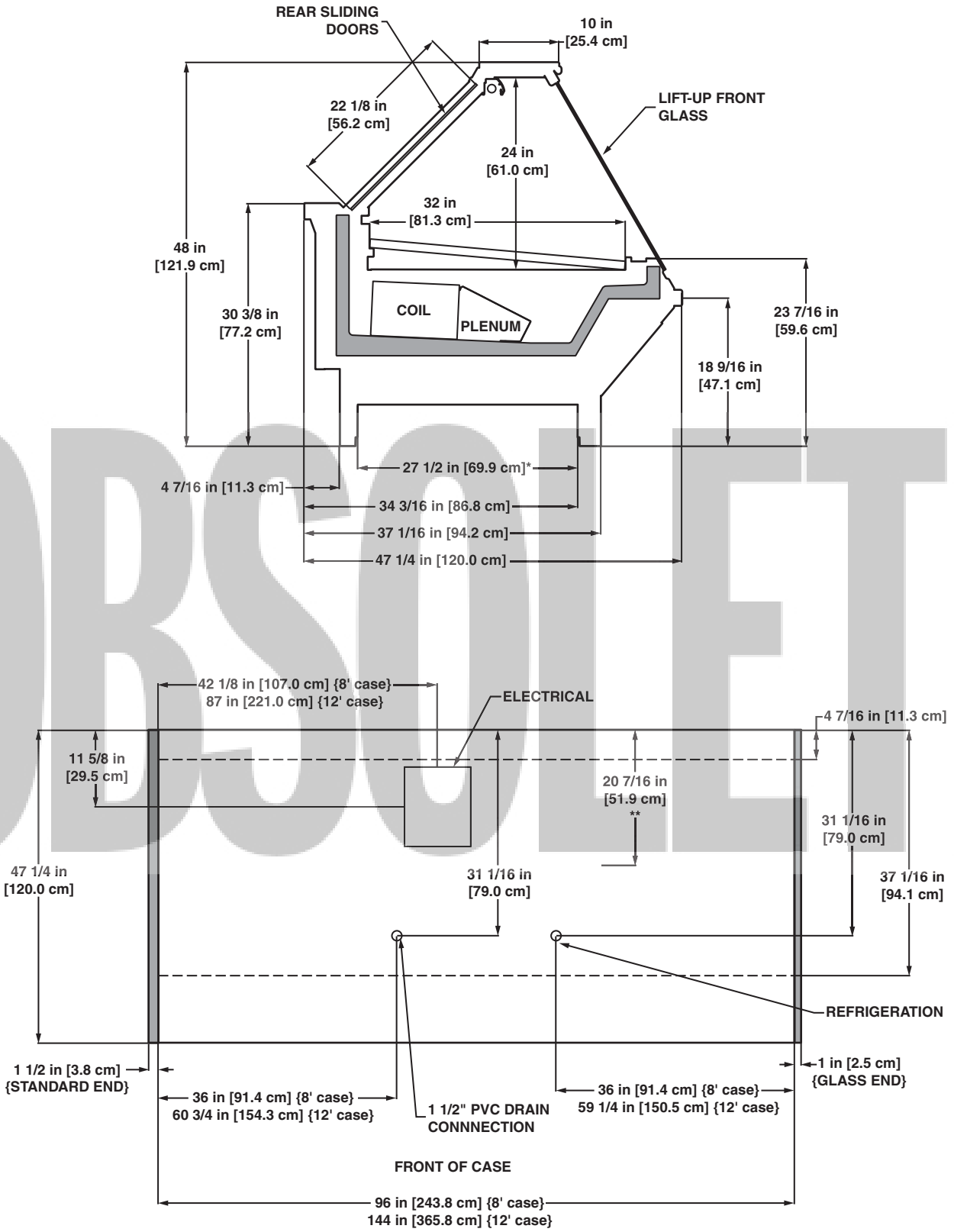
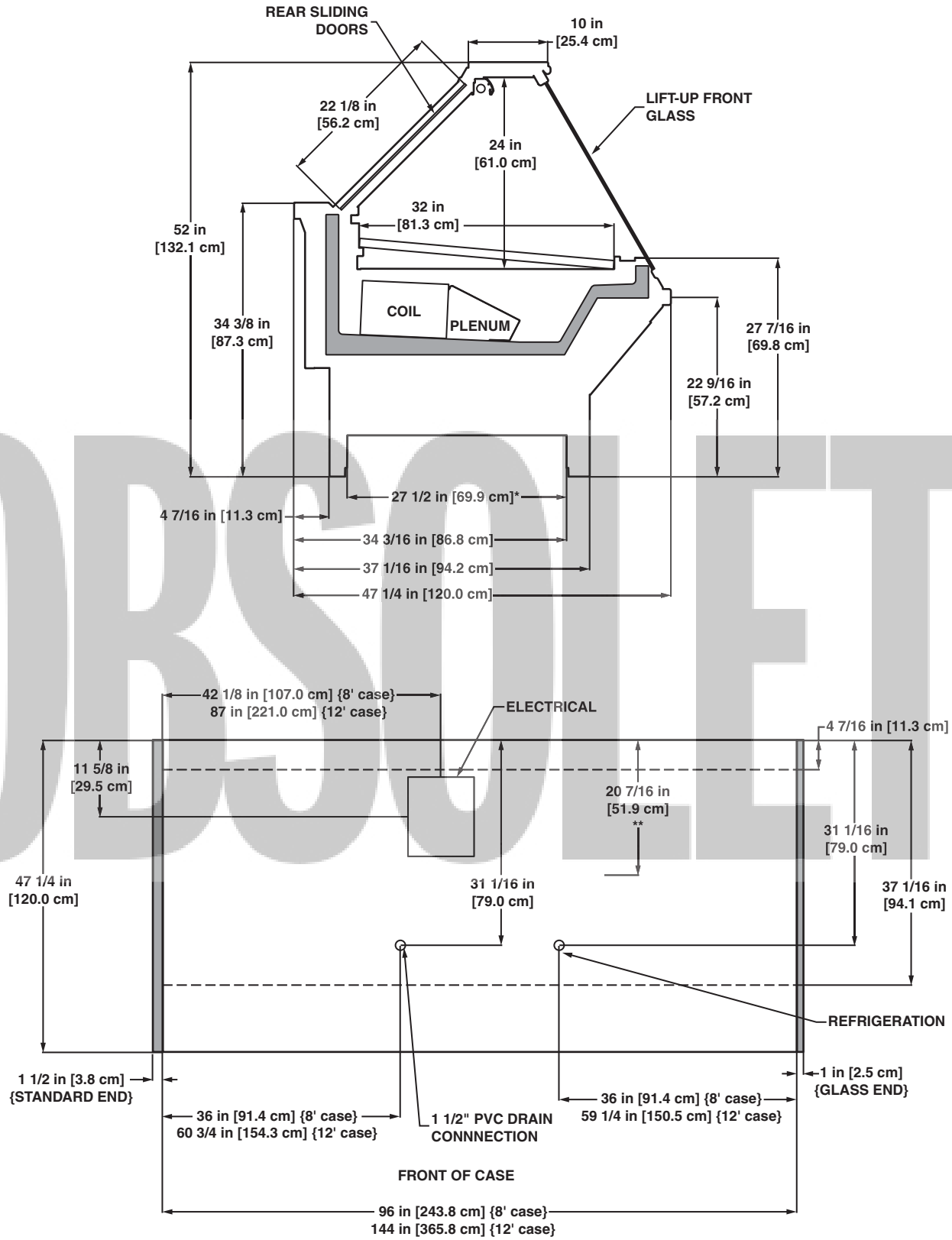


OBSOLETE

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 - 1/2"



OBSOLETE

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 - 1/2"

A DOVER COMPANY

OBSOLETE

Multi-Deck Dome Deli/Meat/Seafood Merchandiser

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

Electrical Data

Model		Fans[2] per Case	Standard Fans[2] 120 Volts Amps	Standard Fans[2] 120 Volts Watts	High Efficiency[2] Fans 120 Volts Amps	High Efficiency[2] Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Air Defrost[1] Fan / Coil 120 Volts Amps	Air Defrost[1] Fan / Coil 120 Volts Watts	Secondary[1] Coolant Pump 120 Volts Amps	Secondary[1] Coolant Pump 120 Volts Watts	Defrost Heaters[2] 208 Volts Amps	Defrost Heaters[2] 208 Volts Watts	Defrost Heaters[2] 240 Volts Amps	Defrost Heaters[2] 240 Volts Watts
PM	4'	3	0.68	34	0.30	22	0.55	66	2.10	242	1.40	168	1.92	400	2.22	532
	6'	4	1.36	68	0.60	44	1.03	124	2.10	242	1.40	168	2.88	600	3.33	798
	8'	4	1.36	68	0.60	44	1.03	124	2.10	242	1.40	168	3.85	800	4.44	1065
	12'	6	2.04	102	0.90	66	1.60	192	2.10	242	1.40	168	5.77	1200	6.67	1600

[1] Air defrost fan and secondary coolant pump are only applicable to the semi-self-contained version of the service dome.

[2] Applicable for self service portion of PM case only.

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
PM	4'	1	4'	0.23	28	0.70	84
	6'	2	3'	0.37	44	1.10	132
	8'	2	4'	0.47	56	1.40	168
	12'	3	4'	0.70	84	2.10	252

Guidelines & Control Settings - Self Service Portion

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)
PM - Self Service	660	15	6-8	29	35	39	125-150

[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.

Guidelines & Control Settings - Service Dome[4]

Model	BTUH/ft[5]	Supply Temp. (°F)	Saturated Suction Temp. (°F)	Flow Rate GPM/ft	Charge GAL/ft
PM Dome - Remote	400	20	na	0.38	3
PM Dome - SSC[6]	480	20	15	0.38	3

[4] The dome portion of the PM case operates using our patented secondary coolant Coolgenix technology.

[5] BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04. Only applicable for the remote version of the dome.

[6] SSC - Semi-Self-Contained.

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)	Warm Fluid Fail-safe (min)	Warm Fluid Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
PM - Self Service	6	6 - 8	30	47	30	47	- - -	- - -	- - -	- - -
PM - Dome	24	2	- - -[7]	- - -	- - -	- - -	7	45	- - -	- - -

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

OBSOLETE

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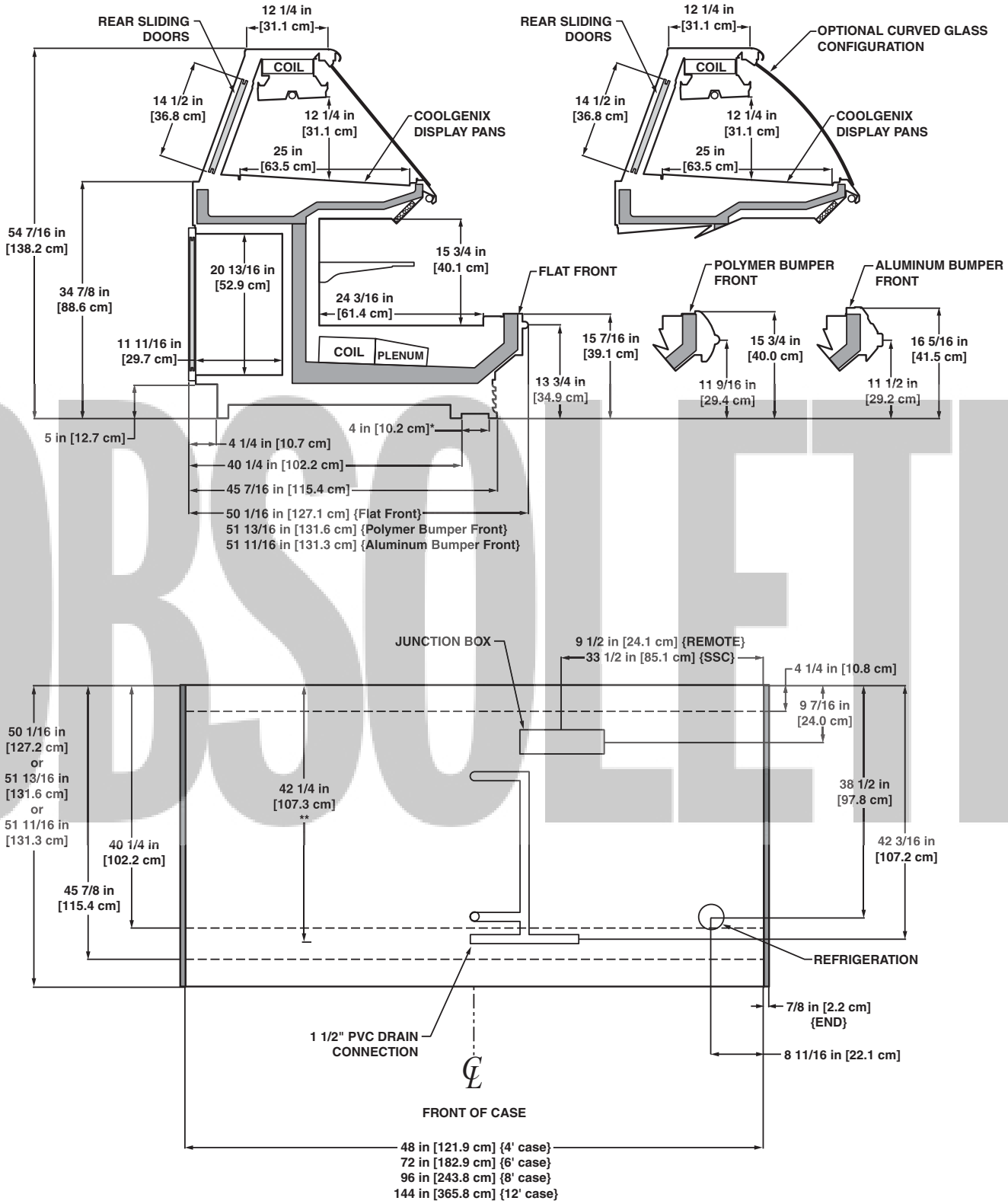
All measurements are taken per CRMA specifications.



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NOTES:

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

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12" & 14"

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Secondary Coolant Gravity Coil Meat Merchandiser

PSG - 4', 6', 8', 12, E30 & E45

Electrical Data

Model		Air Defrost[1] Fan / Coil		Secondary[1] Coolant Pump		Anti-Condensate Heaters	
		115 Volts		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts
PSG	4'	2.10	242	1.40	168	0.55	66
	6'	2.10	242	1.40	168	1.03	124
	8'	2.10	242	1.40	168	1.03	124
	12'	2.10	242	1.40	168	1.60	192
	E30	2.10	242	1.40	168	1.03	124
	E45	2.10	242	1.40	168	1.03	124

[1] Air defrost fan and secondary coolant pump are only applicable to the semi-self-contained version.

Guidelines & Control Settings - Remote

Model	BTUH/ft	Supply Temp. (°F)	Flow Rate GPM/ft	Charge GAL
PSG-4'	400	20	0.38	2
PSG-6'	400	20	0.38	3
PSG-8'	400	20	0.38	4
PSG-12'	400	20	0.38	6
PSG-E30	400	20	0.38	4
PSG-E45	400	20	0.38	4

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
PSG	4'	1	4'	0.23	28	0.23	28
	6'	2	3'	0.37	44	0.37	44
	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84
	E30	2	3'	0.37	44	0.37	44
	E45	2	3'	0.37	44	0.37	44

Guidelines & Control Settings - Semi-Self-Contained

Model	BTUH/ft[2]	Supply Temp. (°F)	Saturated Suction Temp. (°F)	Flow Rate GPM/ft	Charge GAL
PSG-4'	480	20	15	0.38	3
PSG-6'	480	20	15	0.38	4
PSG-8'	480	20	15	0.38	5
PSG-12'	480	20	15	0.38	7
PSG-E30	480	20	15	0.38	5
PSG-E45	480	20	15	0.38	5

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

Defrost Controls

Model	Top Coil Defrosts Per Day	Pan 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)	Warm Fluid Fail-safe (min)	Warm Fluid Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
PSG - SSC	24	2	1 - 5	- - -[4]	- - -	- - -	- - -	7	45	- - -	- - -
PSG - Remote	4-6[3]	2	1 - 5	- - -	- - -	- - -	- - -	7	45	- - -	- - -

[3] Dependent on condition of secondary coolant supplied to case. Cooler liquid and higher inlet pressure require more frequent defrosts.

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

OBSOLETE

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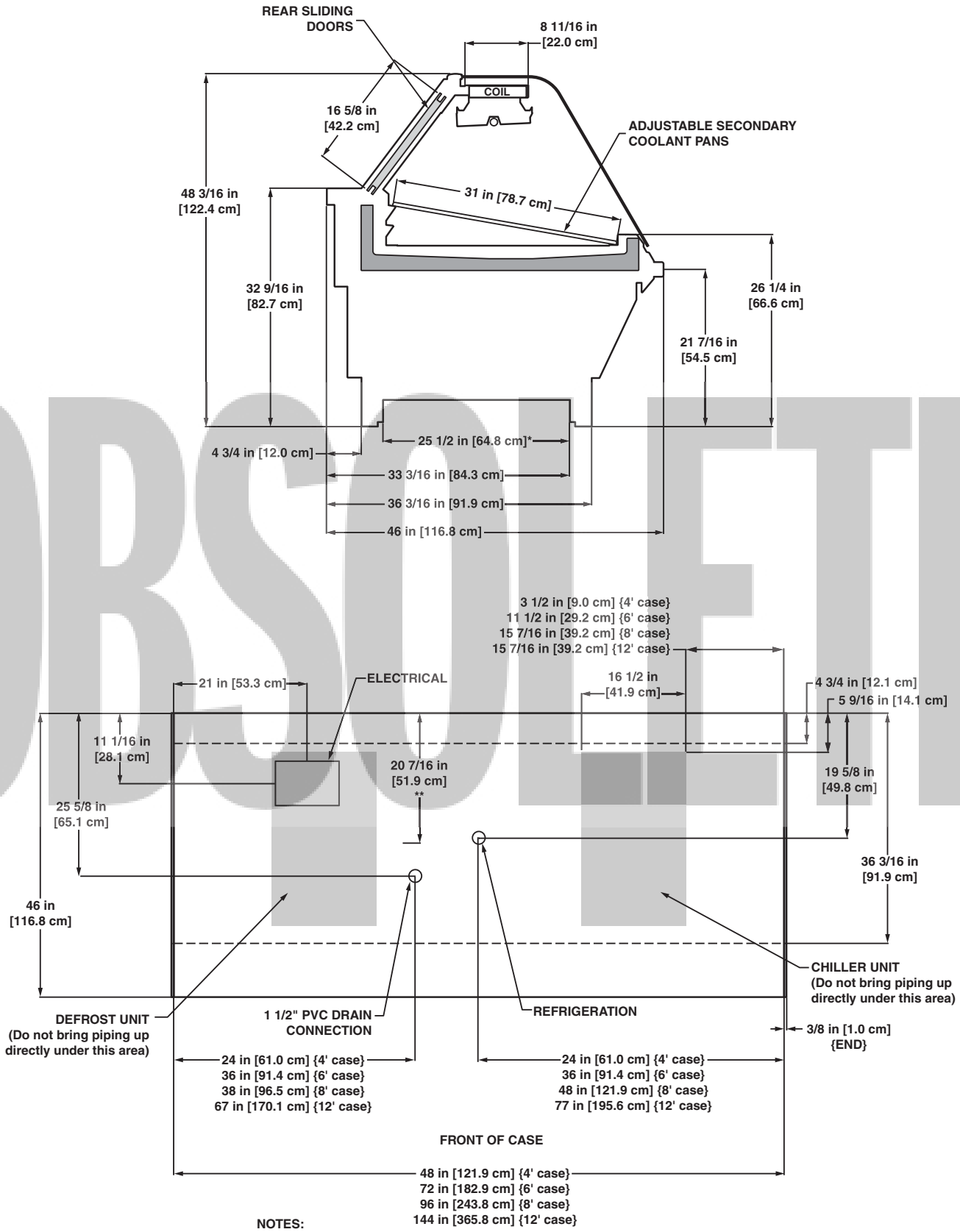
NSF COMPONENT c UL us

All measurements are taken per CRMA specifications.



NOTES:

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

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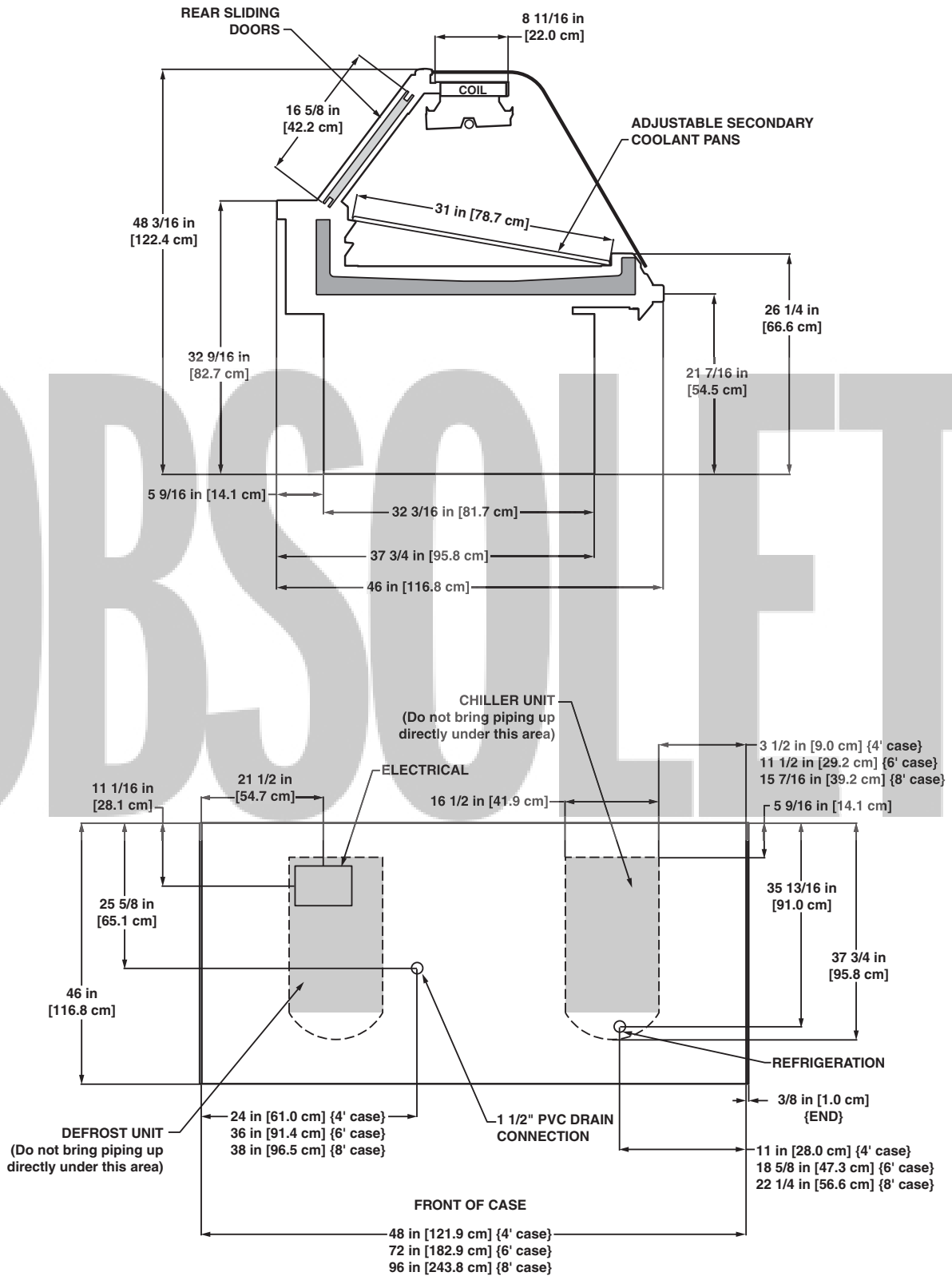
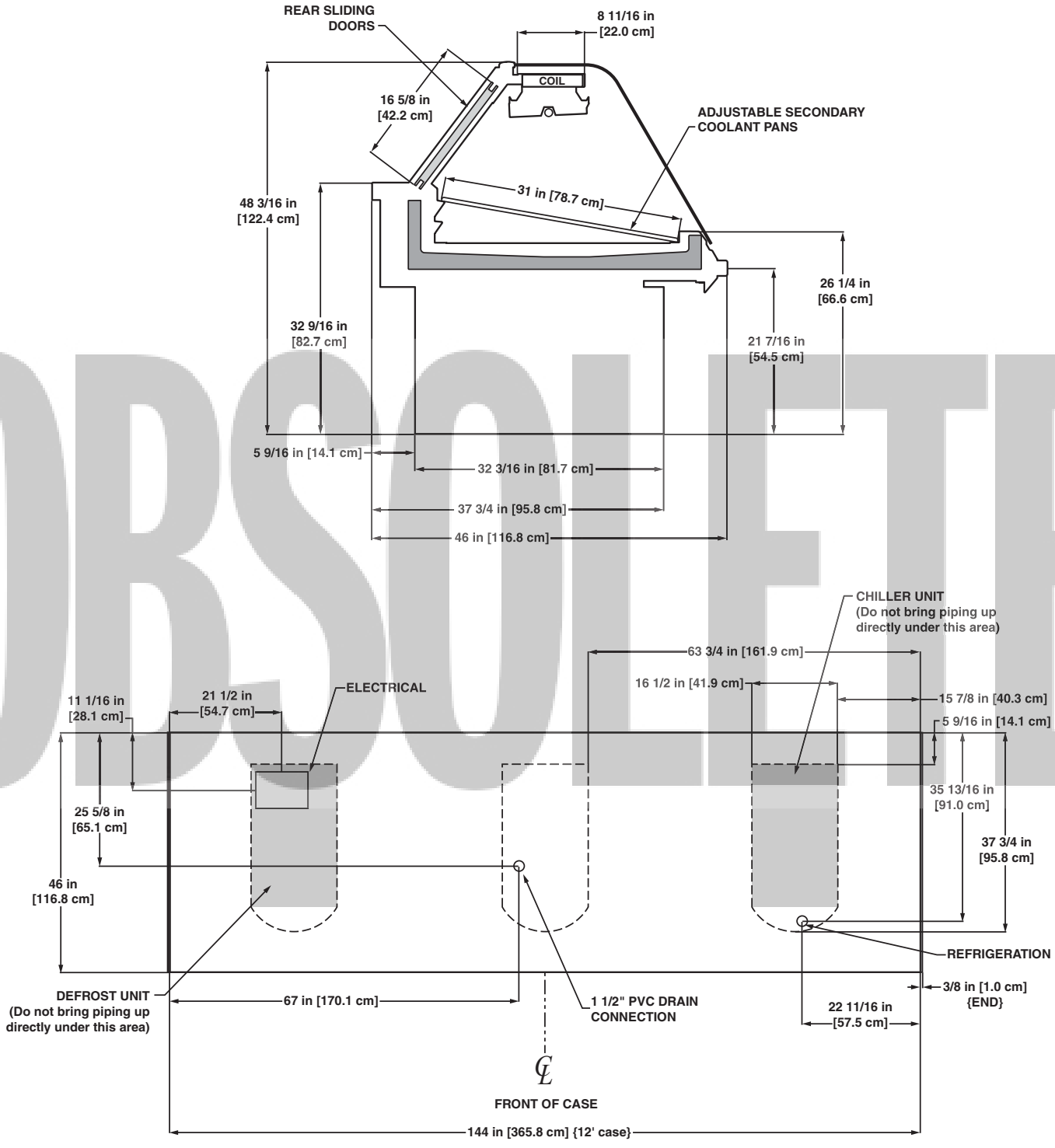

REAR SLIDING DOORS
8 11/16 in [22.0 cm]
COIL
16 5/8 in [42.2 cm]
ADJUSTABLE SECONDARY COOLANT PANS
31 in [78.7 cm]
48 3/16 in [122.4 cm]
26 1/4 in [66.6 cm]
32 9/16 in [82.7 cm]
21 7/16 in [54.5 cm]
5 9/16 in [14.1 cm]
32 3/16 in [81.7 cm]
37 3/4 in [95.8 cm]
46 in [116.8 cm]
CHILLER UNIT
(Do not bring piping up directly under this area)
3 1/2 in [9.0 cm] {4' case}
11 1/2 in [29.2 cm] {6' case}
15 7/16 in [39.2 cm] {8' case}
ELECTRICAL
11 1/16 in [28.1 cm]
21 1/2 in [54.7 cm]
16 1/2 in [41.9 cm]
5 9/16 in [14.1 cm]
35 13/16 in [91.0 cm]
25 5/8 in [65.1 cm]
37 3/4 in [95.8 cm]
46 in [116.8 cm]
REFRIGERATION
3/8 in [1.0 cm] {END}
DEFROST UNIT
(Do not bring piping up directly under this area)
24 in [61.0 cm] {4' case}
36 in [91.4 cm] {6' case}
38 in [96.5 cm] {8' case}
1 1/2" PVC DRAIN CONNECTION
11 in [28.0 cm] {4' case}
18 5/8 in [47.3 cm] {6' case}
22 1/4 in [56.6 cm] {8' case}
FRONT OF CASE
48 in [121.9 cm] {4' case}
72 in [182.9 cm] {6' case}
96 in [243.8 cm] {8' case}

OBSOLETE

OBSOLETE


REAR SLIDING DOORS
8 11/16 in [22.0 cm]
COIL
16 5/8 in [42.2 cm]
ADJUSTABLE SECONDARY COOLANT PANS
31 in [78.7 cm]
48 3/16 in [122.4 cm]
26 1/4 in [66.6 cm]
32 9/16 in [82.7 cm]
21 7/16 in [54.5 cm]
5 9/16 in [14.1 cm]
32 3/16 in [81.7 cm]
37 3/4 in [95.8 cm]
46 in [116.8 cm]
CHILLER UNIT (Do not bring piping up directly under this area)
63 3/4 in [161.9 cm]
16 1/2 in [41.9 cm]
15 7/8 in [40.3 cm]
5 9/16 in [14.1 cm]
11 1/16 in [28.1 cm]
21 1/2 in [54.7 cm]
ELECTRICAL
35 13/16 in [91.0 cm]
25 5/8 in [65.1 cm]
37 3/4 in [95.8 cm]
46 in [116.8 cm]
REFRIGERATION
3/8 in [1.0 cm] {END}
DEFROST UNIT (Do not bring piping up directly under this area)
67 in [170.1 cm]
1 1/2" PVC DRAIN CONNECTION
22 11/16 in [57.5 cm]
FRONT OF CASE
144 in [365.8 cm] {12' case}

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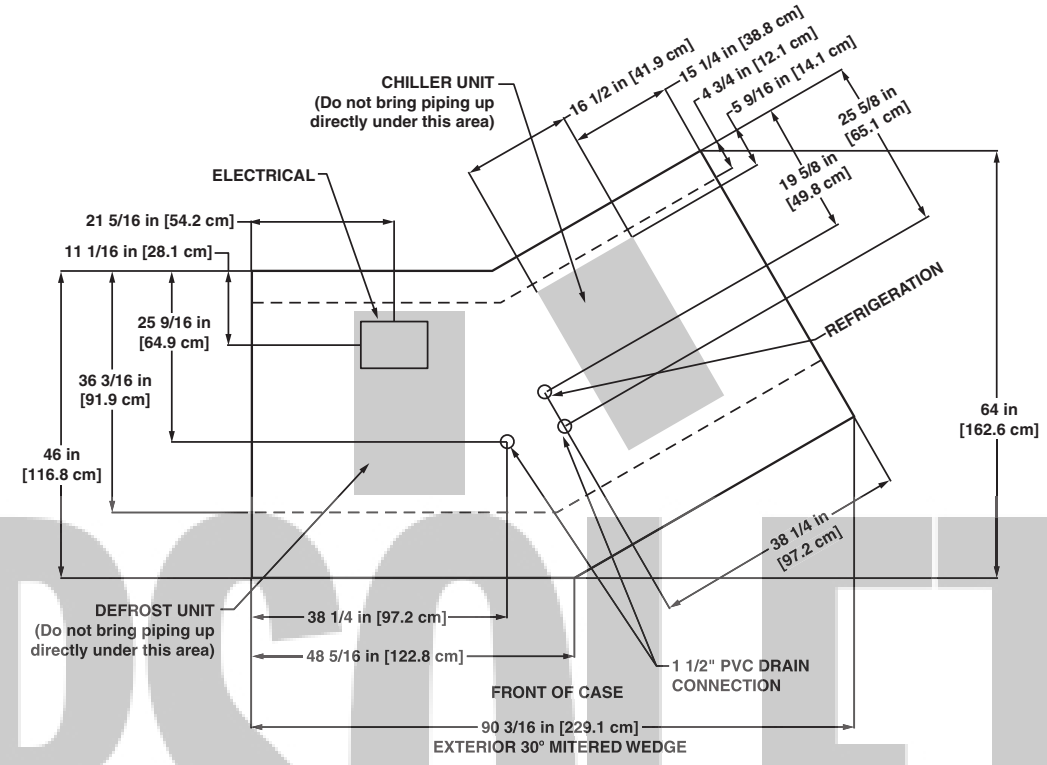
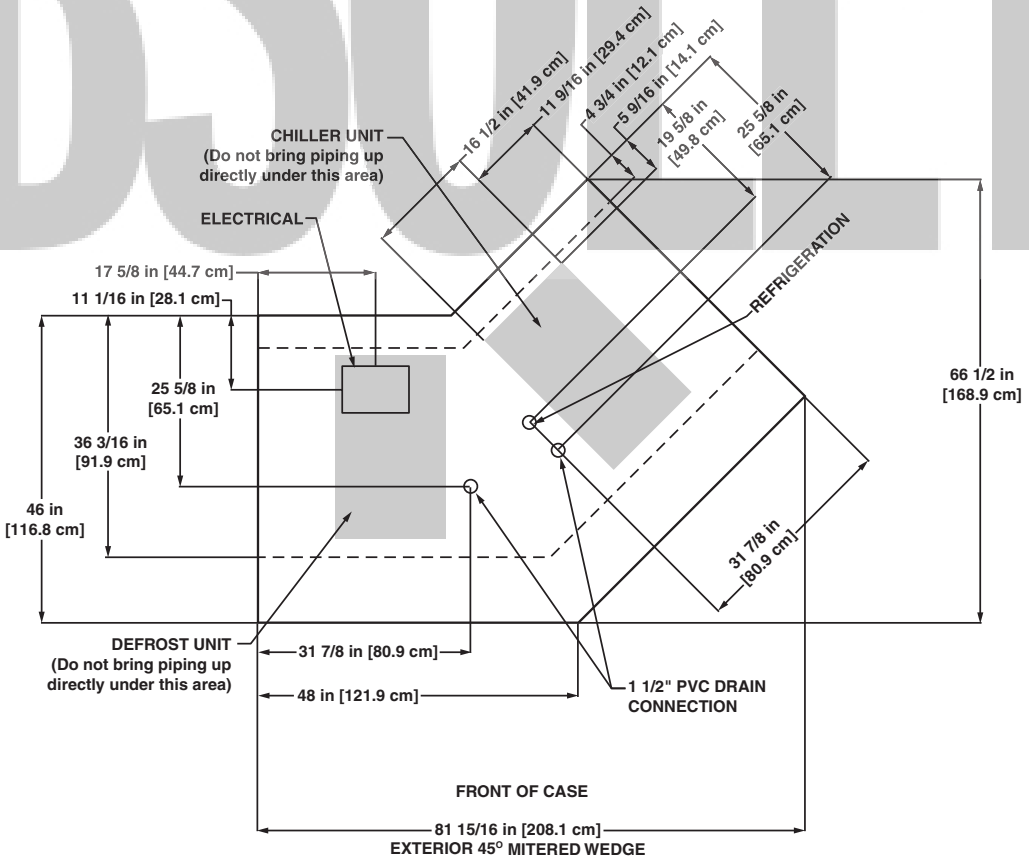

CHILLER UNIT
(Do not bring piping up
directly under this area)
16 1/2 in [41.9 cm]
15 1/4 in [38.8 cm]
4 3/4 in [12.1 cm]
5 9/16 in [14.1 cm]
25 5/8 in
[65.1 cm]
19 5/8 in
[49.8 cm]
ELECTRICAL
21 5/16 in [54.2 cm]
11 1/16 in [28.1 cm]
25 9/16 in
[64.9 cm]
36 3/16 in
[91.9 cm]
46 in
[116.8 cm]
REFRIGERATION
64 in
[162.6 cm]
38 1/4 in
[97.2 cm]
DEFROST UNIT
(Do not bring piping up
directly under this area)
38 1/4 in [97.2 cm]
48 5/16 in [122.8 cm]
1 1/2" PVC DRAIN
CONNECTION
FRONT OF CASE
90 3/16 in [229.1 cm]
EXTERIOR 30° MITERED WEDGE


CHILLER UNIT
(Do not bring piping up
directly under this area)
16 1/2 in [41.9 cm]
11 9/16 in [29.4 cm]
4 3/4 in [12.1 cm]
5 9/16 in [14.1 cm]
19 5/8 in
[49.8 cm]
25 5/8 in
[65.1 cm]
ELECTRICAL
17 5/8 in [44.7 cm]
11 1/16 in [28.1 cm]
25 5/8 in
[65.1 cm]
36 3/16 in
[91.9 cm]
46 in
[116.8 cm]
REFRIGERATION
66 1/2 in
[168.9 cm]
31 7/8 in
[80.9 cm]
DEFROST UNIT
(Do not bring piping up
directly under this area)
31 7/8 in [80.9 cm]
48 in [121.9 cm]
1 1/2" PVC DRAIN
CONNECTION
FRONT OF CASE
81 15/16 in [208.1 cm]
EXTERIOR 45° MITERED WEDGE

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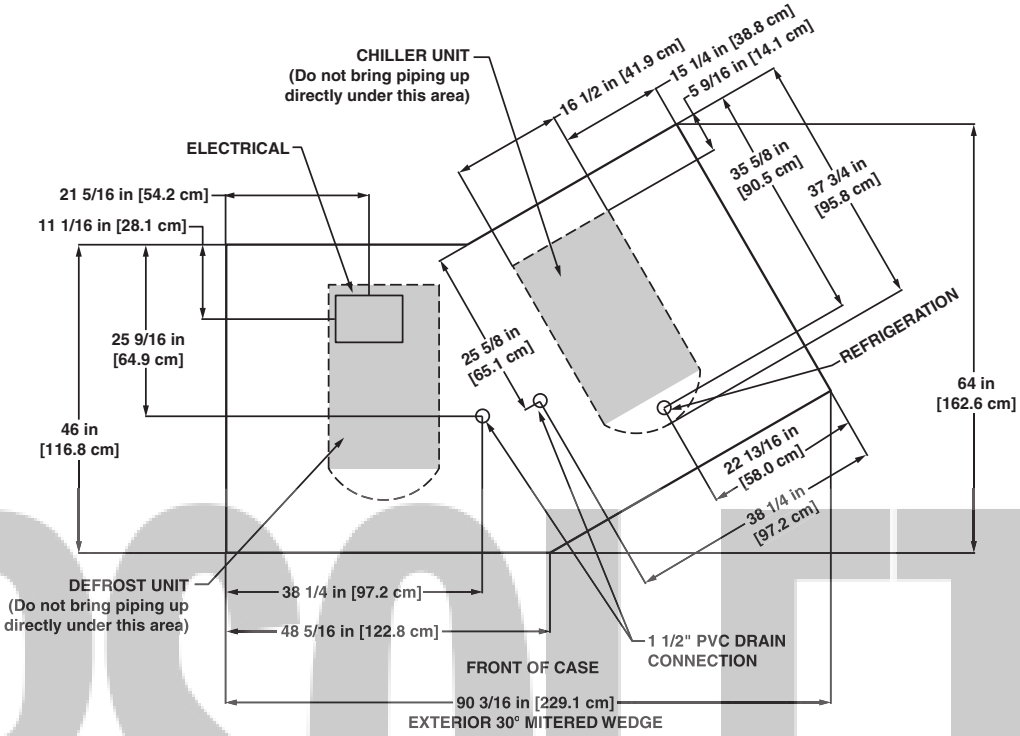
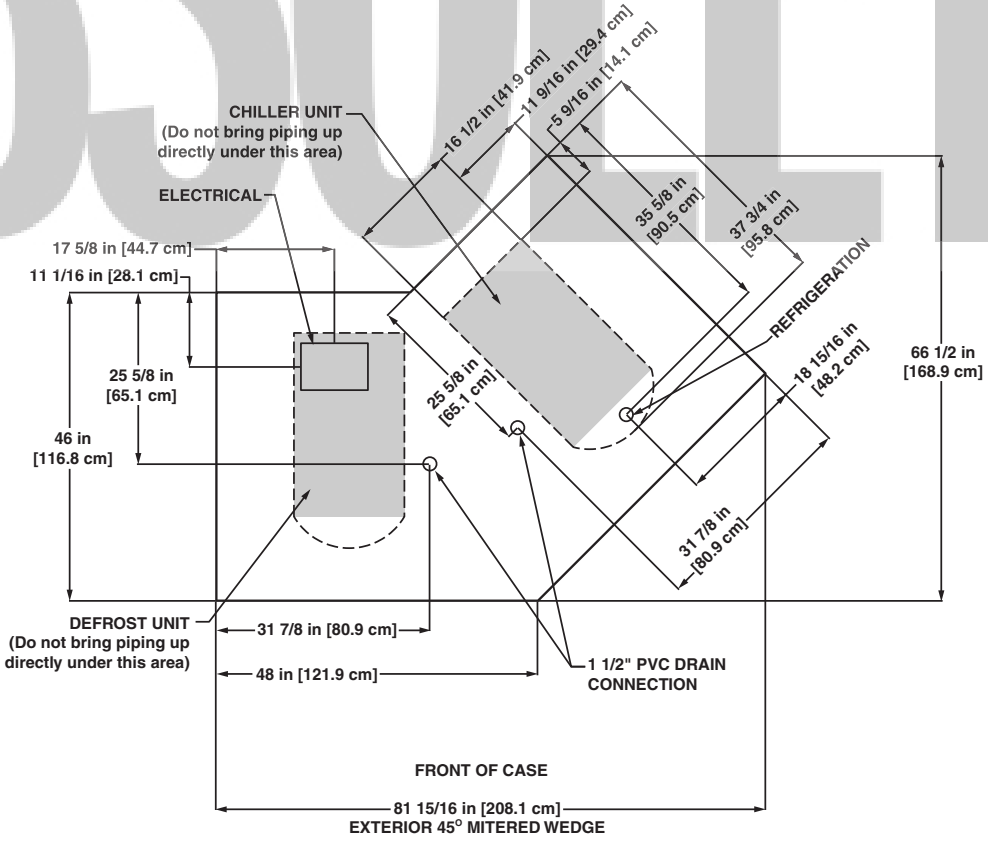

CHILLER UNIT
(Do not bring piping up
directly under this area)
ELECTRICAL
16 1/2 in [41.9 cm]
15 1/4 in [38.8 cm]
5 9/16 in [14.1 cm]
35 5/8 in
[90.5 cm]
37 3/4 in
[95.8 cm]
21 5/16 in [54.2 cm]
11 1/16 in [28.1 cm]
25 9/16 in
[64.9 cm]
25 5/8 in
[65.1 cm]
REFRIGERATION
64 in
[162.6 cm]
46 in
[116.8 cm]
22 13/16 in
[58.0 cm]
38 1/4 in
[97.2 cm]
DEFROST UNIT
(Do not bring piping up
directly under this area)
38 1/4 in [97.2 cm]
48 5/16 in [122.8 cm]
1 1/2" PVC DRAIN
CONNECTION
FRONT OF CASE
90 3/16 in [229.1 cm]
EXTERIOR 30° MITERED WEDGE


CHILLER UNIT
(Do not bring piping up
directly under this area)
ELECTRICAL
16 1/2 in [41.9 cm]
11 9/16 in [29.4 cm]
5 9/16 in [14.1 cm]
35 5/8 in
[90.5 cm]
37 3/4 in
[95.8 cm]
17 5/8 in [44.7 cm]
11 1/16 in [28.1 cm]
REFRIGERATION
25 5/8 in
[65.1 cm]
25 5/8 in
[65.1 cm]
18 15/16 in
[48.2 cm]
66 1/2 in
[168.9 cm]
46 in
[116.8 cm]
31 7/8 in
[80.9 cm]
DEFROST UNIT
(Do not bring piping up
directly under this area)
31 7/8 in [80.9 cm]
48 in [121.9 cm]
1 1/2" PVC DRAIN
CONNECTION
FRONT OF CASE
81 15/16 in [208.1 cm]
EXTERIOR 45° MITERED WEDGE

Secondary Coolant Flat Glass Gravity Coil Meat Merchandiser

PSGF - 4', 6', 8', 12', I45 & E90

Electrical Data

Model		Air Defrost[1] Fan / Coil		Secondary[1] Coolant Pump		Anti-Condensate Heaters	
		115 Volts		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts
PSGF	4'	2.10	242	1.40	168	0.55	66
	6'	2.10	242	1.40	168	1.03	124
	8'	2.10	242	1.40	168	1.03	124
	12'	2.10	242	1.40	168	1.60	192
	I45	210	242	1.40	168	1.03	124
	E90	2.10	242	1.40	168	1.60	192

[1] Air defrost fan and secondary coolant pump are only applicable to the semi-self-contained version.

Guidelines & Control Settings - Remote

Model	BTUH/ft	Supply Temp. (°F)	Flow Rate GPM/ft	Charge GAL
PSGF-4'	400	20	0.38	2
PSGF-6'	400	20	0.38	3
PSGF-8'	400	20	0.38	4
PSGF-12'	400	20	0.38	6
PSGF-I45	400	20	0.38	4
PSGF-E90	400	20	0.38	6

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row		Maximum Lighting	
				120 Volts		120 Volts	
				Amps	Watts	Amps	Watts
PSGF	4'	1	4'	0.23	28	0.23	28
	6'	2	3'	0.37	44	0.37	44
	8'	2	4'	0.47	56	0.47	56
	12'	3	4'	0.70	84	0.70	84
	I45	2	3'	0.37	44	0.37	44
	E90	3	3'	0.55	66	0.55	66

Guidelines & Control Settings - Semi-Self-Contained

Model	BTUH/ft[2]	Supply Temp. (°F)	Saturated Suction Temp. (°F)	Flow Rate GPM/ft	Charge GAL
PSGF-4'	480	20	15	0.38	3
PSGF-6'	480	20	15	0.38	4
PSGF-8'	480	20	15	0.38	5
PSGF-12'	480	20	15	0.38	7
PSGF-I45	480	20	15	0.38	5
PSGF-E90	480	20	15	0.38	7

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

Defrost Controls

Model	Top Coil Defrosts Per Day	Pan Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed Off Defrost		Warm Fluid		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)
PSGF - SSC	24	2	1 - 5	- - -[4]	- - -	- - -	- - -	7	45	- - -	- - -
PSGF - Remote	4-6[3]	2	1 - 5	- - -	- - -	- - -	- - -	7	45	- - -	- - -

[3] Dependent on condition of secondary coolant supplied to case. Cooler liquid and higher inlet pressure require more frequent defrosts.

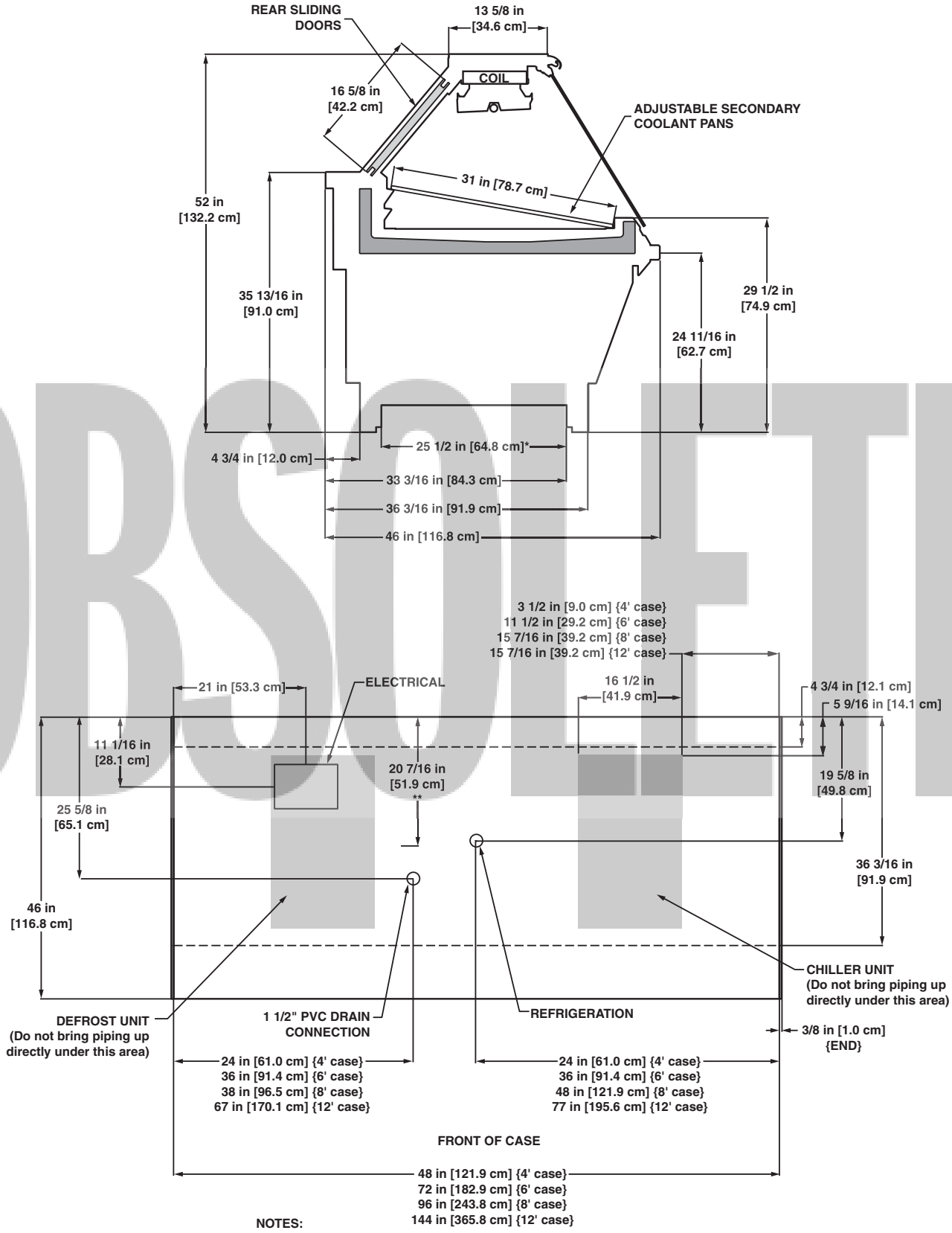
[4] NOTE: - - - not an option on this case model.

Hill PHOENIX EXCELLENCE

NSF COMPONENT c UL us

A DOVER COMPANY

All measurements are taken per CRMA specifications.



NOTES:

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

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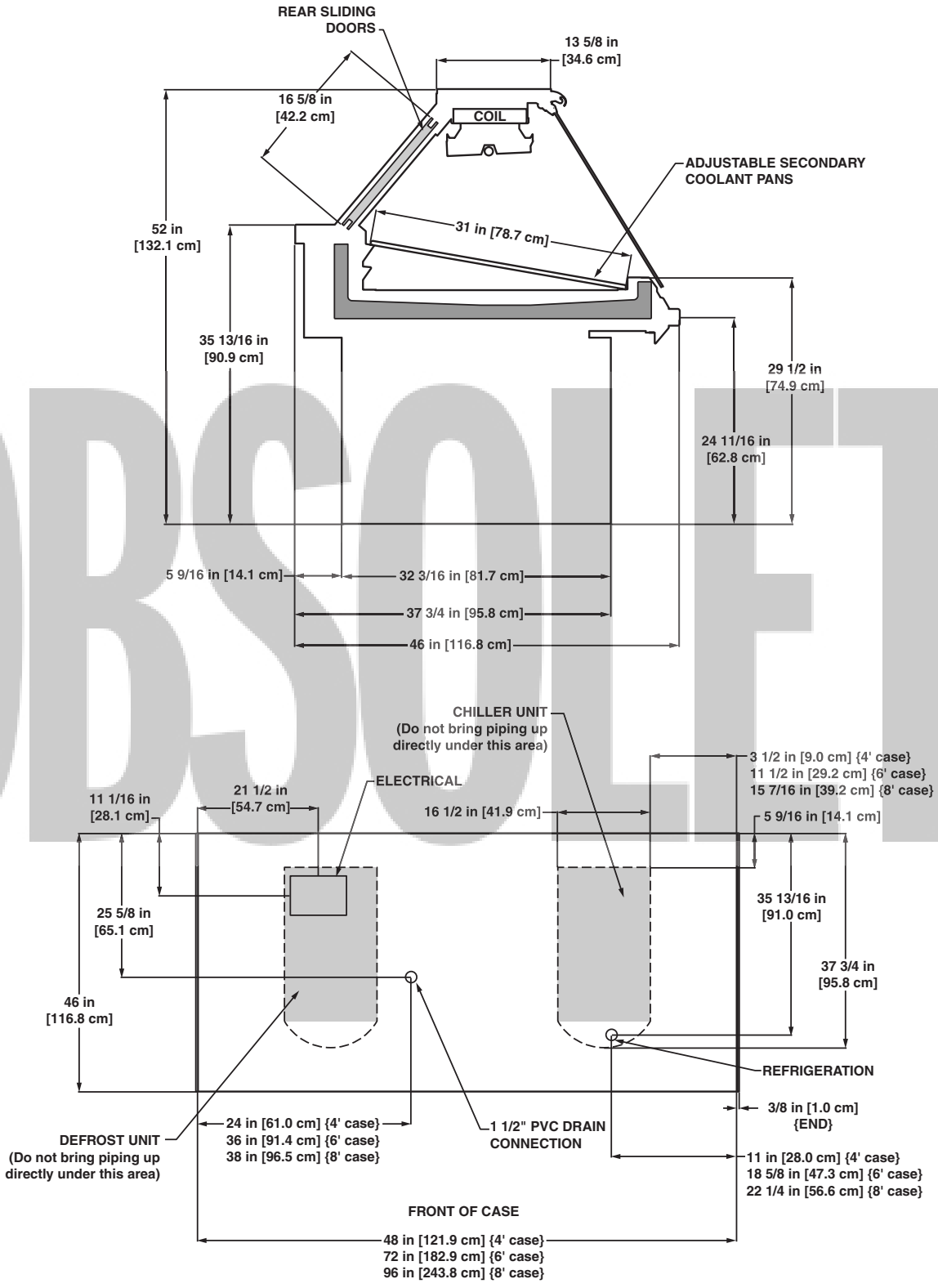
REAR SLIDING DOORS
13 5/8 in [34.6 cm]
16 5/8 in [42.2 cm]
COIL
ADJUSTABLE SECONDARY COOLANT PANS
31 in [78.7 cm]
52 in [132.1 cm]
35 13/16 in [90.9 cm]
29 1/2 in [74.9 cm]
24 11/16 in [62.8 cm]
5 9/16 in [14.1 cm]
32 3/16 in [81.7 cm]
37 3/4 in [95.8 cm]
46 in [116.8 cm]
CHILLER UNIT (Do not bring piping up directly under this area)
3 1/2 in [9.0 cm] {4' case}
11 1/2 in [29.2 cm] {6' case}
15 7/16 in [39.2 cm] {8' case}
ELECTRICAL
11 1/16 in [28.1 cm]
21 1/2 in [54.7 cm]
16 1/2 in [41.9 cm]
5 9/16 in [14.1 cm]
35 13/16 in [91.0 cm]
25 5/8 in [65.1 cm]
37 3/4 in [95.8 cm]
46 in [116.8 cm]
REFRIGERATION
3/8 in [1.0 cm] {END}
DEFROST UNIT (Do not bring piping up directly under this area)
24 in [61.0 cm] {4' case}
36 in [91.4 cm] {6' case}
38 in [96.5 cm] {8' case}
1 1/2" PVC DRAIN CONNECTION
11 in [28.0 cm] {4' case}
18 5/8 in [47.3 cm] {6' case}
22 1/4 in [56.6 cm] {8' case}
FRONT OF CASE
48 in [121.9 cm] {4' case}
72 in [182.9 cm] {6' case}
96 in [243.8 cm] {8' case}

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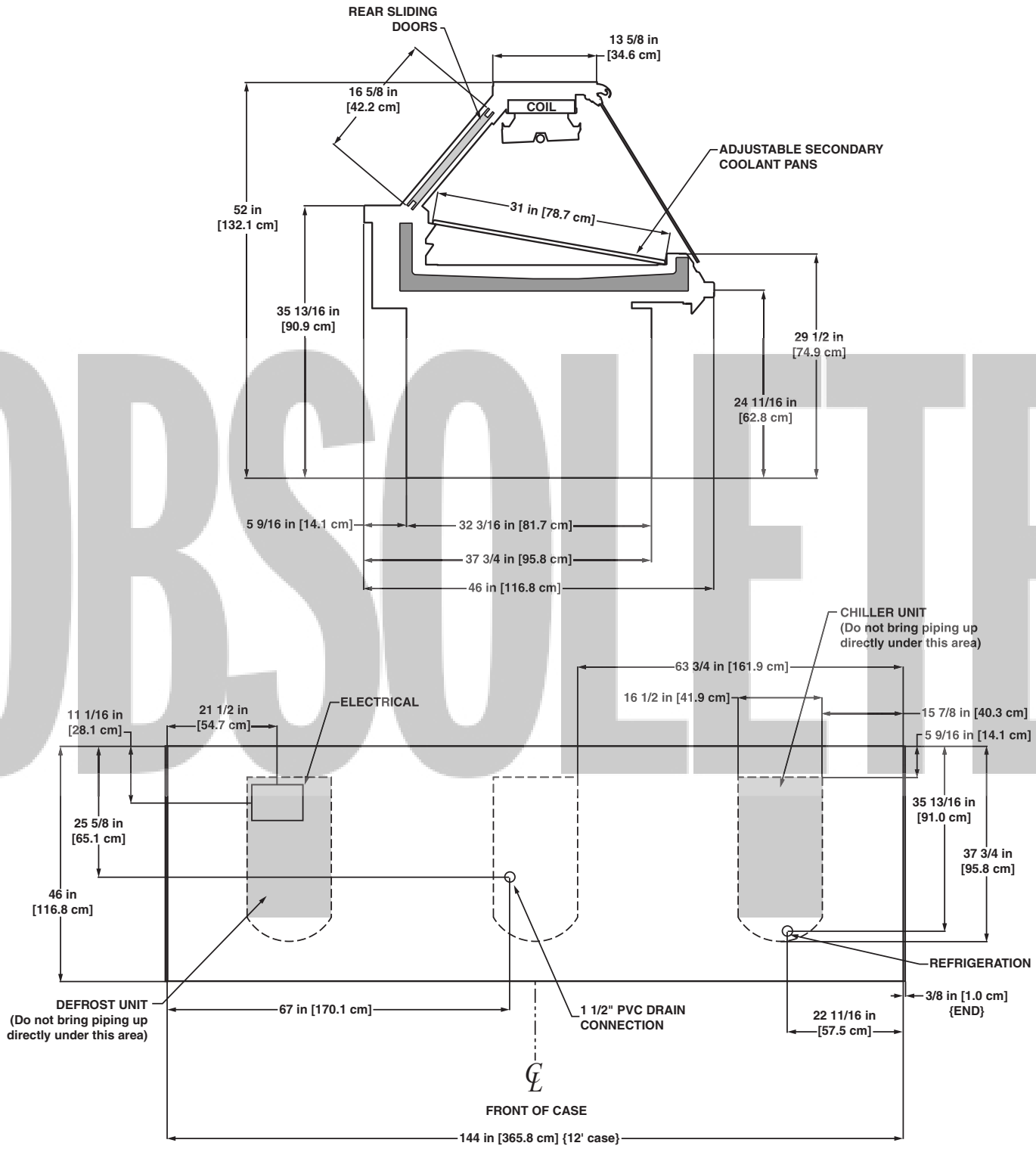
REAR SLIDING DOORS
13 5/8 in [34.6 cm]
16 5/8 in [42.2 cm]
COIL
ADJUSTABLE SECONDARY COOLANT PANS
31 in [78.7 cm]
52 in [132.1 cm]
35 13/16 in [90.9 cm]
29 1/2 in [74.9 cm]
24 11/16 in [62.8 cm]
5 9/16 in [14.1 cm]
32 3/16 in [81.7 cm]
37 3/4 in [95.8 cm]
46 in [116.8 cm]
CHILLER UNIT (Do not bring piping up directly under this area)
63 3/4 in [161.9 cm]
16 1/2 in [41.9 cm]
15 7/8 in [40.3 cm]
5 9/16 in [14.1 cm]
ELECTRICAL
11 1/16 in [28.1 cm]
21 1/2 in [54.7 cm]
35 13/16 in [91.0 cm]
25 5/8 in [65.1 cm]
37 3/4 in [95.8 cm]
46 in [116.8 cm]
REFRIGERATION
3/8 in [1.0 cm] {END}
DEFROST UNIT (Do not bring piping up directly under this area)
67 in [170.1 cm]
1 1/2" PVC DRAIN CONNECTION
22 11/16 in [57.5 cm]
FRONT OF CASE
144 in [365.8 cm] {12' case}

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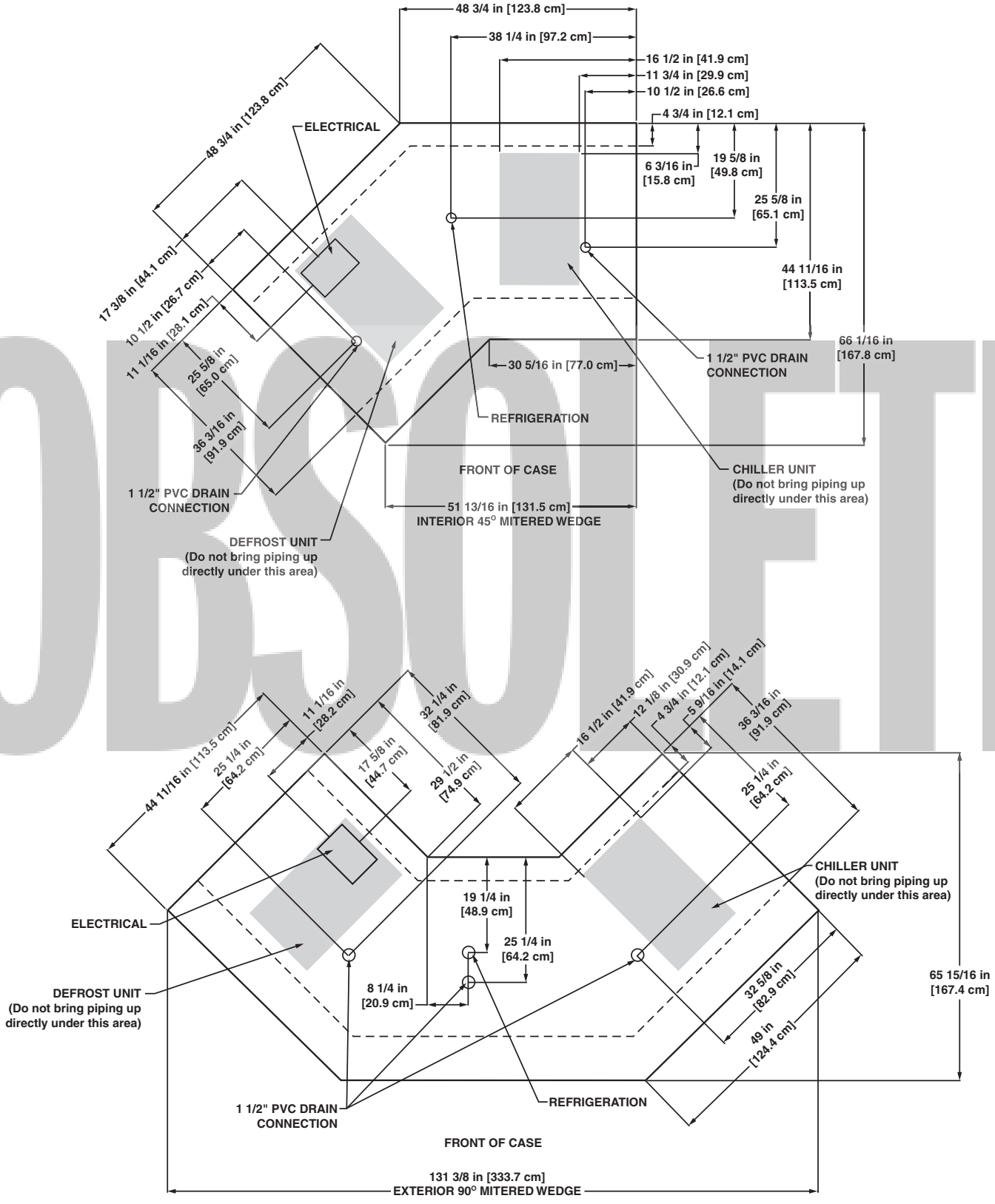
48 3/4 in [123.8 cm]
38 1/4 in [97.2 cm]
16 1/2 in [41.9 cm]
11 3/4 in [29.9 cm]
10 1/2 in [26.6 cm]
4 3/4 in [12.1 cm]
48 3/4 in [123.8 cm]
ELECTRICAL
6 3/16 in [15.8 cm]
19 5/8 in [49.8 cm]
25 5/8 in [65.1 cm]
44 11/16 in [113.5 cm]
66 1/16 in [167.8 cm]
17 3/8 in [44.1 cm]
10 1/2 in [26.7 cm]
11 1/16 in [28.1 cm]
25 5/8 in [65.0 cm]
36 3/16 in [91.9 cm]
30 5/16 in [77.0 cm]
1 1/2" PVC DRAIN CONNECTION
REFRIGERATION
FRONT OF CASE
CHILLER UNIT (Do not bring piping up directly under this area)
1 1/2" PVC DRAIN CONNECTION
51 13/16 in [131.5 cm]
INTERIOR 45° MITERED WEDGE
DEFROST UNIT (Do not bring piping up directly under this area)
44 11/16 in [113.5 cm]
25 1/4 in [64.2 cm]
11 1/16 in [28.2 cm]
17 5/8 in [44.7 cm]
32 1/4 in [81.9 cm]
29 1/2 in [74.9 cm]
16 1/2 in [41.9 cm]
12 1/8 in [30.9 cm]
4 3/4 in [12.1 cm]
5 9/16 in [14.1 cm]
36 3/16 in [91.9 cm]
25 1/4 in [64.2 cm]
CHILLER UNIT (Do not bring piping up directly under this area)
ELECTRICAL
19 1/4 in [48.9 cm]
25 1/4 in [64.2 cm]
8 1/4 in [20.9 cm]
DEFROST UNIT (Do not bring piping up directly under this area)
32 5/8 in [82.9 cm]
49 in [124.4 cm]
65 15/16 in [167.4 cm]
1 1/2" PVC DRAIN CONNECTION
REFRIGERATION
FRONT OF CASE
131 3/8 in [333.7 cm]
EXTERIOR 90° MITERED WEDGE

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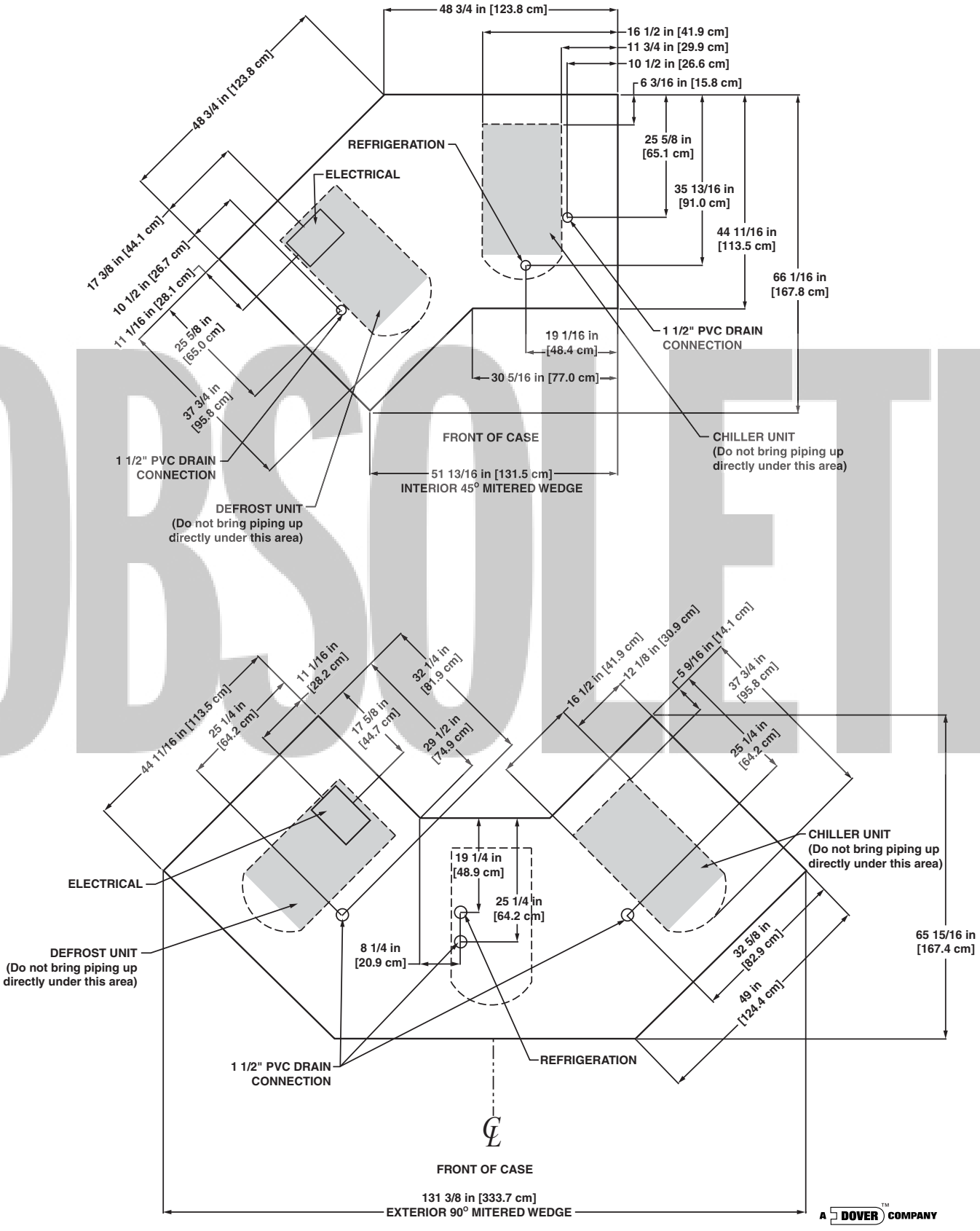

48 3/4 in [123.8 cm]
16 1/2 in [41.9 cm]
11 3/4 in [29.9 cm]
10 1/2 in [26.6 cm]
6 3/16 in [15.8 cm]
48 3/4 in [123.8 cm]
REFRIGERATION
ELECTRICAL
25 5/8 in [65.1 cm]
35 13/16 in [91.0 cm]
44 11/16 in [113.5 cm]
66 1/16 in [167.8 cm]
17 3/8 in [44.1 cm]
10 1/2 in [26.7 cm]
11 1/16 in [28.1 cm]
25 5/8 in [65.0 cm]
37 3/4 in [95.8 cm]
19 1/16 in [48.4 cm]
1 1/2" PVC DRAIN CONNECTION
30 5/16 in [77.0 cm]
FRONT OF CASE
CHILLER UNIT (Do not bring piping up directly under this area)
1 1/2" PVC DRAIN CONNECTION
51 13/16 in [131.5 cm]
INTERIOR 45° MITERED WEDGE
DEFROST UNIT (Do not bring piping up directly under this area)
44 11/16 in [113.5 cm]
25 1/4 in [64.2 cm]
11 1/16 in [28.2 cm]
17 5/8 in [44.7 cm]
32 1/4 in [81.9 cm]
29 1/2 in [74.9 cm]
16 1/2 in [41.9 cm]
12 1/8 in [30.9 cm]
5 9/16 in [14.1 cm]
37 3/4 in [95.8 cm]
25 1/4 in [64.2 cm]
CHILLER UNIT (Do not bring piping up directly under this area)
ELECTRICAL
19 1/4 in [48.9 cm]
25 1/4 in [64.2 cm]
DEFROST UNIT (Do not bring piping up directly under this area)
8 1/4 in [20.9 cm]
32 5/8 in [82.9 cm]
49 in [124.4 cm]
65 15/16 in [167.4 cm]
1 1/2" PVC DRAIN CONNECTION
REFRIGERATION
℄
FRONT OF CASE
131 3/8 in [333.7 cm]
EXTERIOR 90° MITERED WEDGE

Flat Glass Service Seafood Merchandiser

PNSF - 2', 3', 4' & 8'
PSF - 4' & 5'

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
PNSF	2'	1	0.34	17	0.15	11	- - -[1]	- - -	- - -	- - -	- - -	- - -
	3'	1	0.34	17	0.15	11	- - -	- - -	- - -	- - -	- - -	- - -
	4'	2	0.68	34	0.30	22	- - -	- - -	- - -	- - -	- - -	- - -
	8'	3	1.02	51	0.45	33	- - -	- - -	- - -	- - -	- - -	- - -
PSF	4'	2	0.68	34	0.30	22	- - -	- - -	- - -	- - -	- - -	- - -
	5'	2	0.68	34	0.30	22	- - -	- - -	- - -	- - -	- - -	- - -

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

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
PNSF	2'	- - -	- - -	- - -	- - -	- - -	- - -
	3'	- - -	- - -	- - -	- - -	- - -	- - -
	4'	- - -	- - -	- - -	- - -	- - -	- - -
	8'	- - -	- - -	- - -	- - -	- - -	- - -
PSF	4'	- - -	- - -	- - -	- - -	- - -	- - -
	5'	- - -	- - -	- - -	- - -	- - -	- - -

OBSOLETE

Guidelines & Control Settings

Model[2]	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
PNSF	200	27	6-8	36		180
PSF	350	27	6-8	36		180

[2] Cases require an ice bed to maintain product temperatures.

[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.

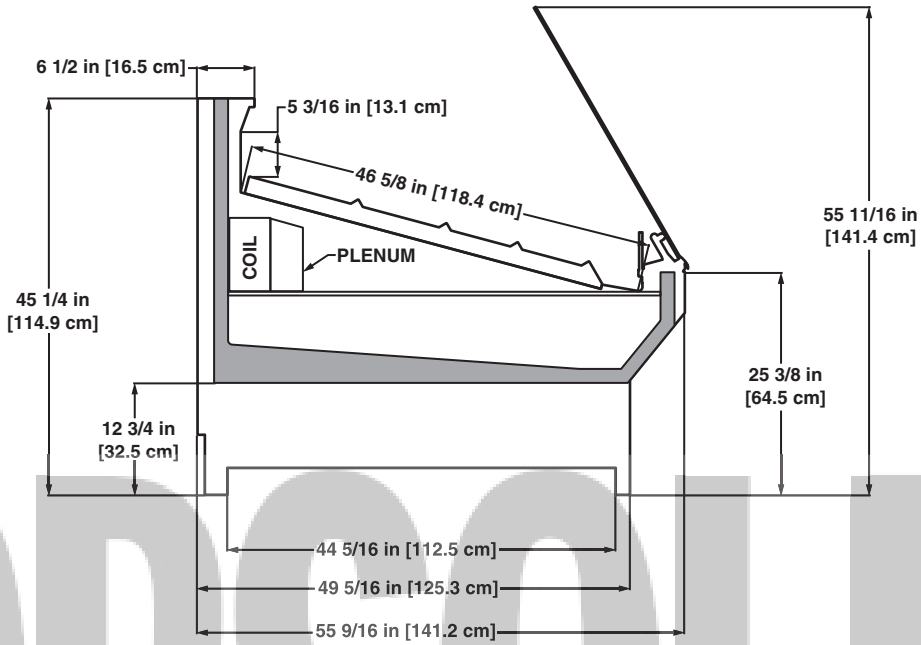
Defrost Controls

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)
PNSF	3	6 - 8	- - -[4]	- - -	45	47	- - -	- - -	- - -	- - -
PSF	3	6 - 8	- - -	- - -	45	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.



PSF

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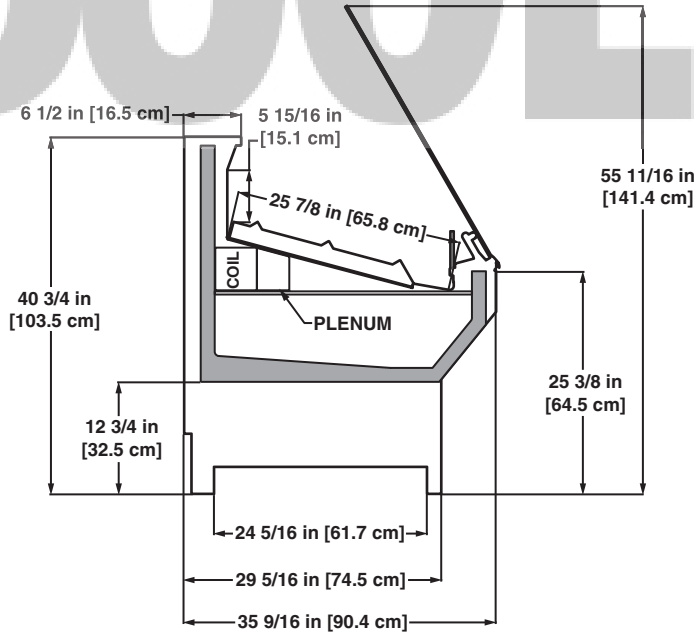
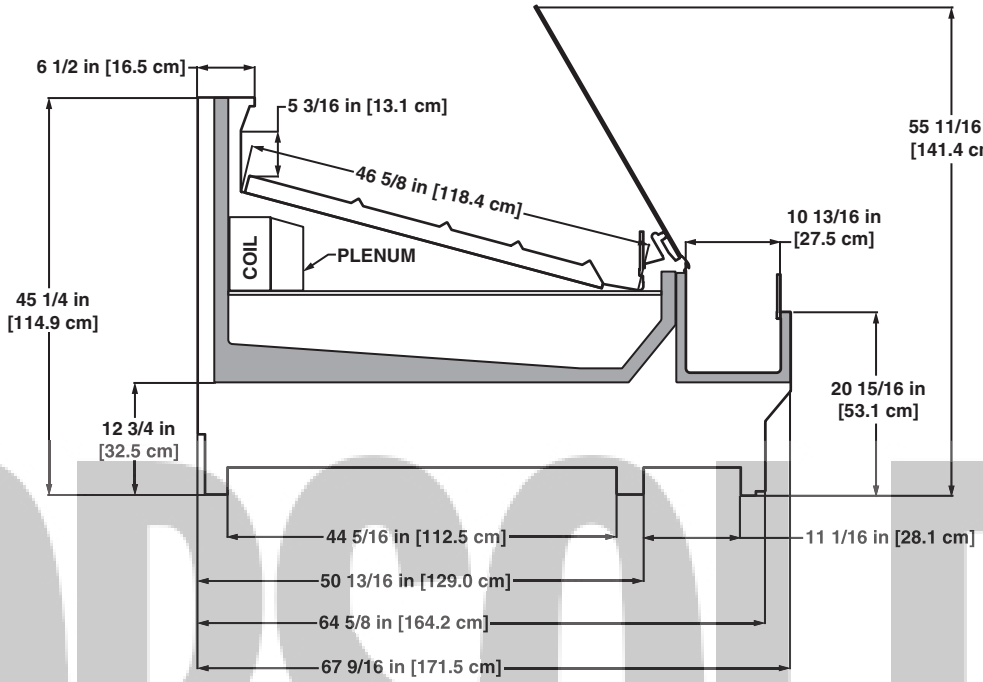


PNSF



PSF

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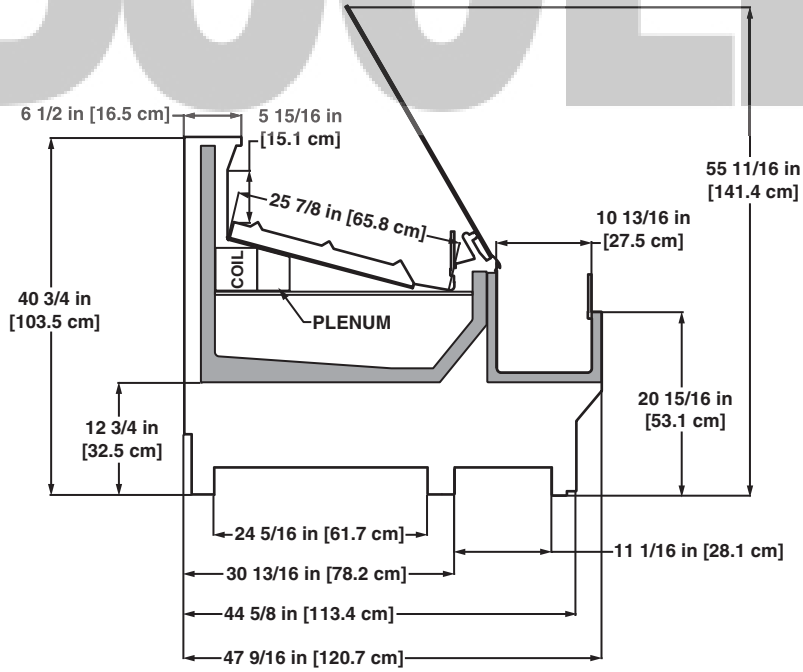
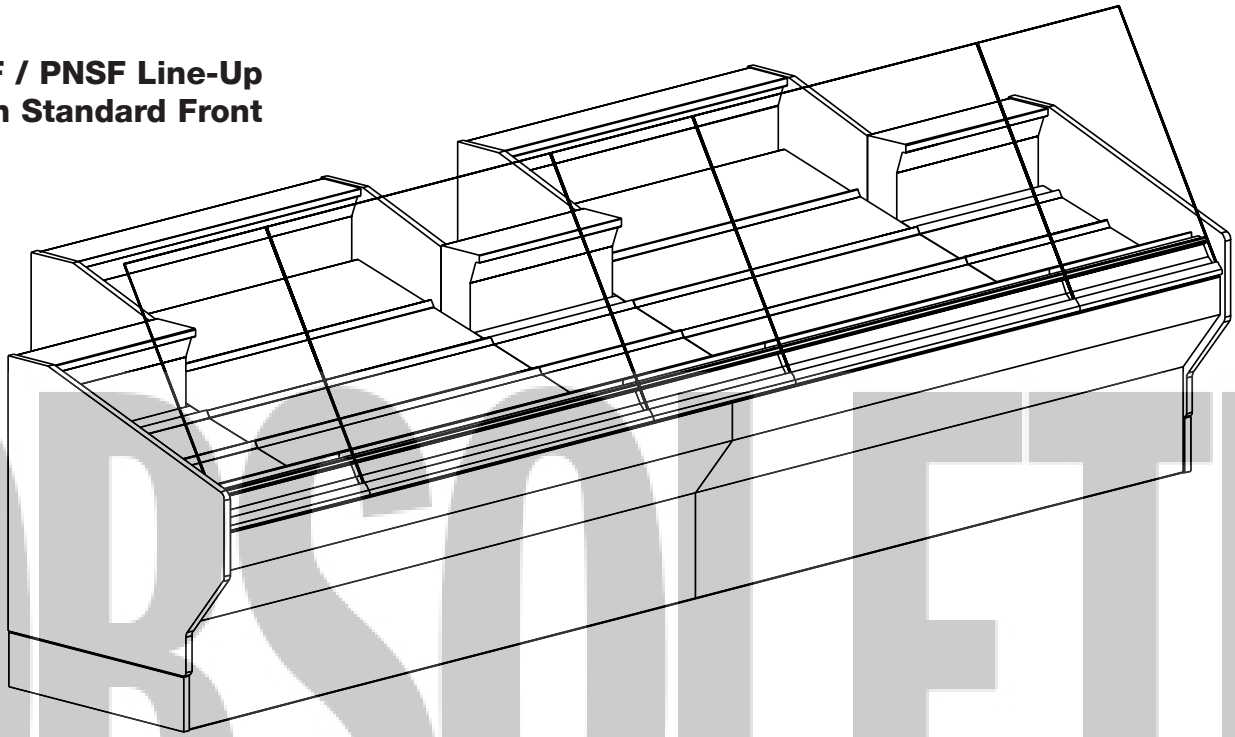


PNSF

The PSF / PNSF line-ups shown below can be custom configured to meet specific layout needs. For specific information about configuration options and floor plans contact our Richmond facility at 804-526-4455.

PSF / PNSF Line-Up with Standard Front



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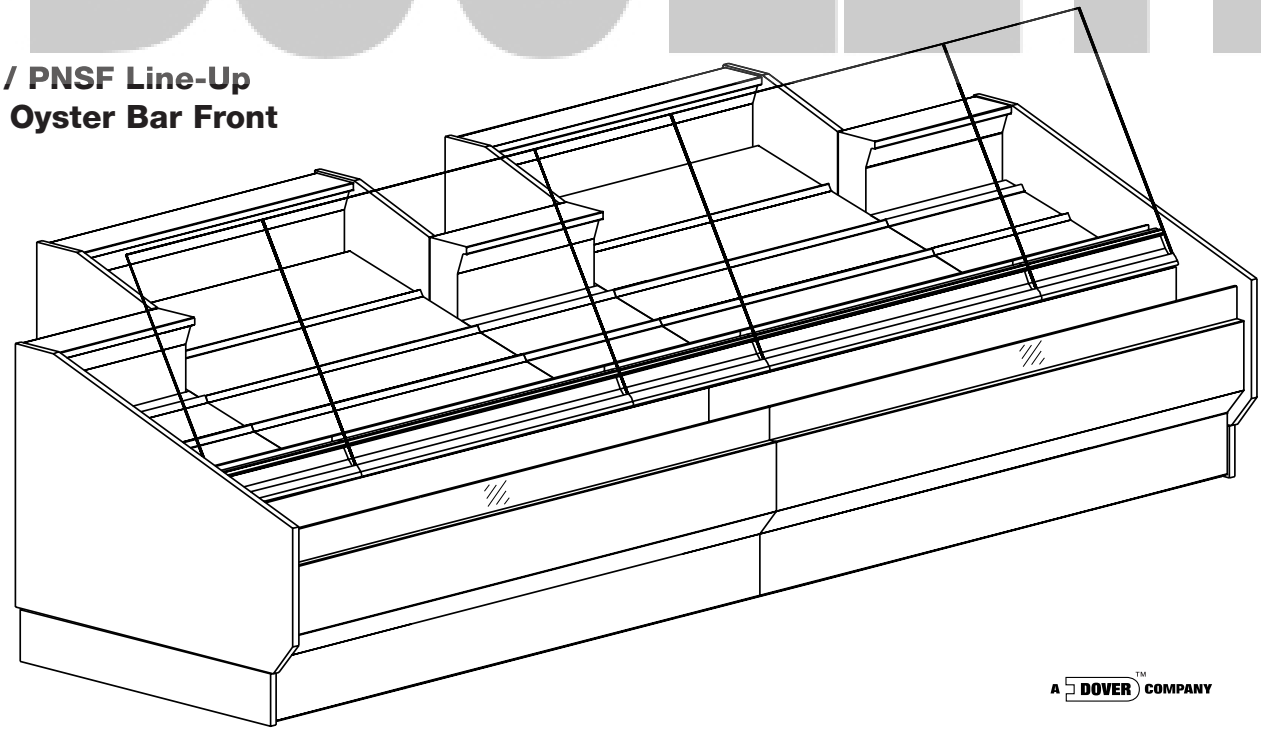
PSF / PNSF Line-Up with Oyster Bar Front



Full Service Bakery Merchandiser

OB - 4', 5', 6.5', & 8'

Electrical Data

Model		Fans per Case		Ambient Fans[1] 120 Volts		Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
		Pri.	Amb.	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OB	4'	2	2	0.30	11	0.68	34	0.30	22	1.6	192	- - -[2]	- - -	- - -	- - -
	5'	2	2	0.30	11	0.68	34	0.30	22	2.0	240	- - -	- - -	- - -	- - -
	6.5'	2	3	0.45	17	0.68	34	0.30	22	2.4	288	- - -	- - -	- - -	- - -
	8'	3	4	0.60	22	1.02	51	0.45	33	2.8	336	- - -	- - -	- - -	- - -

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

[2] 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
OB	4'	0.57	68	1.14	137
	5'	0.57	68	1.14	137
	6.5'	0.57	68	2.11	253
	8'	0.57	68	2.11	253

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[3]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OB	212	27	6-8	32	39	338

[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)
OB	3	6 - 8	- - -	- - -	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.

Hill PHOENIX EXCELLENCE

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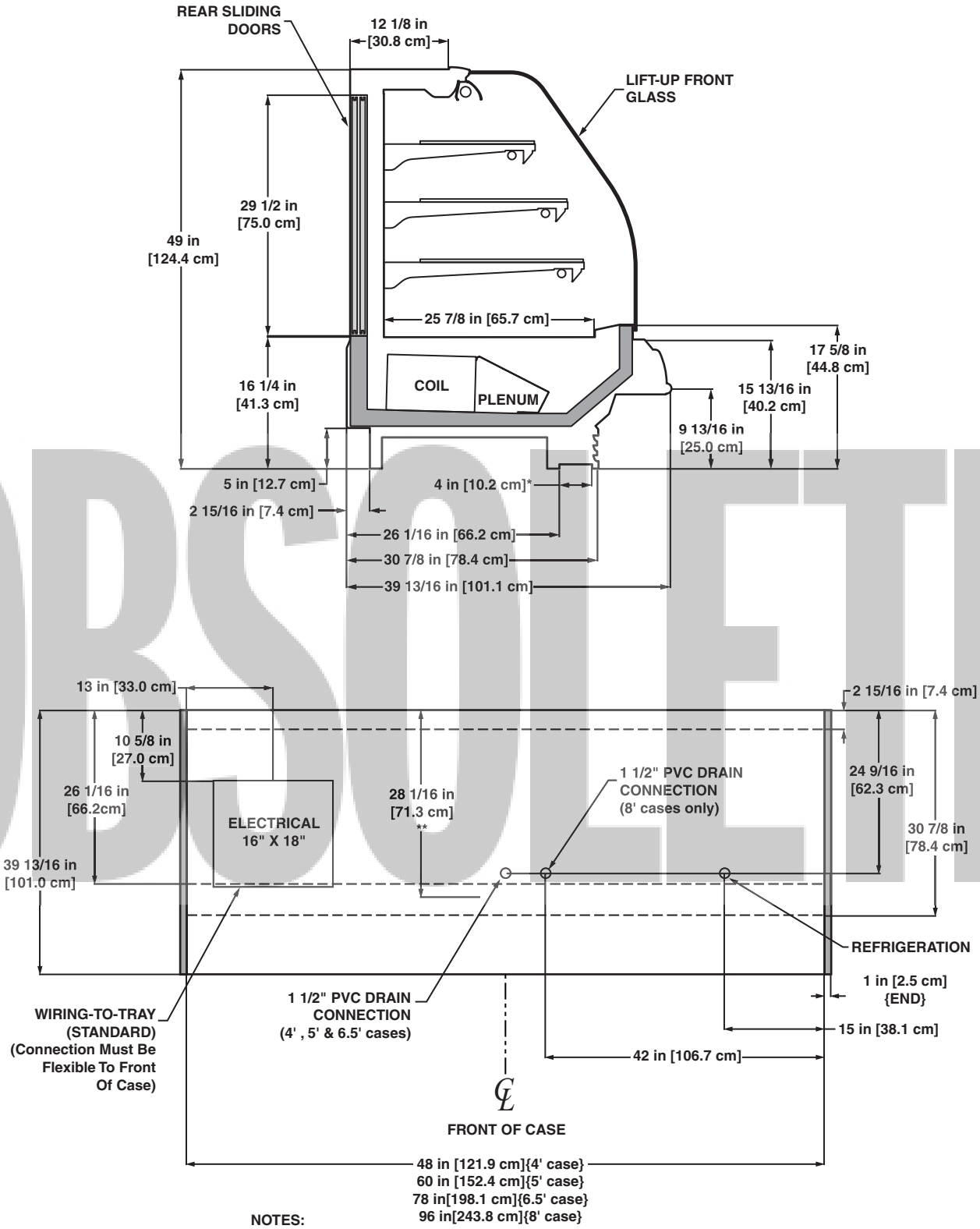

NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 14", 16", 18", 20" & 22"
- MAXIMUM OF 3 SHELVES PER CASE
- TOP SHELF CAN BE 14" OR 16" ONLY

OBSOLETE

Full Service Self-Contained Bakery Merchandiser

OBA - 4', 5', 6.5', & 8'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
OBA	4'	120	1	60	2 wire + ground	17.40	20
	5'	120	1	60	2 wire + ground	18.30	25
	6.5'	120	1	60	2 wire + ground	20.25	25
	8'	120	1	60	2 wire + ground	22.50	25

Lighting Data

Model		Typical per Light Row		Maximum Lighting	
		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts
OBA	4'	0.57	68	1.14	137
	5'	0.57	68	1.14	137
	6.5'	0.57	68	2.11	253
	8'	0.57	68	2.11	253

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OBA-4'		54-58	6-8	32	39	338
OBA-5'		54-58	6-8	32	39	338
OBA-6.5'		54-48	6-8	32	39	338
OBA-8'		54-58	6-8	32	39	338

[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.
OBA-4'	120	1	60	1/4	8	34.6	404A	3.1
OBA-5'	120	1	60	1/2	12.9	66.3	404A	3.6
OBA-6.5'	120	1	60	1/2	12.9	66.3	404A	3.6
OBA-8'	120	1	60	3/4	10.9	85.5	404A	3.75

[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)
OBA	4	- - - [4]	- - -	40	49	- - -	- - -	- - -	- - -

[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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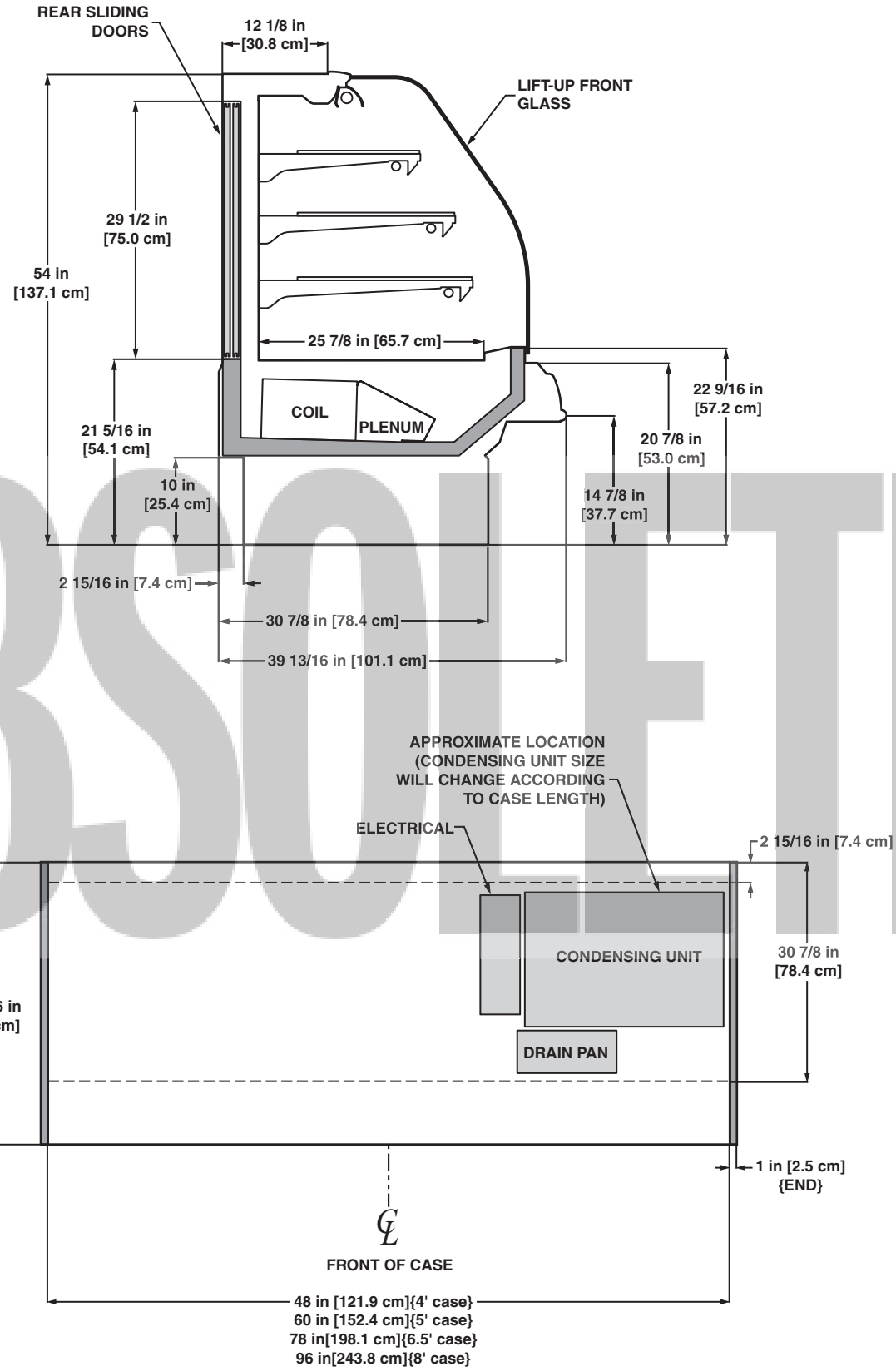


OBSOLETE

NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 14", 16", 18", 20" & 22"
- MAXIMUM OF 3 SHELVES PER CASE
- TOP SHELF CAN BE 14" OR 16" ONLY

Full Service Dry Bakery Merchandiser

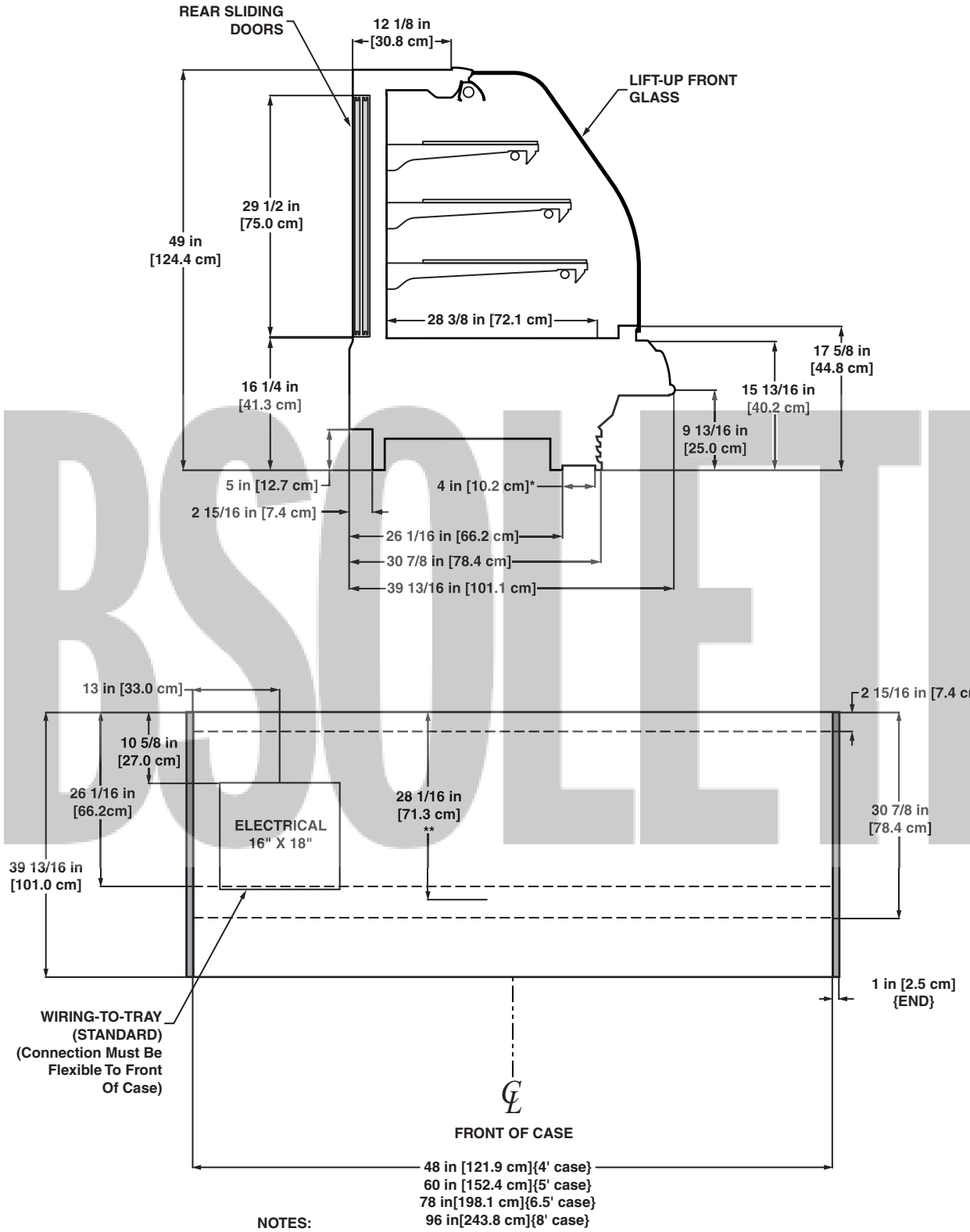
OBD - 4', 5', 6.5', & 8'

Lighting Data

Model		Typical per Light Row		Maximum Lighting	
		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts
OBD	4'	0.57	68	1.14	137
	5'	0.57	68	1.14	137
	6.5'	0.57	68	2.11	253
	8'	0.57	68	2.11	253

OBSOLETE

Note: The OBD model is Certified to NSF Standard 2.



OBSOLETE

NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL CONNECTIONS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 14", 16", 18", 20" & 22"

Note: The OBD model is Certified to NSF Standard 2.

Self Service Bakery/Deli Merchandiser

OBOL - 4', 5', 6.5', & 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	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
OBOL	4'	2	0.68	34	0.30	22	- - -[1]	- - -	- - -	- - -	- - -	- - -
	5'	2	0.68	34	0.30	22	- - -	- - -	- - -	- - -	- - -	- - -
	6.5'	2	0.68	34	0.30	22	- - -	- - -	- - -	- - -	- - -	- - -
	8'	3	1.02	51	0.45	33	- - -	- - -	- - -	- - -	- - -	- - -

[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
OBOL	4'	0.57	68	1.14	137
	5'	0.57	68	1.14	137
	6.5'	0.57	68	1.14	137
	8'	0.57	68	1.14	137

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OBOL bakery	509	27	6-8	33	40	305
OBOL deli	534	22	6-8	30	37	305

[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)
OBOL	3	6 - 8	- - -	- - -	45	47	26	45	45	45

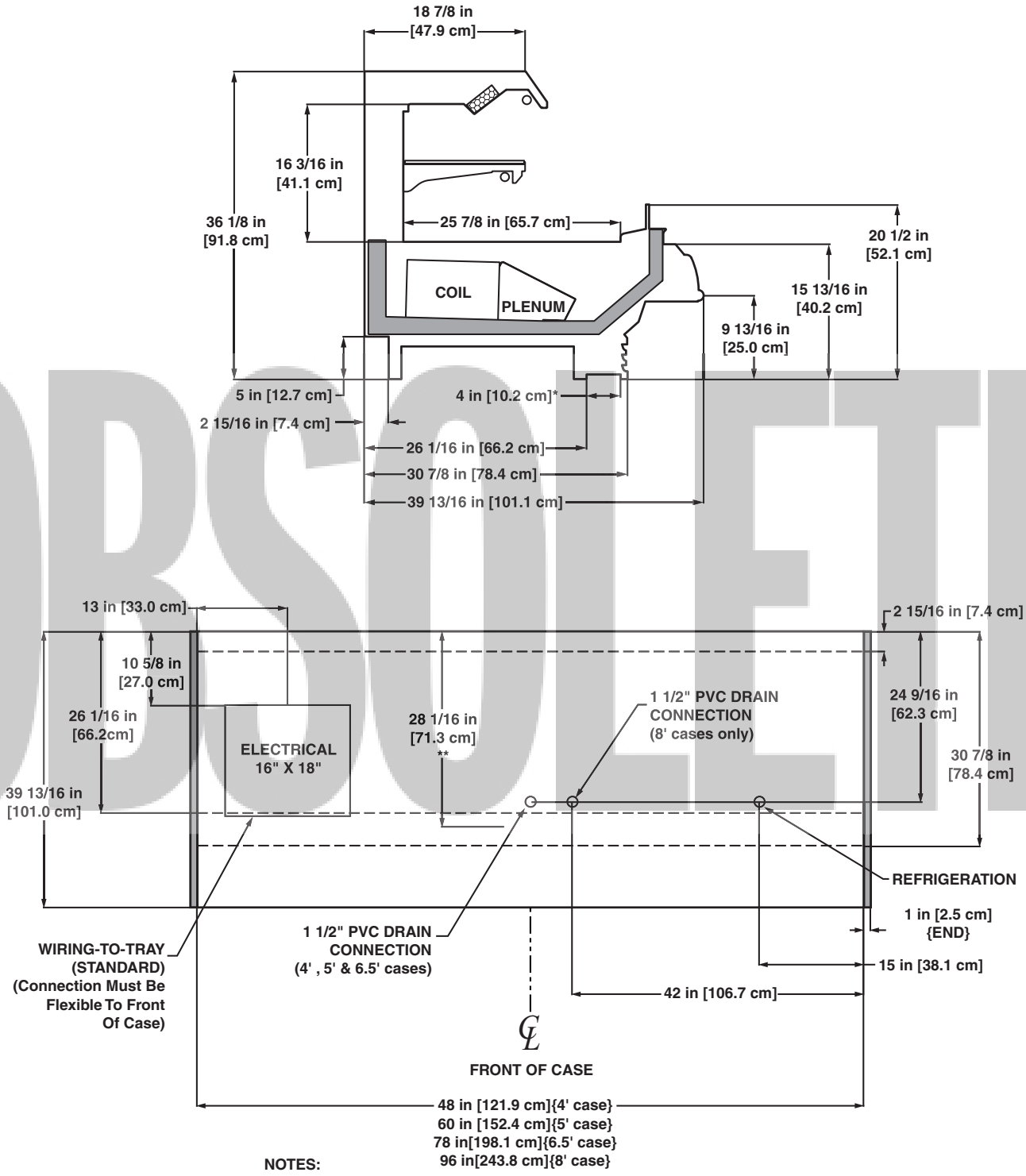
Medium Temperature Defrost Schedule

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.

Hill PHOENIX EXCELLENCE

A DOVER COMPANY



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 - 1/2"
- AVAILABLE SHELF SIZES: 14", 16", 18", 20" & 22"
- MAXIMUM OF 3 SHELVES PER CASE
- TOP SHELF CAN BE 14" OR 16" ONLY

OBSOLETE

Self Service Bakery/Deli Merchandiser

OBO - 4', 5', 6.5', & 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	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
OBO	4'	2	0.68	34	0.30	22	- - -[1]	- - -	- - -	- - -	- - -	- - -
	5'	2	0.68	34	0.30	22	- - -	- - -	- - -	- - -	- - -	- - -
	6.5'	2	0.68	34	0.30	22	- - -	- - -	- - -	- - -	- - -	- - -
	8'	3	1.02	51	0.45	33	- - -	- - -	- - -	- - -	- - -	- - -

[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
OBO	4'	0.57	68	1.14	137
	5'	0.57	68	1.14	137
	6.5'	0.57	68	2.11	253
	8'	0.57	68	2.11	253

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[1]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OBO	530	22	6-8	34	41	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.

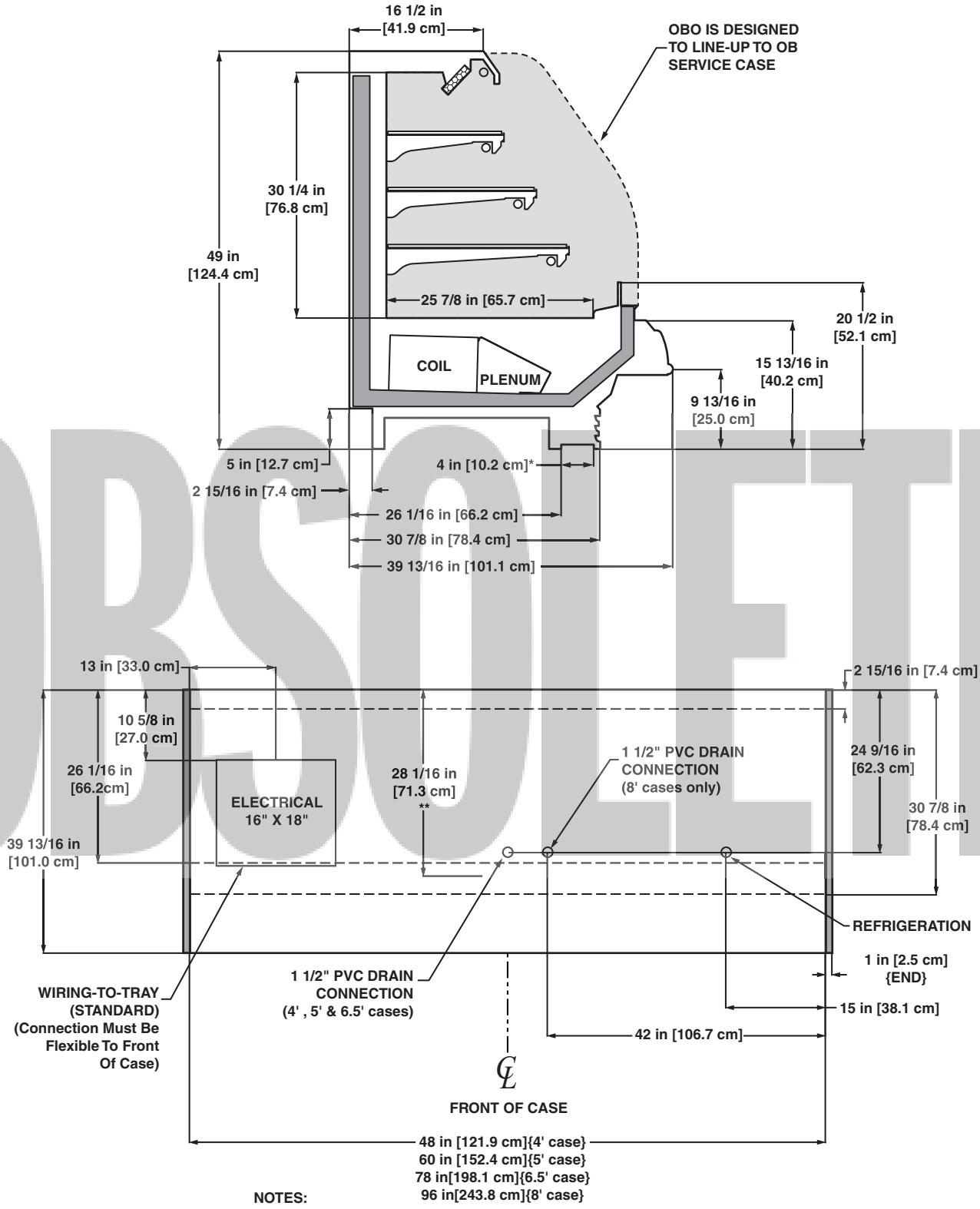
Defrost Controls

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)
OBO	3	6 - 8	- - -	- - -	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.



OBSOLETE

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 - 1/2"
- AVAILABLE SHELF SIZES: 14", 16", 18", 20" & 22"
- MAXIMUM OF 3 SHELVES PER CASE
- TOP SHELF CAN BE 14" OR 16" ONLY

Self Service Self-Contained Bakery/Deli Merchandiser

OBOA - 4' & 8'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
OBOA	4'	120	1	60	2 wire + ground	15.5	20
	8'	120	1	60	2 wire + ground	19.1	25

Lighting Data

Model		Typical per Light Row		Maximum Lighting	
		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts
OBOA	4'	0.57	68	1.14	137
	8'	0.57	68	2.11	253

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OBOA-4'	26.5	54-48	6-8	29-30	40-42	210-240
OBOA-8'	34.1	54-58	6-8	29-30	40-42	210-240

[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.
OBOA-4'	120	1	60	1/4	8	34.6	404A	3.1
OBOA-8'	120	1	60	3/4	10.9	85.5	404A	3.75

[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)
OBOA	4	- - -[4]	- - -	40	49	- - -	- - -	- - -	- - -

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

Medium Temperature Defrost Schedule

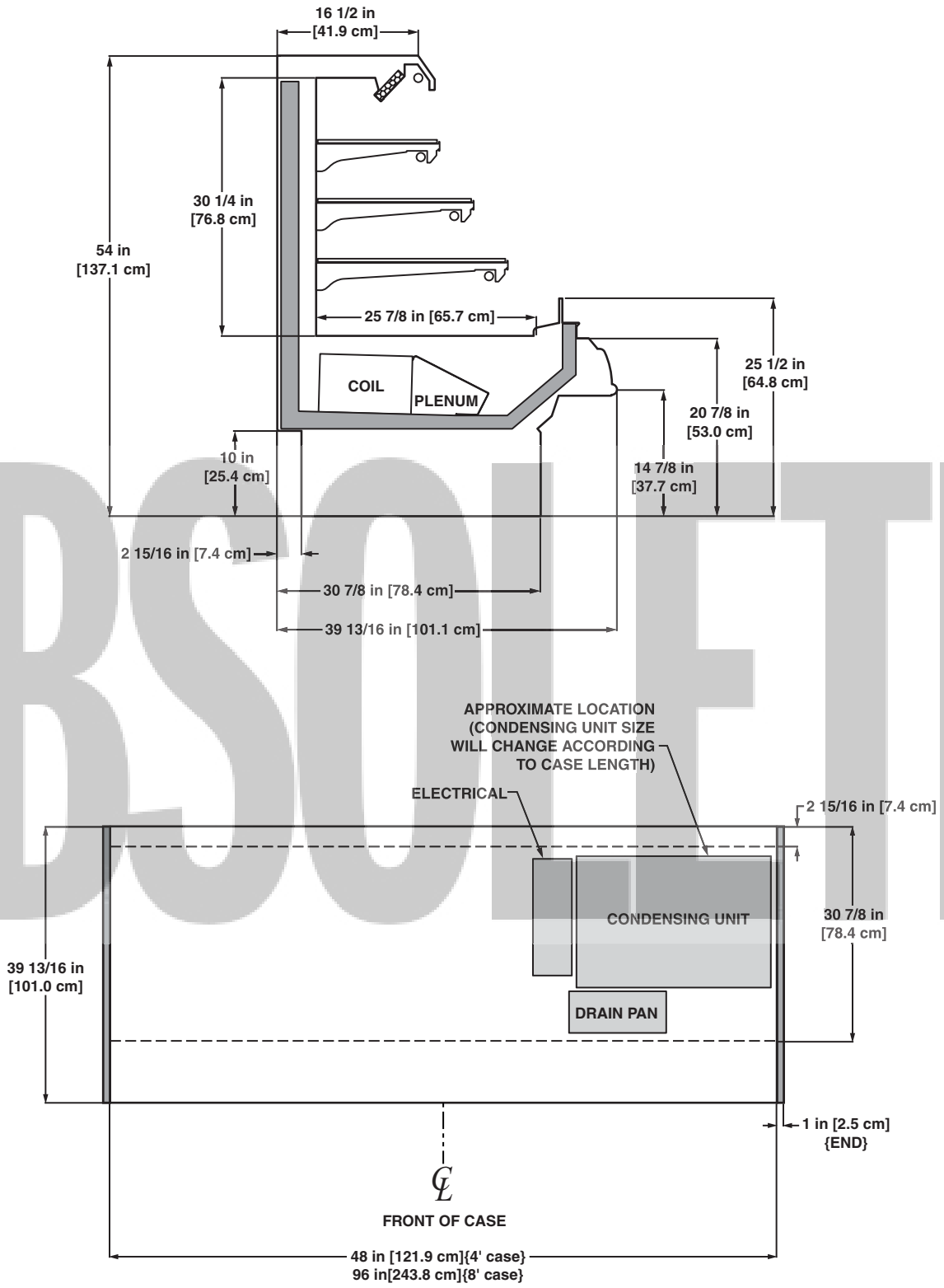
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

Hill PHOENIX EXCELLENCE

A DOVER COMPANY

All measurements are taken per CRMA specifications.

OBSOLETE



OBSOLETE

NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 14", 16", 18", 20" & 22"
- MAXIMUM OF 3 SHELVES PER CASE
- TOP SHELF CAN BE 14" OR 16" ONLY

Full Service Flat Glass Bakery Merchandiser

OBIF - 4', 5' & 6.5'

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
OBIF	4'	2	0.68	34	0.30	22	- - -[1]	- - -	- - -	- - -	- - -	- - -
	5'	2	0.68	34	0.30	22	- - -	- - -	- - -	- - -	- - -	- - -
	6.5'	3	1.02	51	0.45	33	- - -	- - -	- - -	- - -	- - -	- - -

[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
OBIF	4'	0.57	68	1.14	137
	5'	0.57	68	1.14	137
	6.5'	0.57	68	2.11	253

OBSOLETE

Guidelines & Control Settings

Model	BTUH/ft[2]	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
OBIF	300	27	6-8	29-30	40-42	210-240

[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	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)
OBIF	4	- - -	- - -	40	49	- - -	- - -	- - -	- - -

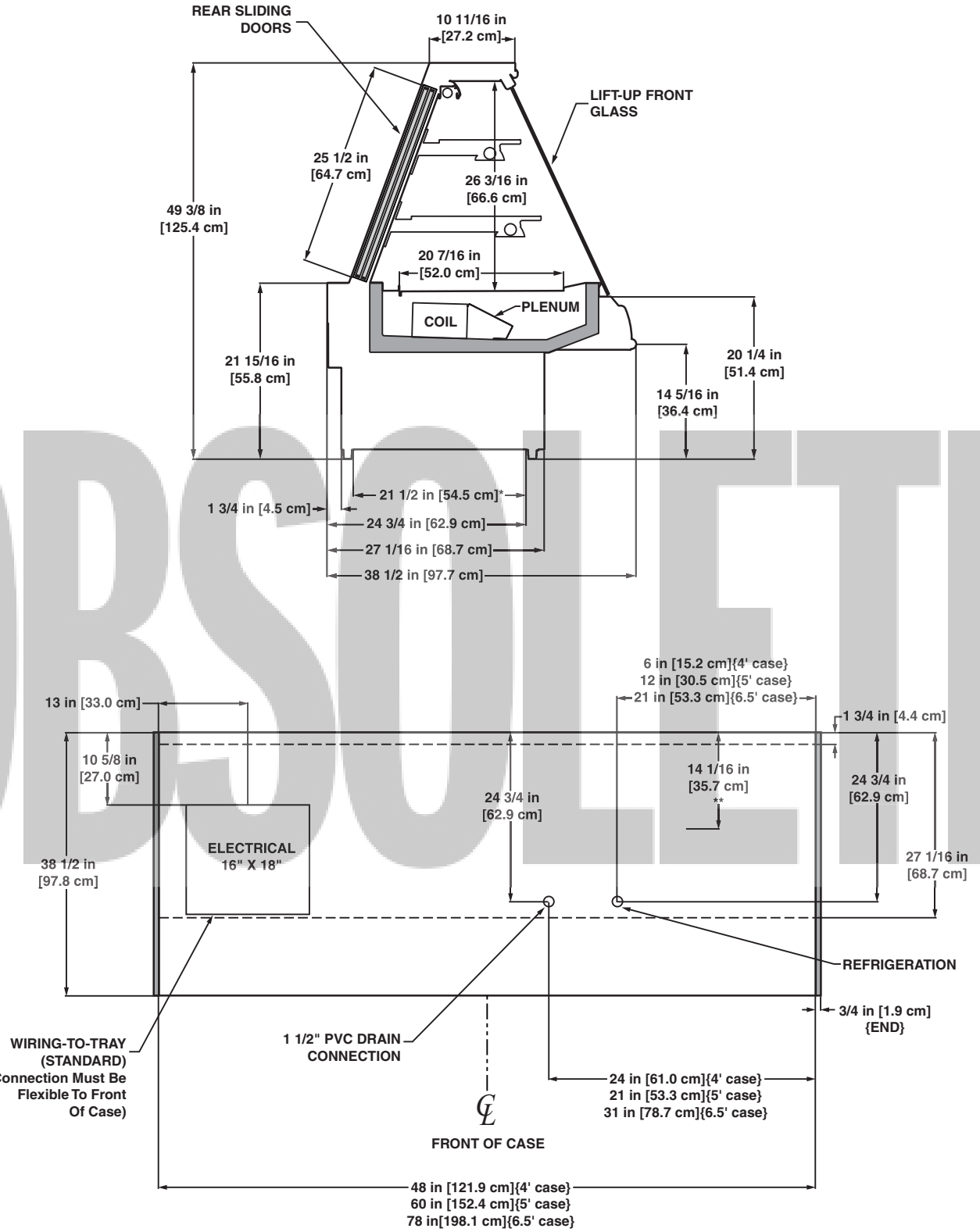
Medium Temperature Defrost Schedule

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

A DOVER COMPANY

All measurements are taken per CRMA specifications.



OBSOLETE

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 - 1/2"
- AVAILABLE SHELF SIZES: 10" & 16"

Full Service Flat Glass Self-Contained Bakery Merchandiser

OBIFA - 4' & 6.5'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
OBIFA	4'	120	1	60	2 wire + ground	15.5	20
	6.5'	120	1	60	2 wire + ground	20.1	25

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
OBIFA	4'	0.57	68	1.14	137
	6.5'	0.57	68	2.11	253

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OBIFA-4'	26.5	72-74	6-8	29-30	40-42	210-240
OBIFA-6.5'	35.3	72-74	6-8	29-30	40-42	210-240

[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.
OBIFA-4'	120	1	60	1/4	4.94	25	404A	3.1
OBIFA-6.5'	120	1	60	1/3	7.20	29	404A	3.5

[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)
OBIFA	4	- - - [4]	- - -	40	49	- - -	- - -	- - -	- - -

[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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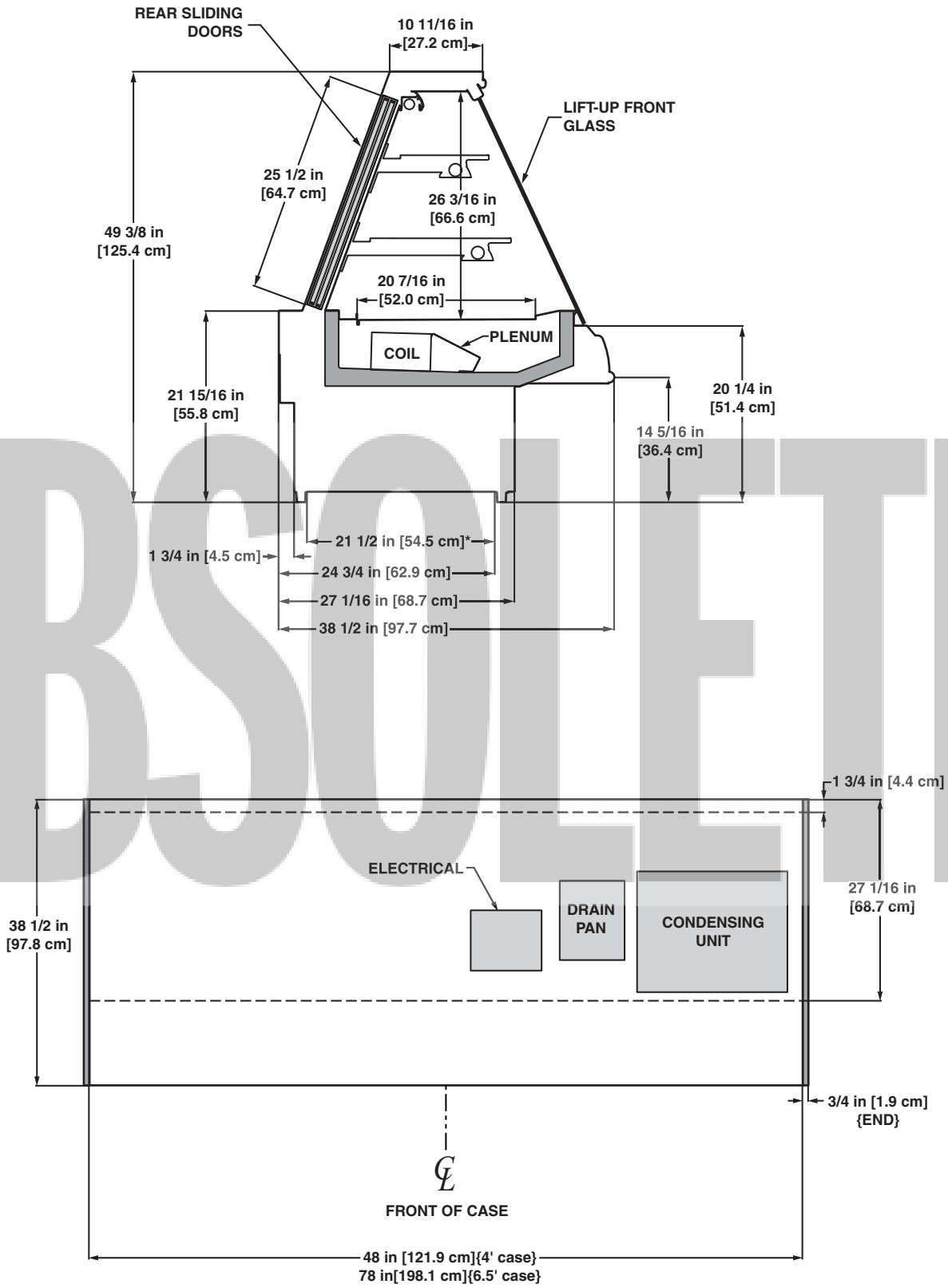


OBSOLETE

NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 16"

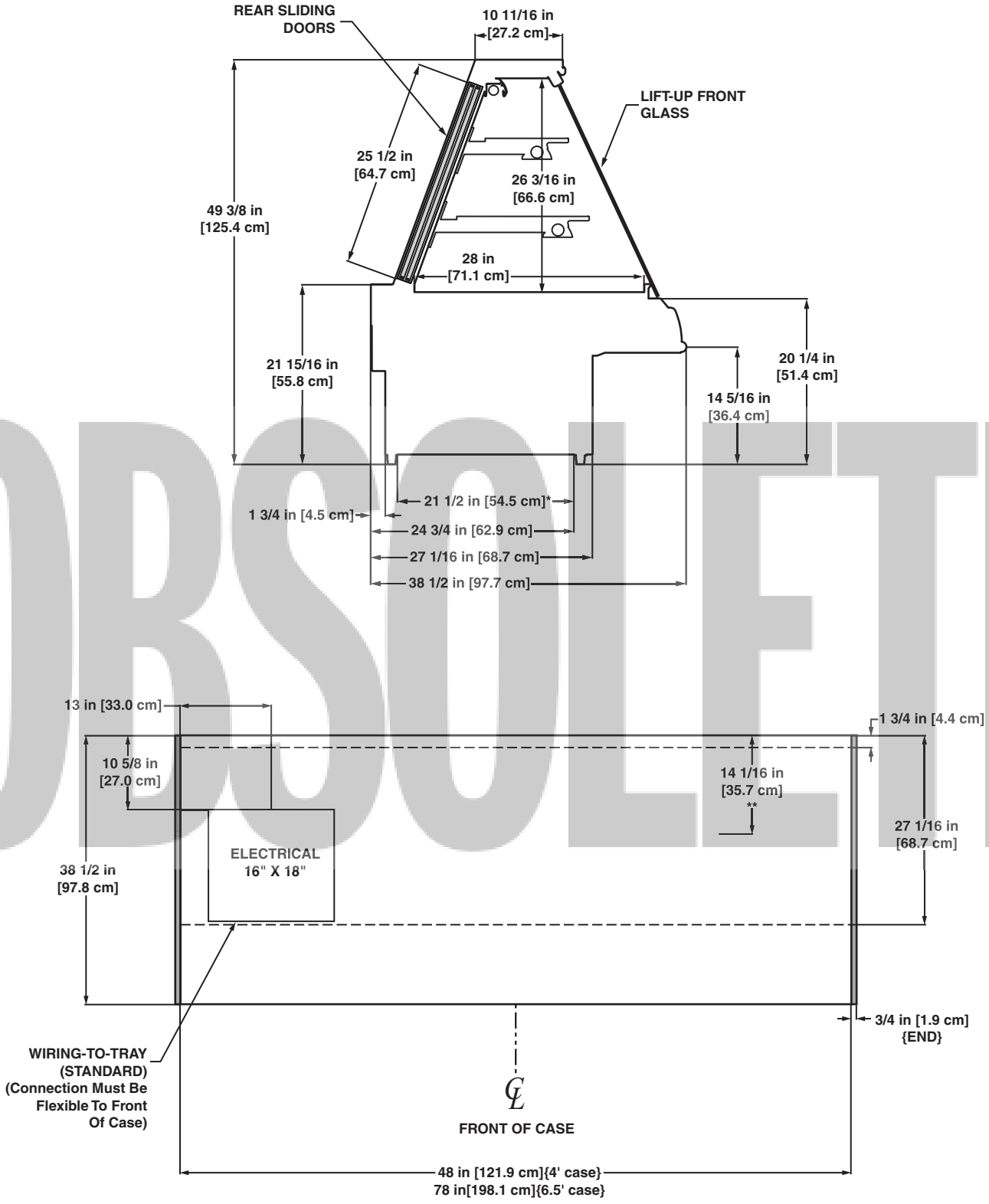
Full Service Flat Glass Dry Bakery Merchandiser

OBIFD - 4', & 6.5'

Lighting Data

Model		Typical per Light Row		Maximum Lighting	
		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts
OBIFD	4'	0.57	68	1.14	137
	6.5'	0.57	68	2.11	253

OBSOLETE



OBSOLETE

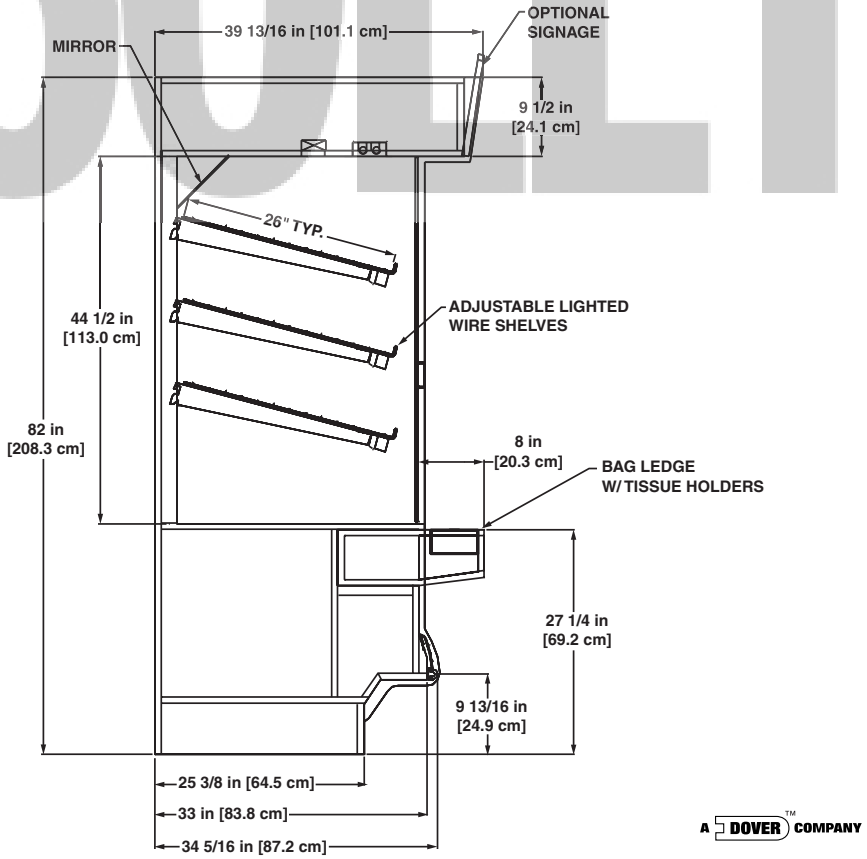
NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL CONNECTIONS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 16"

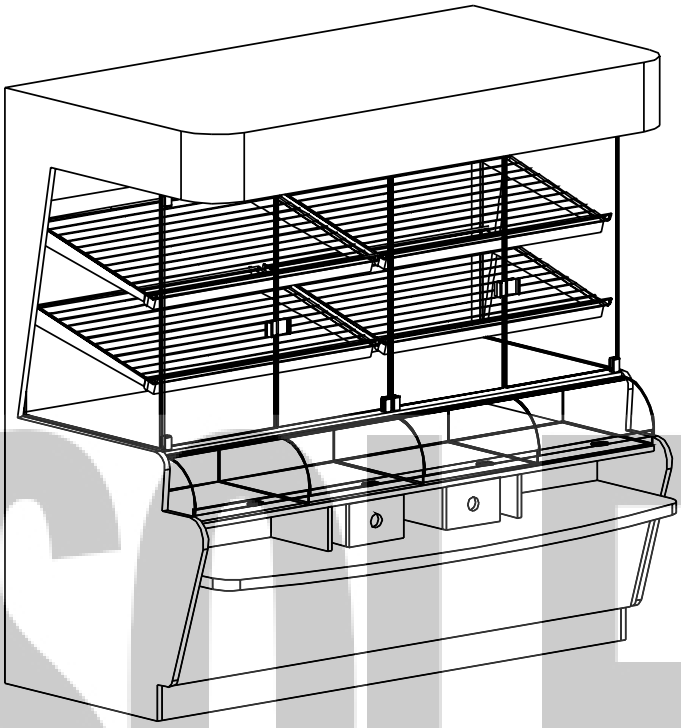
We offer a variety of bakery and crusty bread merchandisers with a full range of options. For specific information about these merchandisers, contact our Richmond facility at 804-526-4455

OBSOLETE



A DOVER™ COMPANY

We offer a variety of bakery and crusty bread merchandisers with a full range of options. For specific information about these merchandisers, contact our Richmond facility at 804-526-4455



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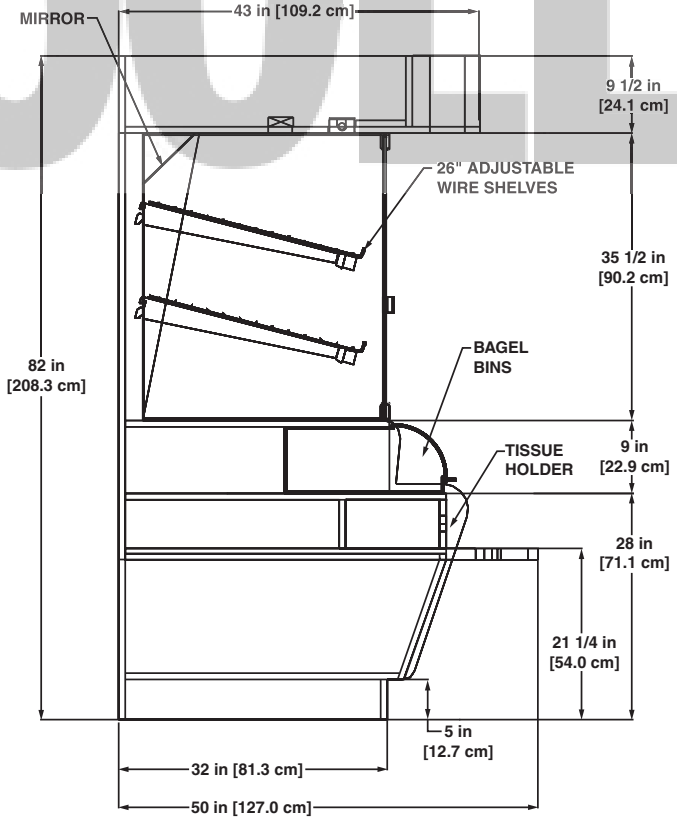


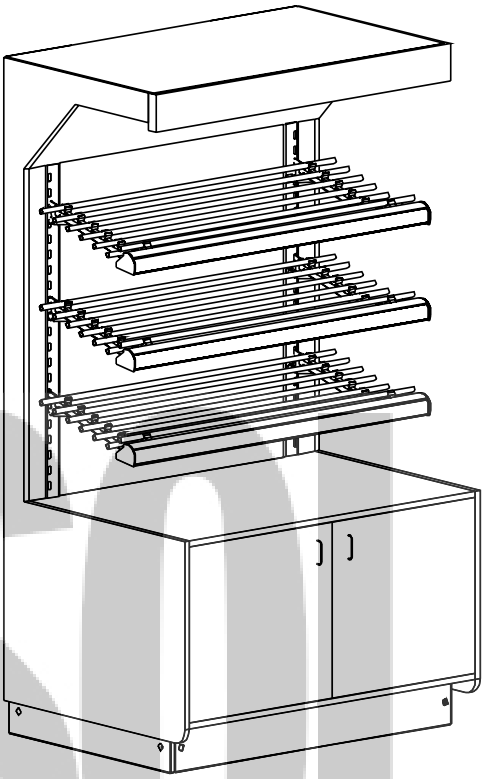
SERVICE

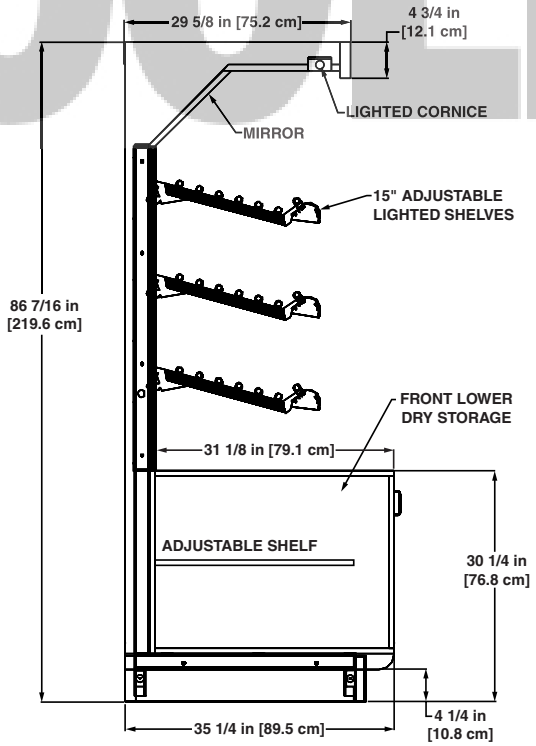
A DOVER COMPANY

BACK COUNTER CONFIGURATION

We offer a variety of bakery and crusty bread merchandisers with a full range of options. For specific information about these merchandisers, contact our Richmond facility at 804-526-4455

OBSOLETE

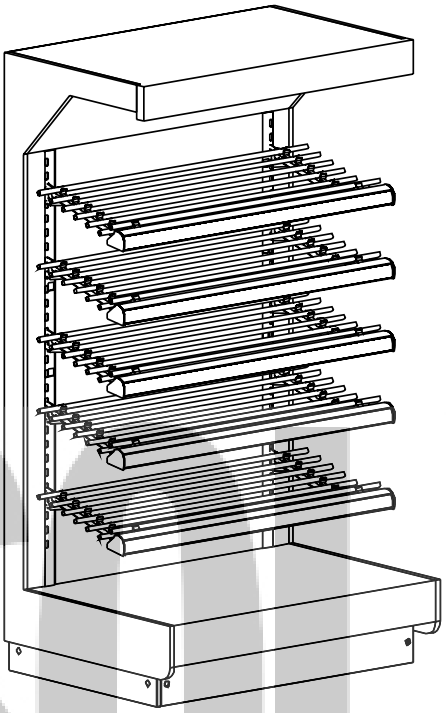




Note: The BWD model is Certified to NSF Standard 2.

A DOVER COMPANY

We offer a variety of bakery and crusty bread merchandisers with a full range of options. For specific information about these merchandisers, contact our Richmond facility at 804-526-4455



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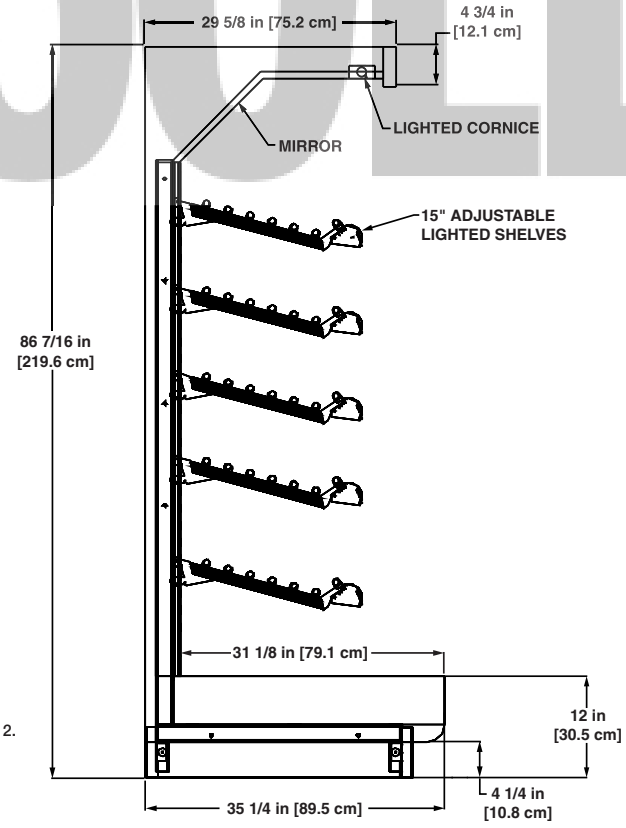
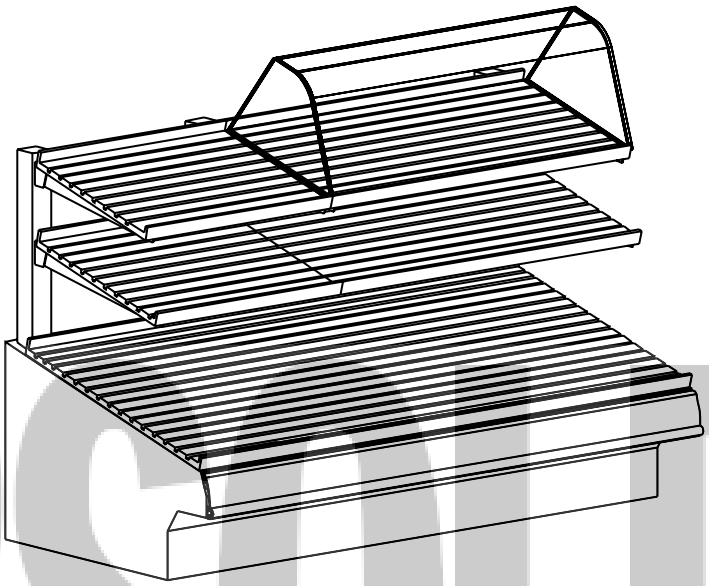


Note: The BWD model is Certified to NSF Standard 2.

We offer a variety of bakery and crusty bread merchandisers with a full range of options. For specific information about these merchandisers, contact our Richmond facility at 804-526-4455



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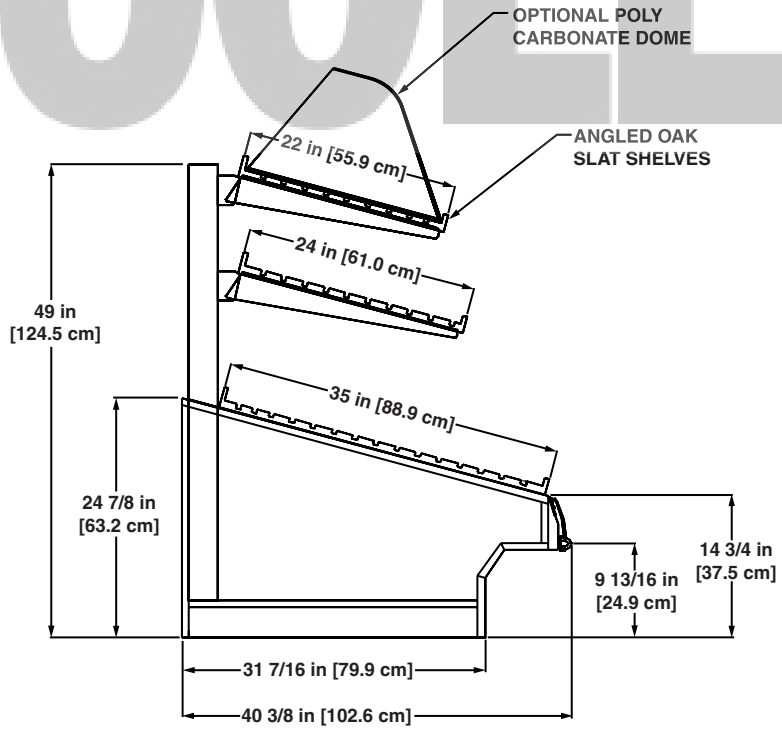
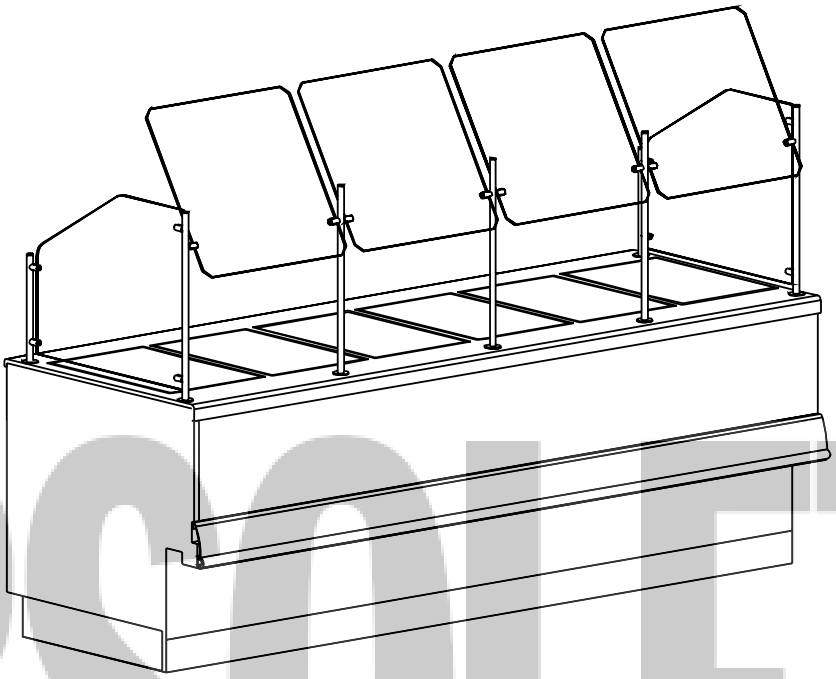


We offer a variety of hot foods merchandisers with a full range of options. For specific information about these merchandisers, contact our Richmond facility at 804-526-4455



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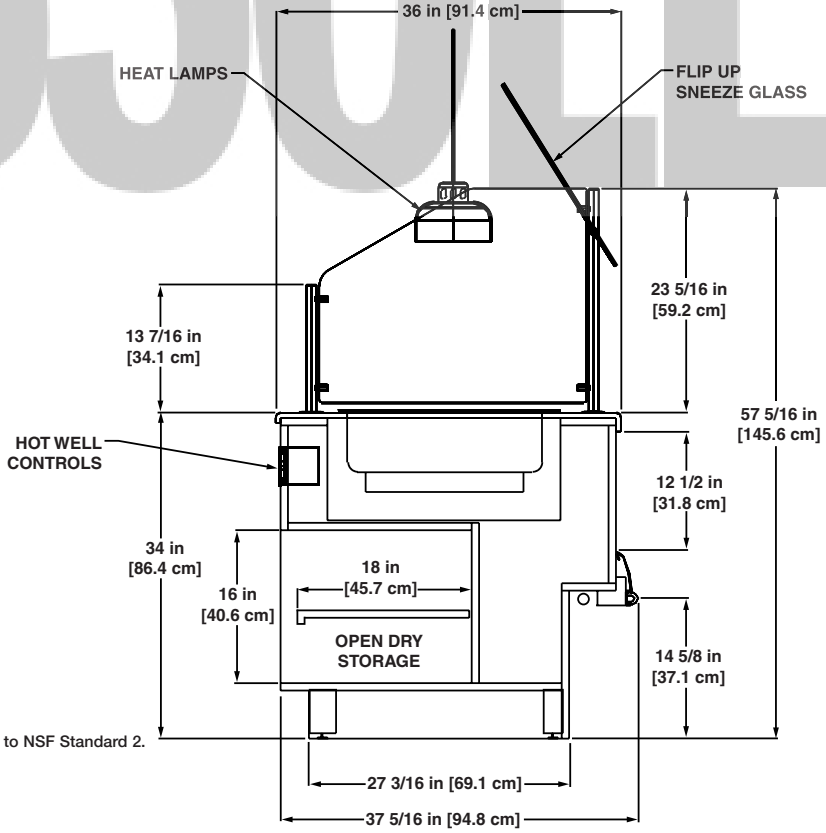


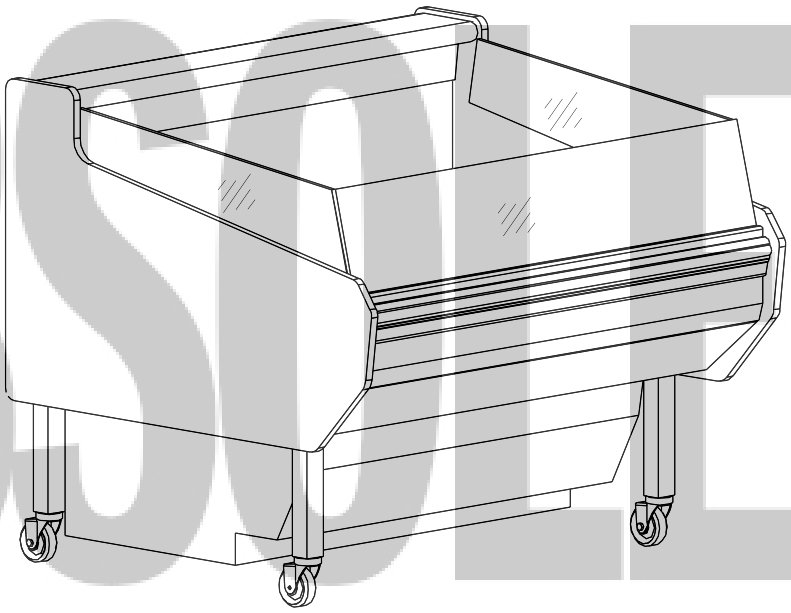
Note: The SC-PH model is Certified to NSF Standard 2.

SERVICE

OBSOLETE

MOBILE SELF-CONTAINED

OBSOLETE



Notes:

- *Cases comply with ANSI / NSF* Standard 7. Units marked as components require remote refrigeration.*
- *Allow for an extra 1/8" per joint when lining up merchandisers.*
- *Front sill height does not affect case performance unless specifically shown.*
- *Front and rear sill heights vary with baseframe height.*

* *ANSI - American National Standard Institute*
NSF - National Sanitation Foundation

Single Deck Self-Contained Mobile Deli Merchandiser

MDCA-4' & 6'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
MDCA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
MDCA-6'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
MDCA-4'	16.6	52	6-8	25	36	295
MDCA-6'		52	6-8	25	36	295

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
MDCA-4'	115	1	60	1/3	7.4	29.8	R404A	3.5
MDCA-6'	115	1	60	1/2	10.1	51.0	R404A	

[2] RLA - Running Load Amps.
[3] LRA - Locked Rotor Amps.

Defrost Controls

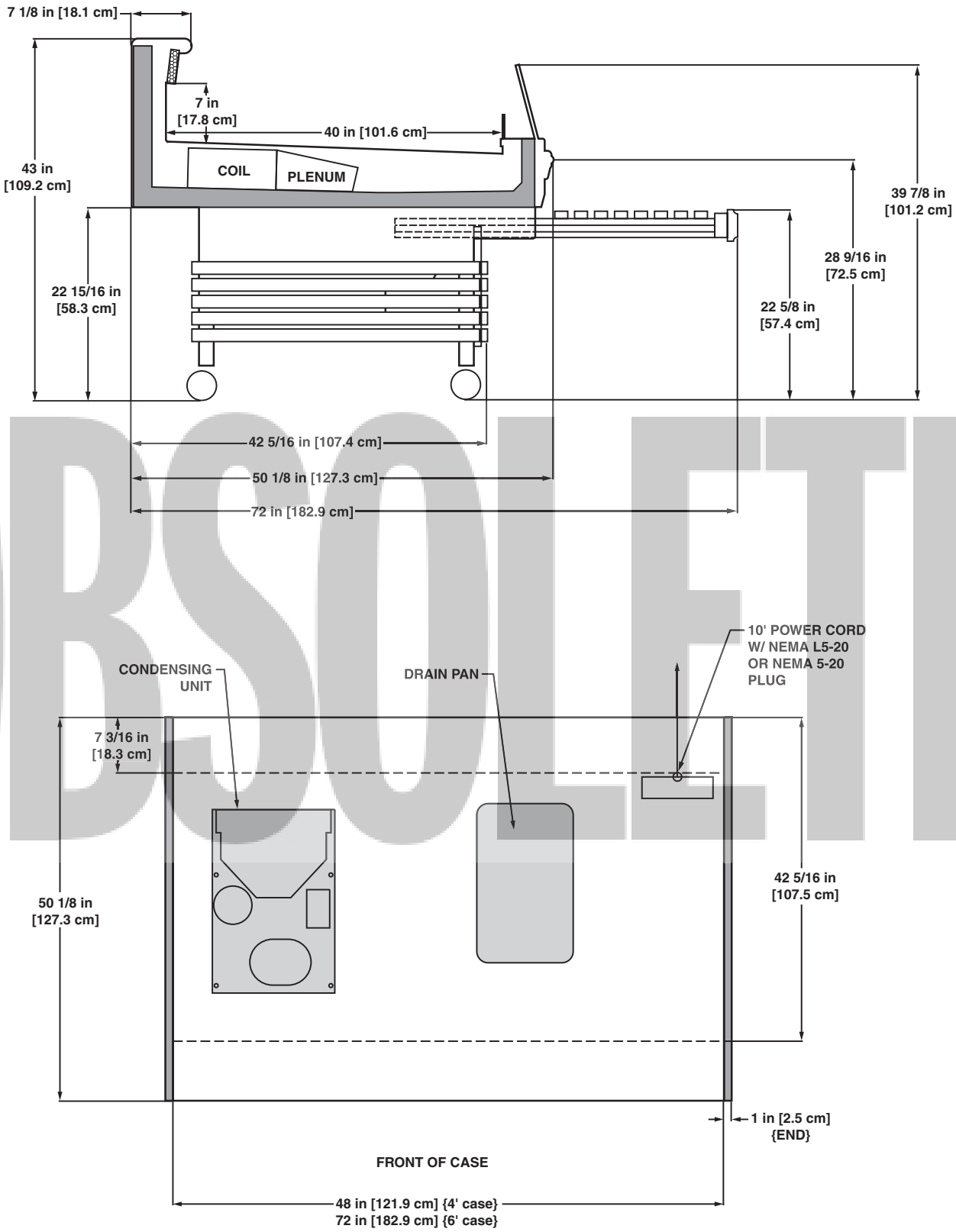
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
MDCA	4	35	47	- - -[4]	- - -	- - -	- - -	- - -	-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

[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.



OBSOLETE

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', 6' & 8'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
MMCA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
MMCA-6'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
MMCA-8'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
MMCA-4'	17.2	49	6-8	24	35	140
MMCA-6'		49	6-8	24	35	140
MMCA-8'		49	6-8	24	35	140

[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.
MMCA-4'	115	1	60	1/3	7.4	29.8	R404A	3.5
MMCA-6'	115	1	60	1/2	10.1	51.0	R404A	
MMCA-8'	115	1	60	1/2	10.1	51.0	R404A	

[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)
MMCA	3	35	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

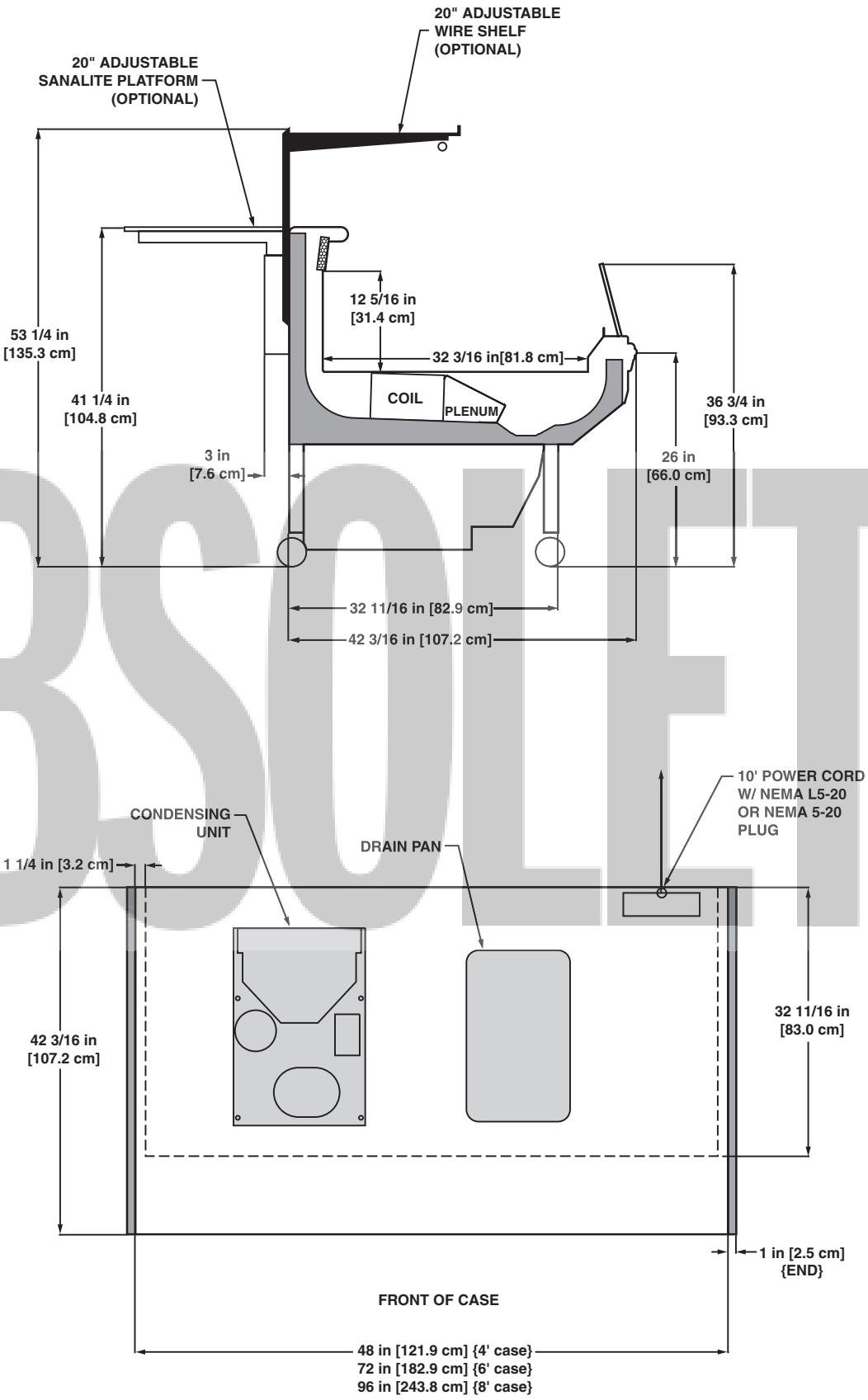
[4] NOTE: - - - not an option on this case model.

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.

OBSOLETE



OBSOLETE

NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

Single Deck Self-Contained Mobile Produce Merchandiser

MPCA - 8’

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
MPCA	120	1	60	NEMA L5-30	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
MPCA		19.9	6-8	30	42	163

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
MPCA	120	1	60	1/2	12.9	66.3	R134A	

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

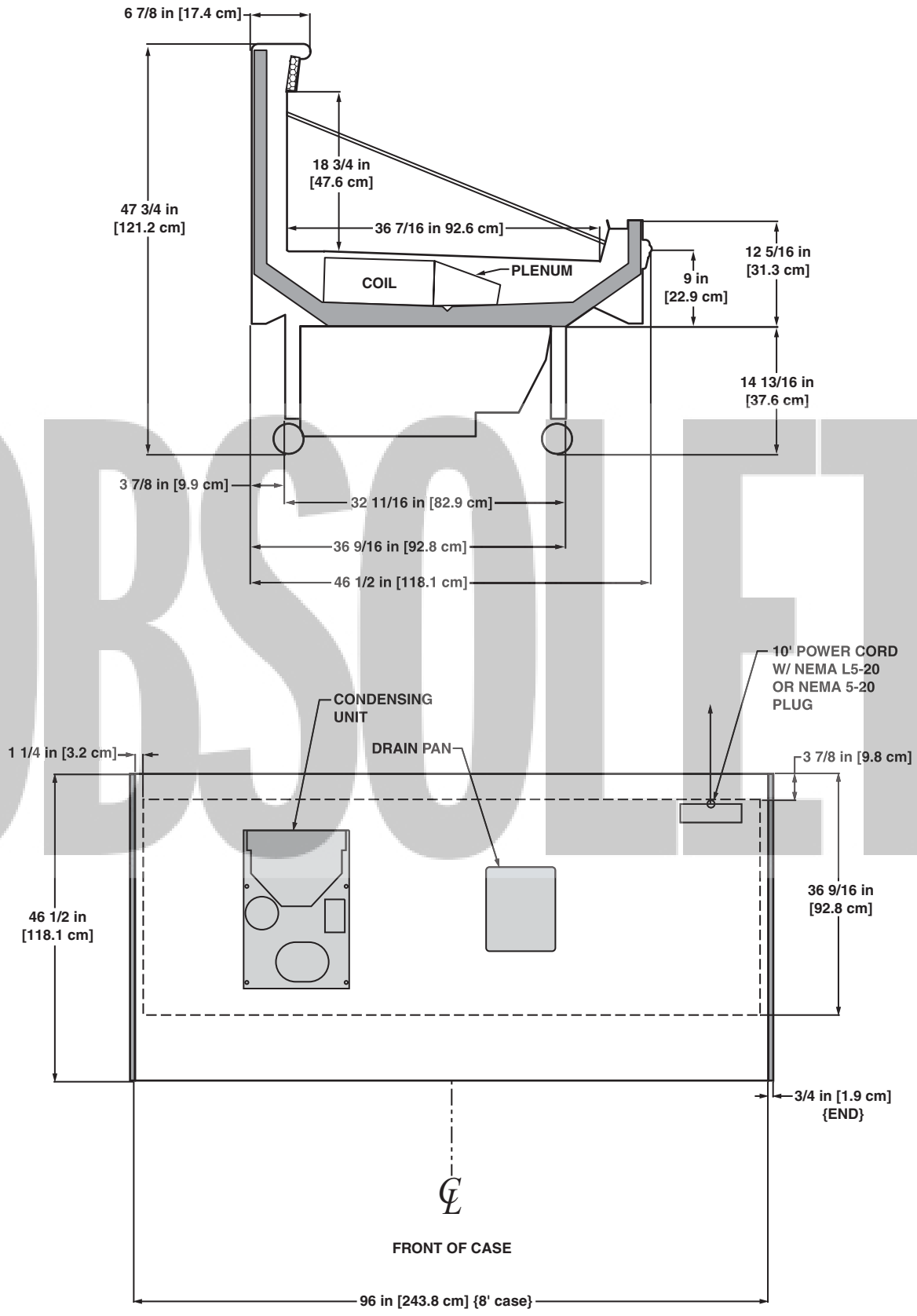
			Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Run-Off Time (min)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
MPCA	3	6 - 8	40	49	60	47	- - - [3]	- - -	- - -	- - -

[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.


6 7/8 in [17.4 cm]
18 3/4 in [47.6 cm]
47 3/4 in [121.2 cm]
36 7/16 in 92.6 cm]
COIL
PLENUM
9 in [22.9 cm]
12 5/16 in [31.3 cm]
14 13/16 in [37.6 cm]
3 7/8 in [9.9 cm]
32 11/16 in [82.9 cm]
36 9/16 in [92.8 cm]
46 1/2 in [118.1 cm]
10' POWER CORD W/ NEMA L5-20 OR NEMA 5-20 PLUG
CONDENSING UNIT
DRAIN PAN
1 1/4 in [3.2 cm]
3 7/8 in [9.8 cm]
36 9/16 in [92.8 cm]
46 1/2 in [118.1 cm]
3/4 in [1.9 cm] {END}
FRONT OF CASE
96 in [243.8 cm] {8' case}

OBSOLETE

International Style Self-Contained Mobile Deli/Meat/Seafood Merchandiser
OSIOA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOA	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIOA	14.1	12-14	6-8	26	34	182

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
OSIOA	115	1	60	1/2	10.4	48.0	R134A	3.25

[2] RLA - Running Load Amps.
[3] LRA - Locked Rotor Amps.

Defrost Controls

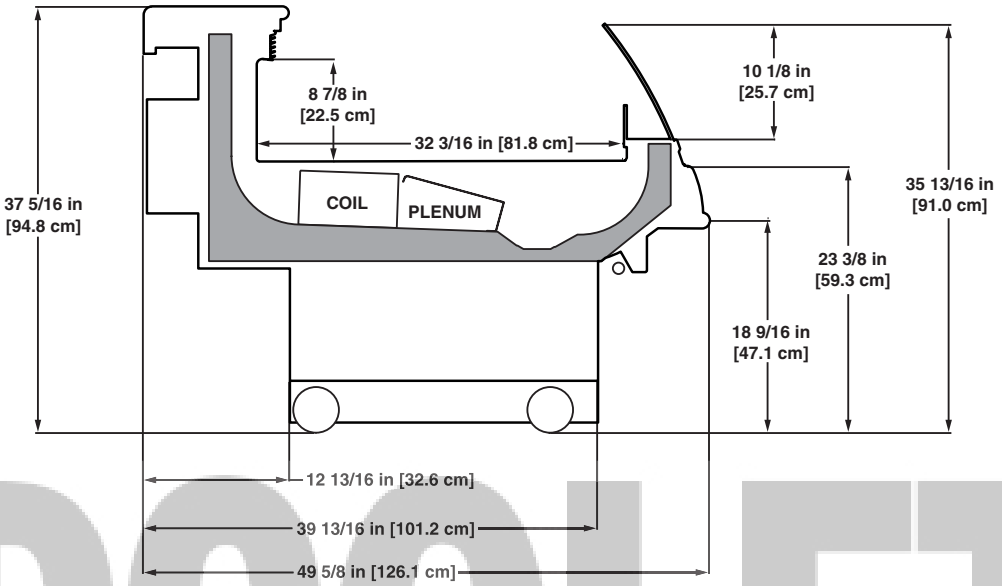
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOA	4	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

[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.



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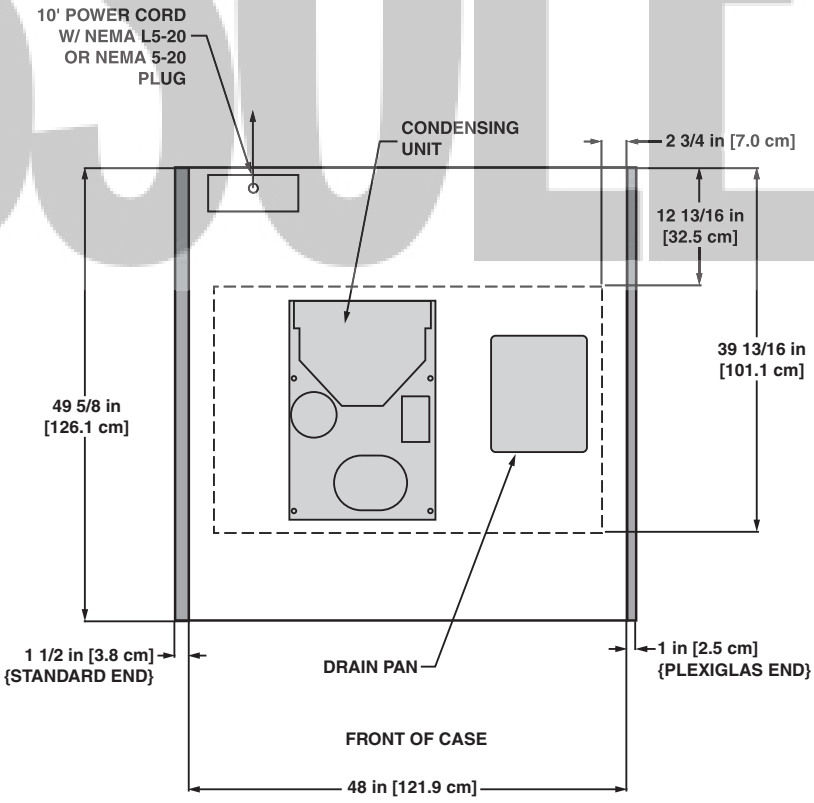


NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

NSF c UL us

A DOVER COMPANY

International Style Self-Contained Mobile Deli/Meat/Seafood Prep Merchandiser

OSIOPA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOPA	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIOPA deli	13.6	20	6-8	34	36	200
OSIOPA meat	18.0	16	6-8	32	36	200

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
OSIOPA	120	1	60	1/3	7.2	29.0	R134A	2.25

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

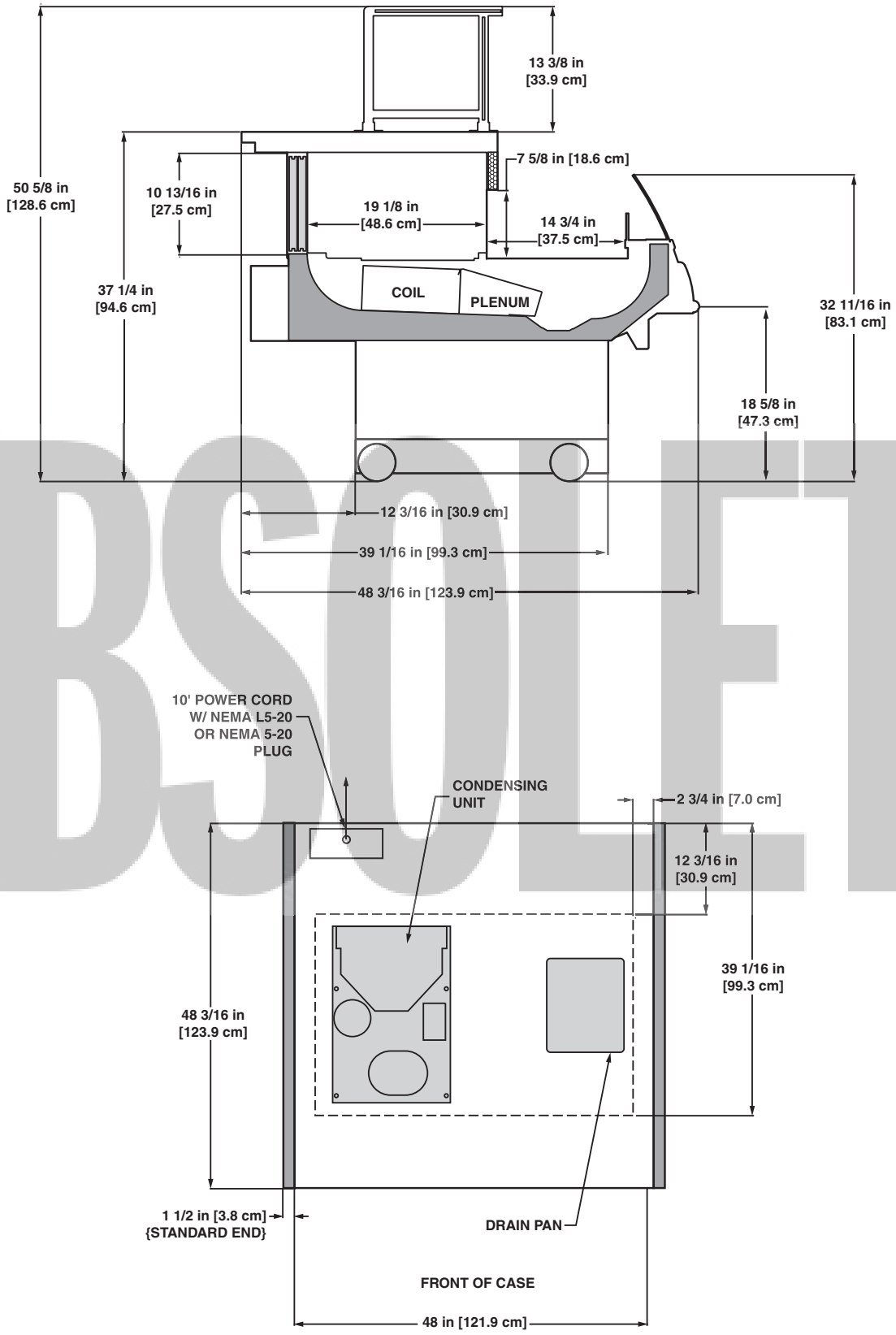
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOPA	2	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

[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.



OBSOLETE

NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

International Style Self-Contained Mobile Sushi Prep Merchandiser

OSIOA-P-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOA-P	120	1	60	NEMA L5-30	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIOA-P	32.0	12-14	6-8	26	34	182

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
OSIOA-P	120	1	60	3/4	15.2	66.3	R134A	

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

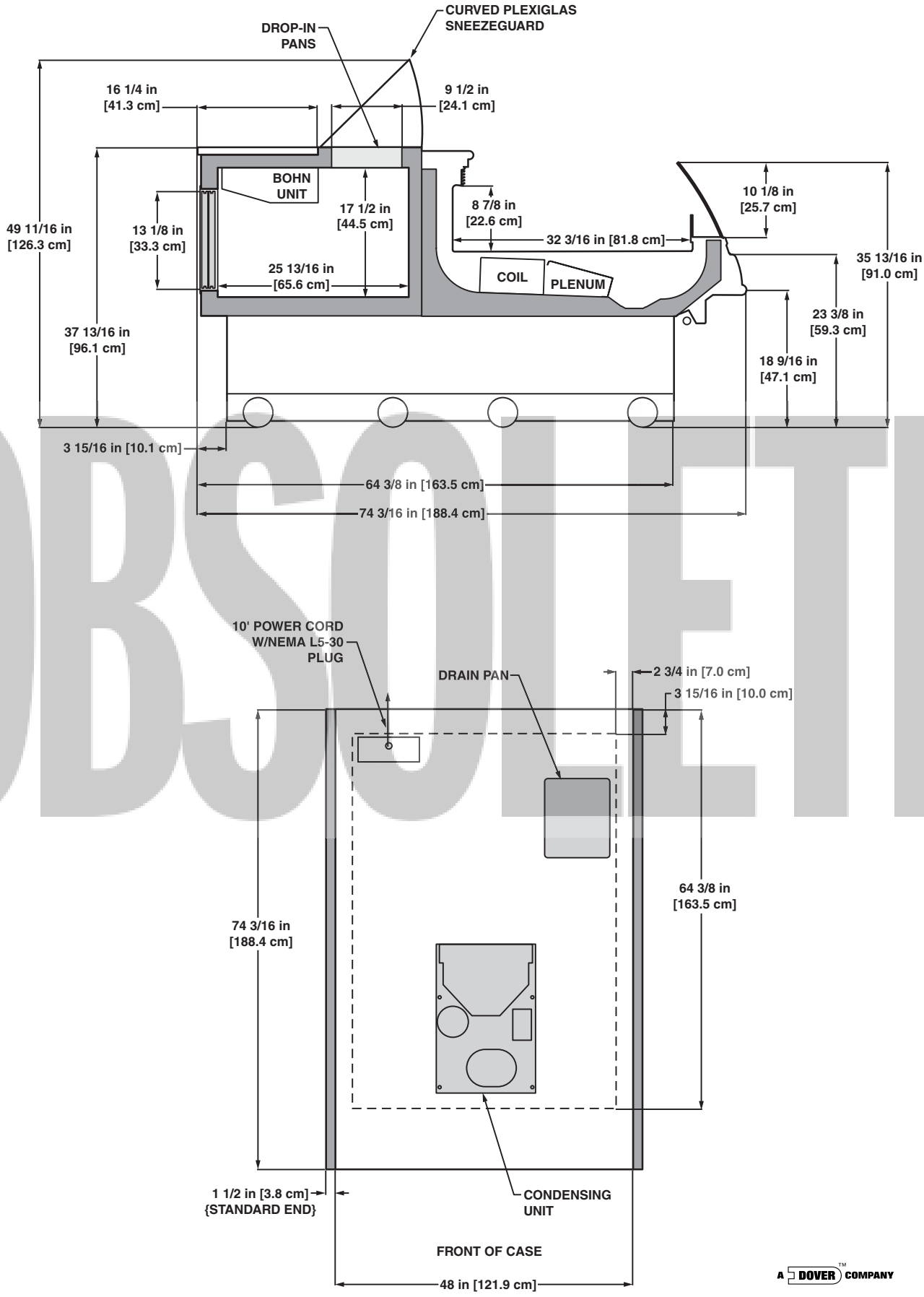
Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOA-P	2	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

[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.



OBSOLETE

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International Style Self-Contained Mobile Dual Temp. Merchandiser

OSIOZA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOZA	120	1	60	NEMA L5-30	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIOZA	25.0	12-14	3-4	-24	-10	220

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
OSIOZA	115	1	60	3/4	10.9	85.5	R404A	3.75

[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	2	45	45	- - -[4]	- - -	- - -	- - -	- - -	- - -

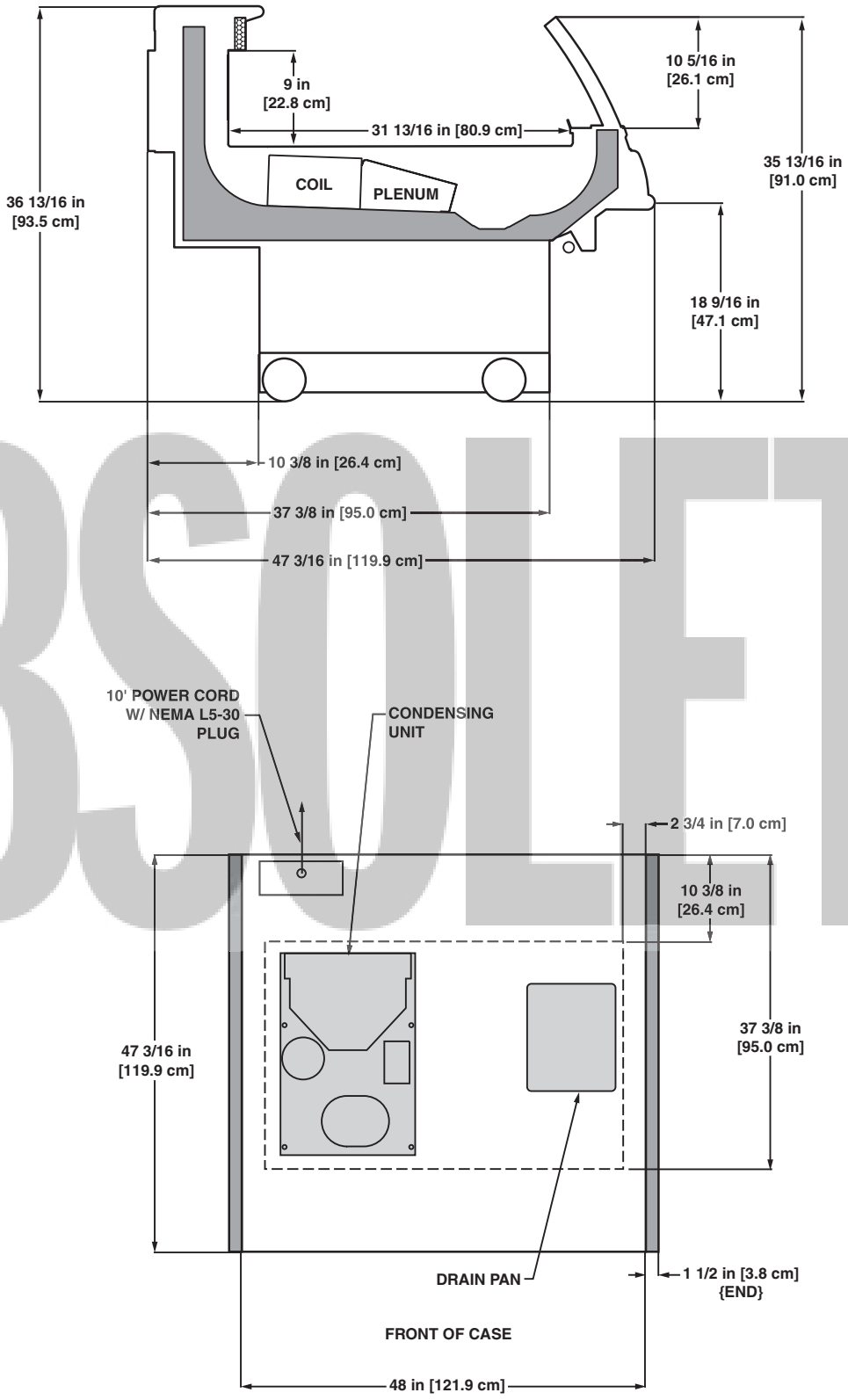
[4] NOTE: - - - not an option on this case model.

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.



OBSOLETE

NOTES:

- 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	120	1	60	NEMA L5-30	6'

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
UPA	37	20	6-8	32	42	275

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
UPA	115	1	60	1/2	12.9	66.3	R134A	4.0

[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	3	- - -[4]	- - -	45	45	- - -	- - -	- - -	- - -

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

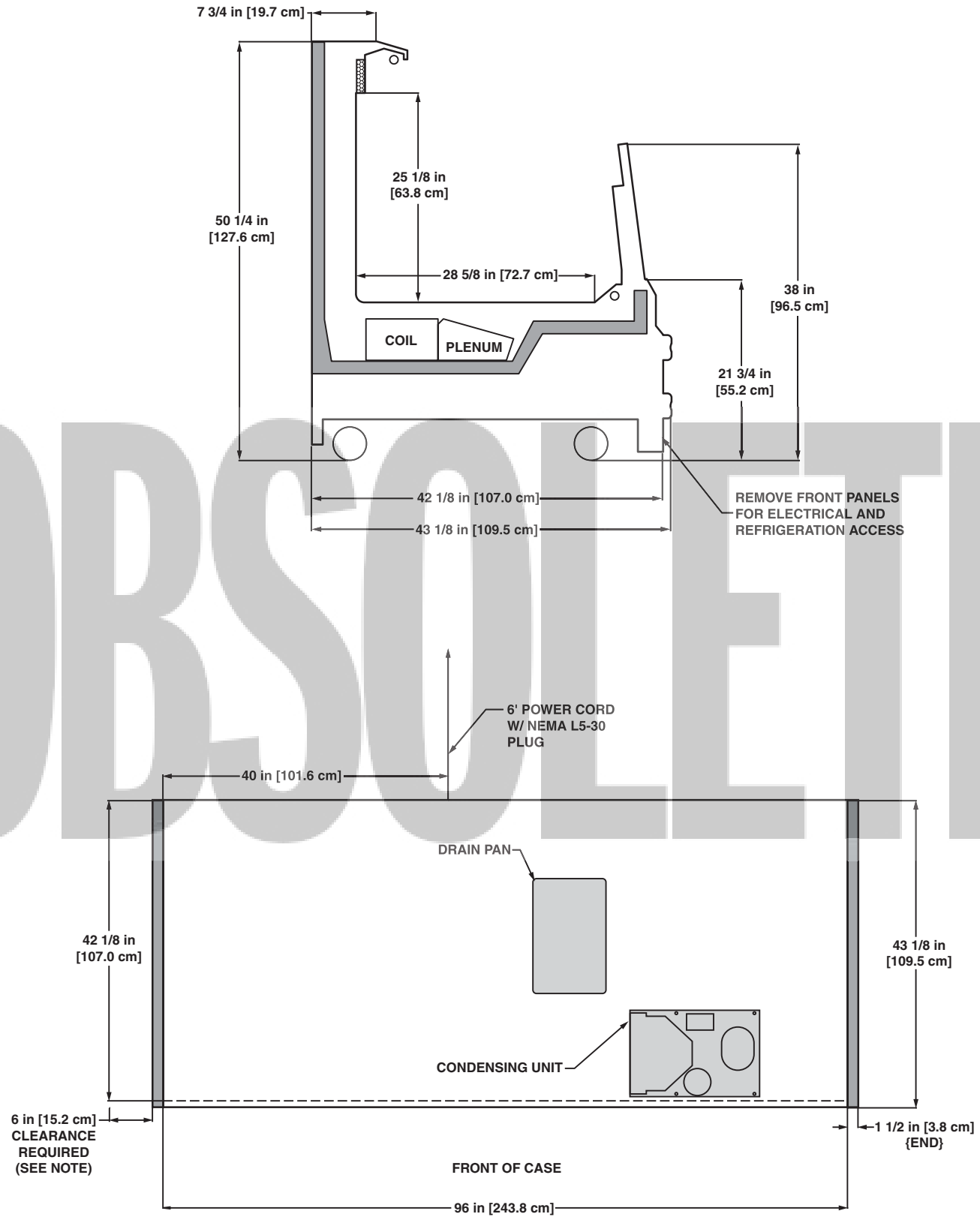
Medium Temperature Defrost Schedule

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 COMPANY



OBSOLETE

NOTES:

- CASE CLEARANCE: MINIMUM 6" FROM BOTH ENDS
- AVAILABLE SHELF SIZES: 10", 12", 14", & 16"

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	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft

Guidelines & Control Settings

Model	Front Sill	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
O2.5UMA Produce	Standard[1]	32.3	12-14	6-8	29-30	40-42	228
Deli	Solid/Extd.	30.2	12-14	6-8	25-27	39-41	230
Meat	Thermopane	30.3	12-14	6-8	25-26	36-38	226

[1] Note: when ordering the standard 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.

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[3] (amps)	LRA[4] (amps)	Refrig.	lbs of Refrig.
O2.5UMA	115	1	60	1/2	12.9	66.3	R134A	3.6

[3] RLA - Running Load Amps.

[4] LRA - Locked Rotor Amps.

Defrost Controls

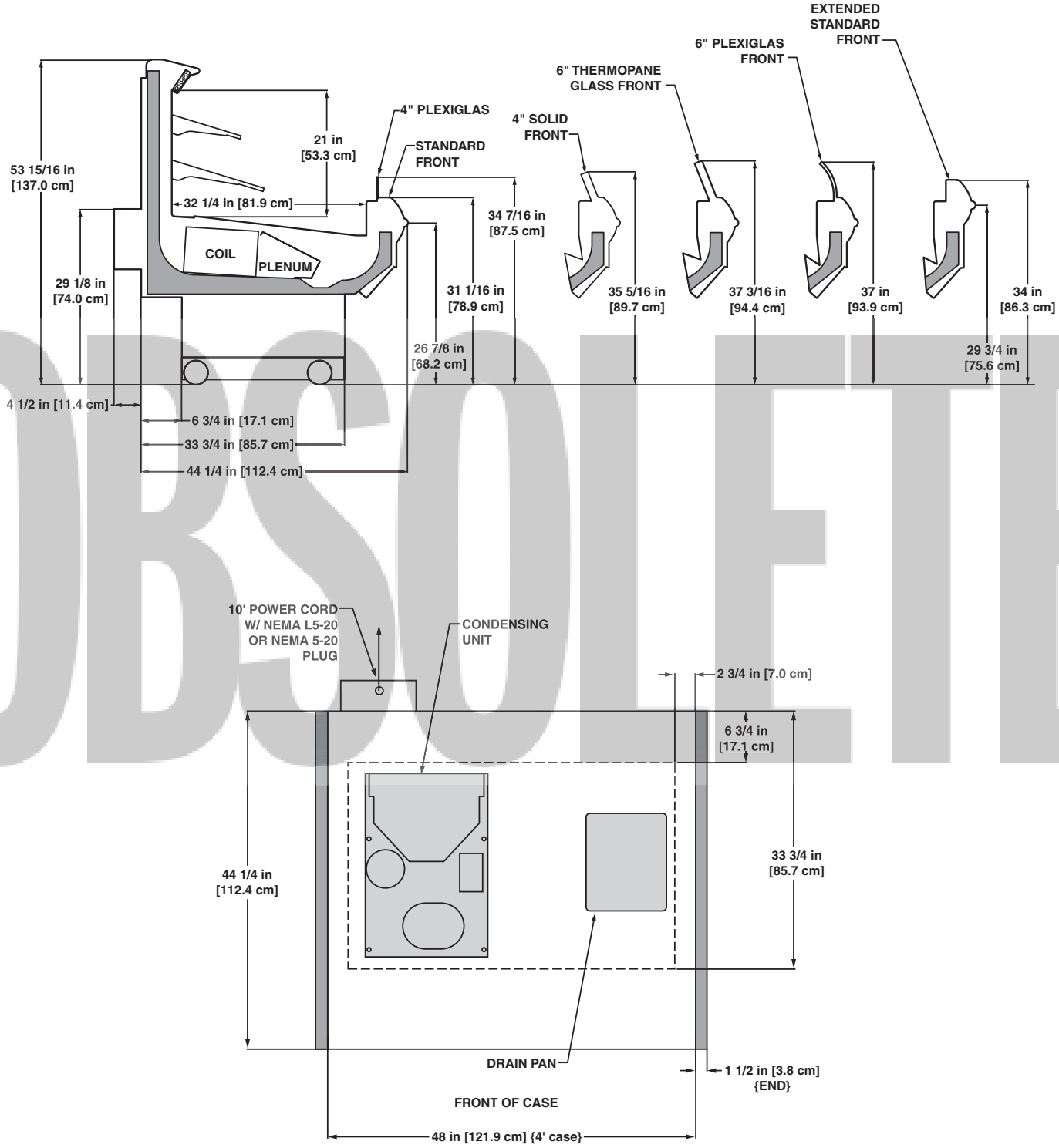
Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O2.5UMA	3	40	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

[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.



OBSOLETE

NOTE:
ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

Multi-Deck Self-Contained Mobile Produce/Dairy/Deli/Meat Merchandiser

O3UMA - 4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
O3UMA	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft

Guidelines & Control Settings

Model	Front Sill	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
O3UMA	Solid	32.1	12-14	6-8	26	35	230

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
O3UMA	115	1	60	1/2	12.9	66.3	R134A	3.6

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

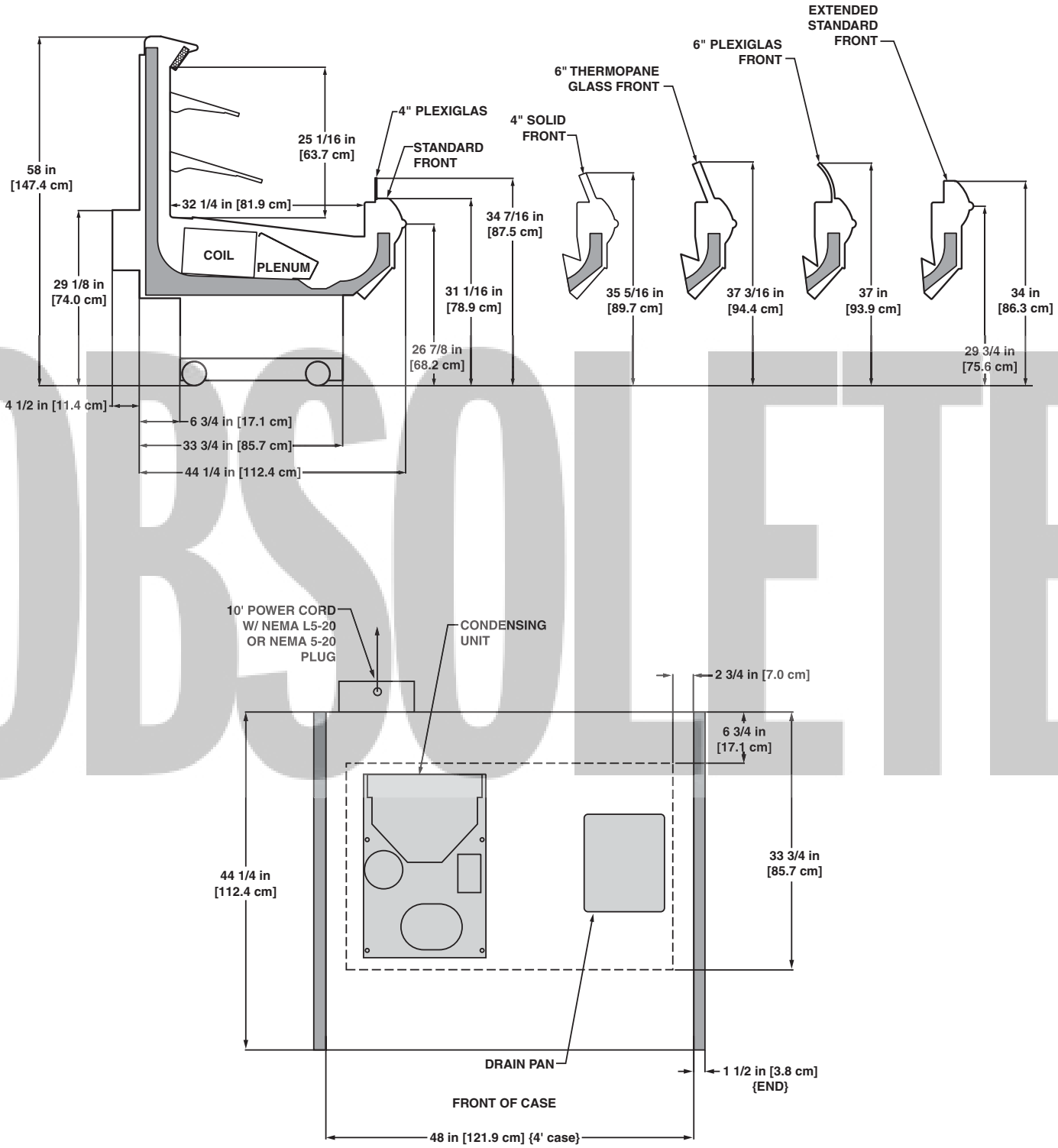
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O3UMA	3	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

[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.



OBSOLETE

NOTE:
ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

International Style Self-Contained Mobile Service Deli/Meat/Seafood Merchandiser

OSIA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIA	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
OSIA		12-14	6-8	26	34	175

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
OSIA	115	1	60	1/3	7.2	29.0	R134A	2.25

[2] RLA - Running Load Amps.

[3] LRA - Locked Rotor Amps.

Defrost Controls

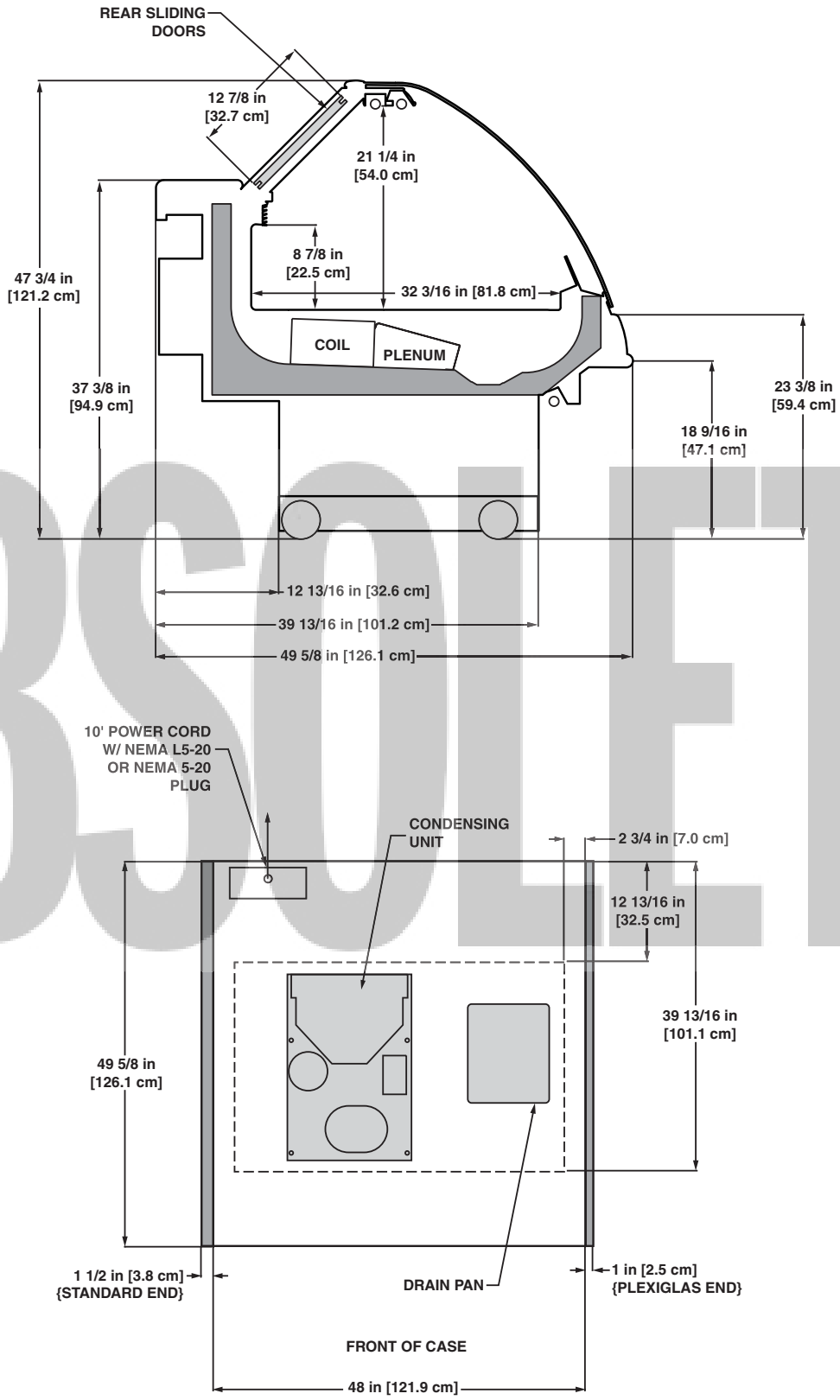
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIA	2	45	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

[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.



OBSOLETE

NOTES:

- 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	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[1] (FPM)
O2SIA	14.02	16	6-8	24	35	540

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

OBSOLETE

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
O2SIA	115	1	60	1/3	7.2	29.0	R134A	2.25

[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)
O2SIA	3	45	50	- - -[4]	- - -	- - -	- - -	- - -	- - -

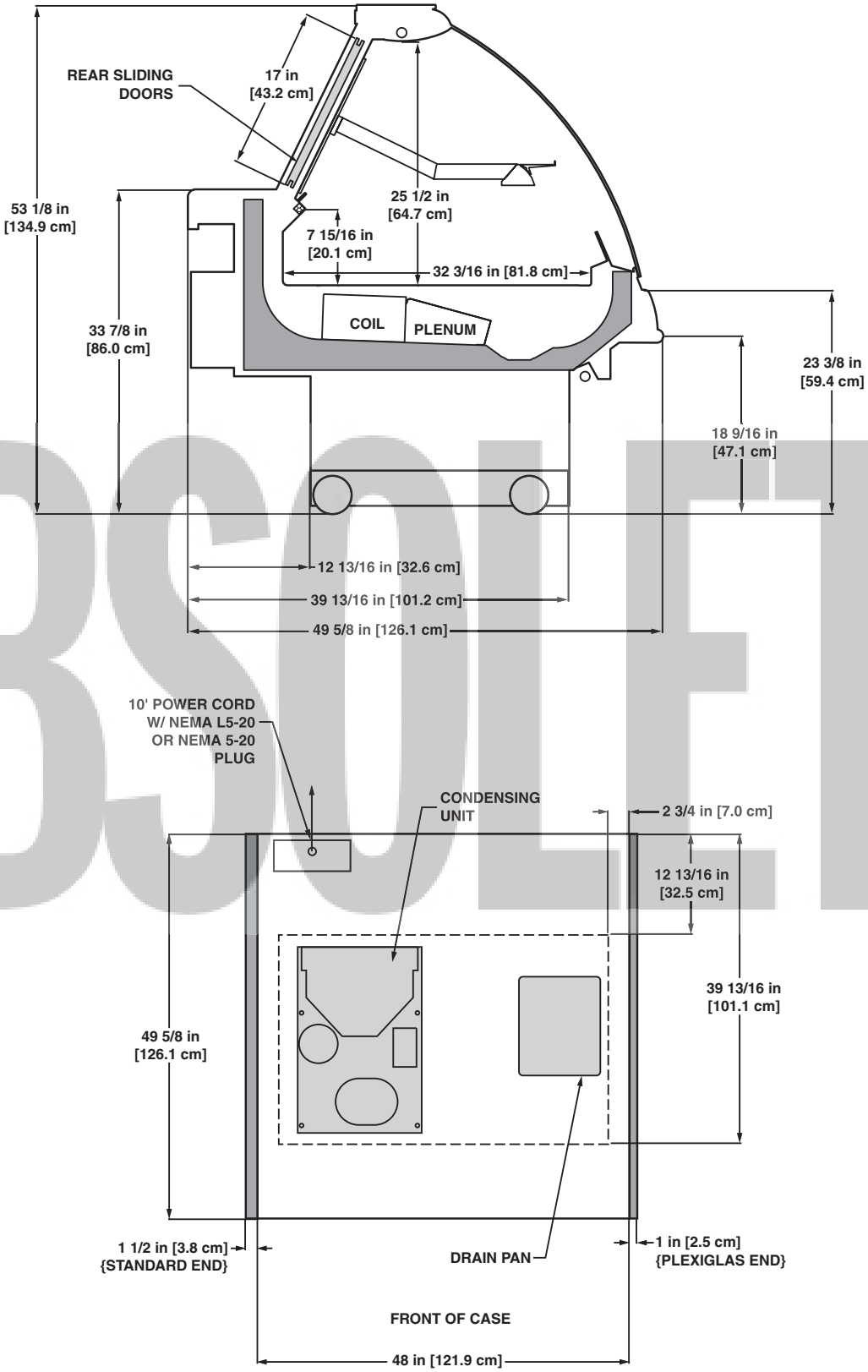
[4] NOTE: - - - not an option on this case model.

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.

Hill PHOENIX EXCELLENCE
A DOVER COMPANY



OBSOLETE

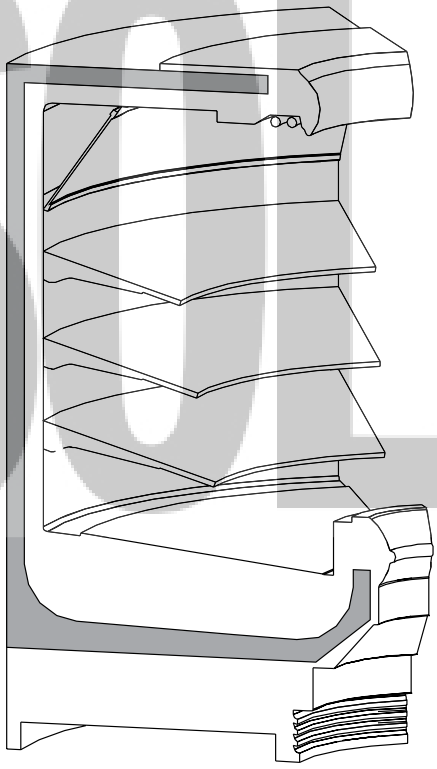
NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

OBSOLETE

CURVED CASES

OBSOLETE



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	0.80	53	0.36	36	0.15	18	- - -	- - -
	45° I/S	11.3	820	17	1	0.80	53	0.36	36	0.21	25	- - -	- - -
	60° I/S	15.1	1090	17	1	0.80	53	0.36	36	0.26	31	- - -	- - -
	90° I/S	22.6	1630	17	2	1.60	107	0.72	71	0.39	47	- - -	- - -
	30° O/S	6.5	480	17	1	0.80	53	0.36	36	0.04	5	- - -	- - -
	45° O/S	9.8	710	17	1	0.80	53	0.36	36	0.05	6	- - -	- - -
	60° O/S	13.1	950	17	1	0.80	53	0.36	36	0.08	10	- - -	- - -
	90° O/S	19.6	1420	17	2	1.60	107	0.72	71	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	0.80	53	0.36	36	0.15	18	0.75	90
	45° I/S	9.9	850	17	1	0.80	53	0.36	36	0.21	25	0.75	90
	60° I/S	13.3	1140	17	1	0.80	53	0.36	36	0.26	31	1.50	180
	90° I/S	19.9	1700	17	2	1.60	107	0.72	71	0.39	47	1.50	180
	30° O/S	6.1	530	17	1	0.80	53	0.36	36	0.04	5	0.75	90
	45° O/S	9.2	790	17	1	0.80	53	0.36	36	0.05	6	0.75	90
	60° O/S	12.2	1050	17	1	0.80	53	0.36	36	0.08	10	1.50	180
	90° O/S	18.3	1570	17	2	1.60	107	0.72	71	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 39" Rear Sill	30° I/S	6.1	410	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	45° I/S	6.2	620	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	60° I/S	12.2	820	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	90° I/S	18.4	1230	27	2	1.60	107	0.72	71	- - -	- - -	- - -	- - -
	30° O/S	5.4	360	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	45° O/S	8.1	540	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	60° O/S	10.8	720	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	90° O/S	16.1	1080	27	2	1.60	107	0.72	71	- - -	- - -	- - -	- - -

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 43" Rear Sill	30° I/S	7.0	580	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	45° I/S	10.5	860	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	60° I/S	14.0	1150	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	90° I/S	21.0	1720	27	2	1.60	107	0.72	71	- - -	- - -	- - -	- - -
	30° O/S	5.8	480	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	45° O/S	8.7	720	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	60° O/S	11.6	950	27	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	90° O/S	17.4	1430	27	2	1.60	107	0.72	71	- - -	- - -	- - -	- - -

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

OBSOLETE

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
O2UM	30° I/S	7.8	1350	17	1	0.80	53	0.36	36	0.15[2]	18	1.55	186
	45° I/S	11.7	2030	17	1	0.80	53	0.36	36	0.21[2]	25	1.55	186
	60° I/S	15.6	2700	17	1	0.80	53	0.36	36	0.26[2]	31	1.90	288
	90° I/S	23.4	4050	17	2	1.60	107	0.72	71	0.39[2]	47	2.85	342
	30° O/S	6.5	1130	17	1	0.80	53	0.36	36	0.04[2]	5	1.55	186
	45° O/S	9.8	1690	17	1	0.80	53	0.36	36	0.05[2]	6	1.55	186
	60° O/S	13.0	2260	17	1	0.80	53	0.36	36	0.08[2]	10	1.90	288
	90° O/S	19.5	3380	17	2	1.60	107	0.72	71	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 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
O2.5UM	30° I/S	8.4	1450	17	1	0.80	53	0.36	36	0.15[2]	18	2.35	282
	45° I/S	12.7	2170	17	1	0.80	53	0.36	36	0.21[2]	25	2.35	282
	60° I/S	16.9	2890	17	1	0.80	53	0.36	36	0.26[2]	31	2.55	306
	90° I/S	25.3	4340	17	2	1.60	107	0.72	71	0.39[2]	47	4.45	534
	30° O/S	6.9	1190	17	1	0.80	53	0.36	36	0.04[2]	5	2.35	282
	45° O/S	10.4	1780	17	1	0.80	53	0.36	36	0.05[2]	6	2.35	282
	60° O/S	13.8	2370	17	1	0.80	53	0.36	36	0.08[2]	10	2.55	306
	90° O/S	20.7	3550	17	2	1.60	107	0.72	71	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 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
O3UM	30° I/S	9.3	1510	17	1	0.80	53	0.36	36	0.15[2]	18	2.35	282
	45° I/S	14.0	2260	17	1	0.80	53	0.36	36	0.21[2]	25	2.35	282
	60° I/S	18.7	3020	17	1	0.80	53	0.36	36	0.26[2]	31	2.55	306
	90° I/S	28.0	4520	17	2	1.60	107	0.72	71	0.39[2]	47	4.45	534
	30° O/S	7.5	1220	17	1	0.80	53	0.36	36	0.04[2]	5	2.35	282
	45° O/S	11.3	1830	17	1	0.80	53	0.36	36	0.05[2]	6	2.35	282
	60° O/S	15.1	2440	17	1	0.80	53	0.36	36	0.08[2]	10	2.55	306
	90° O/S	22.6	3650	17	2	1.60	107	0.72	71	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 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
O3.5UM	30° I/S	10.4	1880	17	1	0.80	53	0.36	36	0.15[2]	18	3.15	378
	45° I/S	15.7	2820	17	1	0.80	53	0.36	36	0.21[2]	25	3.15	378
	60° I/S	20.9	3760	17	1	0.80	53	0.36	36	0.26[2]	31	3.20	384
	90° I/S	31.3	5640	17	2	1.60	107	0.72	71	0.39[2]	47	6.05	726
	30° O/S	8.2	1480	17	1	0.80	53	0.36	36	0.04[2]	5	3.15	378
	45° O/S	12.3	2210	17	1	0.80	53	0.36	36	0.05[2]	6	3.15	378
	60° O/S	16.4	2950	17	1	0.80	53	0.36	36	0.08[2]	10	3.20	384
	90° O/S	24.6	4420	17	2	1.60	107	0.72	71	0.10[2]	12	6.05	726

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

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

PROFILE

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	0.80	53	0.36	36	0.15[2]	18	3.15	378
	45° I/S	18.2	3060	17	1	0.80	53	0.36	36	0.21[2]	25	3.15	378
	60° I/S	24.3	4080	17	1	0.80	53	0.36	36	0.26[2]	31	3.20	384
	90° I/S	36.4	6120	17	2	1.60	107	0.72	71	0.39[2]	47	6.05	726
	30° O/S	9.4	1580	17	1	0.80	53	0.36	36	0.04[2]	5	3.15	378
	45° O/S	14.0	2360	17	1	0.80	53	0.36	36	0.05[2]	6	3.15	378
	60° O/S	18.7	3150	17	1	0.80	53	0.36	36	0.08[2]	10	3.20	384
	90° O/S	28.1	4720	17	2	1.60	107	0.72	71	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	0.80	53	0.36	36	0.15[2]	18	3.95	474
	45° I/S	19.8	3130	17	1	0.80	53	0.36	36	0.21[2]	25	3.95	474
	60° I/S	26.3	4170	17	1	0.80	53	0.36	36	0.26[2]	31	3.85	462
	90° I/S	39.5	6260	17	2	1.60	107	0.72	71	0.39[2]	47	7.65	918
	30° O/S	10.1	1600	17	1	0.80	53	0.36	36	0.04[2]	5	3.95	474
	45° O/S	15.1	2390	17	1	0.80	53	0.36	36	0.05[2]	6	3.95	474
	60° O/S	20.1	3190	17	1	0.80	53	0.36	36	0.08[2]	10	3.85	462
	90° O/S	30.2	4780	17	2	1.60	107	0.72	71	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	0.80	53	0.36	36	- - -	- - -	5.00	600
	45° I/S	32.0	3030	17	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	60° I/S	42.6	4030	17	1	0.80	53	0.36	36	- - -	- - -	5.25	630
	90° I/S	64.0	6050	17	2	1.60	107	0.72	71	- - -	- - -	10.00	1200
	30° O/S	20.5	1940	17	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	45° O/S	30.8	2910	17	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	60° O/S	41.0	3880	17	1	0.80	53	0.36	36	- - -	- - -	5.25	630
	90° O/S	61.5	5820	17	2	1.60	107	0.72	71	- - -	- - -	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	0.80	53	0.36	36	- - -	- - -	5.00	600
	45° I/S	32.0	2840	22	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	60° I/S	42.6	3780	22	1	0.80	53	0.36	36	- - -	- - -	5.25	630
	90° I/S	64.0	5670	22	2	1.60	107	0.72	71	- - -	- - -	10.00	1200
	30° O/S	20.5	1820	22	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	45° O/S	30.8	2730	22	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	60° O/S	41.0	3640	22	1	0.80	53	0.36	36	- - -	- - -	5.25	630
	90° O/S	61.5	5460	22	2	1.60	107	0.72	71	- - -	- - -	10.00	1200

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

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

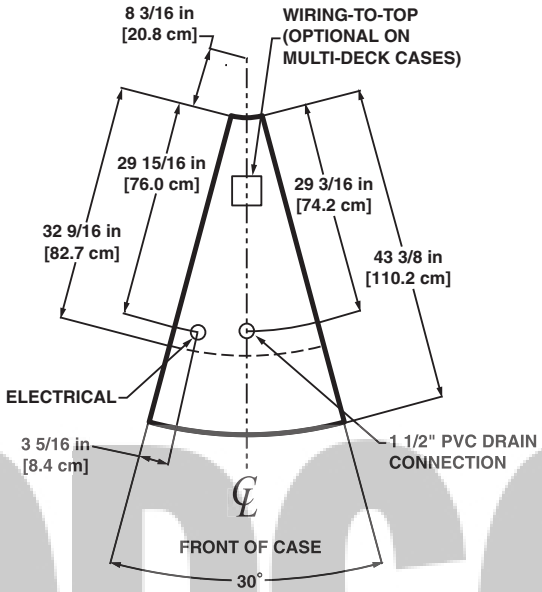
Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OHM	30° I/S	17.3	1780	17	1	0.80	53	0.36	36	0.04	5	3.95	474
	45° I/S	26.0	2660	17	1	0.80	53	0.36	36	0.10	12	3.95	474
	60° I/S	34.6	3550	17	1	0.80	53	0.36	36	0.34	41	4.10	492
	90° I/S	52.0	5320	17	2	1.60	107	0.72	71	0.32	38	7.90	948
	30° O/S	16.2	1660	17	1	0.80	53	0.36	36	0.10	12	3.95	474
	45° O/S	24.2	2480	17	1	0.80	53	0.36	36	0.14	17	3.95	474
	60° O/S	32.3	3310	17	1	0.80	53	0.36	36	0.18	22	4.10	492
	90° O/S	48.5	4960	17	2	1.60	107	0.72	71	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		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OHMH	30° I/S	18.3	1980	12	1	0.80	53	0.36	36	0.08	10	4.75	570
	45° I/S	27.4	2970	12	1	0.80	53	0.36	36	0.20	24	4.75	570
	60° I/S	36.6	3960	12	1	0.80	53	0.36	36	0.68	82	4.75	570
	90° I/S	54.9	5940	12	2	1.60	107	0.72	71	0.64	77	9.50	1140
	30° O/S	15.9	1730	12	1	0.80	53	0.36	36	0.20	24	4.75	570
	45° O/S	23.9	2590	12	1	0.80	53	0.36	36	0.28	34	4.75	570
	60° O/S	31.8	3450	12	1	0.80	53	0.36	36	0.36	44	4.75	570
	90° O/S	47.8	5170	12	2	1.60	107	0.72	71	0.56	68	9.50	1140

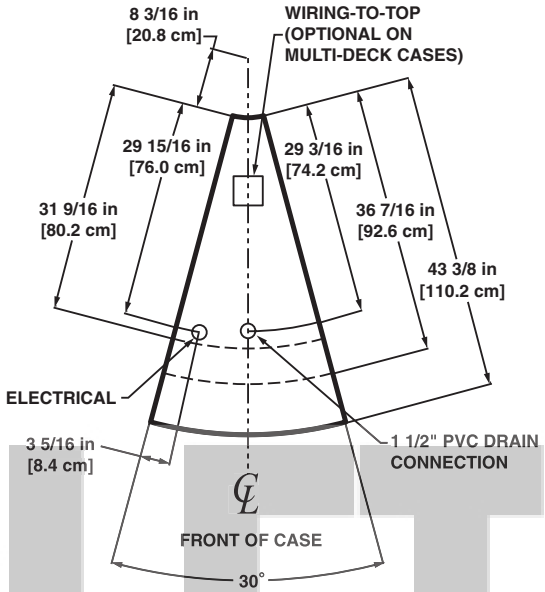
Case Model	Wedge Model	Volume (ft^3)	BTUH[1]	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OHP	30° I/S	17.2	1650	22	1	0.80	53	0.36	36	- - -	- - -	3.95	474
	45° I/S	25.8	2470	22	1	0.80	53	0.36	36	- - -	- - -	3.95	474
	60° I/S	34.4	3300	22	1	0.80	53	0.36	36	- - -	- - -	4.10	492
	90° I/S	51.6	4940	22	2	1.60	107	0.72	71	- - -	- - -	7.90	948
	30° O/S	16.1	1550	22	1	0.80	53	0.36	36	- - -	- - -	3.95	474
	45° O/S	24.2	2320	22	1	0.80	53	0.36	36	- - -	- - -	3.95	474
	60° O/S	32.3	3090	22	1	0.80	53	0.36	36	- - -	- - -	4.10	492
	90° O/S	48.4	4640	22	2	1.60	107	0.72	71	- - -	- - -	7.90	948

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
OHPH	30° I/S	18.3	17	1860	1	0.80	53	0.36	36	0.04	5	4.75	570
	45° I/S	27.5	17	2790	1	0.80	53	0.36	36	0.10	12	4.75	570
	60° I/S	36.7	17	3720	1	0.80	53	0.36	36	0.34	41	4.75	570
	90° I/S	55.0	17	5580	2	1.60	107	0.72	71	0.32	38	9.50	1140
	30° O/S	15.8	17	1610	1	0.80	53	0.36	36	0.10	12	4.75	570
	45° O/S	23.7	17	2410	1	0.80	53	0.36	36	0.14	17	4.75	570
	60° O/S	31.6	17	3210	1	0.80	53	0.36	36	0.18	22	4.75	570
	90° O/S	47.4	17	4810	2	1.60	107	0.72	71	0.28	34	9.50	1140

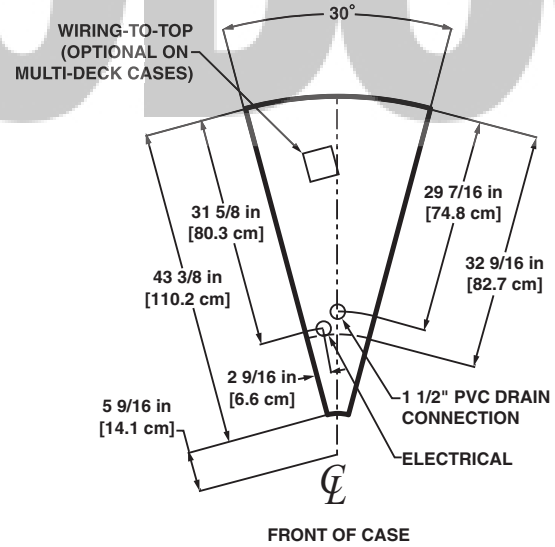
[1] BTUH's listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.



30° OUTSIDE
(11" BASEFRAME)



30° OUTSIDE
(5" BASEFRAME)



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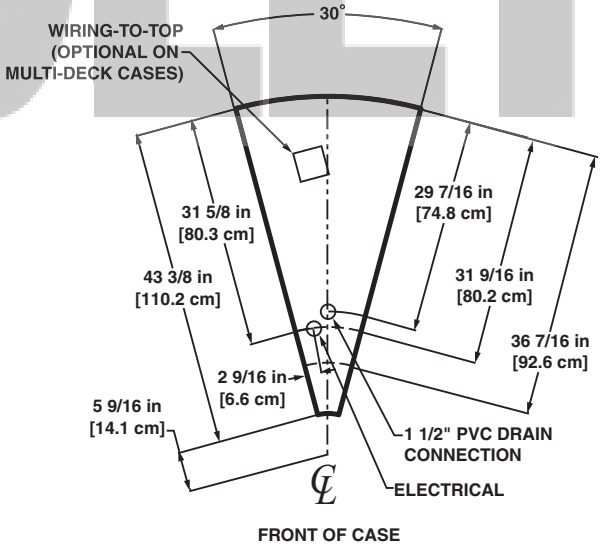
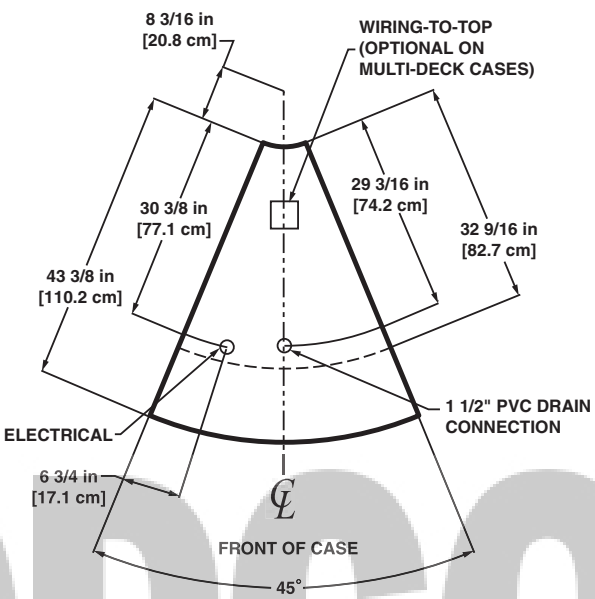


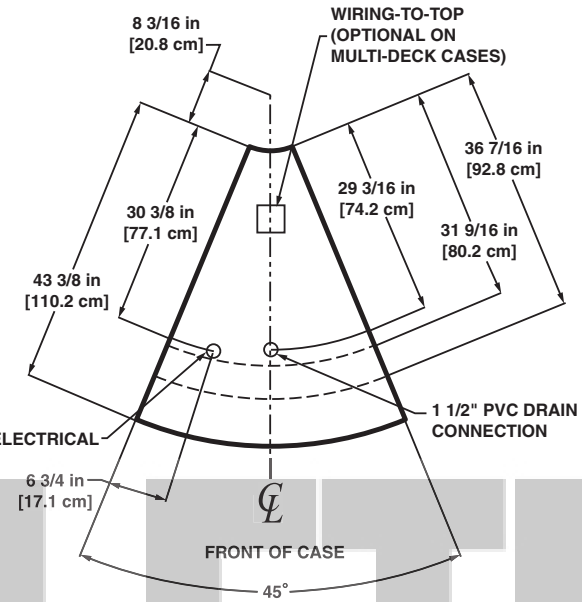
30° INSIDE
(5" BASEFRAME)

OBSOLETE

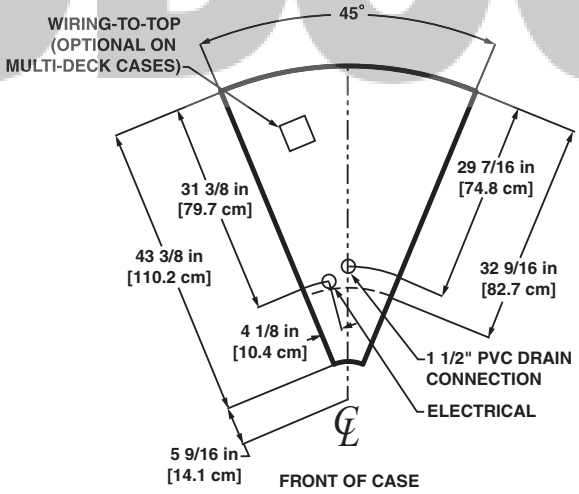
NOTE: Curved case cross-sections are the same as the standard model



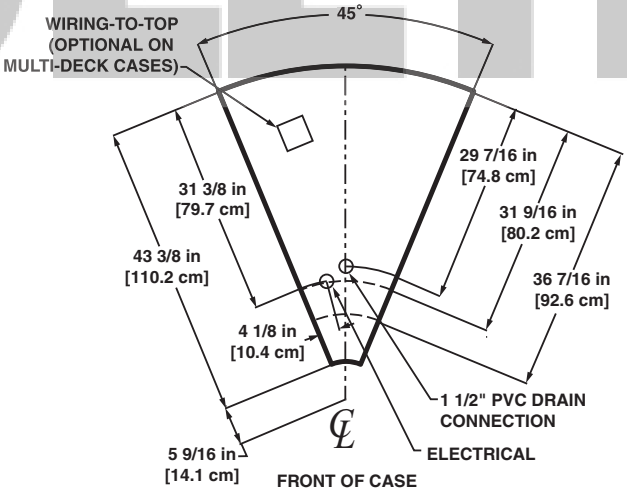
45° OUTSIDE
(11" BASEFRAME)



45° OUTSIDE
(5" BASEFRAME)



45° INSIDE
(11" BASEFRAME)

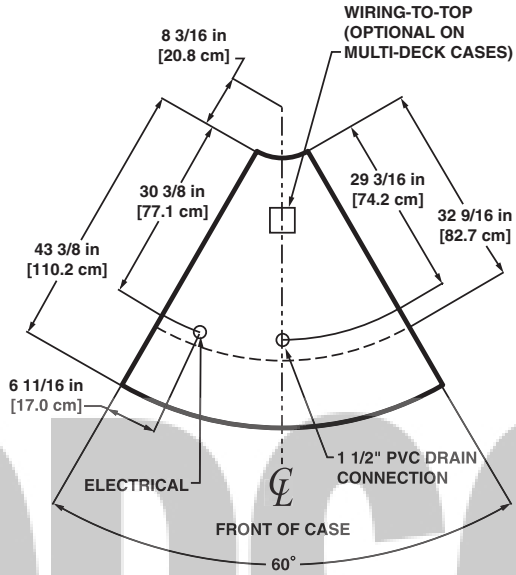


45° INSIDE
(5" BASEFRAME)

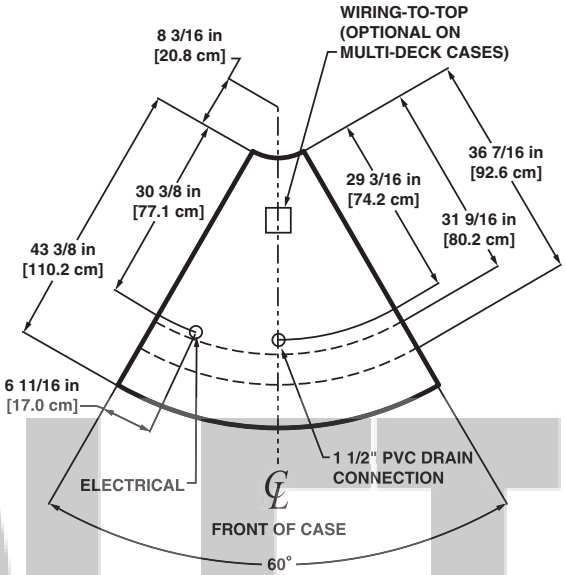
OBSOLETE

NOTE: Curved case cross-sections are the same as the standard model

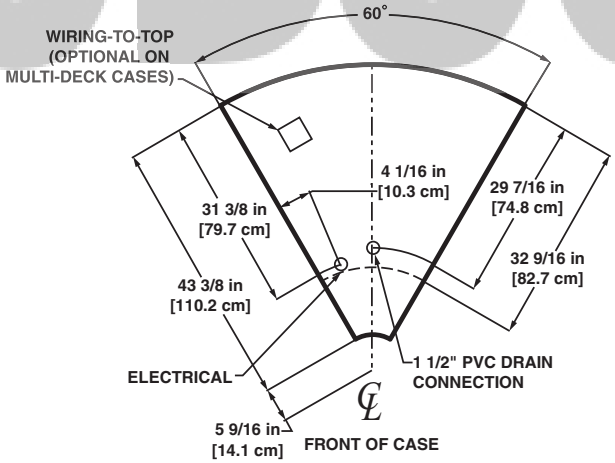
OBSOLETE



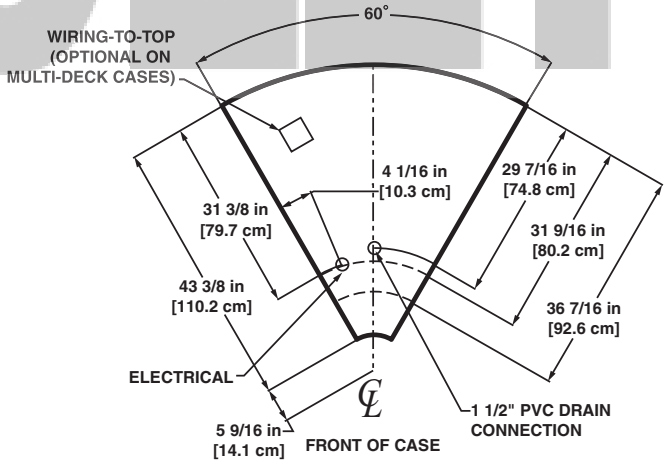
60° OUTSIDE
(11" BASEFRAME)



60° OUTSIDE
(5" BASEFRAME)

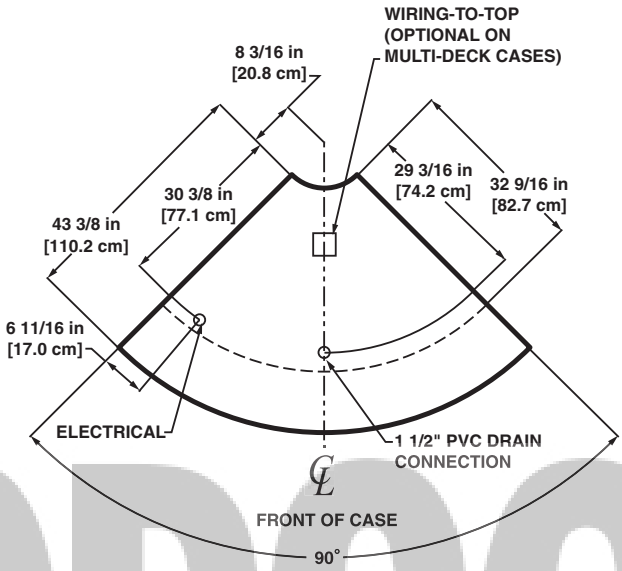


60° INSIDE
(11" BASEFRAME)

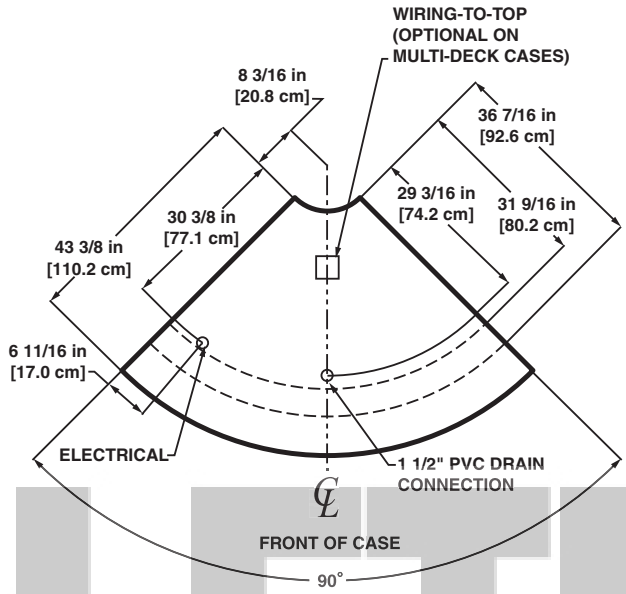


60° INSIDE
(5" BASEFRAME)

NOTE: Curved case cross-sections are the same as the standard model

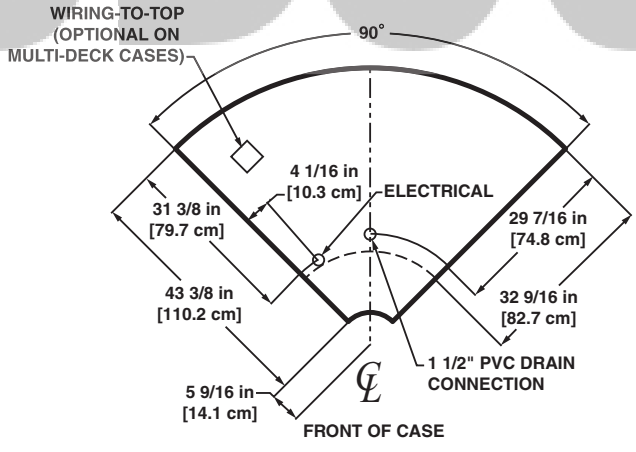


90° OUTSIDE
(11" BASEFRAME)

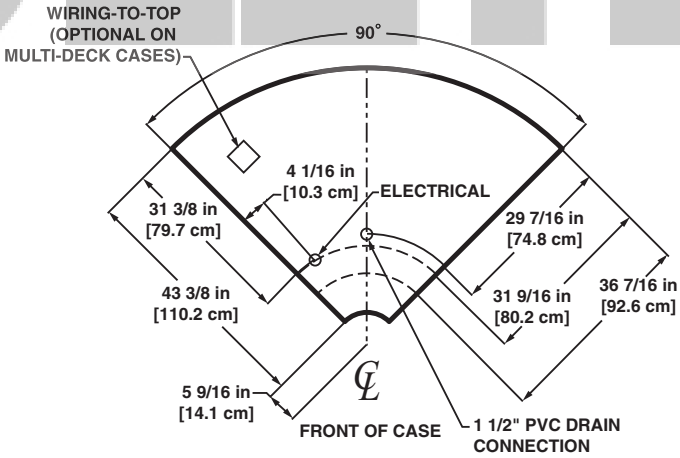


90° OUTSIDE
(5" BASEFRAME)

OBSOLETE



90° INSIDE
(11" BASEFRAME)



90° INSIDE
(5" BASEFRAME)

NOTE: Curved case cross-sections are the same as the standard model

OBSOLETE

APPENDIX A

OBSOLETE

OBSOLETE

2004 DIRECT EXPANSION CASE REFRIGERATION REQUIREMENTS TABLE - Standard Efficiency

Hill PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

CASE MODEL	FRONT SILL TYPE	BTUH/ft [1] or BTUH/Door	TEMPERATURE (ºF) EVAP.	DISC. AIR	RET. AIR	AIR VELOCITY [2] FPM	SUPERHEAT SETPOINT @ BULB (ºF)	RUN-OFF TIME (MINUTES)	# DEF.	DEFROST Electric Fail Safe (Minutes)	Electric Temp. (ºF)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (ºF)	Hot Gas Fail Safe (Minutes)	Hot Gas Temp. (ºF)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (ºF)
SINGLE DECK MERCHANDISERS																	
MPC	Standard MPC	617	22	30	42	163	6 - 8	6 - 8	3	40	49	60	47	- - -	- - -	- - -	- - -
OC	Standard	480	17	26	39	305	6 - 8	6 - 8	3	40	49	70	47	26	45	40	45
	All Other Fronts	415	17	26	35	305	6 - 8	6 - 8	3	40	49	70	47	26	45	40	45
OM	Standard	560	12	22	37	305	6 - 8	6 - 8	3	40	49	70	47	26	45	40	45
	Standard	480	17	26	39	305	6 - 8	6 - 8	3	40	49	70	47	26	45	40	45
	All Other Fronts	415	17	26	35	305	6 - 8	6 - 8	3	40	49	70	47	26	45	40	45
ONMZ	6" Thermopane	430	0	12	25	120	3 - 5	13 - 15	4	45	47	- - -	- - -	20	60	- - -	- - -
OMZ	6" Thermopane	550	-22	-10	0	120	3 - 5	13 - 15	4	45	47	- - -	- - -	20	60	- - -	- - -
OMZD Frozen Food	11" Thermopane	456	-17	-8	2	240	3 - 5	13 - 15	1	45	48	- - -	- - -	20	60	- - -	- - -
Ice Cream	11" Thermopane	476	-27	-18	-8	240	3 - 5	13 - 15	1	45	48	- - -	- - -	20	60	- - -	- - -
OP Cut Produce	39" (Rear Sill)	288	22	31	42	180	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
	43" (Rear Sill)	401	22	30	45	210	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
OP Bulk Produce	39" (Rear Sill)	230	27	36	44	180	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
	43" (Rear Sill)	374	27	35	47	210	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
OWP Cut Produce	39" (Rear Sill)	377	22	31	42	180	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
	43" (Rear Sill)	525	22	30	45	210	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
OWP Bulk Produce	39" (Rear Sill)	301	27	36	44	180	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
	43" (Rear Sill)	490	27	35	47	210	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
UP	Std. International	600	22	32	42	275	6 - 8	6 - 8	3	40	45	45	45	- - -	- - -	- - -	- - -
UTILITY MERCHANDISERS																	
ONUMD	All Fronts	1390	17	29	40	250	6 - 8	6 - 8	3	40	47	50	45	26	45	- - -	- - -
ON2UM	All Fronts	657	17	28	35	280	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O2UM	All Fronts	1000	17	27	40	340	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
OW2UM	All Fronts	1236	17	27	40	340	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
ON2.5UM	All Fronts	811	17	28	35	284	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O2.5UM [3]	All Fronts	1020	17	27	45	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
w/ Plexiglas Dome	All Fronts	1380	17	32	46	305	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O2.75UM	All Fronts	1025	17	27	45	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
ON3UM	All Fronts	824	17	28	35	230	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O3UM	All Fronts	1030	17	27	45	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
OW3UM	All Fronts	1349	17	27	45	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O3UD	Standard Dairy	1030	17	30	45	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
ON3.5UM	All Fronts	1019	17	28	35	204	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O3.5UM	All Fronts	1300	17	30	45	300	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O3.5UD	Standard Dairy	1300	17	30	45	300	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
ON4UM	All Fronts	1135	17	31	33	203	6 - 8	6 - 8	4	40	47	45	45	26	45	45	45
O4UM	All Fronts	1460	17	30	43	300	6 - 8	6 - 8	4	40	47	45	45	26	45	45	45
O5UM	All Fronts	1490	17	30	42	300	6 - 8	6 - 8	4	40	47	- - -	- - -	26	45	45	45
ON6UM	All Fronts	1092	17	28	40	300	6 - 8	6 - 8	4	35	48	- - -	- - -	26	45	- - -	- - -
O6UM	All Fronts	1405	17	29	41	300	6 - 8	6 - 8	4	35	48	- - -	- - -	26	45	- - -	- - -

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

2004 DIRECT EXPANSION CASE REFRIGERATION REQUIREMENTS TABLE - Standard Efficiency

Hill PHOENIX EXCELLENCE

ORIGIN 2®

A DOVER™ COMPANY

MULTI-DECK MERCHANDISERS

CASE MODEL	FRONT SILL TYPE	BTUH/ft [1] or BTUH/Door	TEMPERATURE (ºF) EVAP.	DISC. AIR	RET. AIR	AIR VELOCITY [2] FPM	SUPERHEAT SETPOINT @ BULB (ºF)	RUN-OFF TIME (MINUTES)	DEFROST # DEF.	Electric Fail Safe (Minutes)	Electric Temp. (ºF)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (ºF)	Hot Gas Fail Safe (Minutes)	Hot Gas Temp. (ºF)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (ºF)
BB	Standard BB	1290	17	32	45	325	6 - 8	6 - 8	4	30	47	45	47	- - -	- - -	45	45
ONN35U	Standard ONN	1400	22	35	45	275	6 - 8	6 - 8	4	35	47	45	47	26	45	- - -	- - -
ONN5U	Standard ONN5U	990	20	33	44	246	6 - 8	6 - 8	4	35	47	45	47	- - -	- - -	- - -	- - -
ON5DM Dairy	Standard Dairy	1811	17	32	47	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Cut Produce	2.5" Extended	1766	17	31	44	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1739	17	31	40	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	7.5" Extended	1681	17	31	40	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
ON5DM Beverage	Standard Dairy	1670	27	37	53	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Bulk Produce	2.5" Extended	1628	27	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1576	27	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	7.5" Extended	1550	27	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
ON5DMH Dairy	Standard Dairy	1840	17	33	48	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Cut Produce	2.5" Extended	1795	17	33	45	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1779	17	32	41	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	7.5" Extended	1700	17	32	41	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
ON5DMH Beverage	Standard Dairy	1700	27	37	54	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Bulk Produce	2.5" Extended	1640	27	37	53	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1608	27	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	7.5" Extended	1595	27	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DM Deli	2.5" Extended	1570	17	30	44	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1530	17	30	44	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/ Shelf Lights	7.5" Extended	1500	17	30	44	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DM Dairy	Standard Dairy	1470	22	34	47	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Cut Produce	2.5" Extended	1431	22	34	47	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1401	22	34	47	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/ Shelf Lights	7.5" Extended	1370	22	34	47	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DM Beverage	Standard Dairy	1490	27	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Bulk Produce	2.5" Extended	1450	27	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1420	27	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/o Shelf Lights	7.5" Extended	1390	27	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DMH Deli	2.5" Extended	1620	17	31	43	250	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1570	17	31	43	250	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/ Shelf Lights	7.5" Extended	1540	17	31	43	250	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DMH Dairy	Standard Dairy	1555	22	35	47	265	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Cut Produce	2.5" Extended	1500	22	35	47	265	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1470	22	35	47	265	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/ Shelf Lights	7.5" Extended	1440	22	35	47	265	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DMH Beverage	Standard Dairy	1495	27	37	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Bulk Produce	2.5" Extended	1455	27	36	53	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1426	27	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/o Shelf Lights	7.5" Extended	1397	27	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

Hill PHOENIX EXCELLENCE

ORIGIN 2

A DOVER COMPANY

MULTI-DECK MERCHANDISERS (Continued)

CASE MODEL	FRONT SILL TYPE	BTUH/ft (1) or BTUH/Door	TEMPERATURE (ºF) EVAP.	DISC. AIR	RET. AIR	AIR VELOCITY (2) FPM	SUPERHEAT SETPOINT @ BULB (ºF)	RUN-OFF TIME (MINUTES)	# DEF.	DEFROST Electric Fail Safe (Minutes)	Electric Temp. (ºF)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (ºF)	Hot Gas Fail Safe (Minutes)	Hot Gas Temp. (ºF)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (ºF)
O5DR Dairy	Standard Dairy	1502	17	32	47	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	2.5" Extended	1502	17	32	46	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	5" Extended	1453	17	32	42	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	7.5" Extended	1425	17	32	42	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
O5DR Dairy	2.5" Extended	1389	22	35	48	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	5" Extended	1422	22	35	47	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
O5DRH Dairy	Standard Dairy	1543	17	32	47	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	2.5" Extended	1543	17	32	46	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	5" Extended	1493	17	32	42	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	7.5" Extended	1464	17	32	42	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
O5DRH Dairy	2.5" Extended	1427	22	35	48	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	5" Extended	1461	22	35	47	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
O5Z	Standard O5Z	1840	-17	-5	0	(4)	3 - 5	13 - 15	3	34	50	- - -	- - -	24	60	50	50
ONHM	Standard	1440	17	30	41	340	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
	All Other Fronts	1340	17	30	41	340	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
ONHMH	Standard	1440	17	30	41	340	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
	All Other Fronts	1340	17	29	40	340	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
OHM	Standard	1451	12	25	35	350	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
	Standard	1385	17	28	38	350	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
	All Other Fronts	1341	17	28	37	350	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
OHMH	Standard	1550	12	26	37	330	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
	Standard	1434	17	29	41	330	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
	All Other Fronts	1340	17	29	38	330	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45
ONHP Cut Produce	Standard	1310	22	32	45	360	6 - 8	6 - 8	3	35	47	45	47	- - -	- - -	45	45
Bulk Produce	Standard	930	27	36	48	360	6 - 8	6 - 8	3	35	47	45	47	- - -	- - -	45	45
ONHPH Cut Produce	Standard	1330	22	34	46	360	6 - 8	6 - 8	3	35	47	45	47	- - -	- - -	45	45
Bulk Produce	Standard	945	27	37	47	360	6 - 8	6 - 8	3	35	47	45	47	- - -	- - -	45	45
OHP Cut Produce	Standard	1215	22	31	45	440	6 - 8	6 - 8	3	35	47	45	47	26	45	30	45
Bulk Produce	Standard	855	27	36	48	250	6 - 8	6 - 8	3	35	47	45	47	26	45	30	45
OHPH Cut Produce	Standard	1460	22	30	45	315	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45
Bulk Produce	Standard	1215	27	31	45	440	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45
OWHP Cut Produce	Standard	1592	22	31	45	440	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45
Bulk Produce	Standard	1120	27	36	48	250	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45
OWHPH Cut Produce	Standard	1913	22	30	45	315	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45
Bulk Produce	Standard	1592	27	31	45	440	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45
ONU	2.5" Extended	1450	17	30	40	310	6 - 8	6 - 8	4	35	47	45	47	25	45	- - -	- - -
ORDR (5)	Standard ORDR	739	17	28	44	310	6 - 8	6 - 8	4	30	47	30	47	26	45	- - -	- - -

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

2004 DIRECT EXPANSION CASE REFRIGERATION REQUIREMENTS TABLE - Standard Efficiency

Hill PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

CASE MODEL	FRONT SILL TYPE	BTUH/ft [1] or BTUH/Door	TEMPERATURE (°F) EVAP.	DISC. AIR	RET. AIR	AIR VELOCITY [2] FPM	SUPERHEAT SETPOINT @ BULB (°F)	RUN-OFF TIME (MINUTES)	DEFROST # DEF.	Electric Fail Safe (Minutes)	Electric Temp. (°F)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (°F)	Hot Gas Fail Safe (Minutes)	Hot Gas Temp. (°F)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (°F)
END CAP MERCHANDISERS																	
ONEMZ	6" Thermopane	300 [6]	0	11	22	120	3 - 5	13 - 15	2	45	47	---	---	20	60	---	---
OEM	6" Thermopane	2918 [6]	17	29	37	232	6 - 8	6 - 8	2	40	49	70	47	26	45	---	---
ON3EM	Standard	6000 [6]	17	33	45	275	6 - 8	6 - 8	4	40	47	45	45	---	---	---	---
O3EM	Standard	6900 [6]	17	33	45	275	6 - 8	6 - 8	4	40	47	45	45	---	---	---	---
O3.5EM	Standard	8709 [6]	17	33	45	275	6 - 8	6 - 8	4	40	47	45	45	---	---	---	---
OEP	Standard	2244 [6]	27	35	47	210	6 - 8	6 - 8	2	40	49	60	47	26	45	---	---
O3EP	Standard	2917 [6]	27	36	47	200	6 - 8	6 - 8	2	40	49	60	47	26	45	---	---
GLASS DOOR REACH-IN MERCHANDISERS																	
KRZH Frozen Food	Standard KRZH	1850	-12	-8	-3	420	3 - 5	13 - 15	1	60	73	---	---	24	73	---	---
Ice Cream	Standard KRZH	2200	-22	-12	-7	420	3 - 5	13 - 15	1	60	73	---	---	24	73	---	---
ONRB [7]	Std. 1/2 Bumper	900	22	32	35	460	6 - 8	6 - 8	1	30	47	45	47	24	45	---	---
ONRBH [7]	Std. 1/2 Bumper	900	22	32	35	405	6 - 8	6 - 8	1	30	47	45	47	24	45	---	---
ORB	Std. 1/2 Bumper	900	22	27	30	380	6 - 8	6 - 8	1	30	47	45	47	24	45	---	---
ORBR	Std. 1/2 Bumper	1150	22	27	30	380	6 - 8	6 - 8	1	30	47	45	47	24	45	---	---
ORBH 2, 3, 4 & 5 dr	Std. 1/2 Bumper	900	22	27	30	280	6 - 8	6 - 8	1	30	47	45	47	24	45	---	---
ORBH 8' & 12'	Std. 1/2 Bumper	1080	22	27	30	280	6 - 8	6 - 8	1	30	47	45	47	24	45	---	---
ONRZ [7] Frozen Food	Std. 1/2 Bumper	1500	-12	-2	2	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
Ice Cream	Std. 1/2 Bumper	1600	-22	-12	-8	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRZ [7] Frozen Food	Std. 1/2 Bumper	1335	-12	-2	2	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS Ice Cream	Std. 1/2 Bumper	1424	-22	-12	-8	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRZH [7] Frozen Food	Std. 1/2 Bumper	1500	-12	-8	-4	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
Ice Cream	Std. 1/2 Bumper	1600	-22	-12	-4	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRZH [7] Frozen Food	Std. 1/2 Bumper	1335	-12	-8	-4	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS Ice Cream	Std. 1/2 Bumper	1424	-22	-12	-4	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ORZ Frozen Food	Std. 1/2 Bumper	1400	-12	-8	-5	380	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
Ice Cream	Std. 1/2 Bumper	1600	-22	-12	-4	380	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ORZ Frozen Food	Std. 1/2 Bumper	1246	-12	-8	-5	380	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS Ice Cream	Std. 1/2 Bumper	1424	-22	-12	-4	380	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ORZH Frozen Food	Std. 1/2 Bumper	1500	-12	-8	-4	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
Ice Cream	Std. 1/2 Bumper	1600	-22	-12	-4	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ORZH Frozen Food	Std. 1/2 Bumper	1335	-12	-8	-4	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS Ice Cream	Std. 1/2 Bumper	1424	-22	-12	-4	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRIZ [7] Frozen Food	Std. 1/2 Bumper	1210	-12	-2	2	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
Ice Cream	Std. 1/2 Bumper	1405	-22	-12	-8	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRIZ [7] Frozen Food	Std. 1/2 Bumper	1077	-12	-2	2	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS Ice Cream	Std. 1/2 Bumper	1250	-22	-12	-8	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRIZH [7] Frozen Food	Std. 1/2 Bumper	1210	-12	-2	2	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
Ice Cream	Std. 1/2 Bumper	1405	-22	-12	-8	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRIZH [7] Frozen Food	Std. 1/2 Bumper	1077	-12	-2	2	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS Ice Cream	Std. 1/2 Bumper	1250	-22	-12	-8	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

2004 DIRECT EXPANSION CASE REFRIGERATION REQUIREMENTS TABLE - Standard Efficiency

Hill PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

SINGLE DECK ISLAND MERCHANDISERS																		
ONIM	Meat	7" Thermopane	885 (8)	12	25	34	180	6 - 8	6 - 8	3	35	47	45	47	26	45	---	---
	Deli	7" Thermopane	860 (9)	17	28	37	180	6 - 8	6 - 8	3	35	47	45	47	26	45	---	---
OIM	Meat	7" Thermopane	770 (10)	12	26	31	140	6 - 8	6 - 8	3	40	47	45	47	26	45	---	---
	Deli	7" Thermopane	560 (11)	17	28	33	140	6 - 8	6 - 8	3	40	47	45	47	26	45	---	---
OIP	Bulk Produce	Standard	650 (12)	22	34	48	140	6 - 8	6 - 8	3	---	---	44	38	---	---	---	---
ONZ	Frozen Food	4" Solid	440	-12	-2	7	393	3 - 5	13 - 15	2	35	47	---	---	20	60	---	---
	Ice Cream	4" Solid	500	-22	-13	-3	400	3 - 5	13 - 15	2	35	47	---	---	20	60	---	---
ONIZ	Frozen Food	4" Solid	440	-12	-2	7	393	3 - 5	13 - 15	1	35	47	---	---	20	60	---	---
	Ice Cream	4" Solid	500	-22	-13	-3	400	3 - 5	13 - 15	1	35	47	---	---	20	60	---	---
OIZ (13)	Frozen Food	4" Solid	520	-22	-12	-4	200	3 - 5	13 - 15	1	45	47	---	---	20	60	---	---
OWIZ	Frozen Food	4" Solid	600 (14)	-17	-12	0	180	3 - 5	13 - 15	1	60	49	---	---	20	60	---	---
	Ice Cream	4" Solid	700 (14)	-32	-20	-12	180	3 - 5	13 - 15	1	60	49	---	---	20	60	---	---
OWEZ	Frozen Food	4" Solid	2700 (6)	-17	-12	0	200	3 - 5	13 - 15	1	60	49	---	---	20	60	---	---
	Ice Cream	4" Solid	3300 (6)	-32	-22	-12	200	3 - 5	13 - 15	1	60	49	---	---	20	60	---	---
MULTI-DECK ISLAND MERCHANDISERS																		
O3IM		6" Thermopane	1527	17	28	38	270	6 - 8	6 - 8	3	30	47	---	---	26	45	---	---
O3IMB		6" Thermopane	1548	17	28	38	270	6 - 8	6 - 8	3	30	47	---	---	26	45	---	---
O3IMBB		6" Thermopane	1315	17	28	38	270	6 - 8	6 - 8	3	30	47	---	---	26	45	---	---
O3IP		Standard	1050 (15)	22	34	48	160	6 - 8	6 - 8	4	30	47	44	38	---	---	---	---
O4ID		6" Thermopane	2450	12	28	43	130	6 - 8	6 - 8	4	30	47	---	---	26	45	---	---
O4IDB		6" Thermopane	2484	12	28	43	130	6 - 8	6 - 8	4	30	47	---	---	26	45	---	---
O4IDBB		6" Thermopane	2110	12	28	43	130	6 - 8	6 - 8	4	30	47	---	---	26	45	---	---
SERVICE MERCHANDISERS																		
OSA	w/ Shelf Lights	Std. American	320	22	30	39	235	6 - 8	6 - 8	2	35	50	75 (16)	50	20	45	---	---
	w/o Shelf Lights	Std. American	290	22	30	39	235	6 - 8	6 - 8	2	35	50	75 (16)	50	20	45	---	---
OSAG (17)		Std. American	270	15	21-31	38	125	6 - 8	6 - 8	2	---	---	65	46	20	45	---	---
OSM		Std. American	320	22	30	39	235	6 - 8	6 - 8	2	35	50	75 (16)	50	20	45	---	---
OGM (18)		Std. American	226	17	na (20)	na	na	6 - 8	6 - 8	2	---	---	65	46	20	45	---	---
OSIO		Std. International	695	17	24	33	180	6 - 8	6 - 8	3	35	47	55	47	26	45	---	---
OWSIO		Std. International	795	17	24	33	180	6 - 8	6 - 8	3	35	47	55	47	26	45	---	---
OSIOP	Meat	Std. International	475	12	32	36	200	6 - 8	6 - 8	2	40	47	---	---	---	---	---	---
	Deli	Std. International	425	17	34	36	200	6 - 8	6 - 8	2	40	47	---	---	---	---	---	---
OSIOZ		Std. International	560	-32	-24	-10	220	6 - 8	6 - 8	2	47	45	---	---	---	---	---	---
OSI (19)		Std. International	350	22	31	38	175	6 - 8	6 - 8	3	30	47	60 (16)	47	26	45	---	---
OWSI (19)		Std. International	450	22	31	38	175	6 - 8	6 - 8	3	30	47	60 (16)	47	26	45	---	---
O2SI (19)		Std. International	508	17	24	35	540	6 - 8	6 - 8	3	30	47	60 (16)	47	26	45	---	---
OSIF (19)		Std. International	350	22	31	38	175	6 - 8	6 - 8	3	30	47	60 (16)	47	26	45	---	---
O2SIF (19)		Std. International	508	17	24	35	540	6 - 8	6 - 8	3	30	47	60 (16)	47	26	45	---	---
OLF		Standard OLF	431	17	27	34	235	6 - 8	6 - 8	2	35	47	50 (16)	47	20	45	---	---
OLFG (17)		Standard OLF	275	15	31	38	125	6 - 8	6 - 8	2	35	47	65	47	20	45	---	---
PNSF		Standard PSF	200	27	36		180	6 - 8	6 - 8	3	---	---	45	47	---	---	---	---
PSF		Standard PSF	350	27	36		180	6 - 8	6 - 8	3	---	---	45	47	---	---	---	---
OB		Standard Bakery	212	27	32	39	338	6 - 8	6 - 8	3	35	47	45	47	26	45	45	45
OBO		Standard Bakery	530	22	34	41	305	6 - 8	6 - 8	3	35	47	45	47	26	45	45	45
OBOL	Bakery	Standard Bakery	509	27	33	40	305	6 - 8	6 - 8	3	35	47	45	47	26	45	45	45
	Deli	Standard Bakery	534	22	30	37	305	6 - 8	6 - 8	3	35	47	45	47	26	45	45	45
OBIF		Standard Bakery	300	27	29-30	40-42	210-240	6 - 8	6 - 8	4	35	47	40	49	---	---	---	---

Requirements comply with CRMA conditions.
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ASH4060

HILL PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

(1) BTUHs/ft listed are for the parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.
(2) Average discharge air velocity at peak of defrost.
(3) For cases with rear refrigerated boxes add 110 BTUH/ft
(4) Primary- 650, Secondary- 425, Ambient- 275.
(5) 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.
(6) BTUH's listed are per case.
(7) All data listed is for cases configured with a 20" top shelf and 4-22" shelves below top shelf.
(8) ONIM (meat): +400 BTUH per wrap-around end.
(9) ONIM (deli): +250 BTUH per wrap-around end.
(10) OIM (meat): +400 BTUH per wrap-around end.
(11) OIM (deli): +250 BTUH per wrap-around end.
(12) OIP: +600 BTUH per wrap-around end.
(13) Not intended for Frozen Juice application.
(14) BTUH's/ft listed are for both sides of the case.
(15) O3IP: +650 BTUH per wrap-around end.
(16) Not recommended on this model due to long defrost time.
(17) If the case is piped to a suction header lower than 10°F an EPR with a suction stop solenoid is required. If a suction stop solenoid is not provided at the rack a suction stop solenoid is required at the case. A liquid line solenoid alone will not allow the case to cycle properly and is not recommended for control of this case. The thermostat probe should be located on the inlet of the top coil. The cut out point should be set to 15°F and the cut in point should be set so that refrigeration starts as soon as the top coil ice starts to drip.
(18) If the case is piped to a suction header lower than 15°F an EPR with a suction stop solenoid is required. If a suction stop solenoid is not provided at the rack a suction stop solenoid is required at the case. A liquid line solenoid alone will not allow the case to cycle properly and is not recommended for control of this case. The thermostat probe should be located on the inlet of the top coil. The cut out point should be set to 17°F and the cut in point should be set so that refrigeration starts as soon as the top coil ice starts to drip.
(19) Humidification system required on this case when used for Fresh Meat application.
(20) Not Applicable

OBSOLETE

2004 DIRECT EXPANSION CASE REFRIGERATION REQUIREMENTS TABLE - Enhanced Efficiency

Hill PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

CASE MODEL	FRONT SILL TYPE	BTUH/ft [1] or BTUH/Door	TEMPERATURE (ºF) EVAP.	DISC. AIR	RET. AIR	AIR VELOCITY [2] FPM	SUPERHEAT SETPOINT @ BULB (ºF)	RUN-OFF TIME (MINUTES)	# DEF.	DEFROST Electric Fail Safe (Minutes)	Electric Temp. (ºF)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (ºF)	Hot Gas Fail Safe (Minutes)	Hot Gas Temp. (ºF)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (ºF)
SINGLE DECK MERCHANDISERS																	
OC	Standard	480	22	26	39	305	6 - 8	6 - 8	3	40	49	70	47	26	45	40	45
	All Other Fronts	415	22	26	35	305	6 - 8	6 - 8	3	40	49	70	47	26	45	40	45
OM	Standard	480	22	26	39	305	6 - 8	6 - 8	3	40	49	70	47	26	45	40	45
	All Other Fronts	415	22	26	35	305	6 - 8	6 - 8	3	40	49	70	47	26	45	40	45
OP Cut Produce	39" (Rear Sill)	288	26	31	42	180	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
	43" (Rear Sill)	401	26	30	45	210	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
OP Bulk Produce	39" (Rear Sill)	230	29	36	44	180	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
	43" (Rear Sill)	374	29	35	47	210	6 - 8	6 - 8	2	40	49	60	47	26	45	40	45
UTILITY MERCHANDISERS																	
ONUMD	All Fronts	1390	22	29	40	250	6 - 8	6 - 8	3	40	47	50	45	26	45	- - -	- - -
ON2UM	All Fronts	657	22	28	35	280	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O2UM	All Fronts	1000	22	27	40	340	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
OW2UM	All Fronts	1236	22	27	40	340	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
ON2.5UM	All Fronts	811	22	28	35	284	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O2.5UM [3]	All Fronts	1020	22	27	45	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
w/ Plexiglas Dome	All Fronts	1380	22	32	46	305	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O2.75UM	All Fronts	1025	22	27	45	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
ON3UM	All Fronts	824	22	28	35	230	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O3UM	All Fronts	1030	22	27	45	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
OW3UM	All Fronts	1349	22	27	45	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O3UD	Standard Dairy	1030	22	30	35	225	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
ON3.5UM	All Fronts	1019	22	28	35	204	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O3.5UM	All Fronts	1300	22	30	45	300	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
O3.5UD	Standard Dairy	1300	22	30	45	300	6 - 8	6 - 8	3	40	47	45	45	26	45	45	45
ON4UM	All Fronts	1135	22	31	33	203	6 - 8	6 - 8	4	40	47	45	45	26	45	45	45
O4UM	All Fronts	1460	22	30	43	300	6 - 8	6 - 8	4	40	47	45	45	26	45	45	45
O5UM	All Fronts	1490	22	30	42	300	6 - 8	6 - 8	4	40	47	- - -	- - -	26	45	45	45
ON6UM	All Fronts	1092	22	28	40	300	6 - 8	6 - 8	4	35	48	- - -	- - -	26	45	- - -	- - -
O6UM	All Fronts	1405	22	29	41	300	6 - 8	6 - 8	4	35	48	- - -	- - -	26	45	- - -	- - -
MULTI-DECK MERCHANDISERS																	
ON5DM Dairy	Standard Dairy	1811	22	32	47	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Cut Produce	2.5" Extended	1766	22	31	44	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1739	22	31	40	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	7.5" Extended	1681	22	31	40	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
ON5DM Beverage	Standard Dairy	1670	29	37	53	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Bulk Produce	2.5" Extended	1628	29	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1576	29	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	7.5" Extended	1550	29	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

Hill PHOENIX EXCELLENCE® ORIGIN2® A DOVER™ COMPANY

MULTI-DECK MERCHANDISERS (Continued)

CASE MODEL	FRONT SILL TYPE	BTUH/ft (1) or BTUH/Door	TEMPERATURE (°F) EVAP.	DISC. AIR	RET. AIR	AIR VELOCITY (2) FPM	SUPERHEAT SETPOINT @ BULB (°F)	RUN-OFF TIME (MINUTES)	# DEF.	DEFROST Electric Fail Safe (Minutes)	Electric Temp. (°F)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (°F)	Hot Gas Fail Safe (Minutes)	Hot Gas Temp. (°F)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (°F)
ON5DMH Dairy	Standard Dairy	1840	22	33	48	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Cut Produce	2.5" Extended	1795	22	33	45	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1779	22	32	41	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	7.5" Extended	1700	22	32	41	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
ON5DMH Beverage	Standard Dairy	1700	29	37	54	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Bulk Produce	2.5" Extended	1640	29	37	53	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1608	29	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	7.5" Extended	1595	29	36	52	215	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DM Deli	2.5" Extended	1570	22	30	44	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1530	22	30	44	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/ Shelf Lights	7.5" Extended	1500	22	30	44	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DM Dairy	Standard Dairy	1470	26	34	47	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Cut Produce	2.5" Extended	1431	26	34	47	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1401	26	34	47	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/ Shelf Lights	7.5" Extended	1370	26	34	47	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DM Beverage	Standard Dairy	1490	29	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Bulk Produce	2.5" Extended	1450	29	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1420	29	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/o Shelf Lights	7.5" Extended	1390	29	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DMH Deli	2.5" Extended	1620	22	31	43	250	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1570	22	31	43	250	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/ Shelf Lights	7.5" Extended	1540	22	31	43	250	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DMH Dairy	Standard Dairy	1555	26	35	47	265	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Cut Produce	2.5" Extended	1500	26	35	47	265	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1470	26	35	47	265	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/ Shelf Lights	7.5" Extended	1440	26	35	47	265	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DMH Beverage	Standard Dairy	1495	29	37	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
Bulk Produce	2.5" Extended	1455	29	36	53	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
	5" Extended	1426	29	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
w/o Shelf Lights	7.5" Extended	1397	29	36	52	270	6 - 8	6 - 8	4	32	47	42	47	26	45	42	45
O5DR Dairy	Standard Dairy	1502	22	32	47	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	2.5" Extended	1502	22	32	46	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	5" Extended	1453	22	32	42	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	7.5" Extended	1425	22	32	42	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
O5DR Dairy	2.5" Extended	1389	26	35	48	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45
	5" Extended	1422	26	35	47	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45

Hill PHOENIX EXCELLENCE

ORIGIN 2

A DOVER COMPANY

MULTI-DECK MERCHANDISERS (Continued)																				
											DEFROST									
											Electric		Timed Off		Hot Gas		Reverse Air			
CASE MODEL	FRONT SILL TYPE	BTUH/ft (1) or BTUH/Door	TEMPERATURE (ºF) EVAP.	DISC. AIR	RET. AIR	AIR VELOCITY (2) FPM	SUPERHEAT SETPOINT @ BULB (ºF)	RUN-OFF TIME (MINUTES)	# DEF.	Fail Safe (Minutes)	Temp. (ºF)	Fail Safe (Minutes)	Temp. (ºF)	Fail Safe (Minutes)	Temp. (ºF)	Fail Safe (Minutes)	Temp. (ºF)		
O5DRH Dairy	Standard Dairy	1543	22	32	47	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45		
	2.5" Extended	1543	22	32	46	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45		
	5" Extended	1493	22	32	42	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45		
	7.5" Extended	1464	22	32	42	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45		
O5DRH Dairy	2.5" Extended	1427	26	35	48	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45		
	5" Extended	1461	26	35	47	275	6 - 8	6 - 8	4	32	47	45	47	26	45	42	45		
ONHM	Standard	1440	22	30	41	340	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45		
	All Other Fronts	1340	22	30	41	340	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45		
ONHMH	Standard	1440	22	30	41	340	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45		
	All Other Fronts	1340	22	29	40	340	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45		
OHM	Standard	1385	22	28	38	350	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45		
	All Other Fronts	1341	22	28	37	350	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45		
OHMH	Standard	1434	22	29	41	330	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45		
	All Other Fronts	1340	22	29	38	330	6 - 8	6 - 8	4	35	47	45	47	26	45	45	45		
ONHP Cut Produce	Standard	1310	26	32	45	360	6 - 8	6 - 8	3	35	47	45	47	- - -	- - -	45	45		
Bulk Produce	Standard	930	29	36	48	360	6 - 8	6 - 8	3	35	47	45	47	- - -	- - -	45	45		
ONHPH Cut Produce	Standard	1330	26	34	46	360	6 - 8	6 - 8	3	35	47	45	47	- - -	- - -	45	45		
Bulk Produce	Standard	945	29	37	47	360	6 - 8	6 - 8	3	35	47	45	47	- - -	- - -	45	45		
OHP Cut Produce	Standard	1215	26	31	45	440	6 - 8	6 - 8	3	35	47	45	47	26	45	30	45		
Bulk Produce	Standard	855	29	36	48	250	6 - 8	6 - 8	3	35	47	45	47	26	45	30	45		
OHPH Cut Produce	Standard	1460	26	30	45	315	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45		
Bulk Produce	Standard	1215	29	31	45	440	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45		
OWHP Cut Produce	Standard	1592	26	31	45	440	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45		
Bulk Produce	Standard	1120	29	36	48	250	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45		
OWHPH Cut Produce	Standard	1913	26	30	45	315	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45		
Bulk Produce	Standard	1592	29	31	45	440	6 - 8	6 - 8	3	35	47	45	47	26	45	50	45		
END CAP MERCHANDISERS																			
OEM	6" Thermopane	2918 (4)	22	29	37	232	6 - 8	6 - 8	2	40	49	70	47	26	45	- - -	- - -		
ON3EM	Standard	6000 (4)	22	33	45	275	6 - 8	6 - 8	4	40	47	45	45	- - -	- - -	- - -	- - -		
O3EM	Standard	6900 (4)	22	33	45	275	6 - 8	6 - 8	4	40	47	45	45	- - -	- - -	- - -	- - -		
O3.5EM	Standard	8709 (4)	22	33	45	275	6 - 8	6 - 8	4	40	47	45	45	- - -	- - -	- - -	- - -		
OEP	Standard	2244 (4)	29	35	47	210	6 - 8	6 - 8	2	40	49	60	47	26	45	- - -	- - -		
O3EP	Standard	2917 (4)	29	36	47	200	6 - 8	6 - 8	2	40	49	60	47	26	45	- - -	- - -		

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

2004 DIRECT EXPANSION CASE REFRIGERATION REQUIREMENTS TABLE - Enhanced Efficiency

Hill PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

CASE MODEL		FRONT SILL TYPE	BTUH/ft [1] or BTUH/Door	TEMPERATURE (°F) EVAP.	DISC. AIR	RET. AIR	AIR VELOCITY [2] FPM	SUPERHEAT SETPOINT @ BULB (°F)	RUN-OFF TIME (MINUTES)	# DEF.	DEFROST Electric Fail Safe (Minutes)	Electric Temp. (°F)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (°F)	Hot Gas Fail Safe (Minutes)	Hot Gas Temp. (°F)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (°F)
GLASS DOOR REACH-IN MERCHANDISERS																		
ONRZ [5]	Frozen Food	Std. 1/2 Bumper	1345	-11	-3	0	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
	Ice Cream	Std. 1/2 Bumper	1405	-17	-8	-5	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRZ [5]	Frozen Food	Std. 1/2 Bumper	1191	-11	-3	0	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS	Ice Cream	Std. 1/2 Bumper	1229	-17	-8	-5	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRZH [5]	Frozen Food	Std. 1/2 Bumper	1345	-11	-3	0	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
	Ice Cream	Std. 1/2 Bumper	1405	-17	-8	-5	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRZH [5]	Frozen Food	Std. 1/2 Bumper	1191	-11	-3	0	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS	Ice Cream	Std. 1/2 Bumper	1229	-17	-8	-5	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ORZ	Frozen Food	Std. 1/2 Bumper	1345	-11	-3	0	380	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
	Ice Cream	Std. 1/2 Bumper	1405	-17	-8	-5	380	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ORZ	Frozen Food	Std. 1/2 Bumper	1191	-11	-3	0	380	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS	Ice Cream	Std. 1/2 Bumper	1229	-17	-8	-5	380	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ORZH	Frozen Food	Std. 1/2 Bumper	1345	-11	-3	0	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
	Ice Cream	Std. 1/2 Bumper	1405	-17	-8	-5	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ORZH	Frozen Food	Std. 1/2 Bumper	1191	-11	-3	0	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS	Ice Cream	Std. 1/2 Bumper	1229	-17	-8	-5	405	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRIZ [5]	Frozen Food	Std. 1/2 Bumper	1162	-11	-3	0	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
	Ice Cream	Std. 1/2 Bumper	1234	-17	-8	-5	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRIZ [5]	Frozen Food	Std. 1/2 Bumper	1062	-11	-3	0	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS	Ice Cream	Std. 1/2 Bumper	1079	-17	-8	-5	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRIZH [5]	Frozen Food	Std. 1/2 Bumper	1162	-11	-3	0	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
	Ice Cream	Std. 1/2 Bumper	1234	-17	-8	-5	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ONRIZH [5]	Frozen Food	Std. 1/2 Bumper	1062	-11	-3	0	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
ELIM DRS	Ice Cream	Std. 1/2 Bumper	1079	-17	-8	-5	460	3 - 5	13 - 15	1	46	73	---	---	24	73	---	---
SINGLE DECK ISLAND MERCHANDISERS																		
OWIZ	Frozen Food	4" Solid	635 [6]	-12	-6	0	180	3 - 5	13 - 15	1	60	49	---	---	20	60	---	---
	Ice Cream	4" Solid	740 [6]	-22	-16	-10	180	3 - 5	13 - 15	1	60	49	---	---	20	60	---	---
OWEZ	Frozen Food	4" Solid	2855 [4]	-12	-6	0	200	3 - 5	13 - 15	1	60	49	---	---	20	60	---	---
	Ice Cream	4" Solid	3490 [4]	-22	-16	-10	200	3 - 5	13 - 15	1	60	49	---	---	20	60	---	---
MULTI-DECK ISLAND MERCHANDISERS																		
O3IM		6" Thermopane	1527	22	28	38	270	6 - 8	6 - 8	3	30	47	---	---	26	45	---	---
O3IMB		6" Thermopane	1548	22	28	38	270	6 - 8	6 - 8	3	30	47	---	---	26	45	---	---
O3IMBB		6" Thermopane	1315	22	28	38	270	6 - 8	6 - 8	3	30	47	---	---	26	45	---	---
O4ID		6" Thermopane	2450	17	28	43	130	6 - 8	6 - 8	4	30	47	---	---	26	45	---	---
O4IDB		6" Thermopane	2484	17	28	43	130	6 - 8	6 - 8	4	30	47	---	---	26	45	---	---
O4IDBB		6" Thermopane	2110	17	28	43	130	6 - 8	6 - 8	4	30	47	---	---	26	45	---	---

[1] BTUHs/ft listed are for the parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.0

[2] Average discharge air velocity at peak of defrost

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

[4] BTUH's listed are per case.

[7] All data listed is for cases configured with a 20" top shelf and 4-22" shelves below top shelf

[14] BTUH's/ft listed are for both sides of the case.

2004 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE

Hill PHOENIX EXCELLENCE®

SECOND NATURE™

A DOVER™ COMPANY

CASE MODEL	SILL HEIGHT INCHES	BTUH/ft [1] or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F) SUPPLY	DISC. AIR	AVG. PROD.	RET. AIR	AIR VELOCITY [2] FPM	# DEF.	DEFROST Electric Fail Safe (Minutes)	Electric Temp. (°F)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (°F)	Warm Fluid Fail Safe (Minutes)	Warm Fluid Temp. (°F)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (°F)
SINGLE DECK MERCHANDISERS																		
OC	27"	480	0.23 / 0.55	0.32	15 / 20	26	35	39	305	4	---	---	---	---	26	49	---	---
	31" & 33"	415	0.15 / 0.35	0.32	15 / 20	26	34	35	305	4	---	---	---	---	26	49	---	---
OM	27"	560	0.27	0.32	15	22	33	37	305	4	---	---	---	---	26	49	---	---
	27"	480	0.27 / 0.64	0.32	15 / 20	26	35	39	305	4	---	---	---	---	26	49	---	---
	31" & 33"	415	0.20 / 0.48	0.32	15 / 20	26	34	35	305	4	---	---	---	---	26	49	---	---
OMZ	33"	550	0.46	0.32	-20	-10	4	0	120	4	---	---	---	---	35	55	---	---
OMZD Frozen Food	35"	456	0.38	0.32	-20	-8	1	2	240	1	---	---	---	---	35 [3]	55	---	---
ONZ Frozen Food	35 5/8"	369	0.19	0.54	-20	-12	-1	0	180	1	---	---	---	---	20	55	---	---
OP Cut Produce	39" (Rear)	288	0.15 / 0.36	0.32	20 / 25	31	37	42	180	2	---	---	60	47	26	49	---	---
	43" (Rear)	401	0.21 / 0.50	0.32	20 / 25	30	36	45	210	2	---	---	60	47	26	49	---	---
OP Bulk Produce	39" (Rear)	230	0.10 / 0.24	0.32	20 / 25	26	40	44	180	2	---	---	60	47	26	49	---	---
	43" (Rear)	374	0.16 / 0.39	0.32	20 / 25	35	40	47	210	2	---	---	60	47	26	49	---	---
OSIO	31 7/8"	695 [4]	0.50	0.22	20	24	33	33	180	3	---	---	50	47	26	49	---	---
OWSIO	31 7/8"	795 [4]	0.57	0.22	20	24	34	33	180	3	---	---	50	47	26	49	---	---
MULTI-DECK MERCHANDISERS																		
BB	36 3/8"	1290	0.34 / 0.49	0.48	15 / 20	32	36	45	325	4	---	---	---	---	26	49	---	---
ONUMD	27", 31" & 33"	1390	1.33	0.54	20	29	34	40	250	4	---	---	60	47	26	49	---	---
ON2UM	27", 31" & 33"	657	0.48	0.54	20	28	32	35	280	2	---	---	60	47	26	49	---	---
O2UM Deli/Produce	27", 31" & 33"	1000	0.33	0.54	20	33	35	39	340	4	---	---	60	47	26	49	---	---
Bulk Produce	27", 31" & 33"	1000	0.17	0.54	20	37	41	44	340	4	---	---	60	47	26	49	---	---
Fresh Meat	33"	1000	0.37	0.54	20	31	35	37	340	4	---	---	60	47	26	49	---	---
ON2.5UM	27", 31" & 33"	811	0.60	0.54	20	28	32	35	284	2	---	---	60	47	26	49	---	---
O2.5UM Deli/Produce	27", 31" & 33"	1020	0.33	0.54	20	31	36	39	225	4	---	---	60	47	26	49	---	---
Bulk Produce	27", 31" & 33"	1020	0.17	0.54	20	37	41	43	225	4	---	---	60	47	26	49	---	---
Fresh Meat	33"	1020	0.42	0.54	20	30	35	37	225	4	---	---	60	47	26	49	---	---
w/ Plexiglas Dome	27"	1380	1.10	0.54	20	27	36	46	305	4	---	---	---	---	30	49	---	---
ON3UM	27", 31" & 33"	824	0.63	0.54	20	28	32	35	230	2	---	---	60	47	26	49	---	---
O3UM Deli/Produce	27", 31" & 33"	1030	0.33	0.54	20	30	35	38	225	4	---	---	60	47	26	49	---	---
Bulk Produce	27", 31" & 33"	1030	0.17	0.54	20	38	41	43	225	4	---	---	60	47	26	49	---	---
Fresh Meat	33"	1030	0.47	0.54	20	29	33	37	225	4	---	---	60	47	26	49	---	---
ON3.5UM	27", 31" & 33"	1019	0.78	0.54	20	28	32	35	204	2	---	---	60	47	26	49	---	---
O3.5UM Deli/Produce	27", 31" & 33"	1300	0.39	0.54	20	31	36	41	300	4	---	---	60	47	26	49	---	---
Bulk Produce	27", 31" & 33"	1300	0.19	0.54	20	37	40	45	300	4	---	---	60	47	26	49	---	---
Fresh Meat	33"	1300	0.63	0.54	20	30	34	41	300	4	---	---	60	47	26	49	---	---
O3.5UD	18"	1300	0.7	0.54	20	30	36	45	300	4	---	---	60	47	26	49	---	---
ON4UM	31" & 33"	1135	0.68	0.54	20	31	35	33	203	4	---	---	60	47	26	49	---	---
O4UM Deli/Produce	27", 31" & 33"	1460	0.45	0.54	20	32	37	44	300	4	---	---	60	47	26	49	---	---
Bulk Produce	27", 31" & 33"	1460	0.20	0.54	20	36	40	47	300	4	---	---	60	47	26	49	---	---
Fresh Meat	33"	1460	0.79	0.54	20	30	34	41	300	4	---	---	60	47	26	49	---	---
O5UM	33"	1490	0.88	0.54	20	30	35	42	300	4	---	---	60	47	26	49	---	---
O6UM	33"	1405	0.88	0.54	20	29	35	41	300	4	---	---	42	47	26	49	---	---

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MULTI-DECK MERCHANDISERS (Continued)

CASE MODEL	SILL HEIGHT INCHES	BTUH/ft [1] or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (°F) SUPPLY	DISC. AIR	AVG. PROD.	RET. AIR	AIR VELOCITY [2] FPM	# DEF.	DEFROST Electric Fail Safe (Minutes)	Electric Temp. (°F)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (°F)	Warm Fluid Fail Safe (Minutes)	Warm Fluid Temp. (°F)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (°F)
ON5DM Dairy	18"	1815	0.80	0.48	20	32	35	47	215	4	---	---	42	47	26	49	---	---
	21"	1770	0.77	0.48	20	31	34	44	215	4	---	---	42	47	26	49	---	---
	27"	1685	0.70	0.48	20	31	33	40	215	4	---	---	42	47	26	49	---	---
ON5DM Beverage	18"	1670	0.52 / 0.95	0.48	20 / 25	37	39	53	215	4	---	---	42	47	26	49	---	---
Produce	21"	1628	0.51 / 0.93	0.48	20 / 25	36	38	52	215	4	---	---	42	47	26	49	---	---
	27"	1550	0.48 / 0.88	0.48	20 / 25	36	37	52	215	4	---	---	42	47	26	49	---	---
ON5DMH Dairy	18"	1840	0.85	0.48	20	33	36	48	215	4	---	---	42	47	26	49	---	---
	21"	1795	0.83	0.48	20	33	35	45	215	4	---	---	42	47	26	49	---	---
	27"	1700	0.78	0.48	20	32	33	41	215	4	---	---	42	47	26	49	---	---
ON5DMH Beverage	18"	1700	0.55	0.48	20	37	40	54	215	4	---	---	42	47	26	49	---	---
Produce	21"	1640	0.53	0.48	20	37	39	53	215	4	---	---	42	47	26	49	---	---
	27"	1595	0.52	0.48	20	36	38	52	215	4	---	---	42	47	26	49	---	---
O5DM Deli	21"	1570	0.34 / 0.49	0.48	15 / 20	30	35	44	270	4	---	---	42	47	26	49	---	---
	23"	1530	0.33 / 0.48	0.48	15 / 20	30	34	44	270	4	---	---	42	47	26	49	---	---
w/ Shelf Lights	26"	1500	0.32 / 0.47	0.48	15 / 20	30	33	44	270	4	---	---	42	47	26	49	---	---
O5DM Dairy	18"	1500	0.29 / 0.53	0.48	20 / 25	34	37	47	270	3	---	---	42	47	26	49	---	---
Cut Produce	21"	1460	0.28 / 0.52	0.48	20 / 25	34	36	47	270	3	---	---	42	47	26	49	---	---
	23"	1430	0.28 / 0.51	0.48	20 / 25	34	36	47	270	3	---	---	42	47	26	49	---	---
w/ Shelf Lights	26"	1400	0.27 / 0.49	0.48	20 / 25	34	36	47	270	3	---	---	42	47	26	49	---	---
O5DM Beverage	18"	1490	0.29 / 0.53	0.48	20 / 25	36	39	52	270	3	---	---	42	47	26	49	---	---
Bulk Produce	21"	1450	0.28 / 0.51	0.48	20 / 25	36	38	52	270	3	---	---	42	47	26	49	---	---
	23"	1420	0.27 / 0.50	0.48	20 / 25	36	38	52	270	3	---	---	42	47	26	49	---	---
w/o Shelf Lights	26"	1390	0.27 / 0.49	0.48	20 / 25	36	38	52	270	3	---	---	42	47	26	49	---	---
O5DMH Deli	21"	1620	0.34 / 0.49	0.48	15 / 20	31	35	43	250	4	---	---	42	47	26	49	---	---
	23"	1570	0.33 / 0.48	0.48	15 / 20	31	34	43	250	4	---	---	42	47	26	49	---	---
w/ Shelf Lights	26"	1540	0.32 / 0.47	0.48	15 / 20	31	34	43	250	4	---	---	42	47	26	49	---	---
O5DMH Dairy	18"	1500	0.29 / 0.53	0.48	20 / 25	35	37	47	265	3	---	---	42	47	26	49	---	---
Cut Produce	21"	1460	0.28 / 0.52	0.48	20 / 25	35	37	47	265	3	---	---	42	47	26	49	---	---
	23"	1430	0.28 / 0.51	0.48	20 / 25	35	37	47	265	3	---	---	42	47	26	49	---	---
w/ Shelf Lights	26"	1400	0.27 / 0.49	0.48	20 / 25	35	37	47	265	3	---	---	42	47	26	49	---	---
O5DMH Beverage	18"	1495	0.29 / 0.53	0.48	20 / 25	37	39	52	270	3	---	---	42	47	26	49	---	---
Bulk Produce	21"	1455	0.28 / 0.52	0.48	20 / 25	36	39	53	270	3	---	---	42	47	26	49	---	---
	23"	1426	0.28 / 0.51	0.48	20 / 25	36	38	52	270	3	---	---	42	47	26	49	---	---
w/o Shelf Lights	26"	1397	0.27 / 0.49	0.48	20 / 25	36	38	52	270	3	---	---	42	47	26	49	---	---
O5DR Dairy	18"	1502	0.51 / 0.89	0.48	15 / 20	32	36	47	275	4	---	---	42	47	26	49	---	---
	21"	1502	0.50 / 0.87	0.48	15 / 20	32	36	46	275	4	---	---	42	47	26	49	---	---
	23"	1453	0.49 / 0.85	0.48	15 / 20	32	35	42	275	4	---	---	42	47	26	49	---	---
	26"	1425	0.48 / 0.83	0.48	15/20	32	35	42	275	4	---	---	42	47	26	49	---	---
O5DR Dairy	21"	1389	0.83 / 1.11	0.48	20 / 25	35	37	48	275	4	---	---	42	47	26	49	---	---
	23"	1422	0.81 / 1.08	0.48	20 / 25	35	37	47	275	4	---	---	42	47	26	49	---	---
O5Z	28"	1840	0.87	1.15	-20	-5	0	0	[5]	4	---	---	---	---	20 [6]	55	---	---
ONHM	27"	1440	0.60	0.48	15	30	34	41	340	4	---	---	---	---	26	49	---	---
	31" & 33"	1340	0.55 / 0.90	0.48	15 / 20	30	34	41	340	4	---	---	---	---	26	49	---	---
ONHMH	27"	1440	0.85	0.48	15	30	35	41	340	4	---	---	---	---	26	49	---	---
	31" & 33"	1340	0.80 / 1.01	0.48	15 / 20	29	34	40	340	4	---	---	---	---	26	49	---	---

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MULTI-DECK MERCHANDISERS (Continued)																				
												DEFROST								
									AIR		Electric		Timed Off		Warm Fluid		Reverse Air	
CASE MODEL		SILL HEIGHT INCHES	BTUH/ft (1) or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (ºF) SUPPLY	DISC. AIR	AVG. PROD.	RET. AIR	VELOCITY (2) FPM	# DEF.	Fail Safe (Minutes)	Temp. (ºF)	Fail Safe (Minutes)	Temp. (ºF)	Fail Safe (Minutes)	Temp. (ºF)	Fail Safe (Minutes)	Temp. (ºF)
OHM		27"	1450	0.75	0.54	20	30	34	41	350	4	---	---	---	---	26	49	---	---
		31" & 33"	1350	0.63	0.54	20	30	35	42	350	4	---	---	---	---	26	49	---	---
OHMH		27"	1600	0.75	0.54	20	31	35	43	330	4	---	---	---	---	26	49	---	---
		31" & 33"	1500	0.63	0.54	20	32	35	44	330	4	---	---	---	---	26	49	---	---
ONHP	Cut Produce	27"	1310	0.90	0.48	20	32	38	45	360	4	---	---	50	47	26	49	---	---
	Bulk Produce	27"	930	0.46	0.48	20	36	42	48	360	4	---	---	50	47	26	49	---	---
ONHPH	Cut Produce	27"	1330	1.00	0.48	20	34	39	46	360	4	---	---	50	47	26	49	---	---
	Bulk Produce	27"	945	0.52	0.48	20	37	41	47	360	4	---	---	50	47	26	49	---	---
OHP	Cut Produce	27"	1215	0.60	0.54	20	32	38	47	440	3	---	---	30	47	20	49	---	---
	Bulk Produce	27"	855	0.33	0.54	20	34	40	48	250	3	---	---	30	47	20	49	---	---
OHPH	Cut Produce	27"	1460	0.60	0.54	20	33	38	46	315	4	---	---	50	47	26	49	---	---
	Bulk Produce	27"	1330	0.33	0.58	20	35	40	48	315	4	---	---	50	47	26	49	---	---
ONU		21"	1450	0.54	1.09	20	30	34	40	310	4	---	---	60	47	26	49	---	---
ONZOU (7)	Top	---	370	0.16	0.72	-20	-8	-9	-4	245	1	---	---	---	---	24	55	---	---
	Bottom	34 15/16"	782	0.40	0.72	-20	-9	-2	1	212	1	---	---	---	---	24	55	---	---
ORDR (8)		13 13/16"	739	0.35	0.43	20	28	40	44	310	4	---	---	42	47	26	49	---	---
GLASS DOOR REACH-IN MERCHANDISERS																				
KRZH	Frozen Food	6 3/4"	1850	0.60	1.20	-20	-8	0	-3	420	1	---	---	---	---	26	49	---	---
	Ice Cream	6 3/4"	2200	1.10	1.20	-20	-12	-3	-7	420	1	---	---	---	---	26	49	---	---
ONRB (9)		15 1/8"	900	0.40	1.20	20	32	35	35	460	1	---	---	---	---	24	49	---	---
ONRBH (9)		15 1/8"	900	0.40	1.20	20	32	35	35	405	1	---	---	---	---	24	49	---	---
ORB		16"	900	0.40	1.20	20	27	39	30	380	1	---	---	---	---	24	49	---	---
ORBH		16"	900	0.40	1.20	20	27	39	30	280	1	---	---	---	---	24	49	---	---
ONRZ (9)	Frozen Food	15 1/8"	1500	0.40	1.20	-20	-2	0	2	460	1	---	---	---	---	24	55	---	---
	Ice Cream	15 1/8"	1600	0.90	1.20	-20	-12	-10	-8	460	1	---	---	---	---	24	55	---	---
ONRZH (9)	Frozen Food	15 1/8"	1500	0.40	1.20	-20	-8	0	-4	405	1	---	---	---	---	24	55	---	---
	Ice Cream	15 1/8"	1600	0.90	1.20	-20	-12	-8	-4	405	1	---	---	---	---	24	55	---	---
ORZ	Frozen Food	16"	1400	0.40	1.20	-20	-8	0	-5	380	1	---	---	---	---	24	55	---	---
	Ice Cream	16"	1600	0.90	1.20	-20	-12	-8	-4	380	1	---	---	---	---	24	55	---	---
ORZH	Frozen Food	16"	1500	0.43	1.20	-20	-8	0	-4	405	1	---	---	---	---	24	55	---	---
	Ice Cream	16"	1600	0.90	1.20	-20	-12	-8	-4	405	1	---	---	---	---	24	55	---	---
OREZ	Frozen Food	16"	1768	0.74	1.20	-20	2	6	7	350	1	---	---	---	---	24	55	---	---
	Ice Cream	16"	1811	1.27	1.20	-20	-6	-2	-1	340	1	---	---	---	---	24	55	---	---
SINGLE DECK ISLAND MERCHANDISERS																				
ONIM	Meat	34 5/16"	885 (10)	0.45 / 0.90	0.43	15 / 20	25	33	34	180	4	---	---	---	---	26	49	---	---
	Deli	34 5/16"	860 (11)	0.45 / 0.90	0.43	15 / 20	28	36	37	180	3	---	---	---	---	26	43	---	---
OIM	Meat	34 5/16"	770 (12)	0.45 / 0.90	0.43	15 / 20	26	34	31	140	3	---	---	---	---	26	49	---	---
	Deli	34 5/16"	560 (13)	0.41 / 0.86	0.43	15 / 20	28	36	33	140	3	---	---	---	---	26	49	---	---
OIP	Bulk Produce	27 1/4"	650 (14)	0.32 / 0.48	0.43	20 / 25	34	40	48	140	3	---	---	44	47	26	49	---	---
ONIZ	Frozen Food	35 9/16"	440	0.19	0.54	-20	-2	8	7	393	1	---	---	---	---	20	55	---	---
OIZ (15)		35 1/2"	520	0.55	0.36	-20	-12	-3	-4	200	1	---	---	---	---	20	55	---	---
OWIZ	Frozen Food	35 1/2"	600	0.50	0.72	-20	-12	0	0	180	1	---	---	---	---	20	55	---	---
OWEZ	Frozen Food	35 1/2"	2700	3.10	1.50	-20	-12	0	0	200	1	---	---	---	---	20	55	---	---

Requirements comply with CRMA conditions.
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2004 SECONDARY COOLANT CASE REFRIGERATION REQUIREMENTS TABLE

Hill PHOENIX EXCELLENCE® | SECOND NATURE™ | A DOVER™ COMPANY

CASE MODEL	SILL HEIGHT INCHES	BTUH/ft [1] or BTUH/Door	FLOW RATE GPM/ft	CHARGE GAL/ft	TEMPERATURE (ºF) SUPPLY	DISC. AIR	AVG. PROD.	RET. AIR	AIR VELOCITY [2] FPM	# DEF.	DEFROST Electric Fail Safe (Minutes)	Electric Temp. (ºF)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (ºF)	Warm Fluid Fail Safe (Minutes)	Warm Fluid Temp. (ºF)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (ºF)
MULTI-DECK ISLAND MERCHANDISERS																		
O3IM	38 1/4"	1527	1.13	0.48	20	28	32	38	270	3	---	---	44	47	26	49	---	---
O3IMB	38 1/4"	1548	1.14	0.48	20	28	32	38	270	3	---	---	44	47	26	49	---	---
O3IMBB	38 1/4"	1315	0.97	0.48	20	28	32	38	270	3	---	---	44	47	26	49	---	---
O3IP	27 3/16"	1050 [16]	0.75	0.43	20	34	41	48	160	3	---	---	44	47	26	49	---	---
O4ID	33 1/4"	2450	1.00	0.48	15	28	33	43	130	3	---	---	44	47	26	49	---	---
SERVICE MERCHANDISERS																		
OSA w/ Shelf Lights	26 3/4"	320	0.12 / 0.40	0.22	15 / 20	30	37	39	235	2	---	---	---	---	26	49	---	---
w/o Shelf Lights	26 3/4"	290	0.11 / 0.36	0.22	15 / 20	30	35	39	235	2	---	---	---	---	26	49	---	---
OSAG	26 3/4"	270	0.32	0.34	20	21-31	37	38	125	4	---	---	---	---	26	49	---	---
OSM	27 7/16"	320	0.45	0.22	20	30	37	39	235	2	---	---	---	---	26	49	---	---
OGM	27 7/16"	226	0.40	0.22	20	21-31	35	38	125	4	---	---	---	---	26	49	---	---
OSI [17]	19 7/16"	350	0.38	0.22	20	31	36	38	175	2	---	---	---	---	26	49	---	---
OWSI [17]	19 7/16"	450	0.49	0.22	20	31	36	38	175	2	---	---	---	---	26	49	---	---
OSIF [17]	19 7/16"	350	0.38	0.22	20	31	36	38	175	2	---	---	---	---	26	49	---	---
OLF	20 13/16"	431	0.53	0.22	20	27	33	34	235	2	---	---	50	47	26	49	---	---
OLFG	20 13/16"	275	0.42	0.34	20	31	35	38	125	2	---	---	---	---	26	49	---	---

[1] BTUHs/ft listed are identical to direct expansion parallel system operation

[2] Average discharge air velocity at peak of defrost

[3] Defrost assist heater required - 120/1/60: 6' Case - 3.4 Amps (400 W), 8' Case - 4.5 Amps (533 W), 12' Case - 6.7 Amps (800 W

[4] Calculated from OSIOA Data Compressor Tables

[5] Primary- 650, Secondary- 425, Ambient- 275

[6] Defrost assist heater required - 208/3/60: 6' Case - 10.0 Amps (3600 W), 8' Case - 13.4 Amps (4800 W), 12' Case - 20.0 Amps (7200 W

[7] Bottom section of ONZOU not approved for Ice Cream application at this time

[8] Back-up coils with a capacity of 1666 BTUH/ft at a suction temperature of 2ºF 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 ORD 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.

[9] All data listed for ONRB, ONRBH, ONRZ, and ONRZH is for cases configured with a 20" top shelf and 3 22" shelves below top shel

[10] ONIM (meat): +400 per wrap-around end

[11] ONIM (deli): +250 per wrap-around end

[12] OIM (meat): +400 per wrap-around end

[13] OIM (deli): +250 per wrap-around end

[14] OIP: +600 per wrap-around end

[15] Not intended for Frozen Juice application

[16] O3IP: +650 per wrap-around end

[17] Humidification system required on this case when used for Fresh Meat applicatior

NOTES:

All medium temperature data listed is for 35% by wt. PROPYLENE GLYCOL

Inhibited Propylene Glycol solution with water, such as Dowfrost or equivalent. (Dowfrost is a trademark of the Dow Chemical Company)

All low temperature data listed is for 85% by wt. PEKASOL-50

Pekasol-50 is a registered trademark of pro KÜHSOLE GmbH. It is a solution of Potassium Formate, Potassium Acetate, water and corrosion inhibitors. Similar fluids by other manufacturers exist and may be used only with the approval of the Hill PHOENIX Research and Development Group.

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2004 PRESTIGE CASE REFRIGERATION REQUIREMENTS TABLE

Hill PHOENIX EXCELLENCE

PARK AVENUE PRESTIGE

A DOVER COMPANY

DELI / MEAT / SEAFOOD MERCHANDISERS

CASE MODEL	BTUH/ft [1]	TEMPERATURE (°F) EVAP.	DISC. AIR	RET. AIR	AIR VELOCITY [2] FPM	SUPERHEAT SETPOINT @ BULB (°F)	RUN-OFF TIME (MINUTES)	DEFROST # DEF.	Electric Fail Safe (Minutes)	Electric Temp. (°F)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (°F)	Hot Gas Fail Safe (Minutes)	Hot Gas Temp. (°F)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (°F)
PDIF	300	22	28	39	100	6 - 8	6 - 8	4	30	47	40	47	26	45	---	---
PM - Self Service	660	15	29	39	125-150	6 - 8	6 - 8	6	30	47	30	47	---	---	---	---

DELI / MEAT / SEAFOOD MERCHANDISERS

CASE MODEL	BTUH/ft [1]	SATURATED SUCTION TEMP (°F)	TEMPERATURE (°F) SUPPLY	DISC. AIR	RET. AIR	AIR VELOCITY [2] FPM	FLOW RATE GPM/ft	CHARGE GAL/ft	DEFROST # DEF.	Electric Fail Safe (Minutes)	Electric Temp. (°F)	Timed Off Fail Safe (Minutes)	Timed Off Temp. (°F)	Warm Fluid Fail Safe (Minutes)	Warm Fluid Temp. (°F)	Reverse Air Fail Safe (Minutes)	Reverse Air Temp. (°F)
PSG	400	na [3]	20	na	na	na	0.38	3	4-6 [4]	---	---	---	---	7	45	---	---
PSG-SSC	480	15	20	na	na	na	0.38	3	24	---	---	---	---	7	45	---	---
PSGF	400	na	20	na	na	na	0.38	3	4-6 [4]	---	---	---	---	7	45	---	---
PSGF-SSC	480	15	20	na	na	na	0.38	3	24	---	---	---	---	7	45	---	---
PM Dome	400	na	20	na	na	na	0.38	3	24	---	---	---	---	5	40	---	---
PM Dome - SSC	480	15	20	na	na	na	0.38	3	24	---	---	---	---	5	40	---	---

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

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

[3] Not Applicable

[4] Dependant on condition of secondary coolant supplied to case. Cooler liquid and higher inlet pressure require more frequent defrosts.

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

2004 PRESTIGE CASE REFRIGERATION EFFECTS TABLE

Hill PHOENIX EXCELLENCE®

PARK AVENUE PRESTIGE™

A DOVER™ COMPANY

All data given is for 75°F dry bulb temperature and 55% relative humidity

DELI / MEAT / SEAFOOD MERCHANDISERS							
CASE MODEL	BTUH/ft [1]	EVAP. TEMPERATURE (°F)	Watts/ft	Electrical Input BTUH/ft	Latent Heat BTUH/ft	Sensible Heat BTUH/ft	Refrigeration Credits BTUH/ft
PDIF	300	22	46	157	57	86	43
PM - Self Service	660	15	40	137	209	314	188

DELI / MEAT / SEAFOOD MERCHANDISERS							
CASE MODEL	BTUH/ft [1]	EVAP. TEMPERATURE (°F)	Watts/ft	Electrical Input BTUH/ft	Latent Heat BTUH/ft	Sensible Heat BTUH/ft	Refrigeration Credits BTUH/ft
PSG	400	20 [2]	24	82	127	191	95
PSG-SSC	480	15	24	82	159	239	119
PSGF	400	20 [2]	24	82	127	191	95
PSGF-SSC	480	15	24	82	159	239	119
PM Dome	400	20 [2]	8	27	149	224	112
PM Dome - SSC	480	15	8	27	181	272	136

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

[2] The PSG, PSGF and the dome portion of the PM are secondary coolant cases. This number represents the supply fluid temperature to the case.

Note: The following factors are used for calculating case credits

a. 0.60 for open cases b. 0.45 for reach-ins c. 0.50 for service cases

For all cases the sensible BTUH/ft from the table above is used for calculating the net credit.

Requirements comply with CRMA conditions.

Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.

ASH4060

2004 CASE REFRIGERATION EFFECTS TABLE

HILL PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

All data given is for 75°F dry bulb temperature and 55% relative humidity

CASE MODEL	FRONT SILL TYPE	BTUH/ft [(1)] or BTUH/Door	EVAP. TEMPERATURE (°F)	Watts/ft or Watts/Door	Electrical Input BTUH/ft or BTUH/Door	Latent Heat BTUH/ft or BTUH/Door	Sensible Heat BTUH/ft or BTUH/Door	Refrigeration Credits BTUH/ft or BTUH/Door
SINGLE DECK MERCHANDISERS								
MPC	Standard MPC	617	22	14	48	142	427	256
OC	Standard	480	17	11	38	111	332	199
	All Other Fronts	415	17	11	38	94	283	170
OM	Standard	560	12	35	120	110	330	198
	Standard	480	17	35	120	90	270	162
	All Other Fronts	415	17	35	120	74	222	133
ONMZ	6" Thermopane	430	0	26	89	85	256	154
OMZ	6" Thermopane	550	-22	26	89	115	346	208
OMZD Frozen Food	11" Thermopane	456	-17	39	133	81	242	145
Ice Cream	11" Thermopane	476	-27	39	133	86	257	154
OP Cut Produce	39" (Rear Sill)	288	22	11	38	50	200	120
	43" (Rear Sill)	401	22	11	38	73	291	174
OP Bulk Produce	39" (Rear Sill)	230	27	11	38	38	154	92
	43" (Rear Sill)	374	27	11	38	67	269	161
OWP Cut Produce	39" (Rear Sill)	377	22	11	38	68	272	163
	43" (Rear Sill)	525	22	11	38	97	390	234
OWP Bulk Produce	39" (Rear Sill)	301	27	11	38	53	211	126
	43" (Rear Sill)	490	27	11	38	90	362	217
UP	Std. International	600	22	34	116	97	363	218
UTILITY MERCHANDISERS								
ONUMD	All Fronts	1390	17	40	137	376	877	526
ON2UM	All Fronts	657	17	41	140	207	310	186
O2UM	All Fronts	1000	17	41	140	344	516	310
OW2UM	All Fronts	1236	17	41	140	438	658	395
ON2.5UM	All Fronts	811	17	50	171	256	384	230
O2.5UM	All Fronts	1020	17	50	171	340	510	306
w/ Plexiglas Dome	All Fronts	1380	17	37	126	501	752	451
O2.75UM	All Fronts	1025	17	50	171	342	513	308
ON3UM	All Fronts	824	17	50	171	261	392	235
O3UM	All Fronts	1030	17	50	171	344	516	309
O3UD	Standard Dairy	1030	17	37	126	361	542	325
OW3UM	All Fronts	1349	17	50	171	471	707	424
ON3.5UM	All Fronts	1300	17	56	191	444	665	399
O3.5UM	All Fronts	1300	17	56	191	444	665	399
O3.5UD	Standard Dairy	1300	17	45	154	459	688	413
ON4UM	All Fronts	1135	17	56	191	378	566	340
O4UM	All Fronts	1460	17	56	191	508	761	457
O5UM	All Fronts	1490	17	61	208	513	769	461
ON6UM	All Fronts	1092	17	57	195	359	538	323
O6UM	All Fronts	1405	17	57	195	484	726	436

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

2004 CASE REFRIGERATION EFFECTS TABLE

Hill PHOENIX EXCELLENCE

ORIGIN 2

A DOVER COMPANY

All data given is for 75°F dry bulb temperature and 55% relative humidity

MULTI-DECK MERCHANDISERS								
CASE MODEL	FRONT SILL TYPE	BTUH/ft [1] or BTUH/Door	EVAP. TEMPERATURE (°F)	Watts/ft or Watts/Door	Electrical Input BTUH/ft or BTUH/Door	Latent Heat BTUH/ft or BTUH/Door	Sensible Heat BTUH/ft or BTUH/Door	Refrigeration Credits BTUH/ft or BTUH/Door
BB	Standard BB	1290	17	64	219	321	750	450
ONN35U	Standard ONN	700	22	37	126	172	402	241
ONN5U	Standard ONN5U	990	20	52	178	244	569	341
ON5DM Dairy	Standard Dairy	1811	17	76	260	465	1086	652
	2.5" Extended	1766	17	83	283	445	1038	623
	5" Extended	1739	17	83	283	437	1019	611
	7.5" Extended	1681	17	83	283	419	978	587
ON5DM Beverage	Standard Dairy	1670	27	76	260	423	987	592
Produce	2.5" Extended	1628	27	83	283	403	941	565
	5" Extended	1576	27	83	283	388	905	543
	7.5" Extended	1550	27	83	283	380	887	532
ON5DMH Dairy	Standard Dairy	1840	17	76	260	474	1106	664
	2.5" Extended	1795	17	83	283	453	1058	635
	5" Extended	1779	17	83	283	449	1047	628
	7.5" Extended	1700	17	83	283	425	992	595
ON5DMH Beverage	Standard Dairy	1700	27	76	260	432	1008	605
Produce	2.5" Extended	1640	27	83	283	407	950	570
	5" Extended	1608	27	83	283	397	927	556
	7.5" Extended	1595	27	83	283	393	918	551
O5DM Deli	2.5" Extended	1570	17	81	277	388	905	543
	5" Extended	1530	17	81	277	376	877	526
w/ Shelf Lights	7.5" Extended	1500	17	81	277	367	856	514
O5DM Dairy	Standard Dairy	1470	22	73	249	366	854	513
Cut Produce	2.5" Extended	1431	22	81	277	346	808	485
	5" Extended	1401	22	81	277	337	787	472
w/ Shelf Lights	7.5" Extended	1370	22	81	277	328	765	459
O5DM Beverage	Standard Dairy	1490	27	40	137	406	947	568
Bulk Produce	2.5" Extended	1450	27	48	164	386	900	540
	5" Extended	1420	27	48	164	377	879	528
w/o Shelf Lights	7.5" Extended	1390	27	48	164	368	858	515
O5DMH Deli	2.5" Extended	1620	17	86	294	398	928	557
	5" Extended	1570	17	86	294	383	893	536
w/ Shelf Lights	7.5" Extended	1540	17	86	294	374	872	523
O5DMH Dairy	Standard Dairy	1555	22	79	270	386	900	540
Cut Produce	2.5" Extended	1500	22	86	294	362	844	507
	5" Extended	1470	22	86	294	353	823	494
w/ Shelf Lights	7.5" Extended	1440	22	86	294	344	802	481
O5DMH Beverage	Standard Dairy	1495	27	40	137	408	951	571
Bulk Produce	2.5" Extended	1455	27	48	164	387	904	542
	5" Extended	1426	27	48	164	379	883	530
w/o Shelf Lights	7.5" Extended	1397	27	48	164	370	863	518

Requirements comply with CRMA conditions.

Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.

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HILL PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

All data given is for 75°F dry bulb temperature and 55% relative humidity

MULTI-DECK MERCHANDISERS (Continued)

CASE MODEL	FRONT SILL TYPE	BTUH/ft [1] or BTUH/Door	EVAP. TEMPERATURE (°F)	Watts/ft or Watts/Door	Electrical Input BTUH/ft or BTUH/Door	Latent Heat BTUH/ft or BTUH/Door	Sensible Heat BTUH/ft or BTUH/Door	Refrigeration Credits BTUH/ft or BTUH/Door
O5DR Dairy	Standard Dairy	1502	17	76	260	373	870	522
	2.5" Extended	1502	17	83	283	366	853	512
	5" Extended	1453	17	83	283	351	819	491
	7.5" Extended	1425	17	83	283	342	799	479
O5DR Dairy	2.5" Extended	1389	22	40	137	376	877	526
	5" Extended	1422	22	48	164	377	881	528
O5DRH Dairy	Standard Dairy	1543	17	76	260	385	898	539
	2.5" Extended	1543	17	83	283	378	882	529
	5" Extended	1493	17	83	283	363	847	508
	7.5" Extended	1464	17	83	283	354	826	496
O5DRH Dairy	2.5" Extended	1427	22	40	137	387	903	542
	5" Extended	1461	22	48	164	389	908	545
O5Z	Standard O5Z	1840	-17	111	379	438	1023	614
ONHM	Standard	1440	17	68	232	483	725	435
	All Other Fronts	1340	17	68	232	443	665	399
ONHMH	Standard	1440	17	76	260	472	708	425
	All Other Fronts	1340	17	76	260	432	648	389
OHM	Standard	1451	12	74	253	479	719	431
	Standard	1385	17	74	253	453	679	408
	All Other Fronts	1341	17	74	253	435	653	392
OHMH	Standard	1550	12	92	314	494	741	445
	Standard	1434	17	92	314	448	672	403
	All Other Fronts	1340	17	92	314	410	615	369
ONHP Cut Produce	Standard	1310	22	66	225	293	792	475
Bulk Produce	Standard	930	27	66	225	190	514	309
ONHPH Cut Produce	Standard	1330	22	76	260	289	781	469
Bulk Produce	Standard	945	27	76	260	185	500	300
OHP Cut Produce	Standard	1215	22	66	225	267	722	433
Bulk Produce	Standard	855	27	74	253	163	440	264
OHPH Cut Produce	Standard	1460	22	92	314	309	836	502
Bulk Produce	Standard	1215	27	92	314	243	658	395
OWHP Cut Produce	Standard	1592	22	66	225	369	998	599
Bulk Produce	Standard	1120	27	74	253	234	633	380
OWHPH Cut Produce	Standard	1913	22	92	314	432	1167	700
Bulk Produce	Standard	1592	27	92	314	345	933	560
ONU	2.5" Extended	1450	17	93	318	340	793	476
ORDR [2]	Standard ORDR	739	17	90	307	129	302	181

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

2004 CASE REFRIGERATION EFFECTS TABLE

HILL PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

All data given is for 75°F dry bulb temperature and 55% relative humidity

CASE MODEL	FRONT SILL TYPE	BTUH/ft [1] or BTUH/Door	EVAP. TEMPERATURE (°F)	Watts/ft or Watts/Door	Electrical Input BTUH/ft or BTUH/Door	Latent Heat BTUH/ft or BTUH/Door	Sensible Heat BTUH/ft or BTUH/Door	Refrigeration Credits BTUH/ft or BTUH/Door
END CAP MERCHANDISERS								
ONEMZ	6" Thermopane	300 [3]	0	102	348	-14	-34	-20
OEM	6" Thermopane	2918 [3]	17	102	348	771	1799	1079
ON3EM	Standard	6000 [3]	17	424	1448	1366	3186	1912
O3EM	Standard	6900 [3]	17	424	1448	1636	3816	2290
O3.5EM	Standard	8900 [3]	17	448	1530	2211	5159	3095
OEP	Standard	2244 [3]	27	60	205	612	1427	856
O3EP	Standard	2917 [3]	27	60	205	814	1898	1139
GLASS DOOR REACH-IN MERCHANDISERS								
KRZH Frozen Food	Standard KRZH	1850	-12	592	2022	-39	-132	-59
Ice Cream	Standard KRZH	2200	-22	592	2022	41	137	62
ONRB [4]	Std. 1/2 Bumper	900	22	227	775	29	96	43
ONRBH [4]	Std. 1/2 Bumper	900	22	230	785	26	88	40
ORB	Std. 1/2 Bumper	900	22	227	775	29	96	43
ORBR	Std. 1/2 Bumper	1150	22	81	277	201	673	303
ORBH 2, 3, 4 & 5	Std. 1/2 Bumper	900	22	230	785	26	88	40
ORBH 8' & 12'	Std. 1/2 Bumper	1080	22	78	266	187	626	282
ONRZ [4] Frozen Food	Std. 1/2 Bumper	1500	-12	305	1042	105	353	159
Ice Cream	Std. 1/2 Bumper	1600	-22	305	1042	128	430	193
ONRZH [4] Frozen Food	Std. 1/2 Bumper	1500	-12	307	1048	104	348	156
Ice Cream	Std. 1/2 Bumper	1600	-22	307	1048	127	425	191
ORZ Frozen Food	Std. 1/2 Bumper	1400	-12	305	1042	82	276	124
Ice Cream	Std. 1/2 Bumper	1600	-22	305	1042	128	430	193
ORZH Frozen Food	Std. 1/2 Bumper	1500	-12	307	1048	104	348	156
Ice Cream	Std. 1/2 Bumper	1600	-22	307	1048	127	425	191
ONRIZ [4] Frozen Food	Std. 1/2 Bumper	1210	-12	610	2083	-201	-672	-303
Ice Cream	Std. 1/2 Bumper	1405	-22	610	2083	-156	-522	-235
ONRIZH [4] Frozen Food	Std. 1/2 Bumper	1210	-12	614	2097	-204	-683	-307
Ice Cream	Std. 1/2 Bumper	1405	-22	614	2097	-159	-533	-240
SINGLE DECK ISLAND MERCHANDISERS								
ONIM Meat	7" Thermopane	885 [5]	12	22	75	324	486	292
Deli	7" Thermopane	860 [6]	17	22	75	314	471	283
OIM Meat	7" Thermopane	770 [7]	12	22	75	278	417	250
Deli	7" Thermopane	560 [8]	17	22	75	194	291	175
OIP Bulk Produce	Standard	650 [9]	22	17	58	237	355	213
ONZ Frozen Food	4" Solid	369	-22	31	106	66	197	118
Ice Cream	4" Solid	412	-32	31	106	77	230	138
ONIZ Frozen Food	4" Solid	369	-22	45	154	54	161	97
Ice Cream	4" Solid	412	-32	45	154	65	194	116
OIZ [10] Frozen Food	4" Solid	520	-22	45	154	92	275	165

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

Hill PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

All data given is for 75°F dry bulb temperature and 55% relative humidity

CASE MODEL	FRONT SILL TYPE	BTUH/ft [1] or BTUH/Door	EVAP. TEMPERATURE (°F)	Watts/ft or Watts/Door	Electrical Input BTUH/ft or BTUH/Door	Latent Heat BTUH/ft or BTUH/Door	Sensible Heat BTUH/ft or BTUH/Door	Refrigeration Credits BTUH/ft or BTUH/Door
SINGLE DECK ISLAND MERCHANDISERS (Continued)								
OWIZ Frozen Food	4" Solid	600[11]	-17	89	304	74	222	133
Ice Cream	4" Solid	700[11]	-32	89	304	99	297	178
OWEZ Frozen Food	4" Solid	2700[3]	-17	329	1124	394	1182	709
Ice Cream	4" Solid	3300[3]	-32	329	1124	544	1632	979
MULTI-DECK ISLAND MERCHANDISERS								
O3IM	6" Thermopane	1527	17	88	301	491	736	442
O3IMB	6" Thermopane	1548	17	64	219	532	798	479
O3IMBB	6" Thermopane	1315	17	85	290	410	615	369
O3IP	Standard	1050 [12]	22	87	297	301	452	271
O4ID	6" Thermopane	2450	12	91	311	856	1284	770
O4IDB	6" Thermopane	2484	12	88	301	873	1310	786
O4IDBB	6" Thermopane	2110	12	96	328	713	1069	642
SERVICE MERCHANDISERS								
OSA w/ Shelf Lights	Std. American	320	22	74	253	20	47	24
w/o Shelf Lights	Std. American	290	22	58	198	28	64	32
OSAG [13]	Std. American	270	15	74	253	5	12	6
OSM	Std. American	320	22	74	253	20	47	24
OGM [14]	Std. American	226	17	81	277	-15	-35	-18
OSIO	Std. International	695	17	21	72	153	458	275
OWSIO	Std. International	795	17	21	72	178	533	320
OSIOP Meat	Std. International	475	12	42	143	66	249	149
Deli	Std. International	425	17	42	143	56	211	127
OSIOZ	Std. International	560	-32	42	143	83	312	187
OSI [15]	Std. International	350	22	44	150	60	140	70
OWSI [15]	Std. International	450	22	44	150	90	210	105
O2SI [15]	Std. International	508	17	44	150	107	250	125
OSIF [15]	Std. International	350	22	44	150	60	140	70
O2SIF [15]	Std. International	508	17	44	150	107	250	125
OLF	Standard OLF	431	17	155	529	-29	-69	-34
OLFG [13]	Standard OLF	275	15	155	529	-76	-178	-89
PNSF	Standard PSF	200	27	6	20	72	108	54
PSF	Standard PSF	350	27	7	24	130	196	98
OB	Standard Bakery	212	27	85	290	-20	-59	-29
OBO	Standard Bakery	530	22	43	147	96	287	172
OBOL	Standard Bakery	509	27	29	99	102	307	184
	Standard Bakery	534	22	29	99	109	326	196
OBIF	Standard Bakery	300	27	43	147	38	115	57

Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
ASH4060

Hill PHOENIX EXCELLENCE

ORIGIN 2

A DOVER COMPANY

All data given is for 75°F dry bulb temperature and 55% relative humidity

(1) BTUHs/ft listed are for the parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

(2) 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.

(3) BTUH's listed are per case.

(4) All data listed is for cases configured with a 20" top shelf and 4-22" shelves below top shelf.

(5) ONIM (meat): +400 BTUH per wrap-around end.

(6) ONIM (deli): +250 BTUH per wrap-around end.

(7) OIM (meat): +400 BTUH per wrap-around end.

(8) OIM (deli): +250 BTUH per wrap-around end.

(9) OIP: +600 BTUH per wrap-around end.

(10) Not intended for Frozen Juice application.

(11) BTUH's/ft listed are for both sides of the case.

(12) O3IP: +650 BTUH per wrap-around end.

(13) If the case 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.

(14) If the case is piped to a suction header lower than 15 °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 17 °F and the cut in point should be set so that refrigeration starts as soon as the top coil ice starts to drip.

(15) Humidification system required on this case when used for Fresh Meat application.

Note: The following factors are used for calculating case credits

a. 0.60 for open cases b. 0.45 for reach-ins c. 0.50 for service cases

For all cases the sensible BTUH/ft from the table above is used for calculating the net credit.

OBSOLETE

2004 SELF-CONTAINED CASE ELECTRICAL AND REFRIGERATION REQUIREMENTS TABLE

HILL PHOENIX EXCELLENCE® ORIGIN 2® A DOVER™ COMPANY

MOBILE SELF-CONTAINED MERCHANDISERS

CASE MODEL	24 HR ENERGY USAGE (kWh)	SUCTION PRESSURE @ CASE OUTLET (PSIG)	REFRIGERANT TYPE	TEMPERATURE (ºF) DISC. AIR	TEMPERATURE (ºF) RET. AIR	AIR VELOCITY [1] (FPM)	SUPERHEAT SETPOINT @ BULB (ºF)	DEFROST # DEF.	DEFROST Electric Fail Safe (Minutes)	DEFROST Electric Temp. (ºF)	DEFROST Timed Off Fail Safe (Minutes)	DEFROST Timed Off Temp. (ºF)
MDCA-4'	16.6	52	R404A	25	36	295	6 - 8	4	35	47	- - -	- - -
MDCA-6'		52	R404A	25	36	295	6 - 8	4	35	47	- - -	- - -
MMCA-4'	17.2	49	R404A	24	35	140	6 - 8	3	35	47	- - -	- - -
MMCA-6'		49	R404A	24	35	140	6 - 8	3	35	47	- - -	- - -
MMCA-8'		49	R404A	24	35	140	6 - 8	3	35	47	- - -	- - -
MPCA-8'		19.9	R134A	30	42	163	6 - 8	3	40	49	60	47
OSIOA-4'	14.1	12-14	R134A	26	34	182	6 - 8	4	40	47	- - -	- - -
OSIOPA-4' deli	13.6	20	R134A	34	36	200	6 - 8	2	40	47	- - -	- - -
meat	18.0	16	R134A	32	36	200	6 - 8	2	40	47	- - -	- - -
OSIOA-P-4'	32.0	12-14	R134A	26	34	182	6 - 8	2	40	47	- - -	- - -
OSIOZA-4'	25.0	12-14	R404A	-24	-10	220	3 -4	2	45	45	- - -	- - -
UPA-8'	37.0	20	R134A	32	42	275	6 - 8	3	- - -	- - -	45	45
O2.5UMA-4' (standard)	32.3	12-14	R134A	29	41	228	6 - 8	3	40	47	- - -	- - -
(solid)	30.2	12-14	R134A	26	40	230	6 - 8	3	40	47	- - -	- - -
(thermopane)	30.3	12-14	R134A	25	37	226	6 - 8	3	40	47	- - -	- - -
O3UMA-4'	32.1	12-14	R134A	26	35	230	6 - 8	3	40	47	- - -	- - -
OSIA-4'		12-14	R134A	26	34	175	6 - 8	2	45	47	- - -	- - -
O2SIA-4'	14.0	16	R134A	24	35	540	6 - 8	3	45	50	- - -	- - -

PERMANENTLY CONNECTED SELF-CONTAINED MERCHANDISERS

CASE MODEL	24 HR ENERGY USAGE (kWh)	SUCTION PRESSURE @ CASE OUTLET (PSIG)	REFRIGERANT TYPE	TEMPERATURE (ºF) DISC. AIR	TEMPERATURE (ºF) RET. AIR	AIR VELOCITY [1] (FPM)	SUPERHEAT SETPOINT @ BULB (ºF)	DEFROST # DEF.	DEFROST Electric Fail Safe (Minutes)	DEFROST Electric Temp. (ºF)	DEFROST Timed Off Fail Safe (Minutes)	DEFROST Timed Off Temp. (ºF)
OPA-6'		19.9	R134A	30	45	210	6 - 8	2	40	47	60	47
OPA-8'		19.9	R134A	30	45	210	6 - 8	2	40	47	60	47
OPA-12'		19.9	R134A	30	45	210	6 - 8	2	40	47	60	47
OWPA-8'		19.9	R134A	30	45	210	6 - 8	2	40	47	60	47
O2.5UMA-8'		40	R22	29	43	225	6 - 8	3	40	47	45	45
ON5DMA-6'		52	R404A	31	44	215	6 - 8	4	- - -	- - -	42	47
ON5DMA-8'		52	R404A	31	44	215	6 - 8	4	- - -	- - -	42	47
O5DMA-4'		52	R404A	30	44	250	6 - 8	3	- - -	- - -	42	47
O5DMA-6'		52	R404A	30	44	250	6 - 8	3	- - -	- - -	42	47
O5DMA-8'		52	R404A	30	44	250	6 - 8	3	- - -	- - -	42	47
ONNA-47"	37.2	15.5	R134A	35	43	275	6 - 8	4	- - -	- - -	40	47
ONUA-4'	43.9	33	R22	28	39	310	6 - 8	4	- - -	- - -	40	45
ONUA-6'	59.3	33	R22	28	39	310	6 - 8	4	- - -	- - -	40	45
ONIMA-8'		35	R22	25	34	180	6 - 8	3	35	47	- - -	- - -
ONIMA-12'		35	R22	25	34	180	6 - 8	3	35	47	- - -	- - -
ONIMBA-8'		35	R22	25	34	180	6 - 8	3	35	47	- - -	- - -
ONIMBA-12'		35	R22	25	34	180	6 - 8	3	35	47	- - -	- - -
OIMA-8'		35	R22	26	31	140	6 - 8	3	40	47	- - -	- - -
OIMA-12'		35	R22	26	31	140	6 - 8	3	40	47	- - -	- - -
OIMBA-6'		35	R22	26	31	140	6 - 8	3	40	47	- - -	- - -
OIMBA-12'		35	R22	26	31	140	6 - 8	3	40	47	- - -	- - -
OIPA-8'		45	R22	34	48	140	6 - 8	3	- - -	- - -	44	38
OIPA-12'		45	R22	34	48	140	6 - 8	3	- - -	- - -	44	38

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

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Requirements comply with CRMA conditions.
Due to Our Commitment to Continuous Improvement All Specifications are Subject to Change Without Notice.
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MOBILE SELF-CONTAINED					
CASE MODEL	Volts	Phase	Hz	Plug Style	Cord Length
MDCA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
MDCA-6'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
MMCA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
MMCA-6'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
MMCA-8'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
MPCA-8'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
OSIOA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
OSIOPA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
OSIOA-P-4'	120	1	60	NEMA L5-30	10 ft
OSIOZA-4'	120	1	60	NEMA L5-30	10 ft
UPA-8'	120	1	60	NEMA L5-30	10 ft
O2.5UMA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
O3UMA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
OSIA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft
O2SIA-4'	120	1	60	NEMA L5-20 or NEMA 5-20	10 ft

PERMANENTLY CONNECTED SELF-CONTAINED						
CASE MODEL	Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
OPA-6'	120	1	60	2-wire + ground	10.748	20
OPA-8'	120	1	60	2-wire + ground	14.648	30
OPA-12'	120	1	60	2-wire + ground	16.848	35
OWPA-8'	120	1	60	2-wire + ground	22.490	40
O2.5UMA-8'	208	1	60	3-wire + ground	13.560	30
ON5DMA-6'	208	1	60	3-wire + ground	25.412	45
ON5DMA-8'	208	1	60	3-wire + ground	25.534	45
O5DMA-4'	208	1	60	3-wire + ground	22.096	30
O5DMA-6'	208	1	60	3-wire + ground	23.034	40
O5DMA-8'	208	1	60	3-wire + ground	23.934	45
ONNA-47"	208	1	60	3-wire + ground	14.630	25
ONUA-4'	208	1	60	3-wire + ground	16.220	30
ONUA-6'	208	1	60	3-wire + ground	22.000	40
ONIMA-8'	208	1	60	3-wire + ground	19.325	35
ONIMA-12'	208	1	60	3-wire + ground	23.343	40
ONIMBA-8'	208	1	60	3-wire + ground	17.999	35
ONIMBA-12'	208	1	60	3-wire + ground	26.619	45
OIMA-8'	208	1	60	3-wire + ground	23.655	40
OIMA-12'	208	1	60	3-wire + ground	28.435	45
OIMBA-6'	208	1	60	3-wire + ground	17.407	30
OIMBA-12'	208	1	60	3-wire + ground	26.619	45
OIPA-8'	208	1	60	3-wire + ground	8.973	45
OIPA-12'	208	1	60	3-wire + ground	29.119	40

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