Hill PHOENIX
EXCELLENCE
A DOVER COMPANY

Merchandisers

Engineering

Reference

Manual

OBSOLETE

2009

040/09

OBSOLETE

Welcome to the 2009 **Merchandisers Engineering Reference Manual**. This manual provides detailed cross-sections, footprints, and technical data for all of our current production models.

The case data contained in this manual is organized into sections so that similar case models are grouped together (e.g. single deck merchandisers, multi-deck merchandisers, reach-in merchandisers, etc.). This makes it easier to find just the right case to fit your new or existing store layout.

The table of contents lists our cases by design 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.

The entire manual is also posted to our Web site at **www.hillphoenix.com** on the **"Technical Information Center"** page. Any new cases that are released during 2009 (or any revisions to the technical information pertaining to our current cases) will be posted to the Hill PHOENIX Web site.

If you have any questions or need more information about our display merchandisers, please contact one of our Sales Representatives toll-free at (800) 283-1109. Further contact information for our Colonial Heights facility is listed on the back cover of this manual and is also available on our Web site.

Thank you for choosing Hill PHOENIX for your food merchandising needs.

Multi-Deck Merchandisers 109-166

End Cap Merchandisers 167-212

Reach-In Door Merchandisers 213–280

Single Deck Island Merchandisers 281-322

Multi-Deck Island Merchandisers 323-342

Mobile Self-Contained Merchandisers 343-374

Curved Case Merchandisers 375-384

Service Merchandisers 387-480

Hill PHOENIX

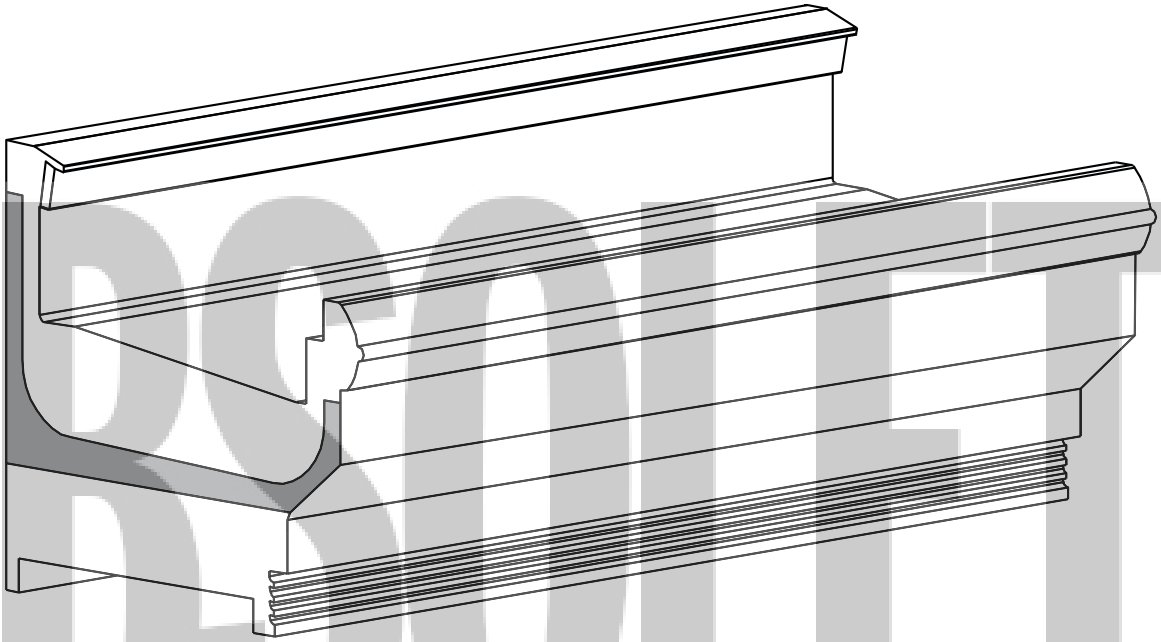
DISPLAY CASE

DIVISION

OBSOLETE

OBSOLETE

SINGLE DECK



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8" per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

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'	- - -	- - -	- - -	- - -

Guidelines & Control Settings

Model	[1]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[3] (FPM)
MPC	585[2]	22	6-8	30	42	163

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

2 Standard fans increase refrigeration load by 96 BTUH/fan.

3 Average discharge air velocity at peak of defrost.

Defrost Controls

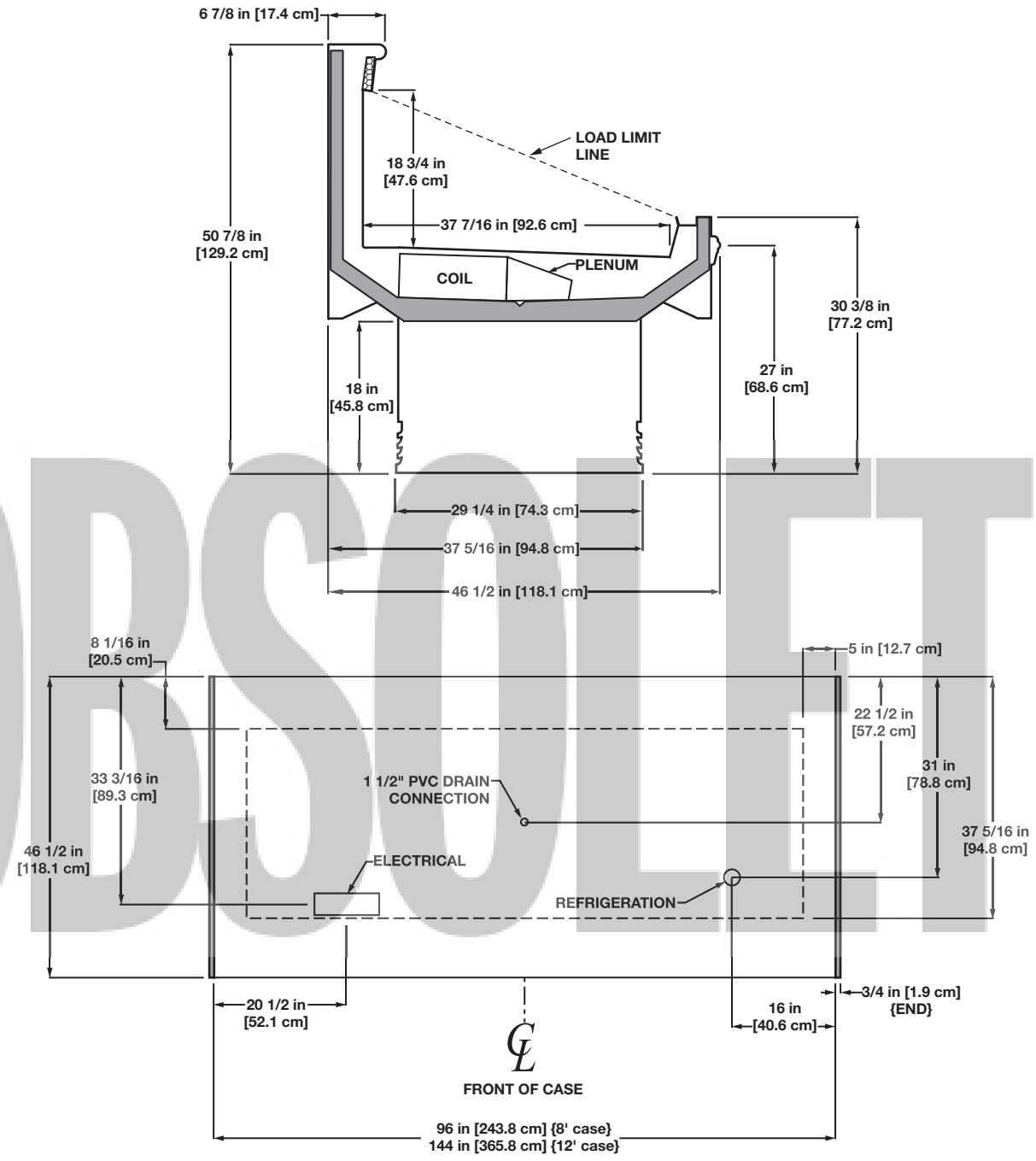
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.


6 7/8 in [17.4 cm]
LOAD LIMIT LINE
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}

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

Guidelines & Control Settings

Model	Front Sill Heights	[1,2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OC	Standard	456[3]	Enh.	22	6-8	26	39	305
	All Others	391[3]	Enh.	22	6-8	26	35	305

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
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 ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

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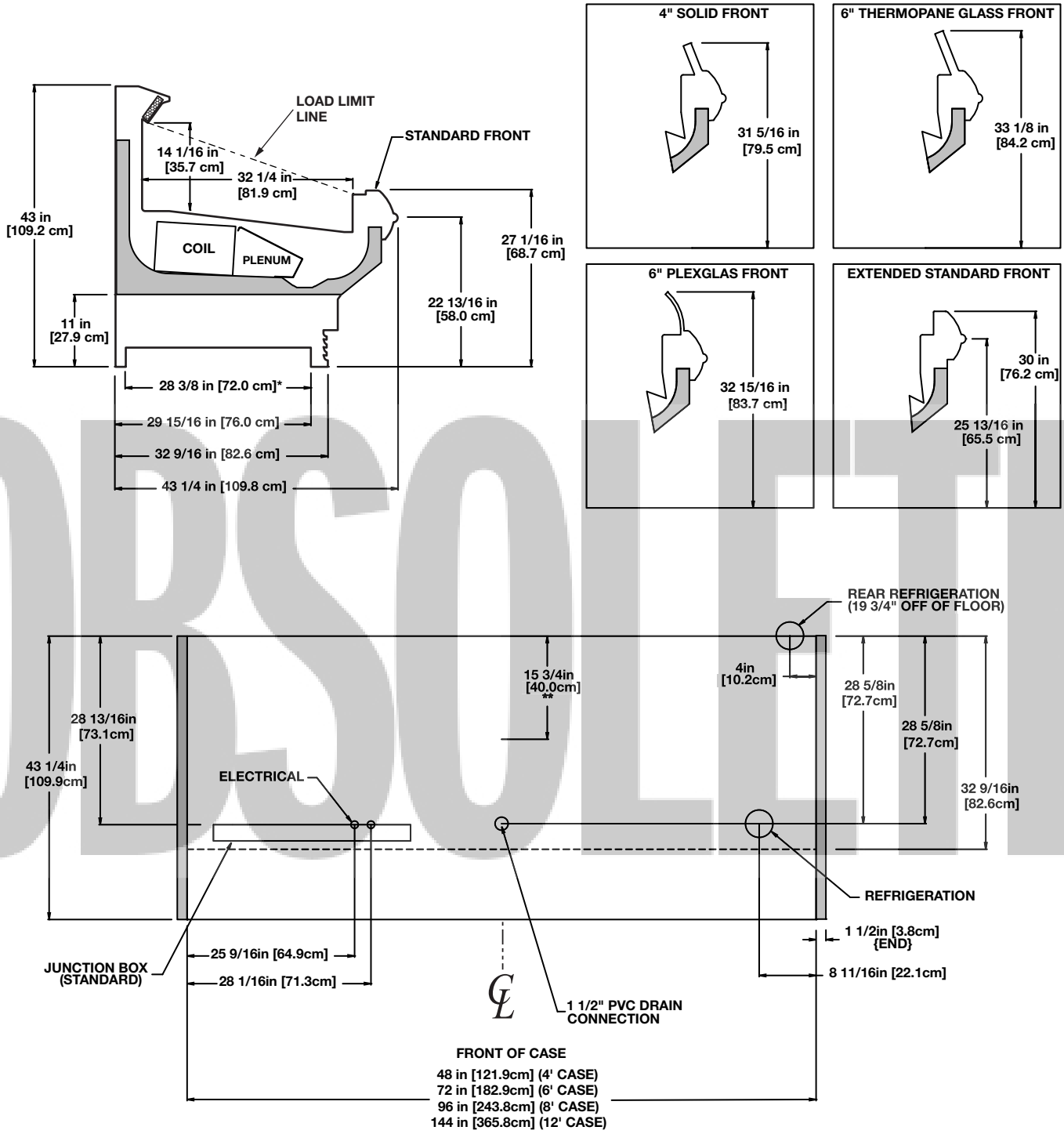


NOTES:

* 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 (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

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	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OM	Standard	456[4]	Enh.	22	6-8	26	39	305
	All Others	391[4]	Enh.	22	6-8	26	35	305

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

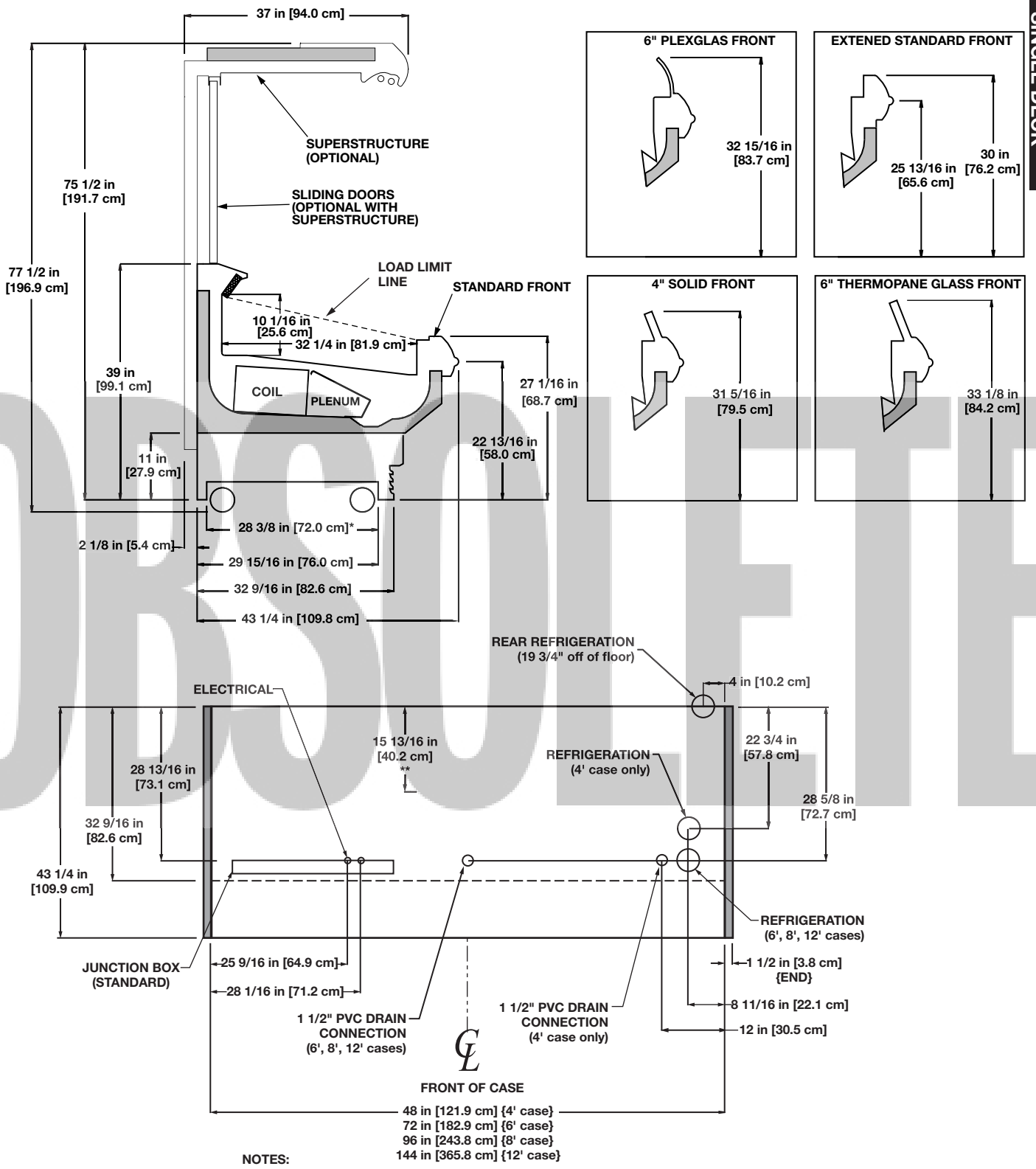
Defrost Controls

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)
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 ARI 1200 - 2002 specifications.



NOTES:

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** 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 (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND THE KICK-PLATE

NSF COMPONENT c UL us

Narrow Single Deck Frozen Meat Merchandiser
ONMZ - 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	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	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	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONMZ	406[4]	0	3-5	12	25	220

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.14.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

Defrost Controls

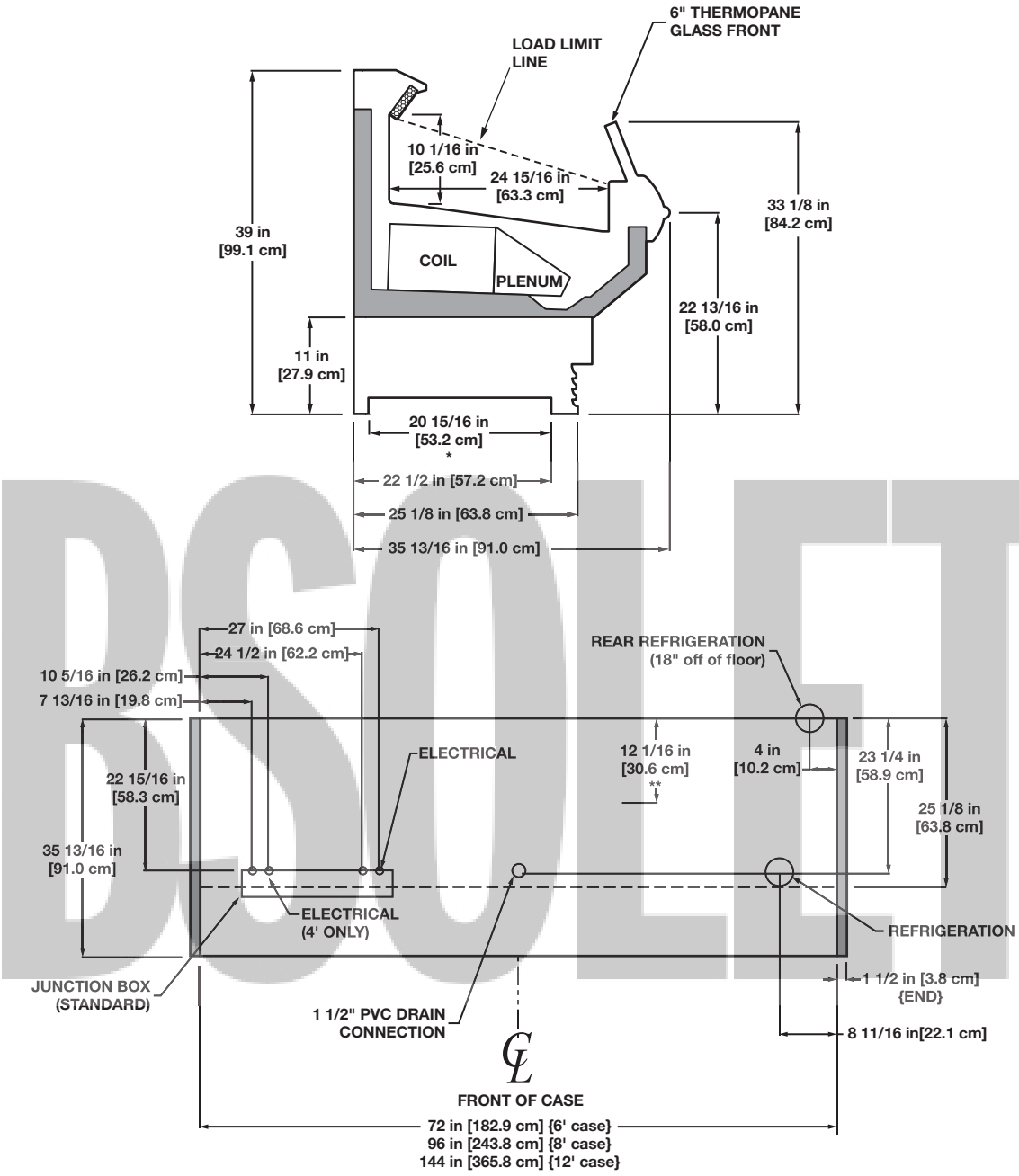
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONMZ	4	13 - 15	45	47	- - -[6]	- - -	20	60	- - -	- - -

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 ARI 1200 - 2002 specifications.



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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 - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OMZ	526[4]	-22	3-5	-10	0	220

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.14.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
OMZ	4	13 - 15	45	47	- - -[6]	- - -	20	60	- - -	- - -

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 ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

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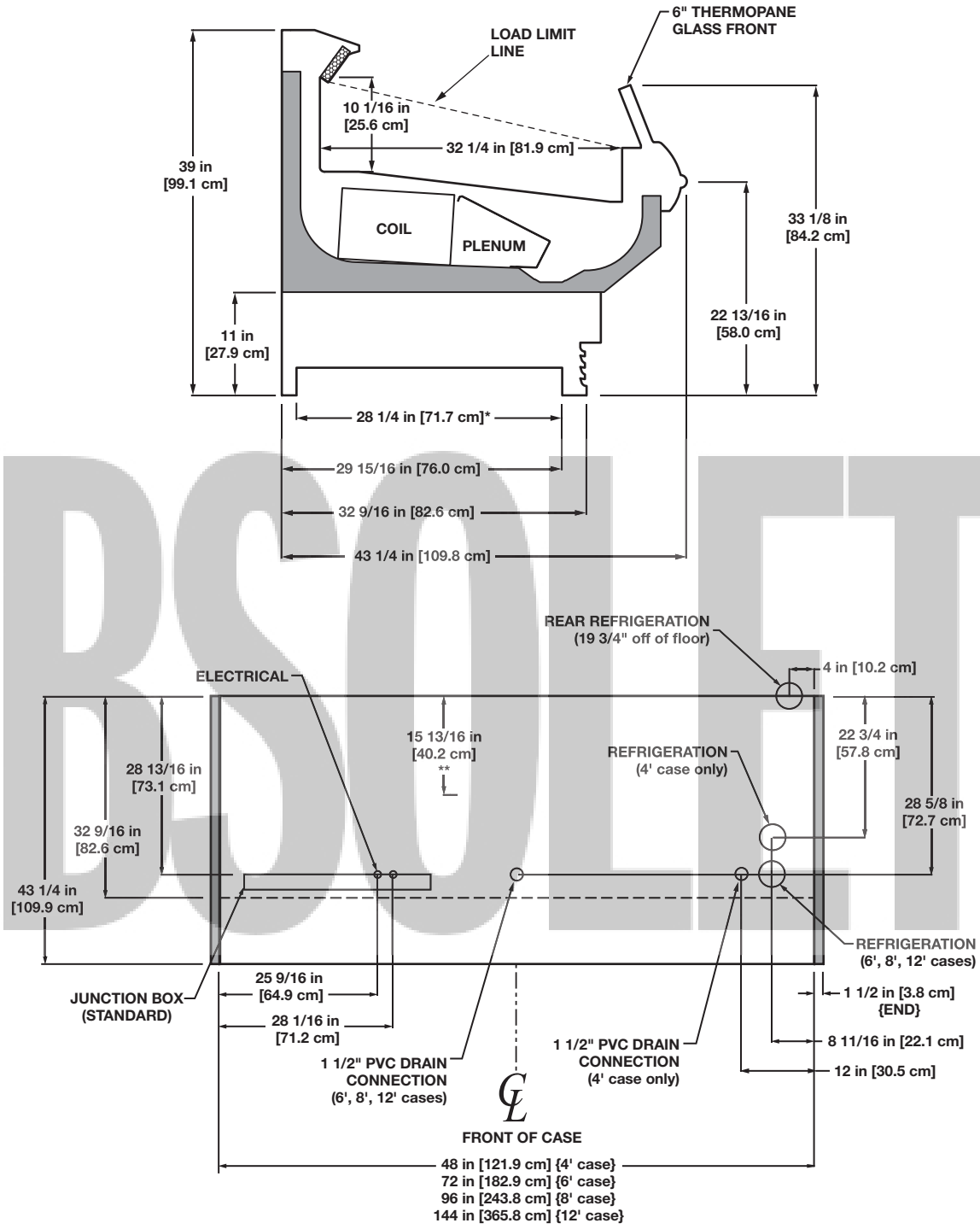

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- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OMZD-F[1]	424[4]	-17	3-5	-8	2	240
OMZD-C[1]	444[4]	-27	3-5	-18	-8	240

1 F=frozen food, C=ice cream.

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.03.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
OMZD	1	13 - 15	45	48	- - -[6]	- - -	20	60	- - -	- - -

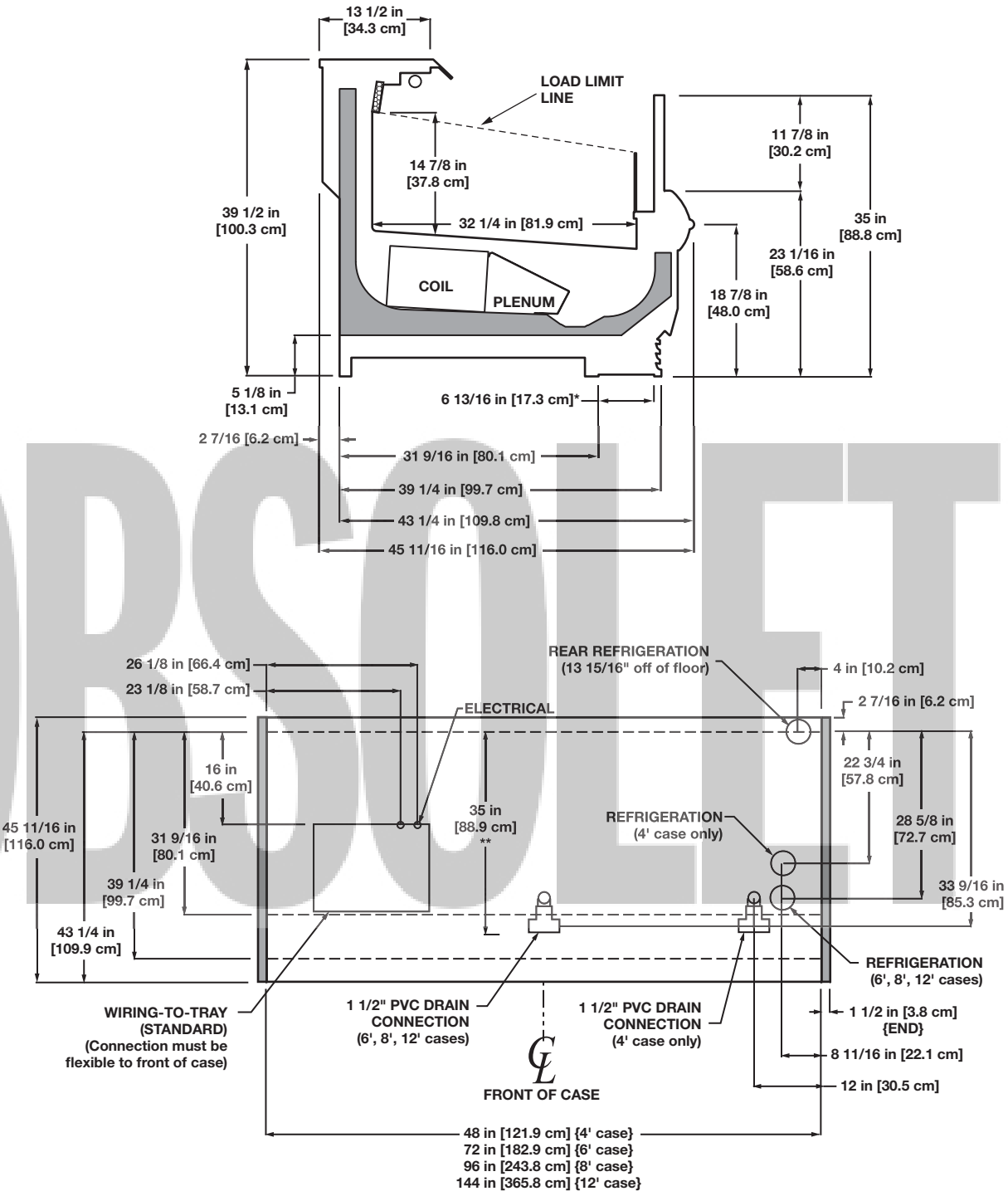
6 NOTE: "- - -" not an option on this case model.

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 ARI 1200 - 2002 specifications.



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 (4') - 1/2", SUCTION LINE (6' & 8') - 5/8", SUCTION LINE (12') - 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

Narrow Single Deck Produce Merchandiser

ONP - 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
ONP	4'	2	1.00	60	0.15	9.2	- - -[1]	- - -	1.92	400	2.22	532
	6'	2	1.00	60	0.15	9.2	- - -	- - -	2.88	600	3.33	798
	8'	2	1.00	60	0.15	9.2	- - -	- - -	3.85	800	4.44	1065
	12'	3	1.50	90	0.23	13.8	- - -	- - -	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
ONP	4'	1	4'	- - -	- - -	- - -	- - -
	6'	2	3'	- - -	- - -	- - -	- - -
	8'	2	4'	- - -	- - -	- - -	- - -
	12'	3	4'	- - -	- - -	- - -	- - -

Guidelines & Control Settings

Model	Rear Sill Heights	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONP - Bulk Produce	43"	377[4]	Enh.	26	6-8	30	45	NA[6]

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.06.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

6 Not Applicable.

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)
ONP	2	6 - 8	40	49	60	47	26	45	40	45

Medium Temperature Defrost Schedule

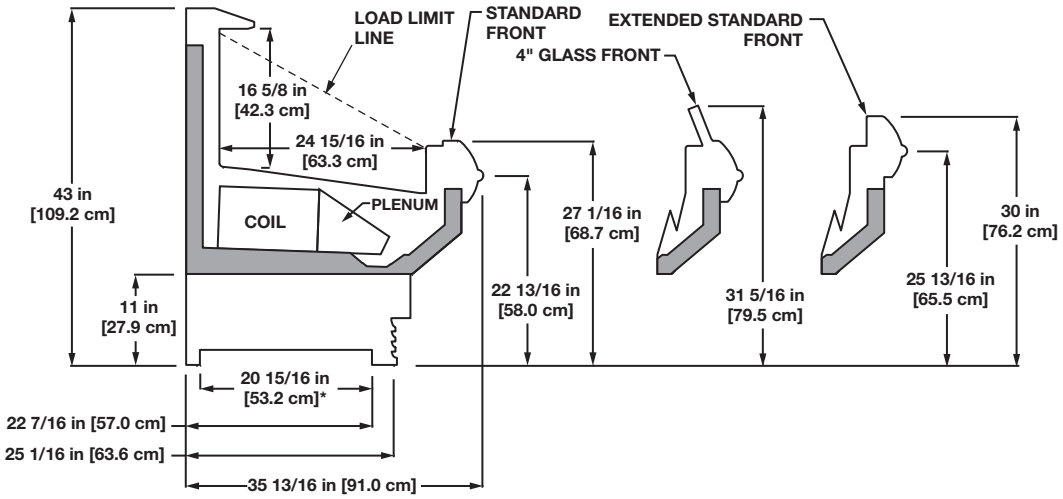
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

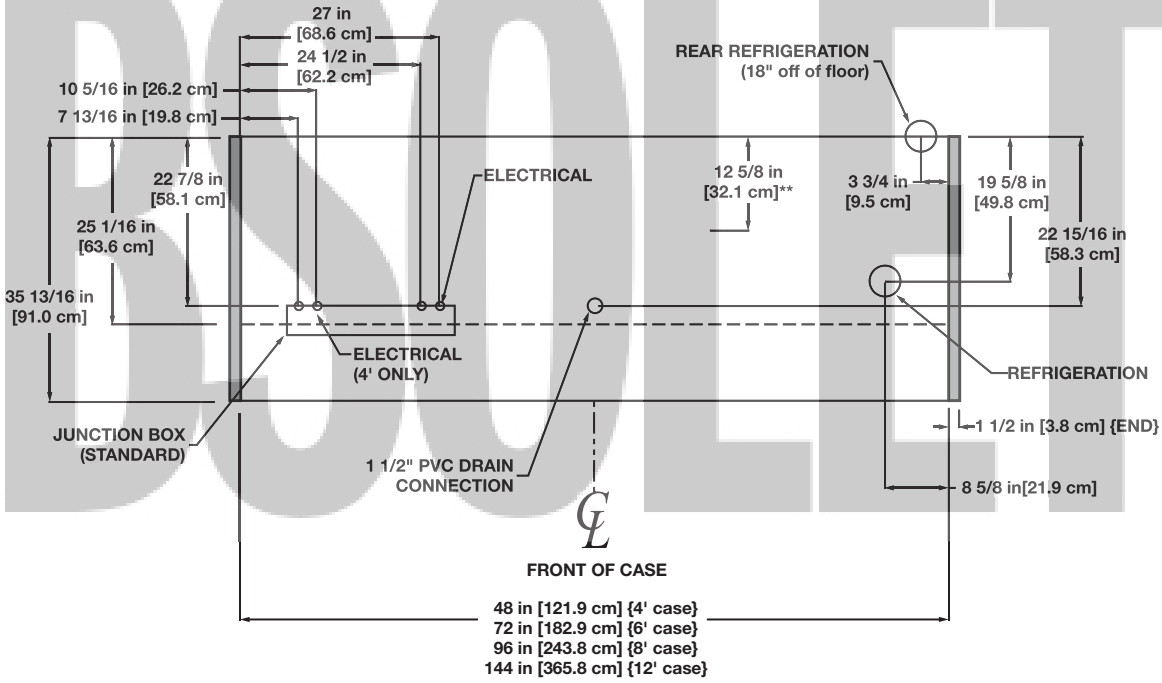
All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

cULus

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
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK-PLATE

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	[1,2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OP Cut Produce	39"	264[3]	Enh.	26	6-8	31	42	180
	43"	377[3]	Enh.	26	6-8	30	45	210
OP Bulk Produce	39"	206[3]	Enh.	29	6-8	36	44	180
	43"	350[3]	Enh.	29	6-8	35	47	210

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.06.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

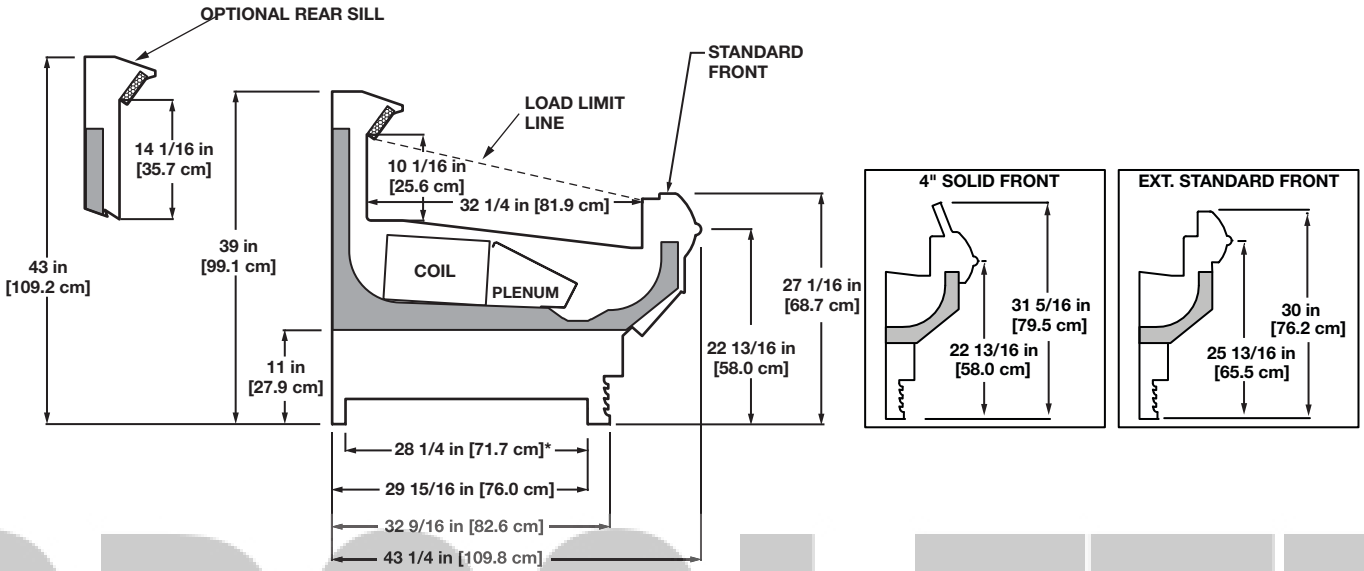
Defrost Controls

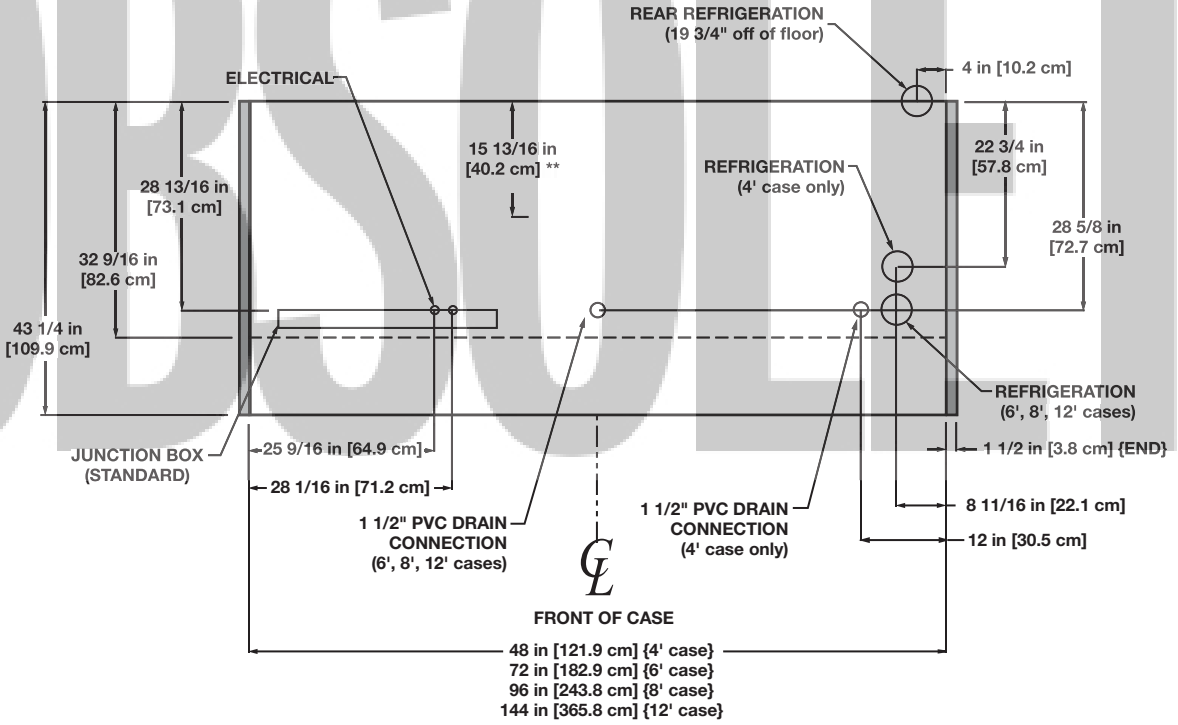
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.





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 (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

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

			Standard Fans		Condenser Fan		Anti-Condensate Heaters		Defrost Heaters		Drain Heater	
		Fans per Case	120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
Model			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
OPA	6'	2	1.00	60	0.82	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

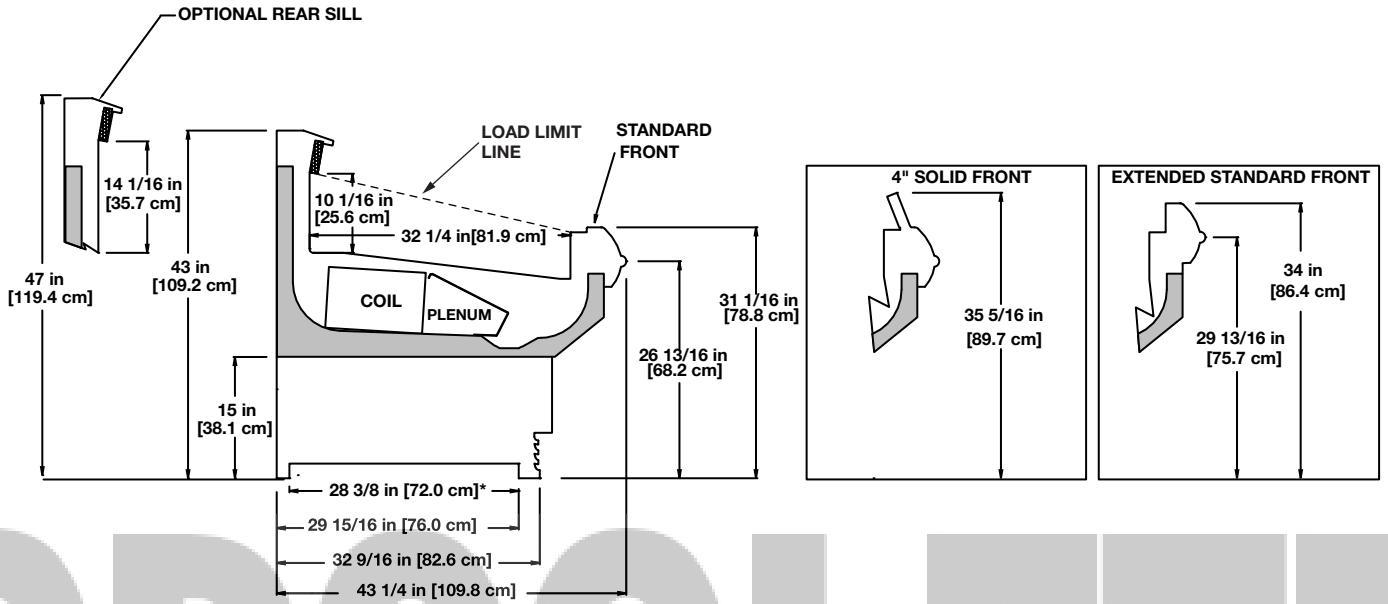
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OPA	2	40	47	60	47	- - -[4]	- - -	- - -	- - -

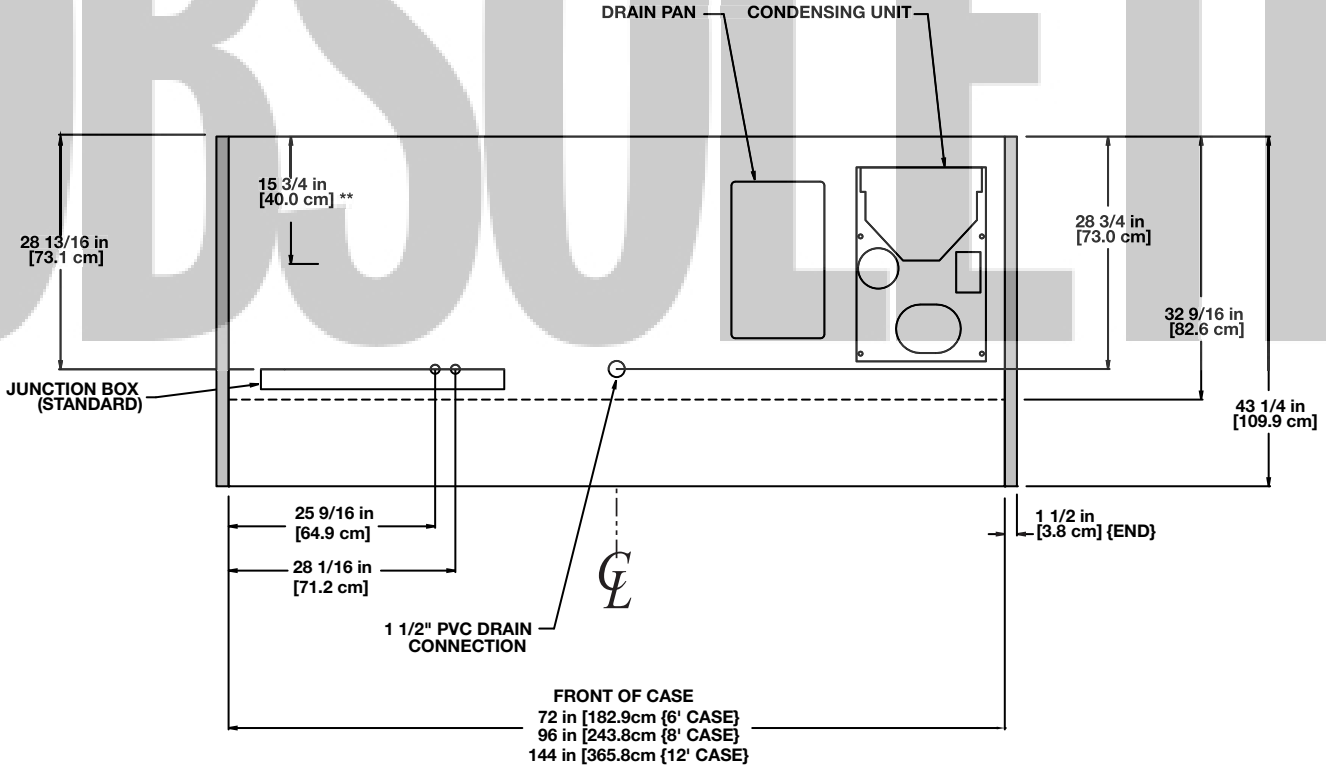
4 NOTE: "- - -" not an option on this case model.

Medium Temperature Defrost Schedule

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

All measurements are taken per ARI 1200 - 2002 specifications.





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**
- **DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK-PLATE**

NSF

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	[1,2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OWP Cut Produce	39"	353[3]	Enh.	26	6-8	31	42	180
	43"	501[3]	Enh.	26	6-8	30	45	210
OWP Bulk Produce	39"	277[3]	Enh.	29	6-8	36	44	180
	43"	466[3]	Enh.	29	6-8	35	47	210

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.06.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

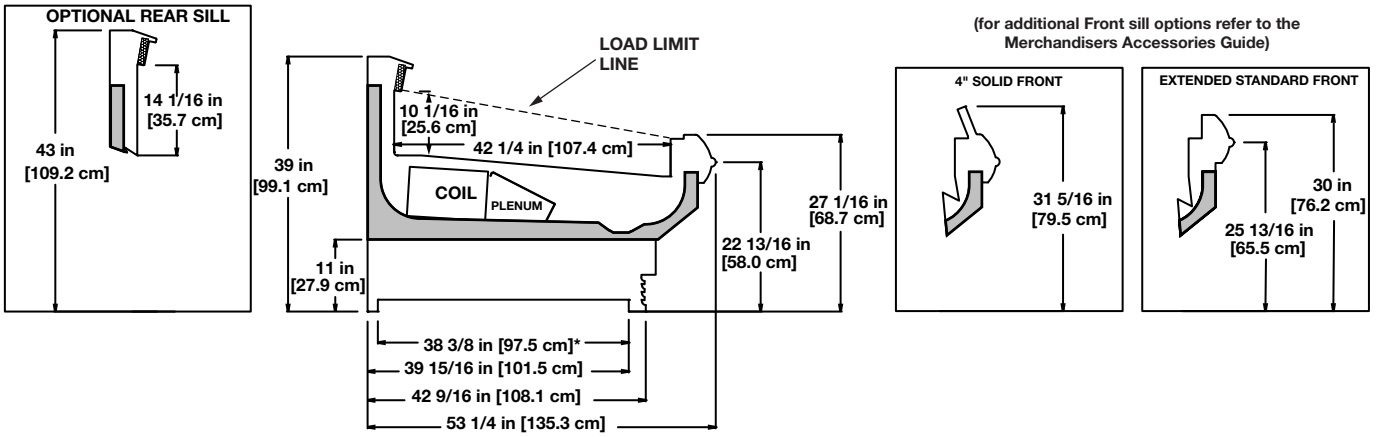
Defrost Controls

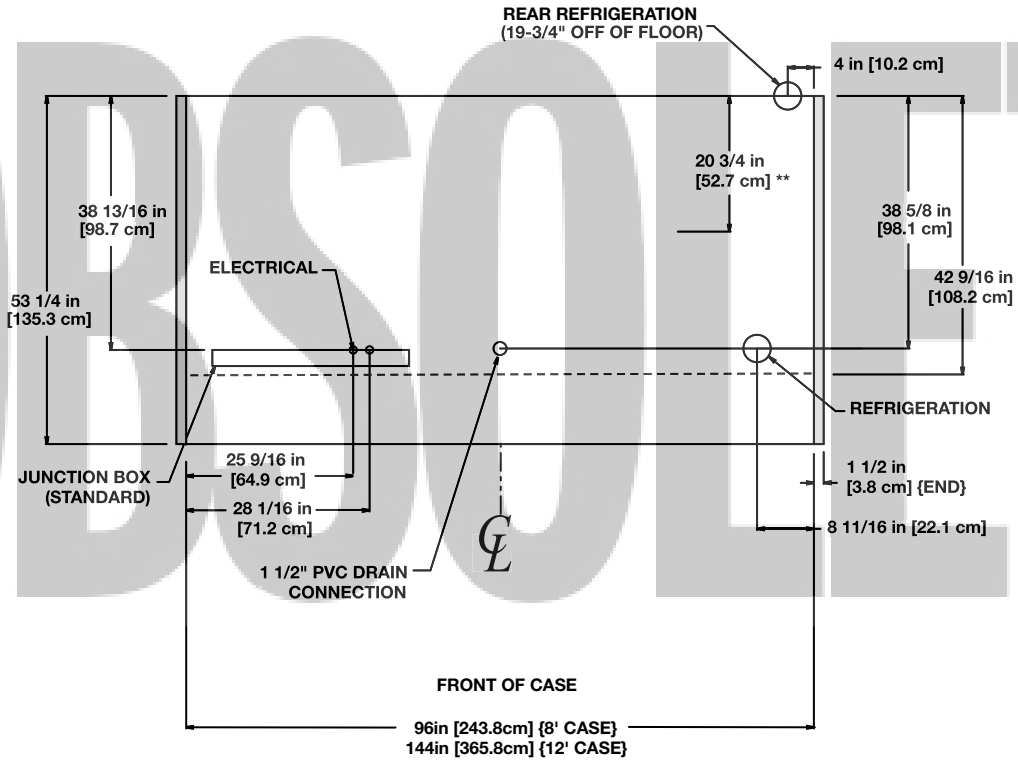
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.





NOTES:

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

- **ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT**
- **A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL**
- **SUCTION LINE - 5/8"; LIQUID LINE - 3/8"**
- **FRONT AND REAR SILLS HEIGHTS VARY WITH BASE FRAME HEIGHT**
- **DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK-PLATE**

NSF COMPONENT c UL us

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

Guidelines & Control Settings

Model	24 hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (^{O}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

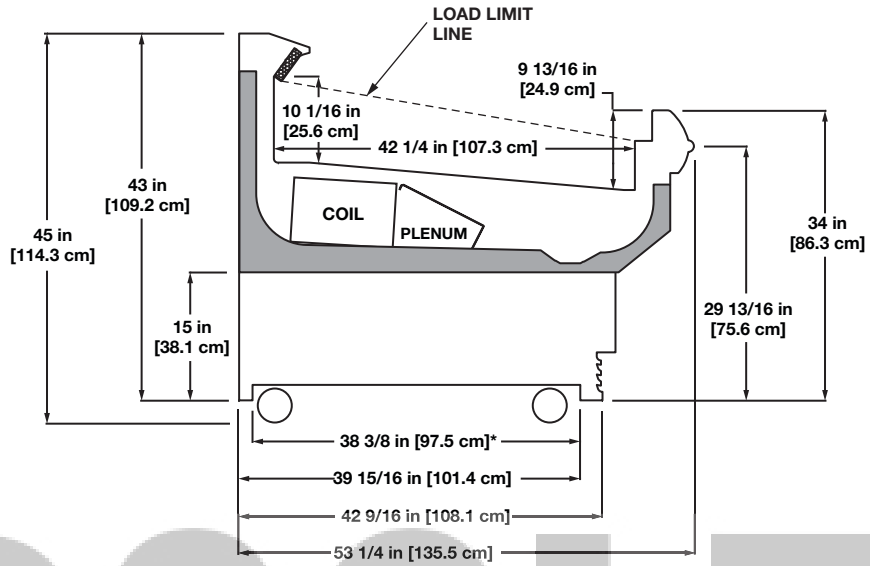
Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OWPA	2	40	47	60	47	- - -[4]	- - -	- - -	- - -

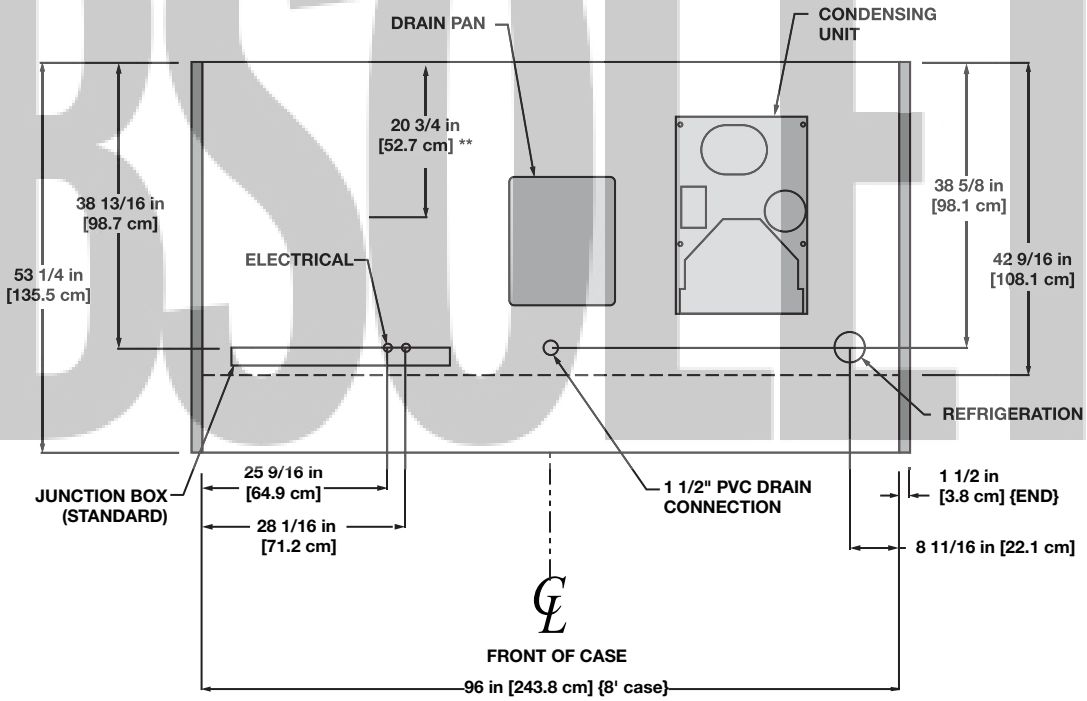
4 NOTE: "- - -" not an option on this case model.

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

All measurements are taken per ARI 1200 - 2002 specifications.





NOTES:

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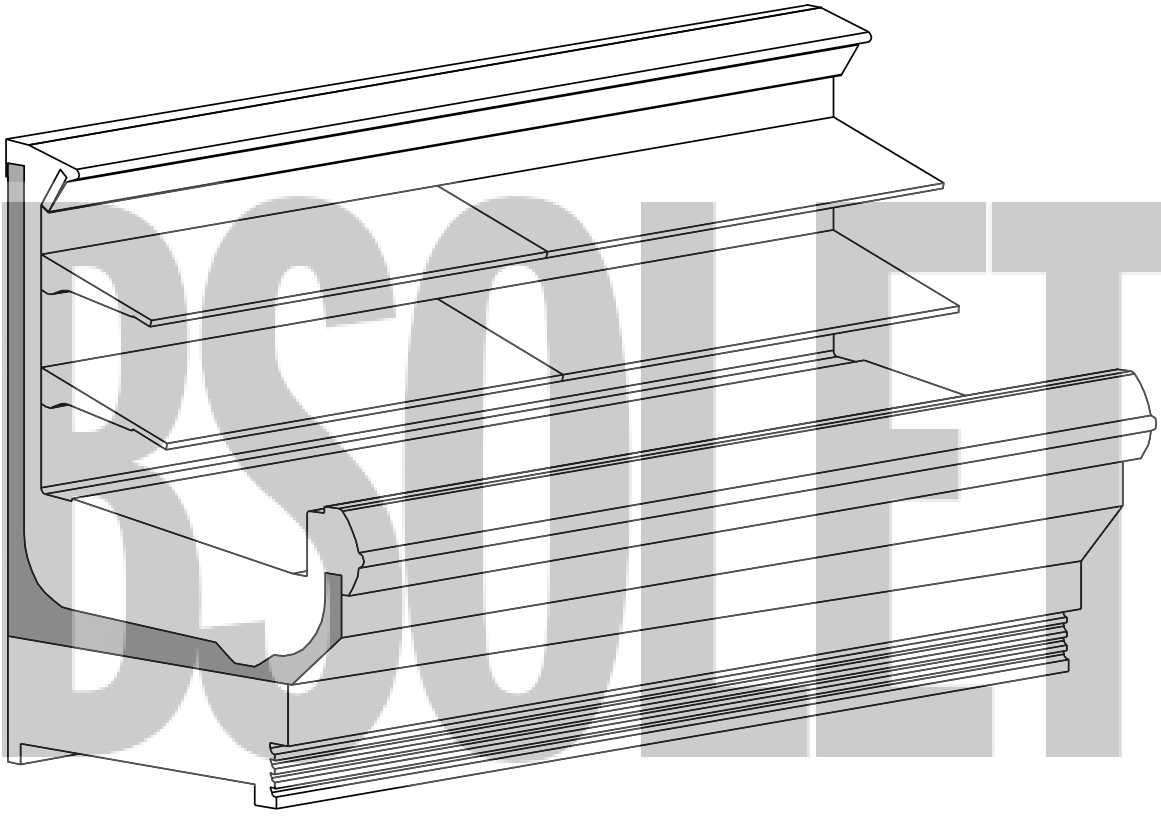
- **DASHED LINES SIGNIFY AREA INSIDE THE BASE RAIL BEHIND KICK-PLATE**

OBSOLETE

UTILITY



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8” per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

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

ONUM - 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
ONUM	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
ONUM	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	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ONUM[2]	478[5]	Enh.	22	6-8	28	35	280

2 Model ONUM only available for meat application with a thermopane-glass front or a curved plexiglass front.

3 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

Defrost Controls

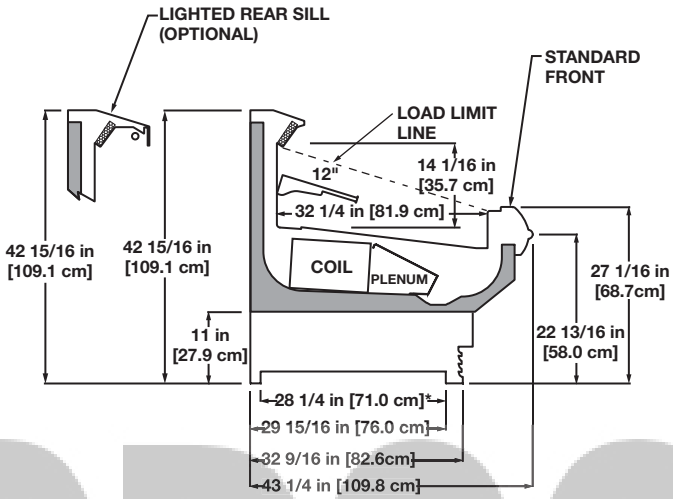
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse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

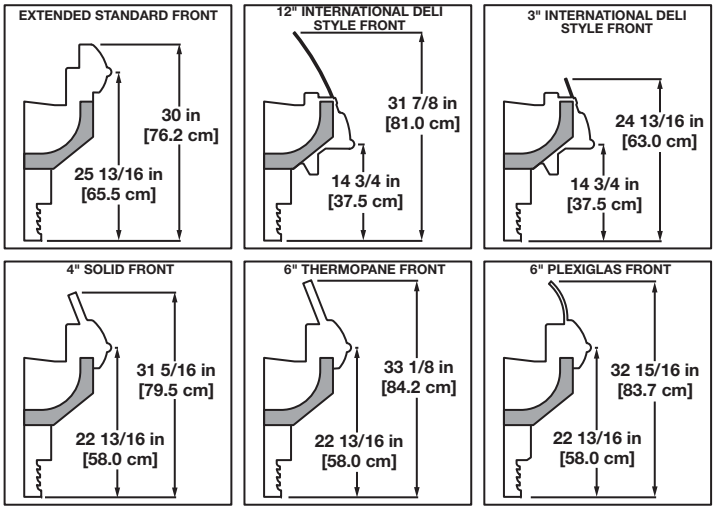
Medium Temperature Defrost Schedule

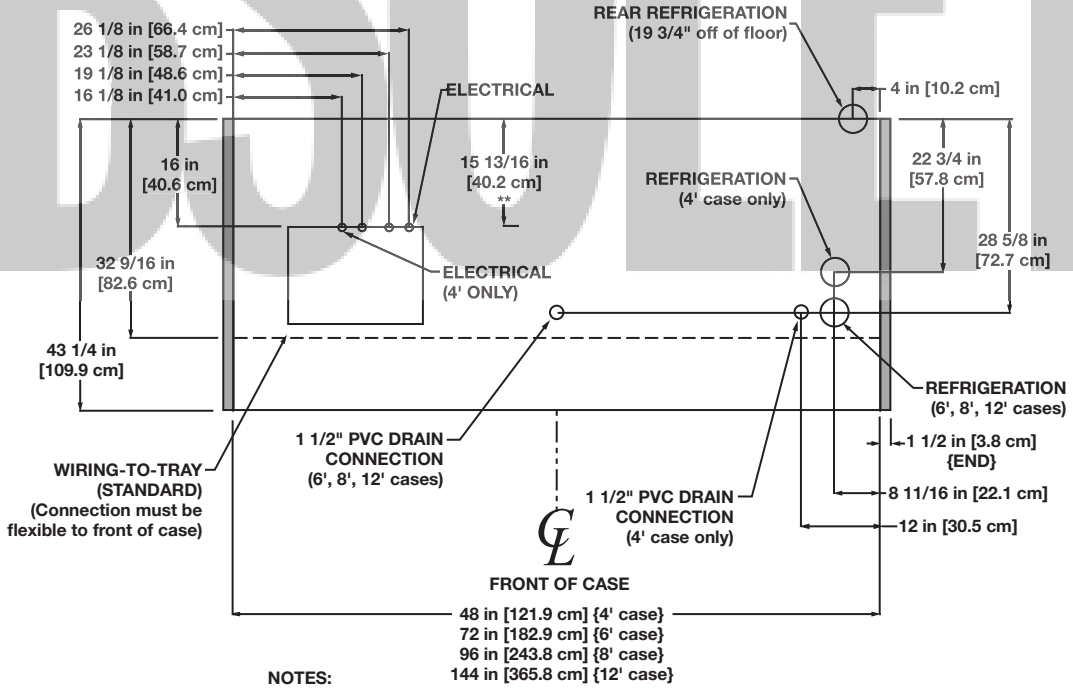
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

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







NOTES:

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

- 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
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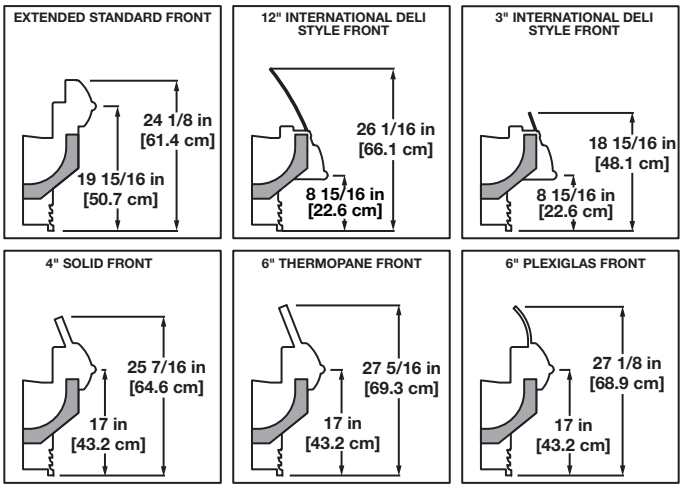
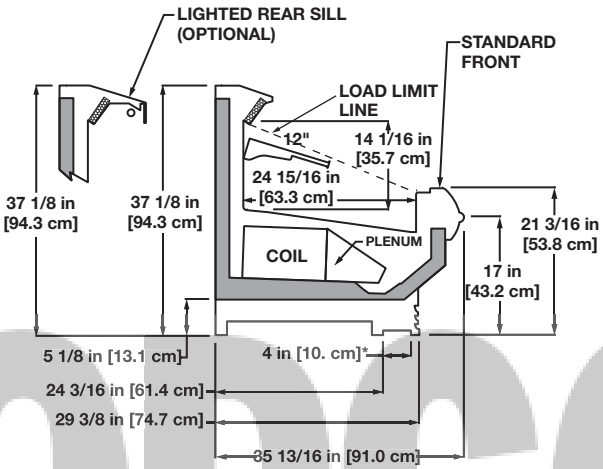
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

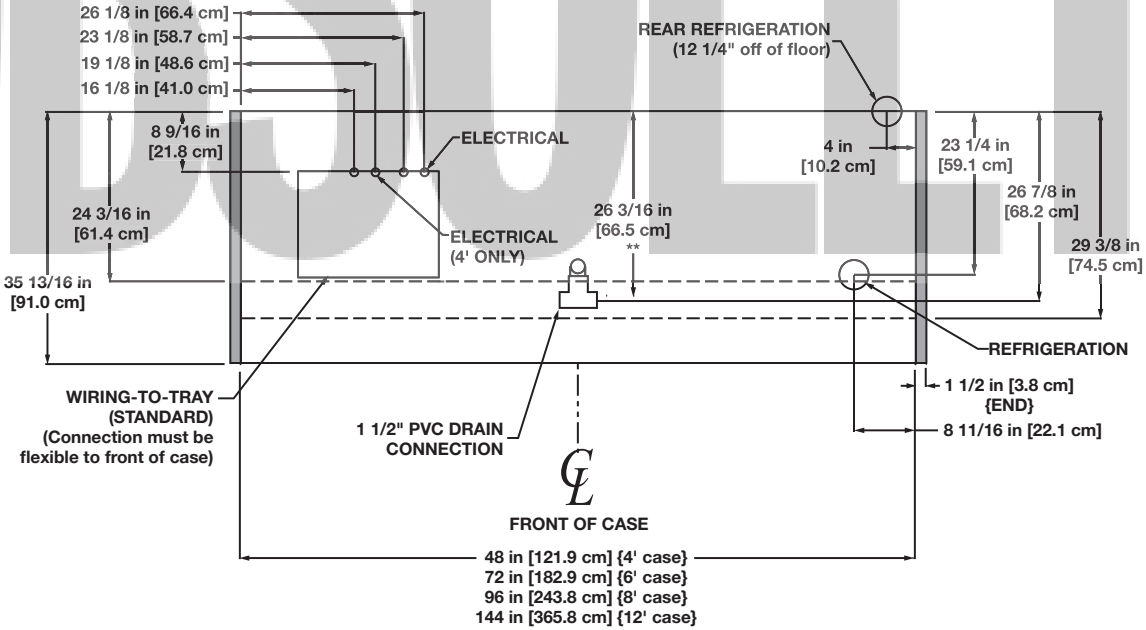
NSF COMPONENT
c UL us

ONUM
(5” BASEFRAME)



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





NOTES:

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

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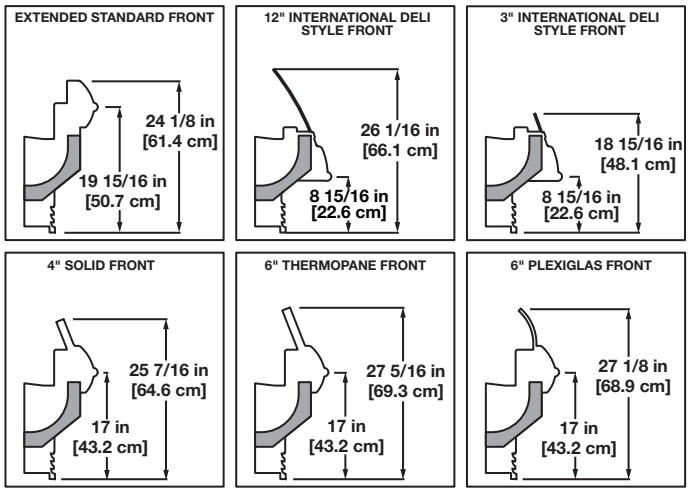
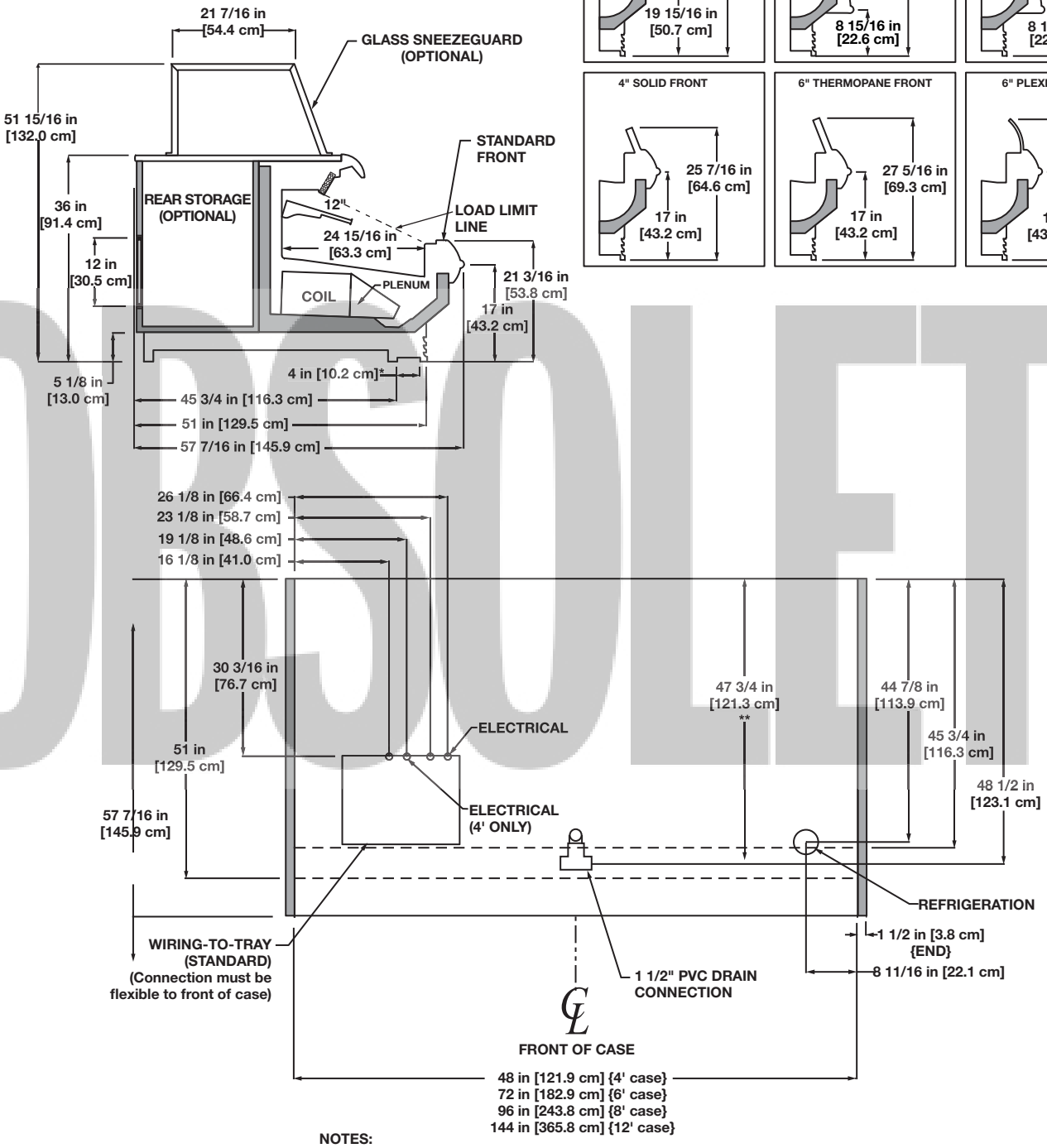
NSF COMPONENT





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NSF COMPONENT
c UL us

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

OUM - 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
OUM	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
OUM	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	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
OUM[2]	758[5]	Enh.	22	6-8	27	40	340

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

3 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
OUM	3	6 - 8	40	47	45	45	26	45	45	45

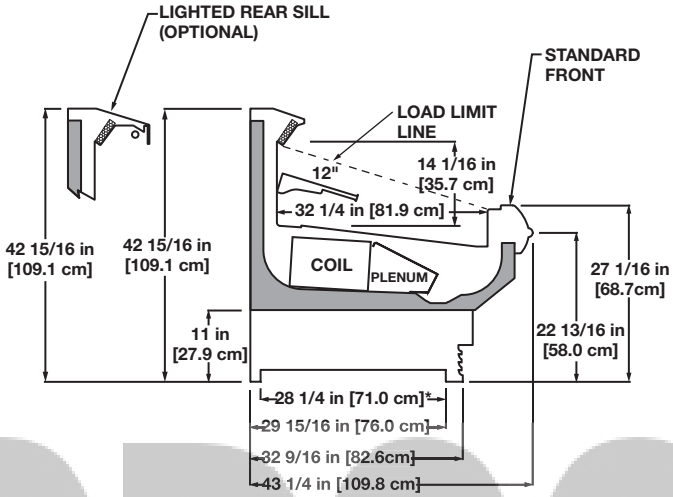
Medium Temperature Defrost Schedule

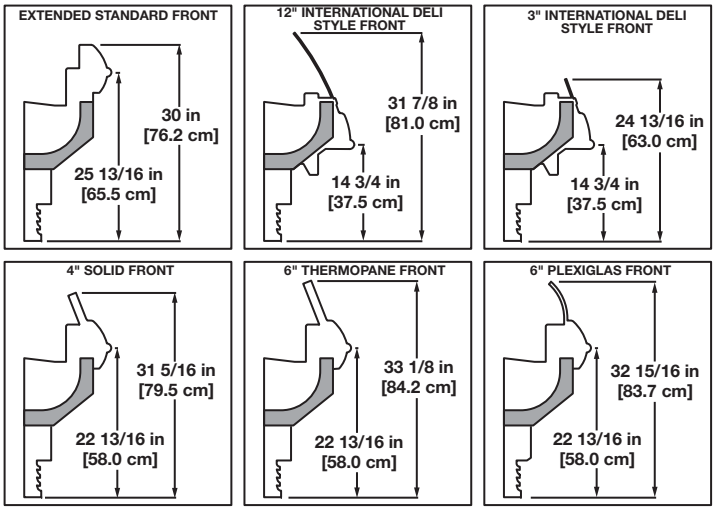
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

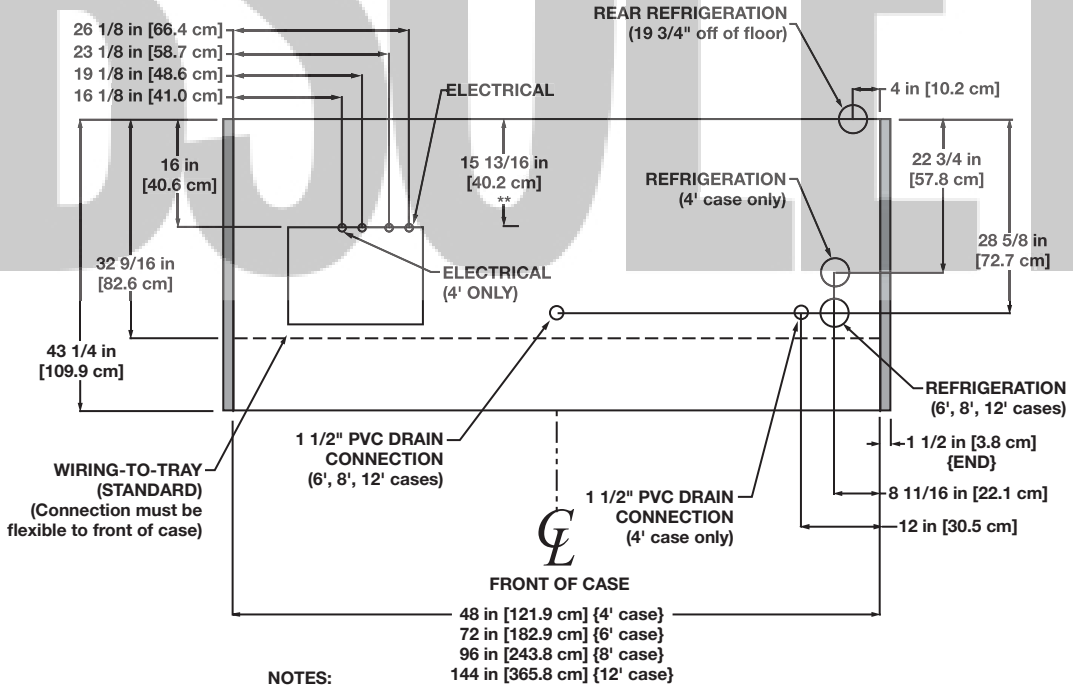
All measurements are taken per ARI 1200 - 2002 specifications.

OUM
(11" BASEFRAME)

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







NOTES:

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

- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
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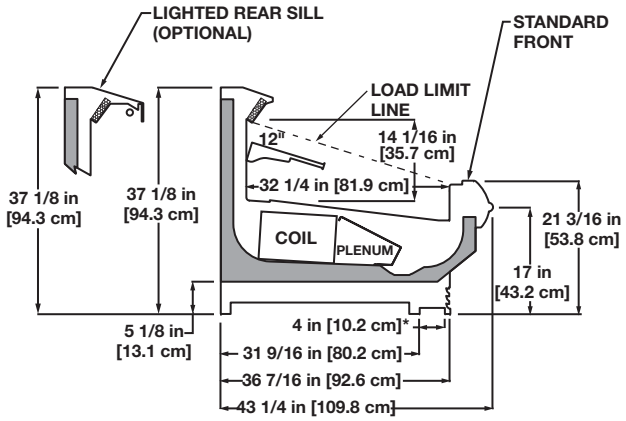
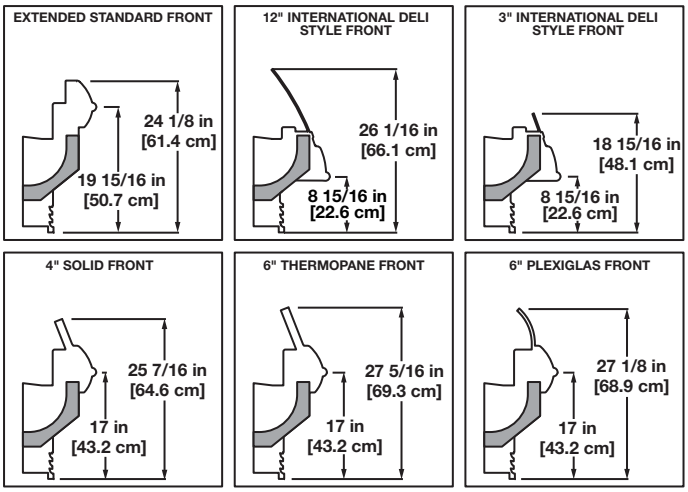
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

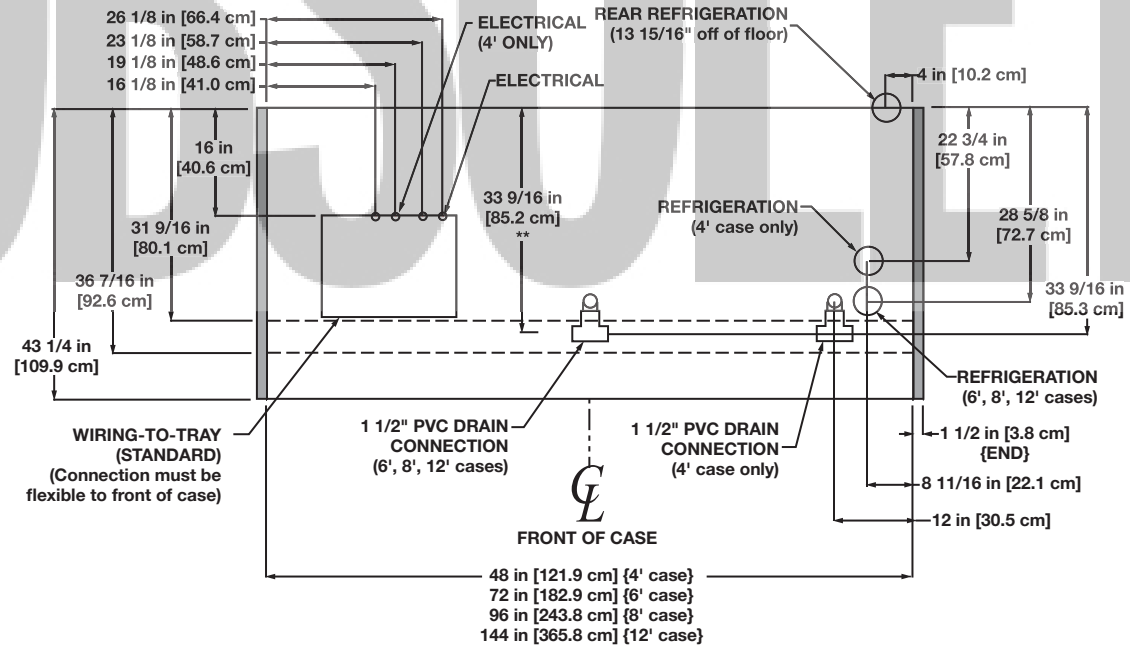
NSF COMPONENT

OUM
(5" BASEFRAME)

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







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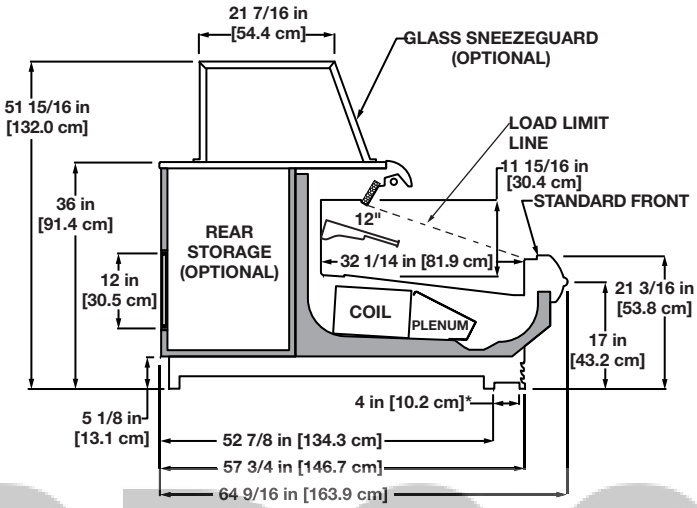
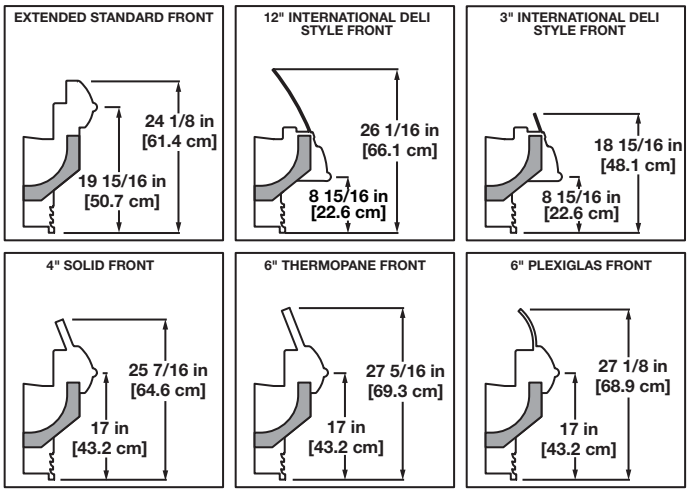
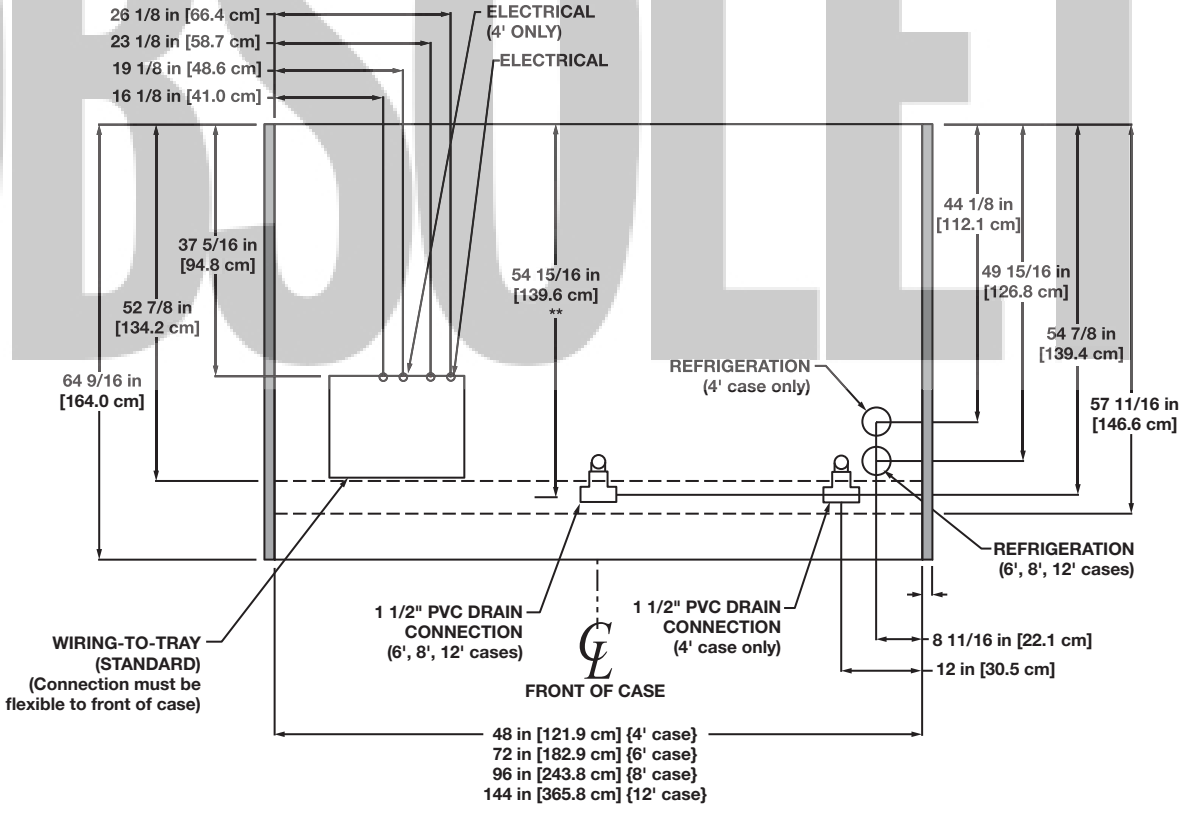
NSF COMPONENT c UL us







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NSF COMPONENT
c UL us

Narrow Multi-Deck Produce/Dairy/Deli/Meat/Seafood Merchandiser
ON2UM - 4', 6', 8' & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters[1] 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	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

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ON2UM[2]	605[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
ON2UM	3	6 - 8	40	47	45	45	26	45	45	45

Medium Temperature Defrost Schedule

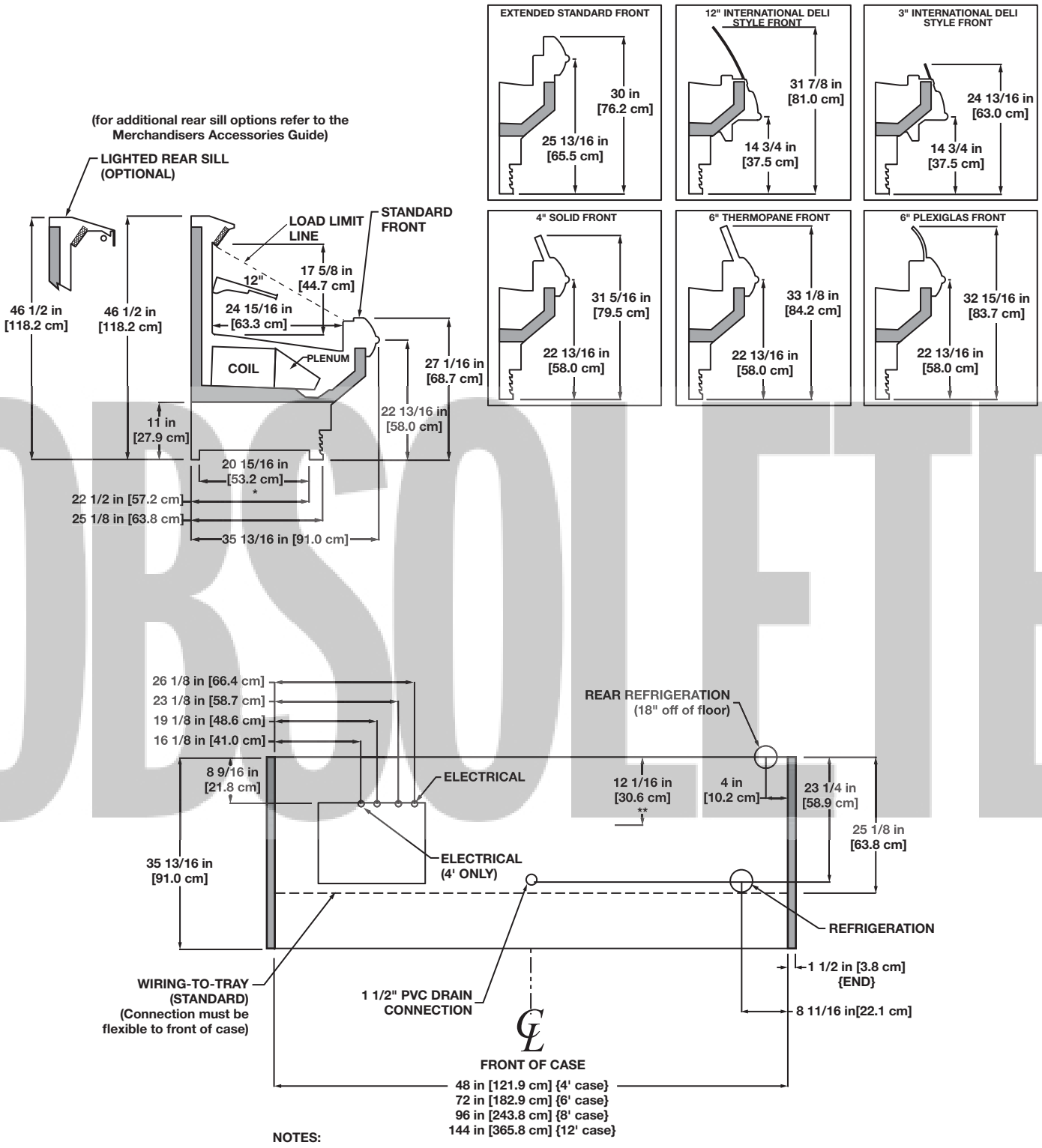
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



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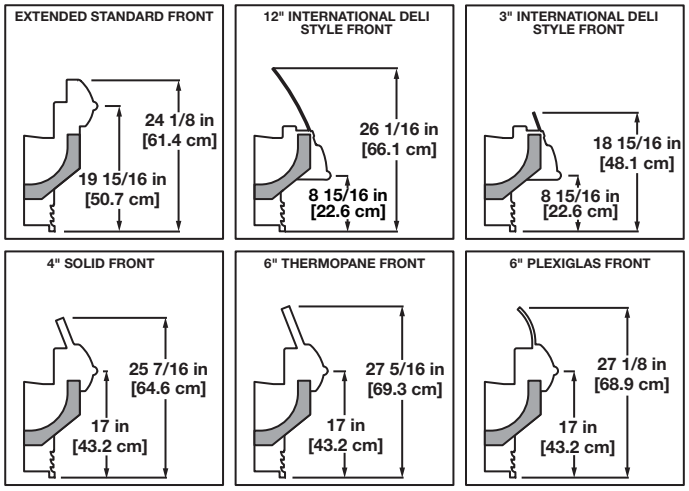
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

ON2UM
(5” BASEFRAME)



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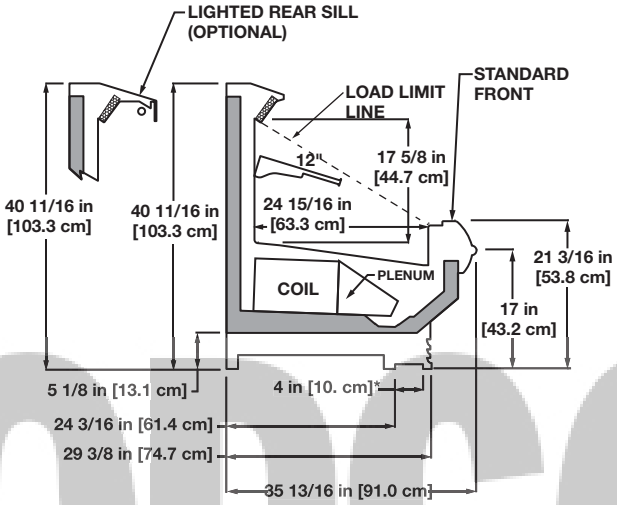

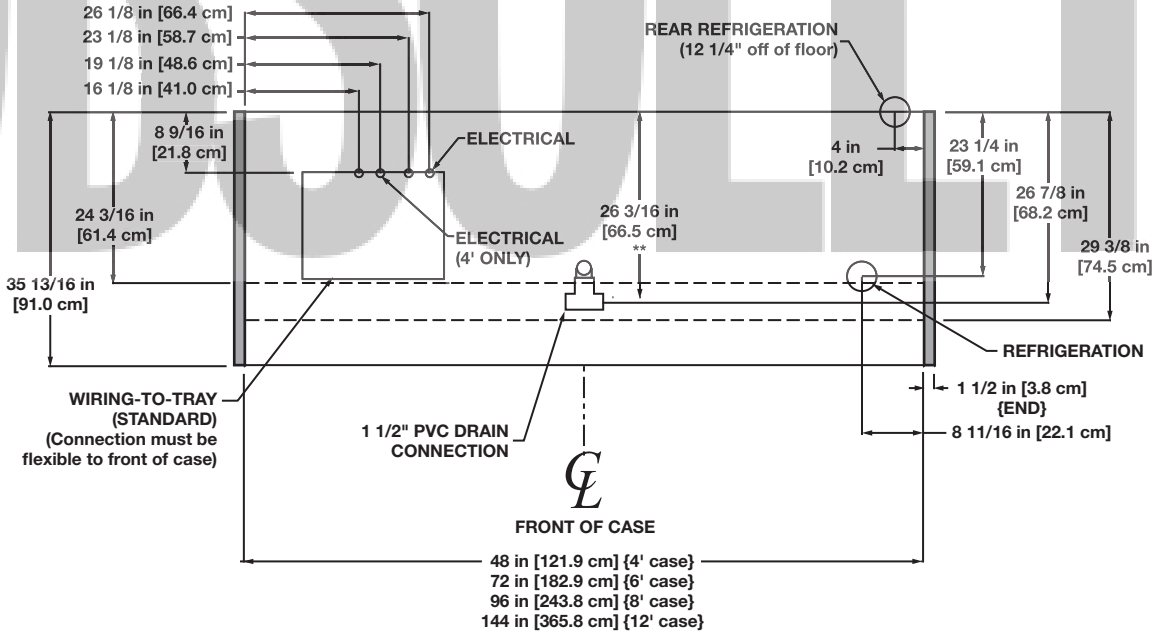

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NSF COMPONENT

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
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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

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
O2UM[2]	948[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

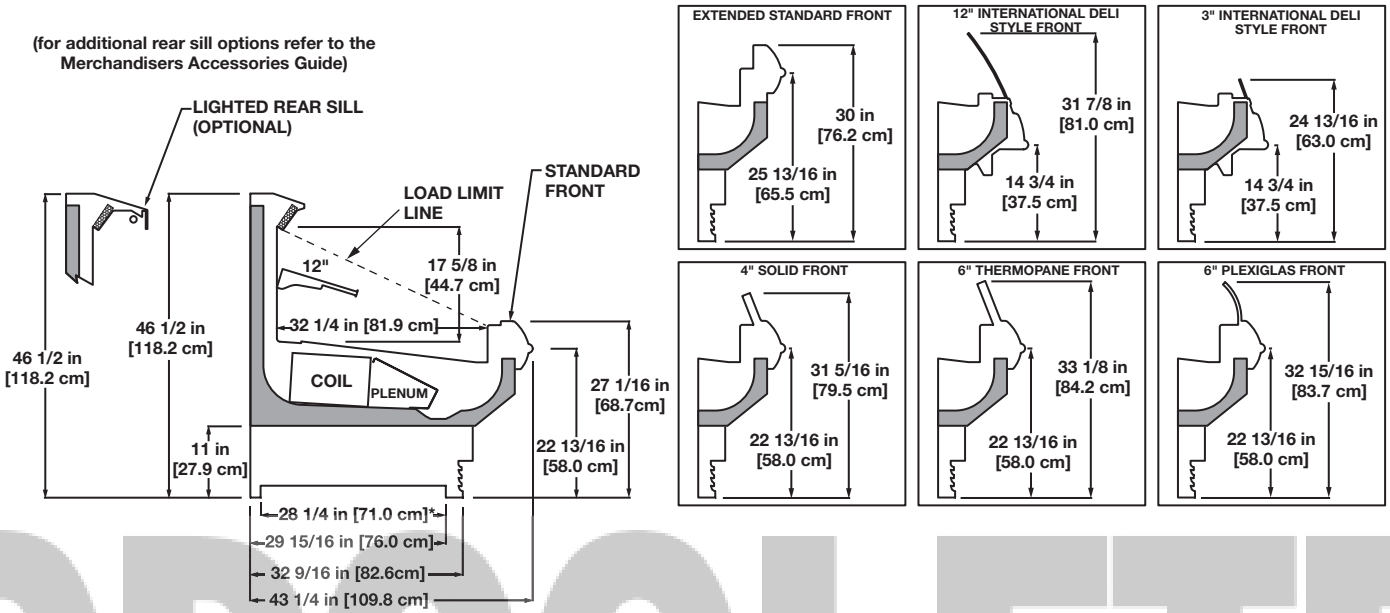
Defrost Controls

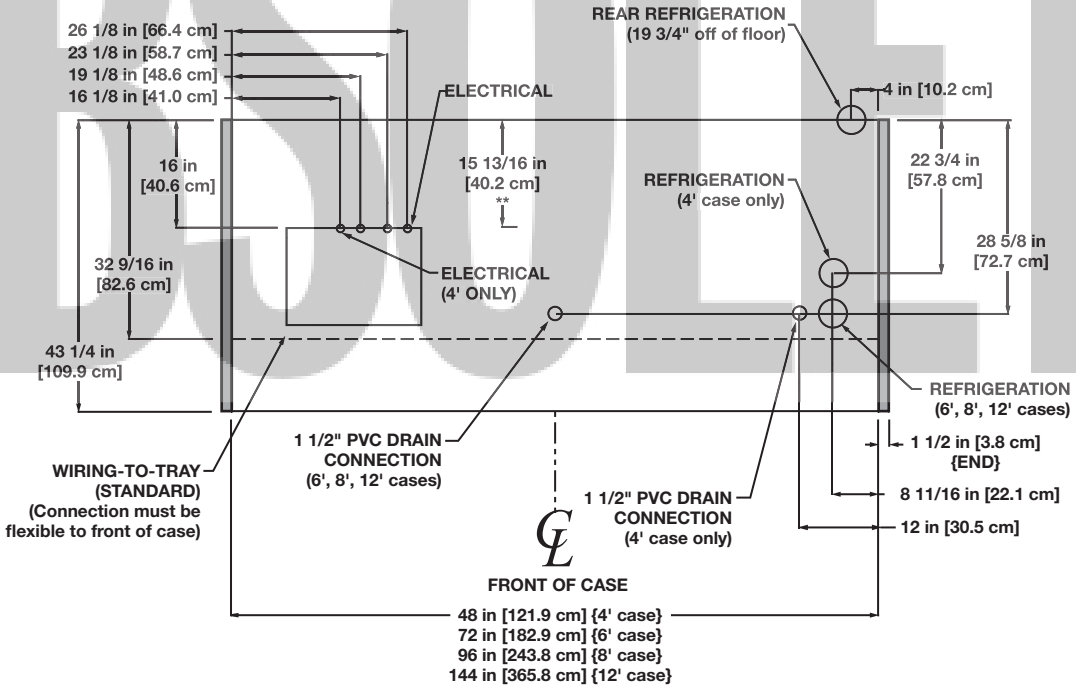
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse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

Medium Temperature Defrost Schedule

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

All measurements are taken per ARI 1200 - 2002 specifications.





NOTES:

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- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
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- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12"
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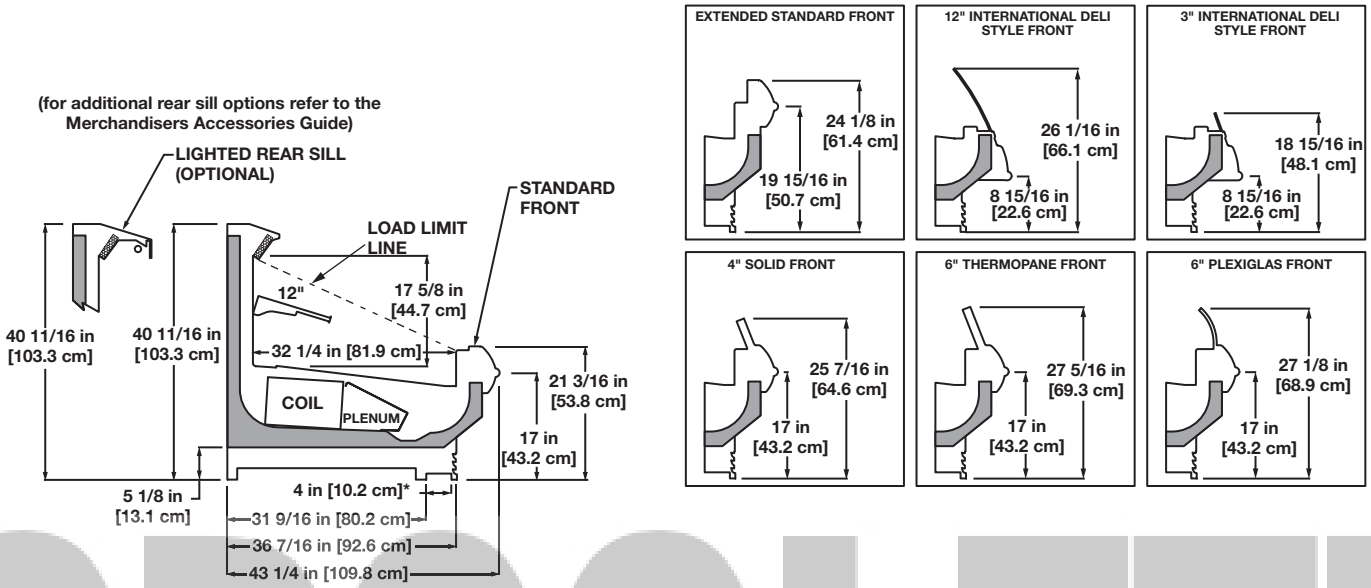
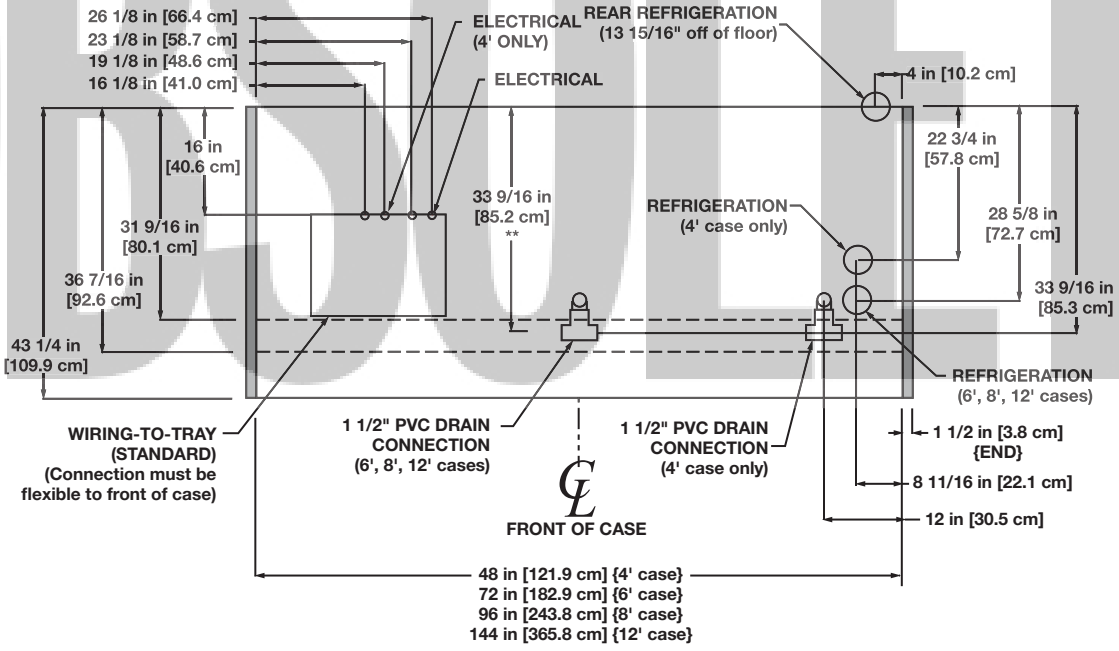
NSF COMPONENT
c UL us

O2UM
(5" BASEFRAME)





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 (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"**
- **AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"**
- **PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE**
- **RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12"**
- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

NSF COMPONENT

UTILITY

Produce/Dairy/Deli/Meat/Seafood

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OW2UM	1184[4]	Enh.	22	6-8	27	40	340

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

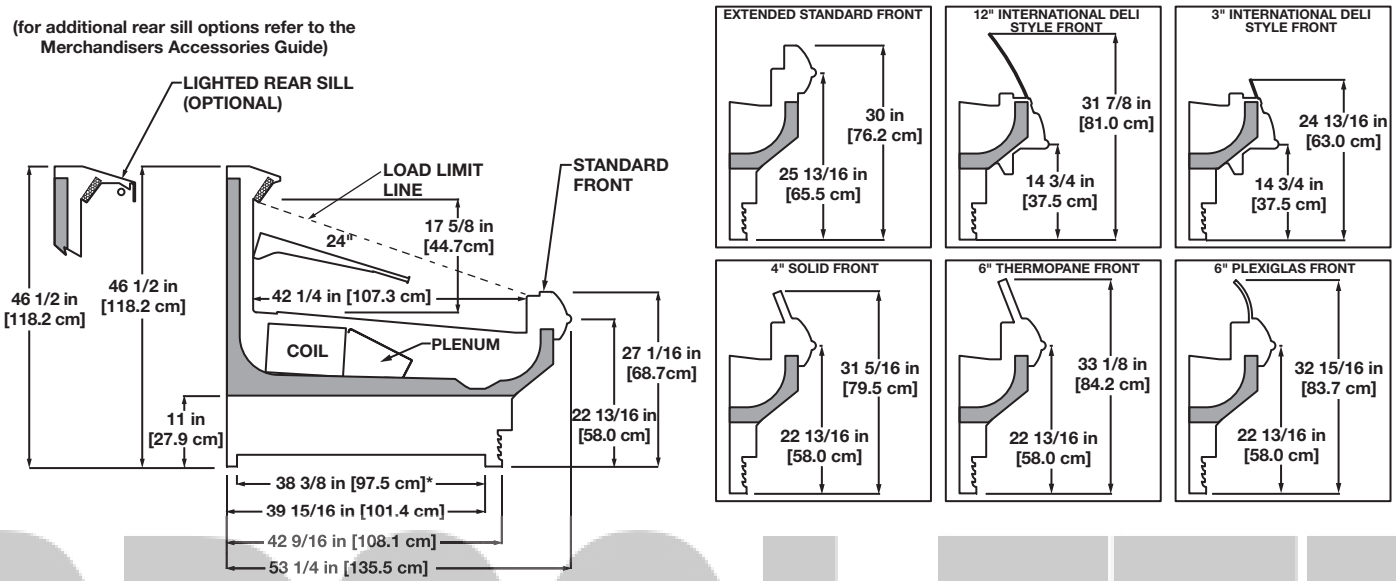
Defrost Controls

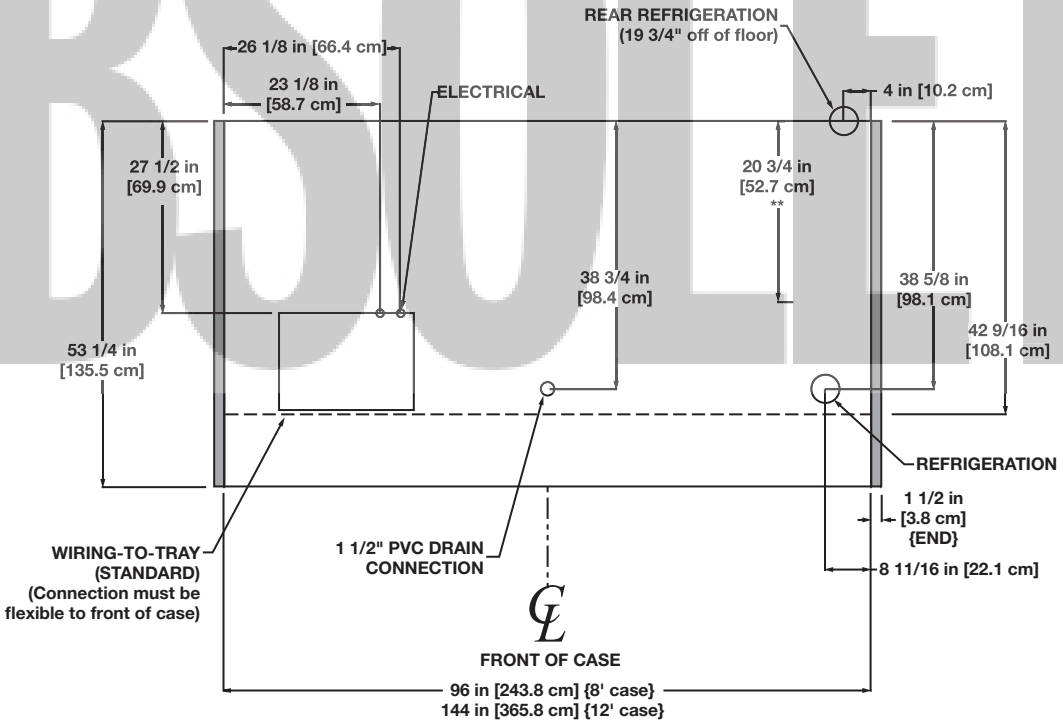
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.





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- 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 - 5/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-24"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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

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

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts 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

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ON2.5UM[2]	739[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

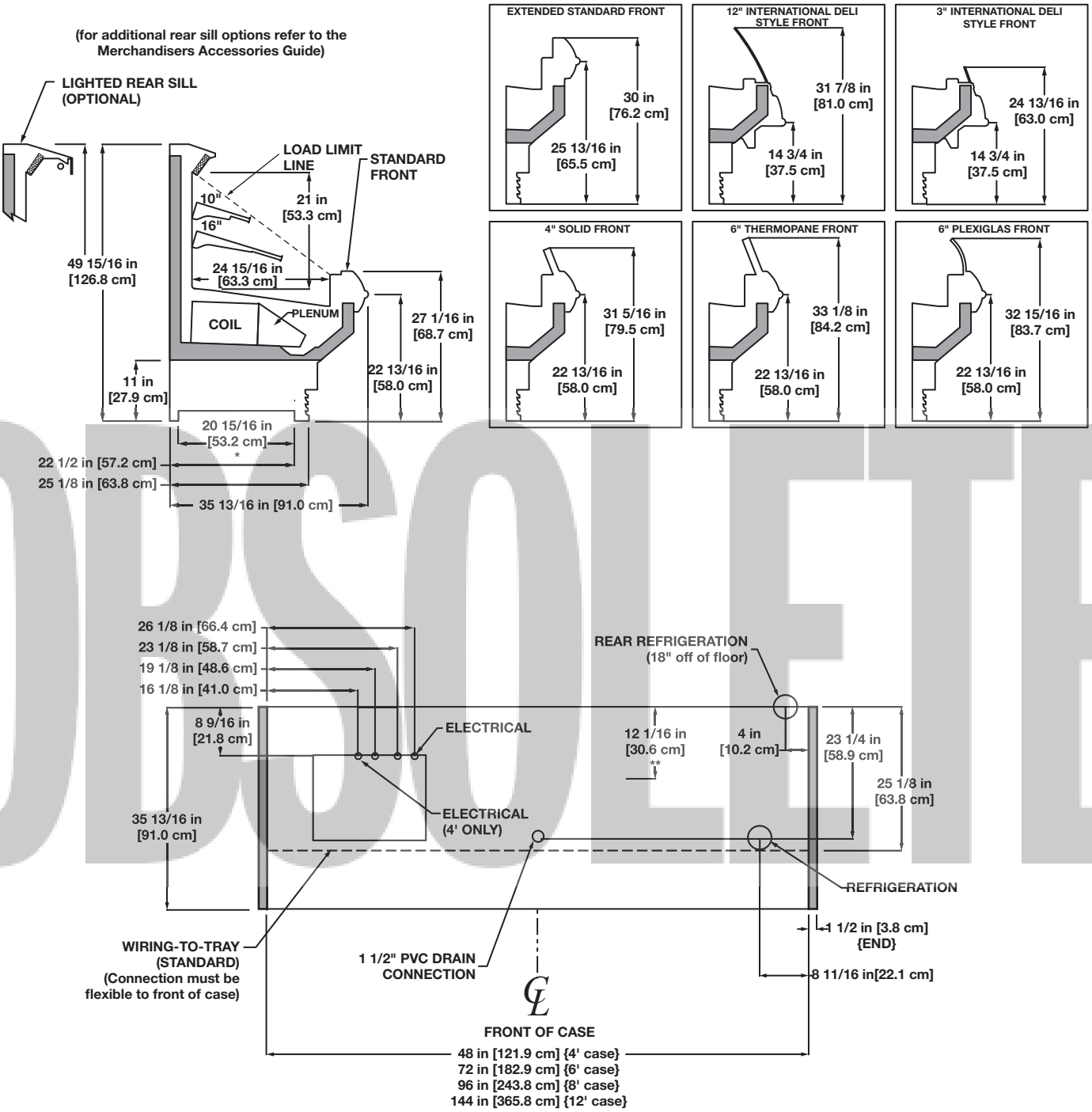
Defrost Controls

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)
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 ARI 1200 - 2002 specifications.



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

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- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-10" & 1-16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
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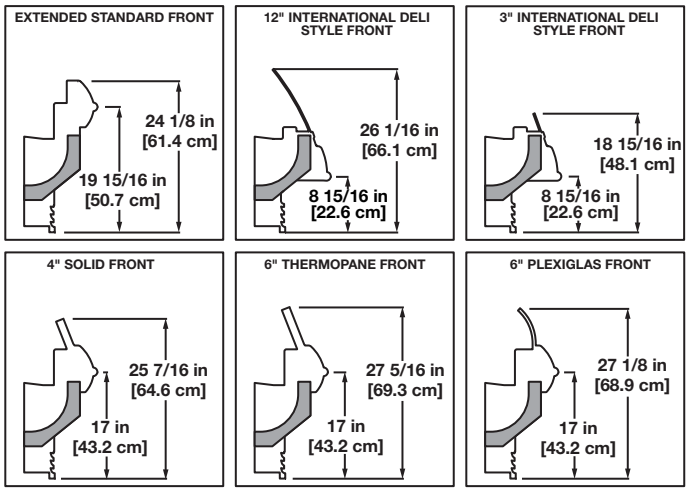
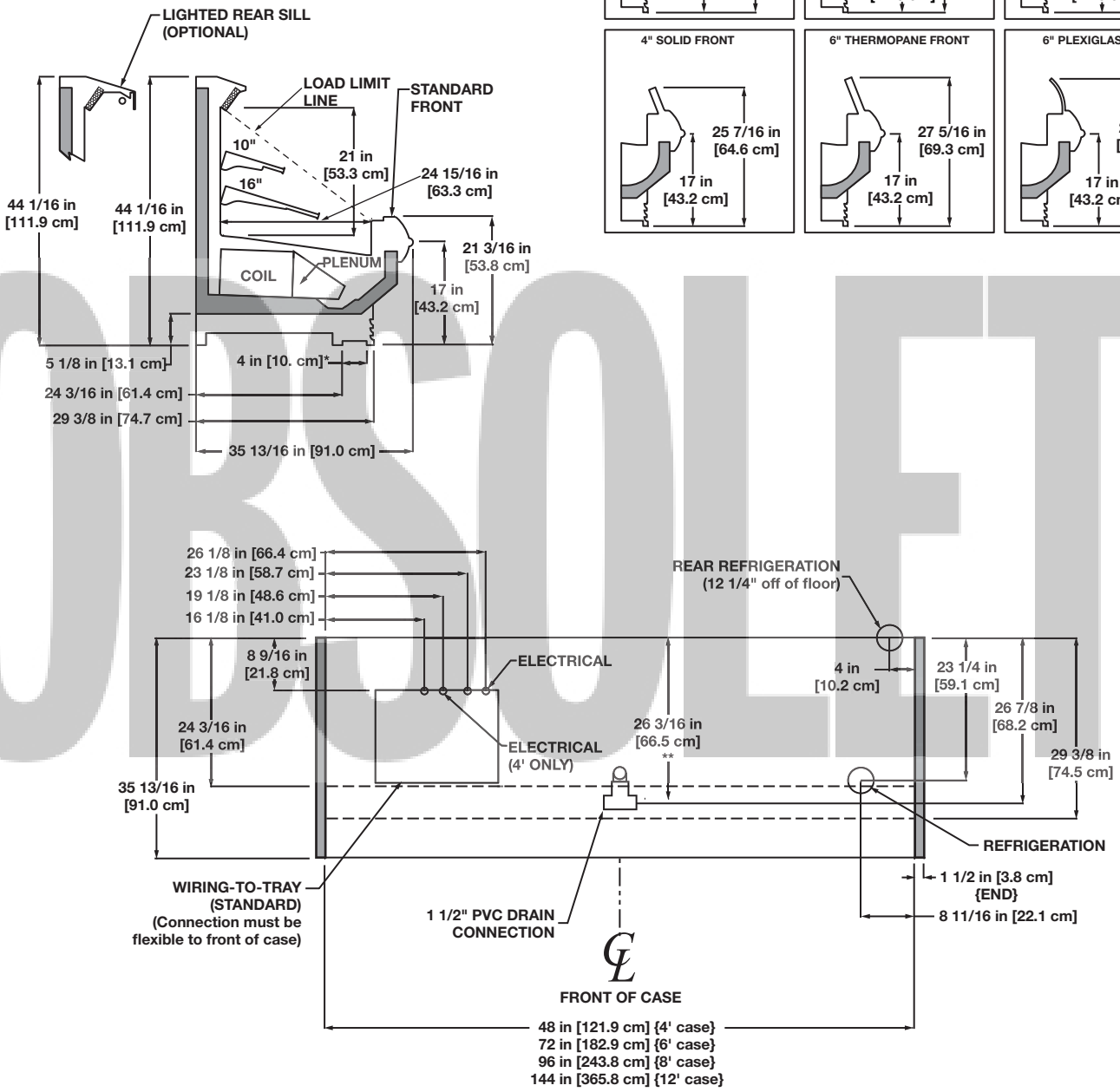
ON2.5UM
(5" BASEFRAME)





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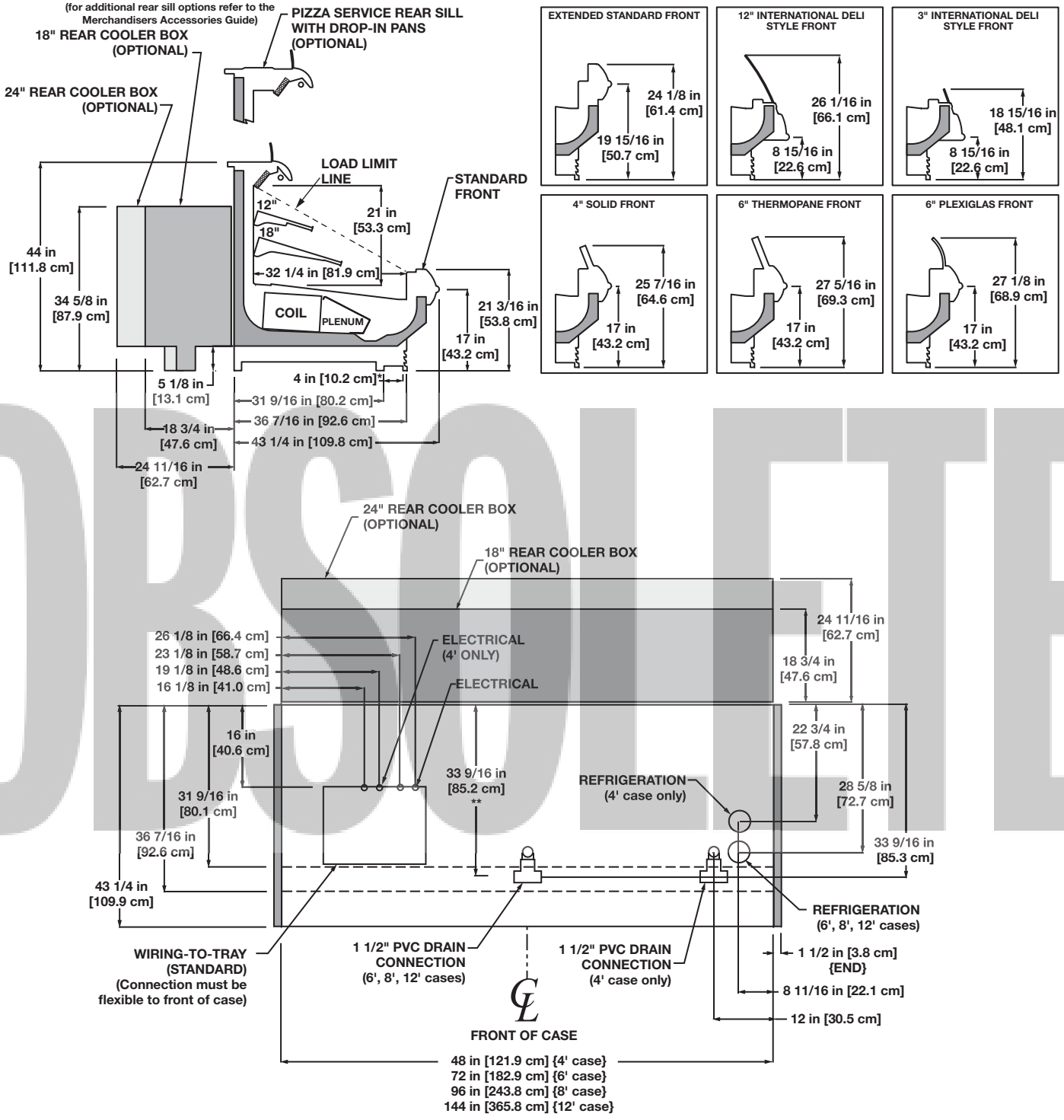
NSF COMPONENT



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NSF COMPONENT

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	[4,5]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[7] (FPM)
O2.5UM[2,3]	1308[6]	Enh.	22	6-8	27	45	225
O2.5UM w/Plexi Dome[2]	948[4]	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 For cases with rear refrigerated storage boxes add 110 BTUH/ft

4 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

5 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

6 Standard fans increase refrigeration load by 96 BTUH/fan.

7 Average discharge air velocity at peak of defrost.

Defrost Controls

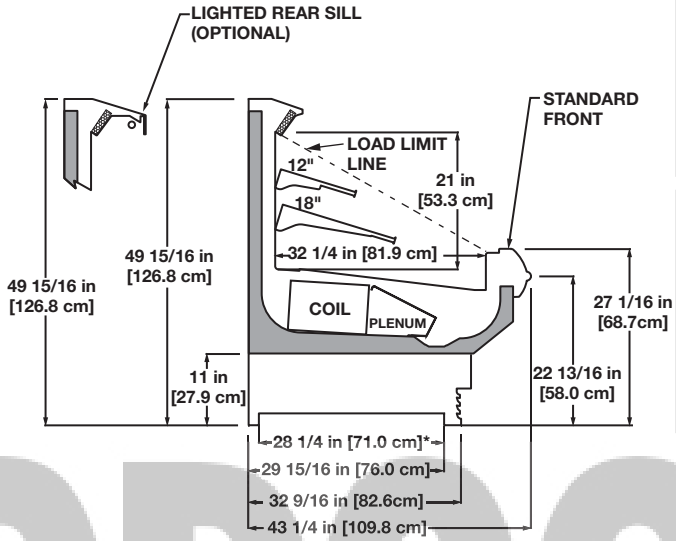
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse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

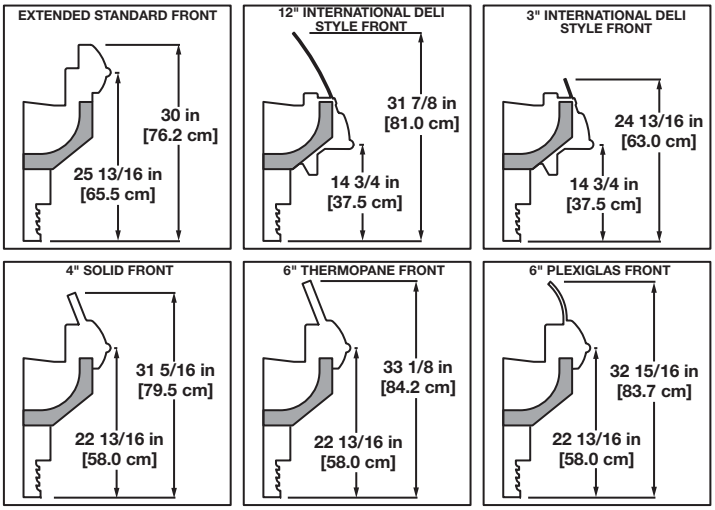
Medium Temperature Defrost Schedule

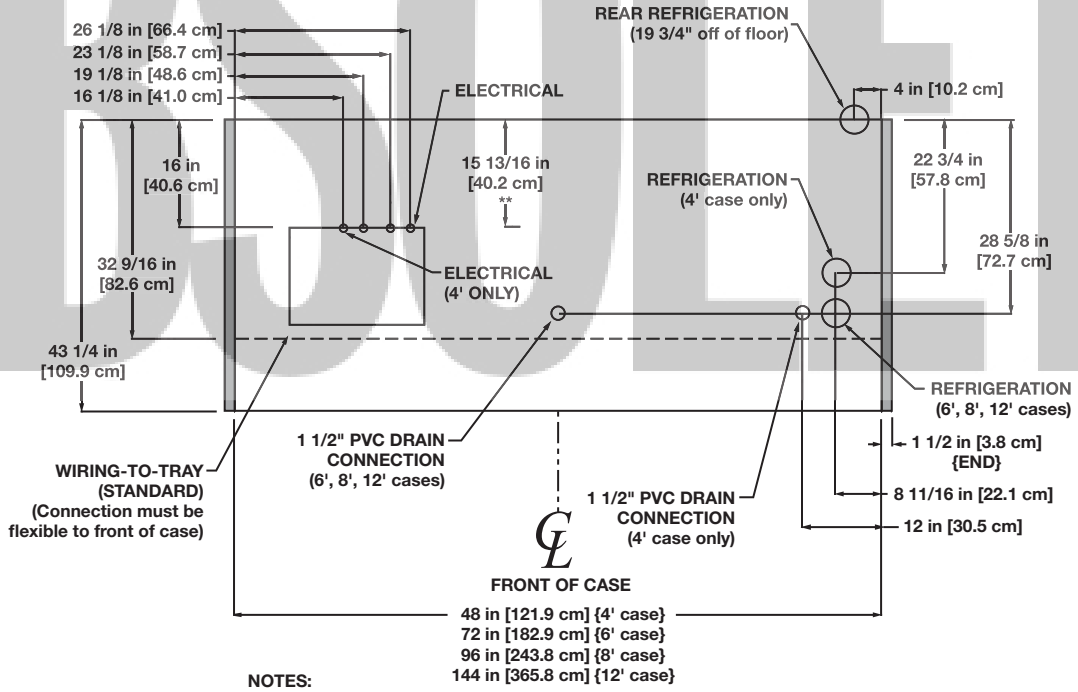
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

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







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NSF COMPONENT

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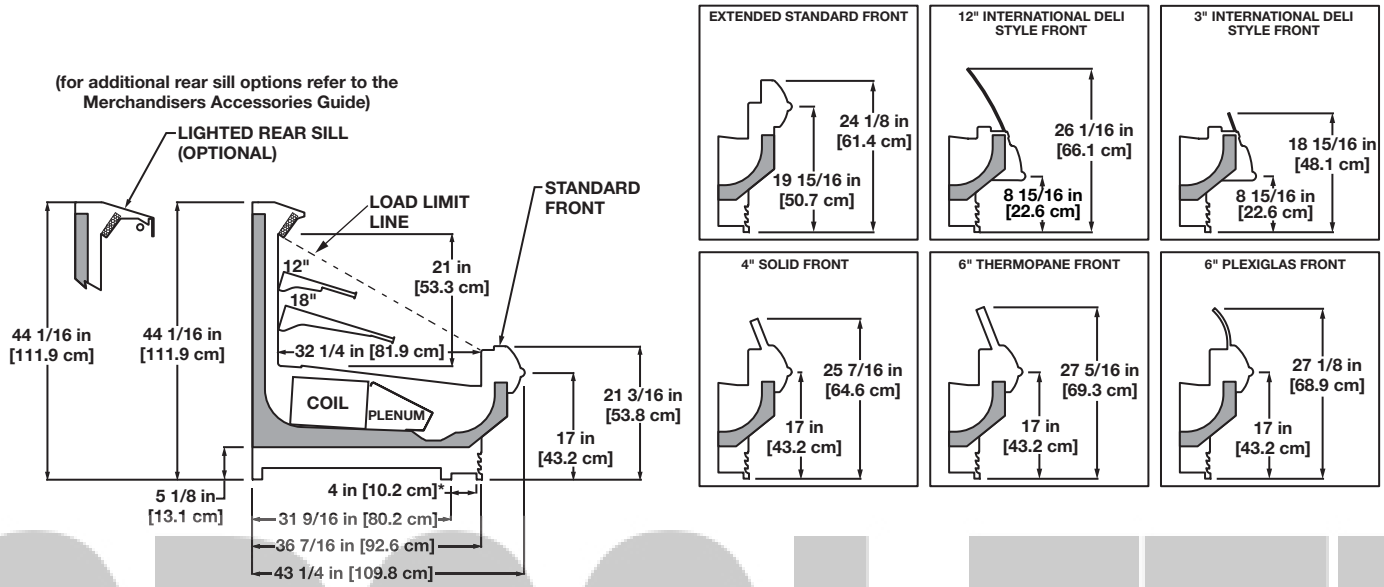
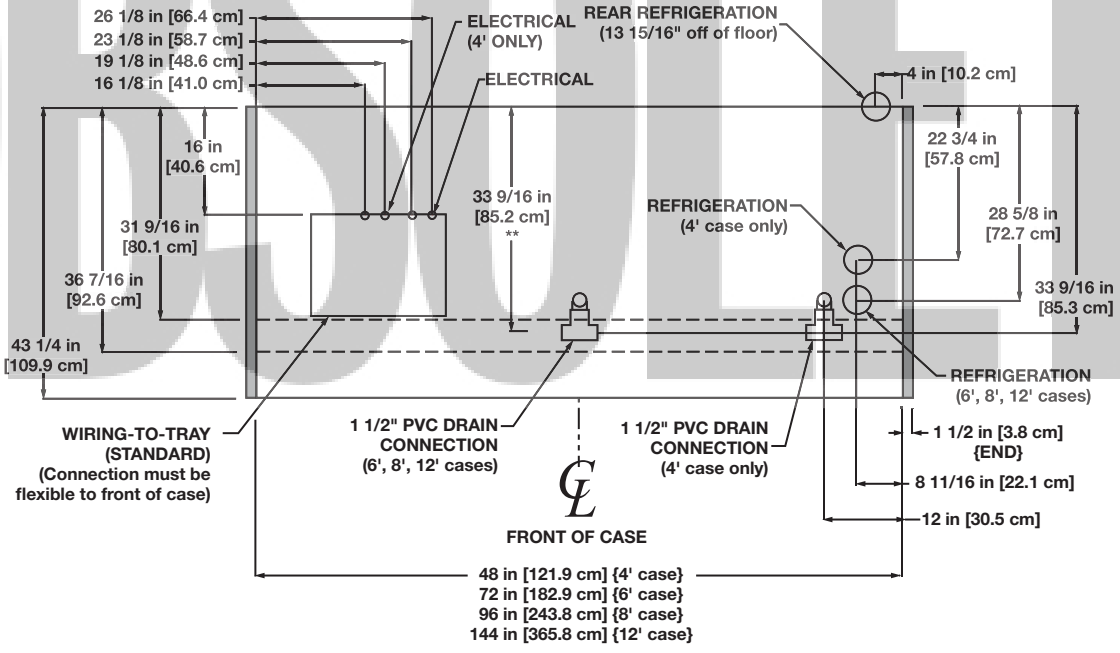
O2.5UM
(5" BASEFRAME)





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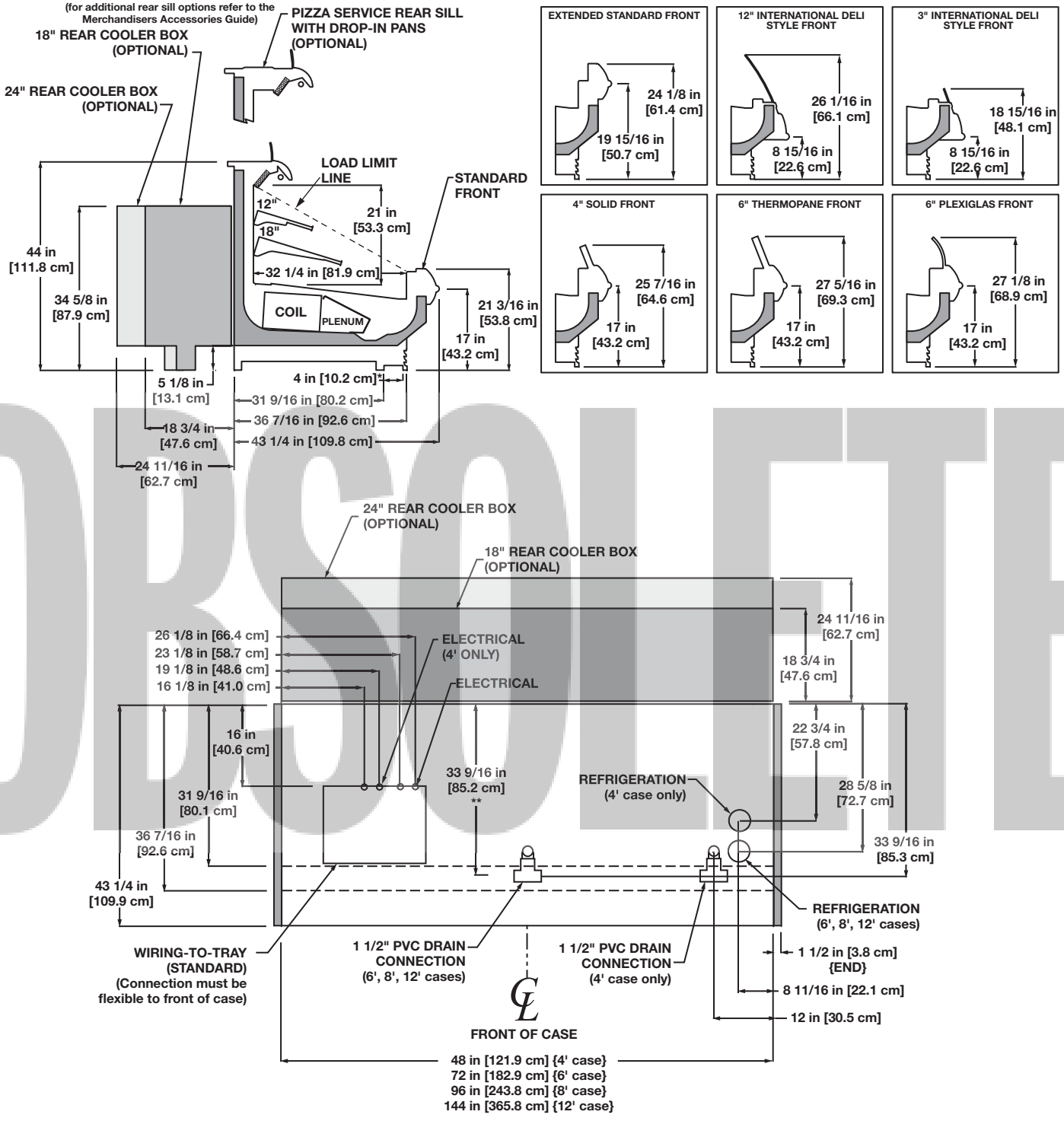
NSF COMPONENT



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NSF COMPONENT

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.

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[3] (FPM)
O2.5UMA-8’[2]		40	6-8	29	43	225

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

3 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.
O2.5UMA-8’	208	1	60	1	10.4	48.2	R22	5.25

4 RLA - Running Load Amps.

5 LRA - Locked Rotor Amps.

Defrost Controls

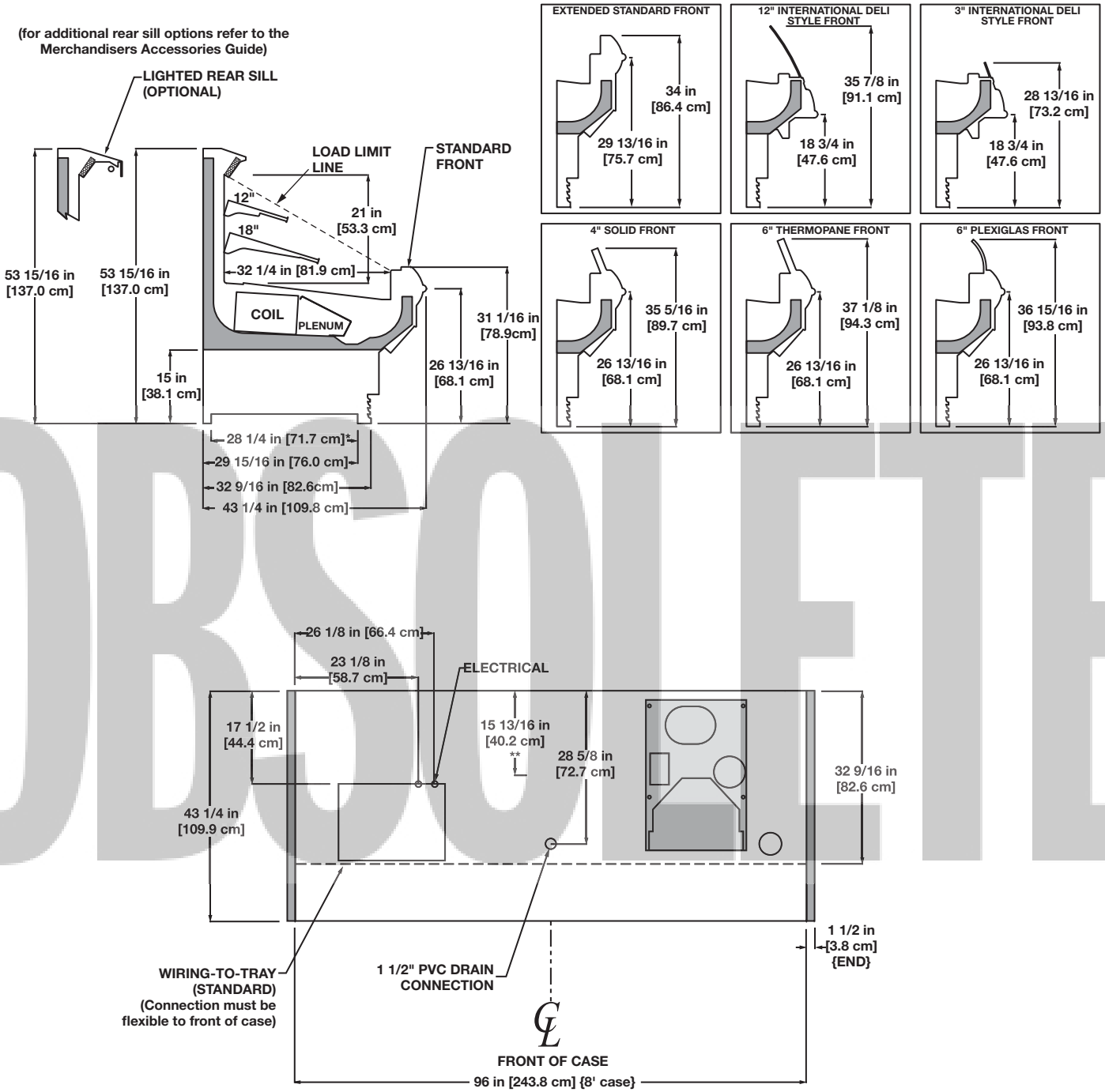
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O2.5UMA-8’	3	6 - 8	40	47	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 ARI 1200 - 2002 specifications.



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NSF COMPONENT c UL us

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
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	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
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	12'	3	4'	0.70	84	2.80	336

Guidelines & Control Settings

Model[2]	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
O2.75UM	953[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
O2.75UM	3	6 - 8	40	47	45	45	26	45	45	45

Medium Temperature Defrost Schedule

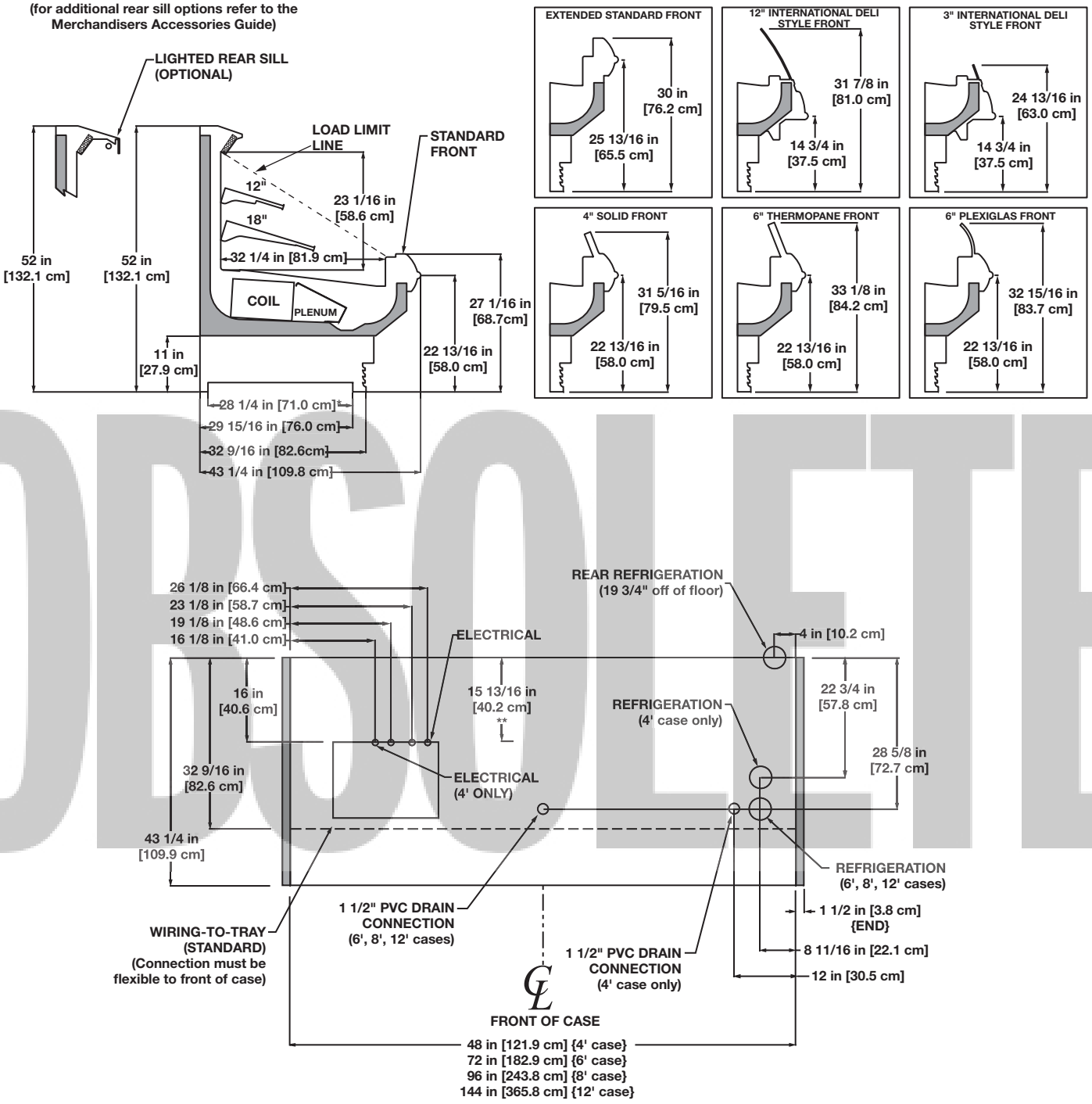
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

cULus

Hill PHOENIX EXCELLENCE A DOVER COMPANY



NOTES:

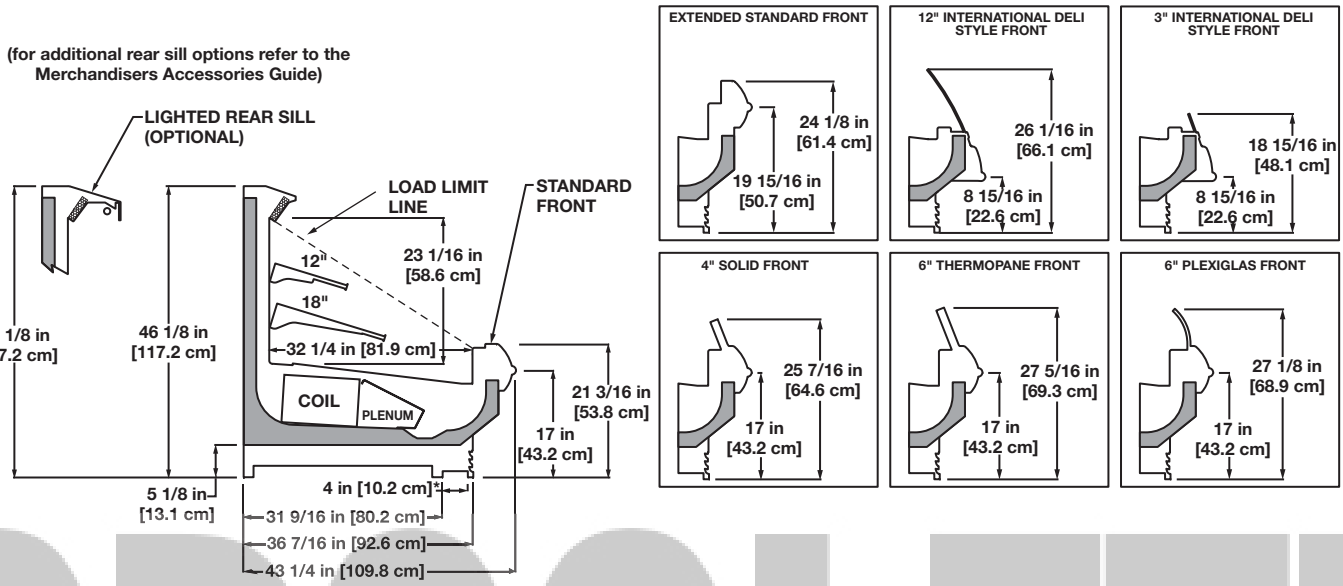
* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

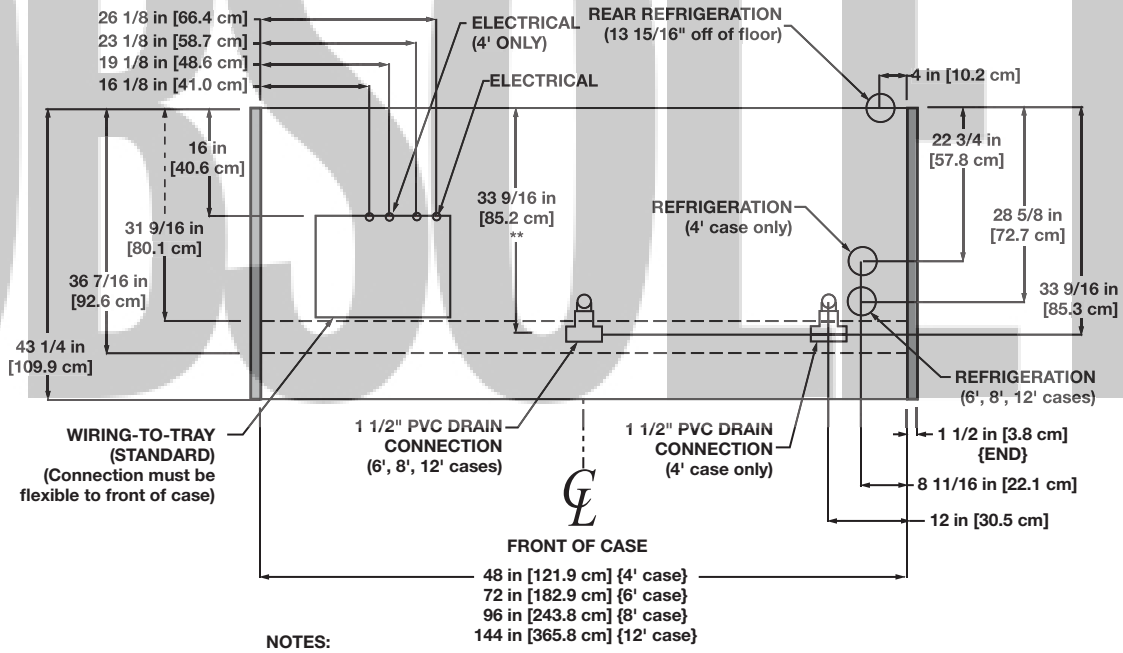
- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

O2.75UM
(5" BASEFRAME)





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 (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

Produce/Dairy/Deli/Meat/Seafood

OBSOLETE

Multi-Deck Frozen Food Merchandiser

O2.75MZD - 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
O2.75MZD	8’	3	1.02	51	0.45	33	1.45	174	15.38	3200	17.75	4260

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
O2.75MZD	8’	1	4’	0.47	56	0.47	56

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[5] (ºF)
O2.75MZD - F[1]	949[4]	Enh.	-22	3-5	-8	11	340
O2.75MZD - MT[6]	620	Enh	17	6-8	27	35	340

1 F=frozen food.

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

6 Indicates medium temperature application.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost Fail-Safe (min)	Electric Defrost Termination Temp (ºF)	Timed-Off Defrost Fail-Safe (min)	Timed-Off Defrost Termination Temp (ºF)	Hot Gas Defrost Fail-Safe (min)	Hot Gas Defrost Termination Temp (ºF)	Reverse Air Defrost Fail-Safe (min)	Reverse Air Defrost Termination Temp (ºF)
O2.75MZD - F	4	13-15	45	65	- - -[7]	- - -	20	60	- - -	- - -
O2.75MZD - MT[8]	1	13-15	35	49	- - -	- - -	20	60	- - -	- - -

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

8 Indicates medium temperature application.

Defrost Schedule

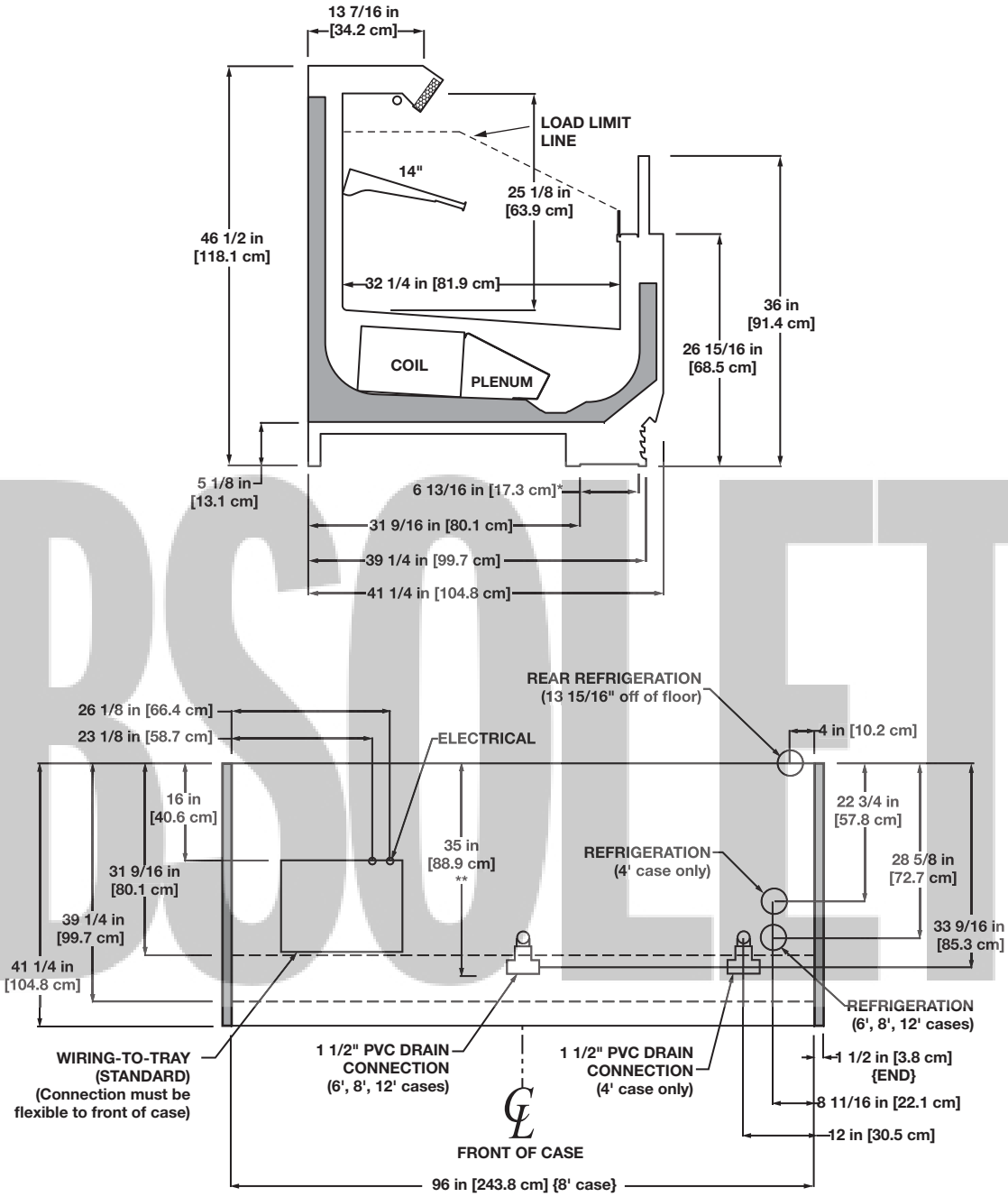
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

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
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 14"
- PRODUCT ON TOP SHELF SHOULD BE 4" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-14"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

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	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ON3UM[2]	752[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

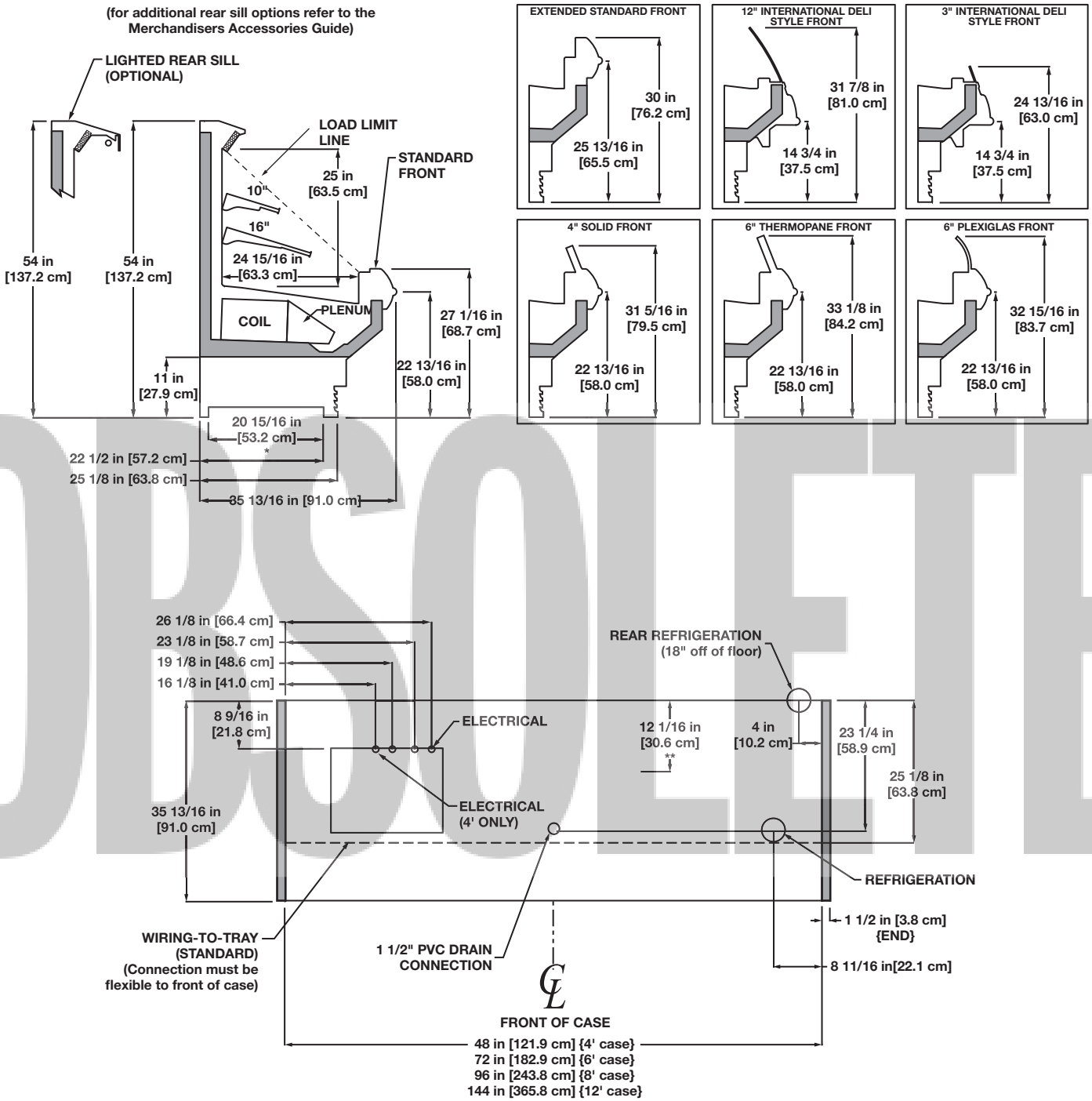
Defrost Controls

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 ARI 1200 - 2002 specifications.



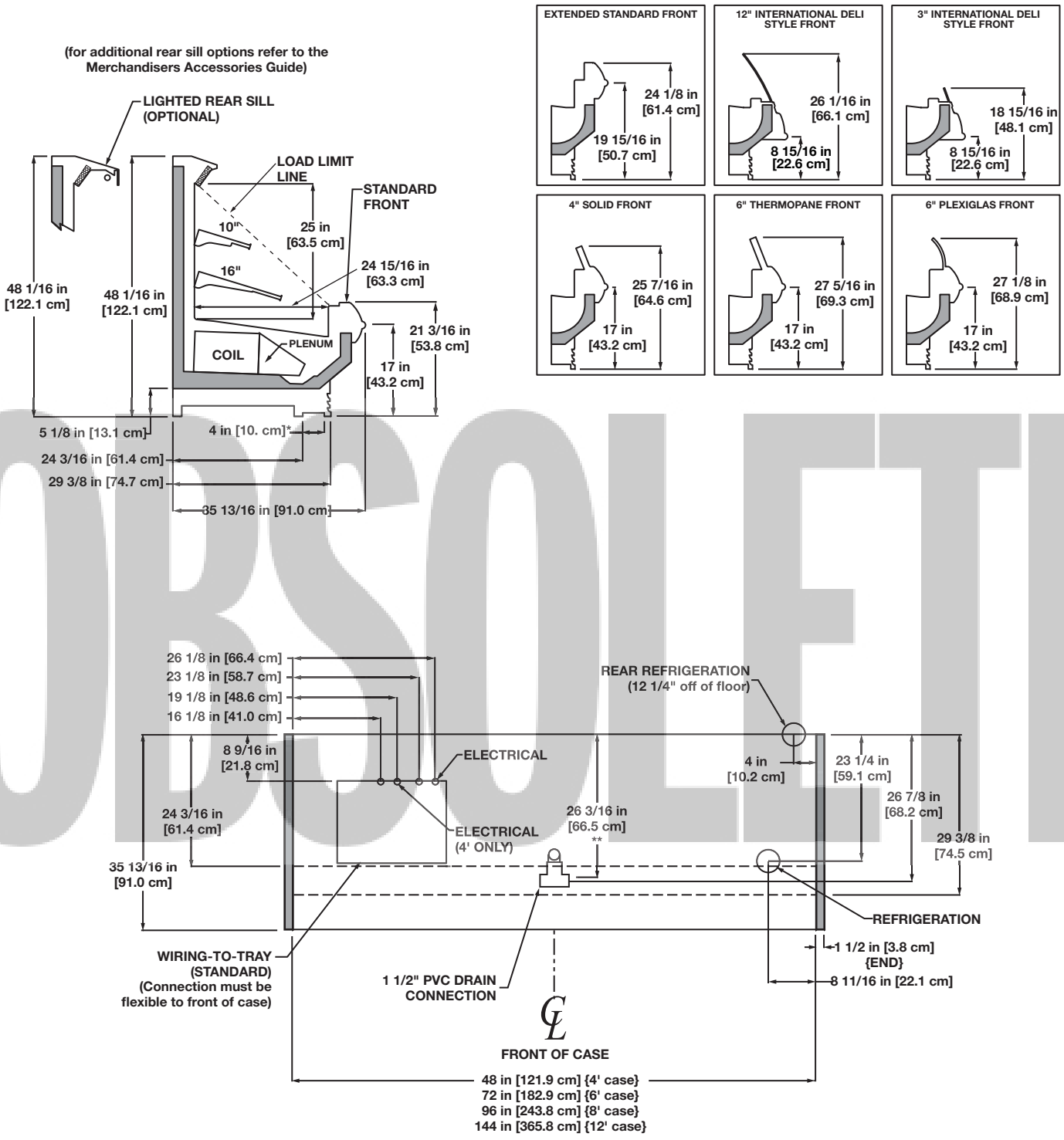
NOTES:

* 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 (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-10" & 1-16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

ON3UM
(5” BASEFRAME)



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

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- 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 (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-10" & 1-16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

Produce/Dairy/Deli/Meat/Seafood

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	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
O3UM[2]	958[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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

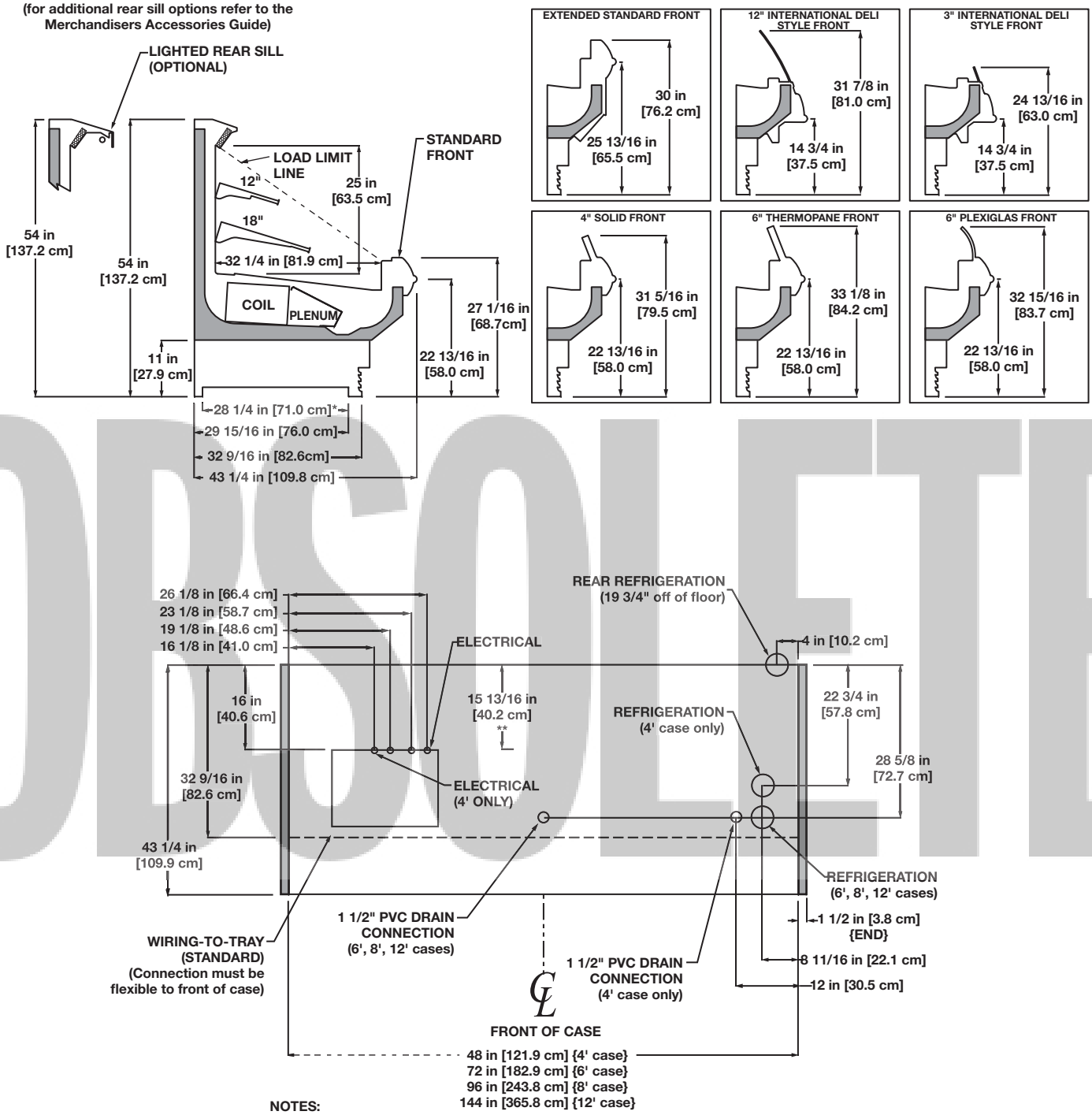
Medium Temperature Defrost Schedule

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

All measurements are taken per ARI 1200 - 2002 specifications.

O3UM
(11" BASEFRAME)

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



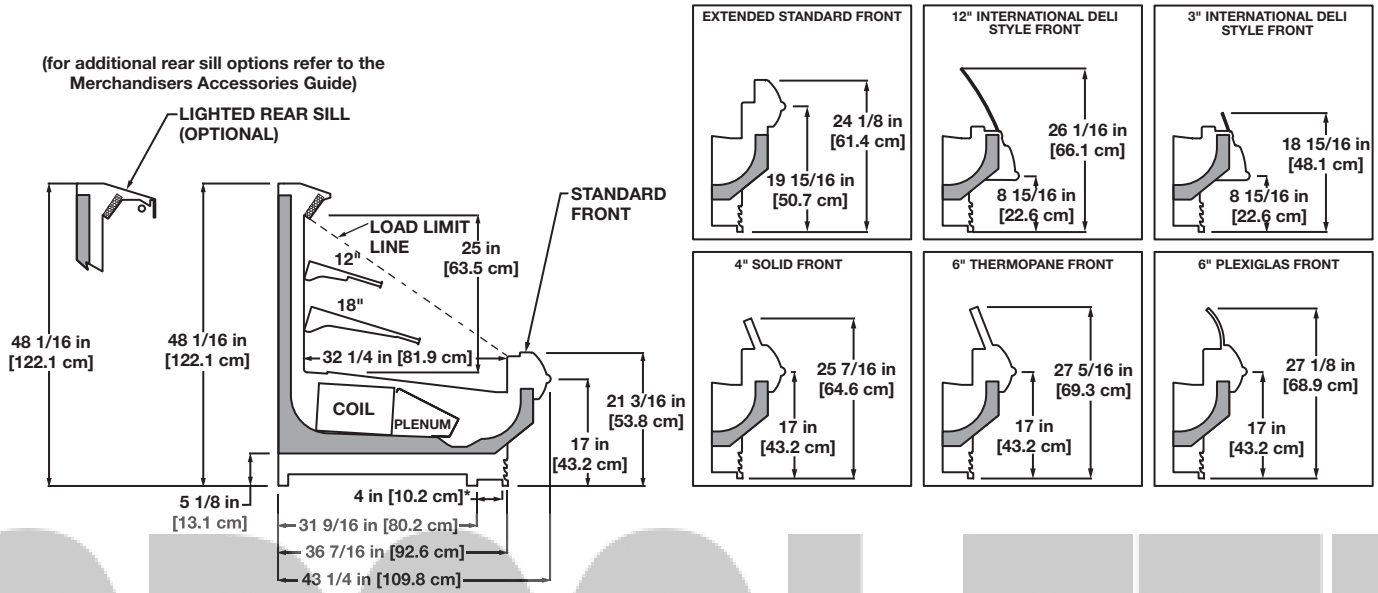
NOTES:

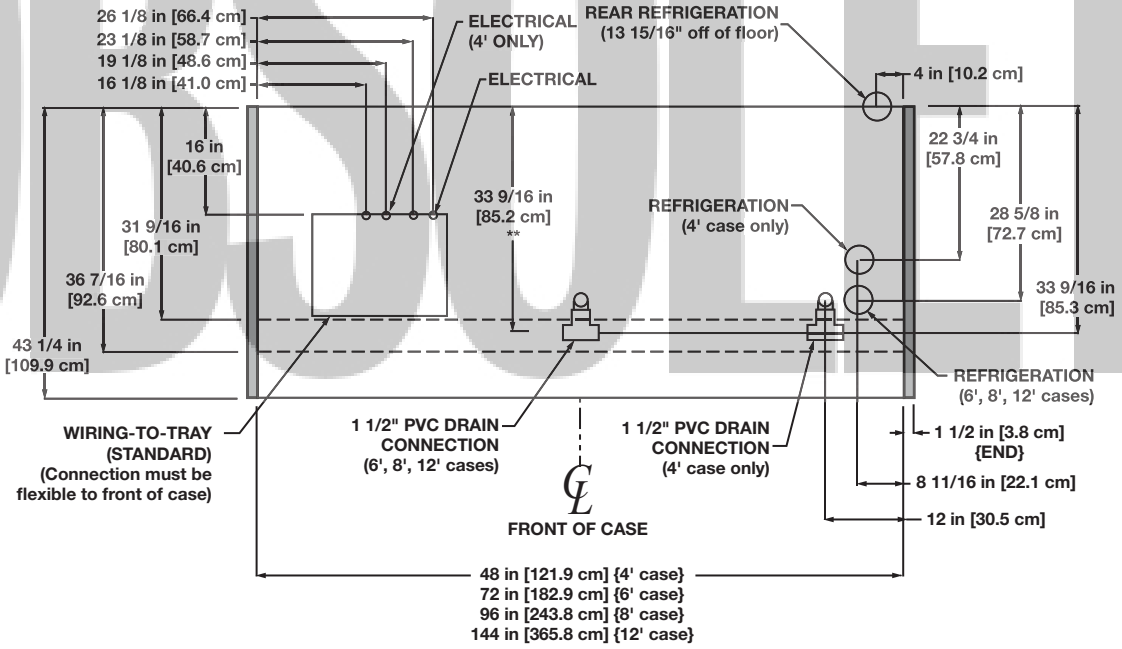
* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- 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 (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

O3UM
(5" BASEFRAME)





NOTES:

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

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- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

Produce/Dairy/Deli/Meat/Seafood

OBSOLETE

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OW3UM	1277[4]	Enh.	22	6-8	27	45	225

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
OW3UM	3	6 - 8	40	47	45	45	26	45	45	45

Medium Temperature Defrost Schedule

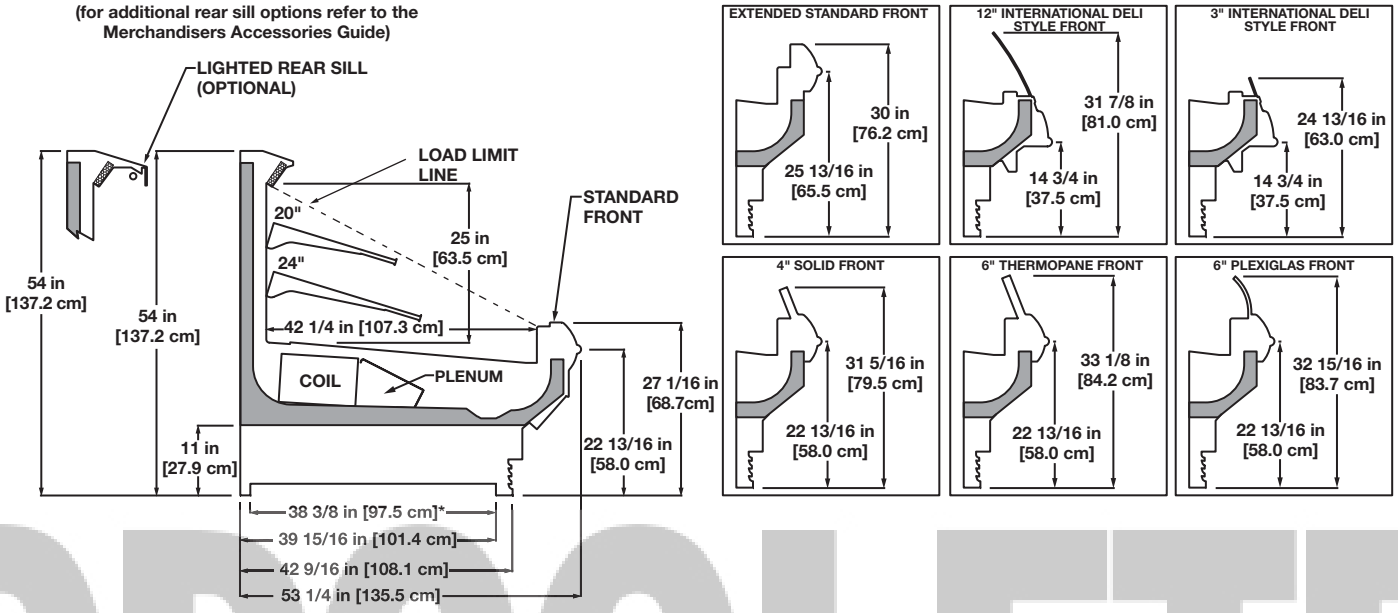
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

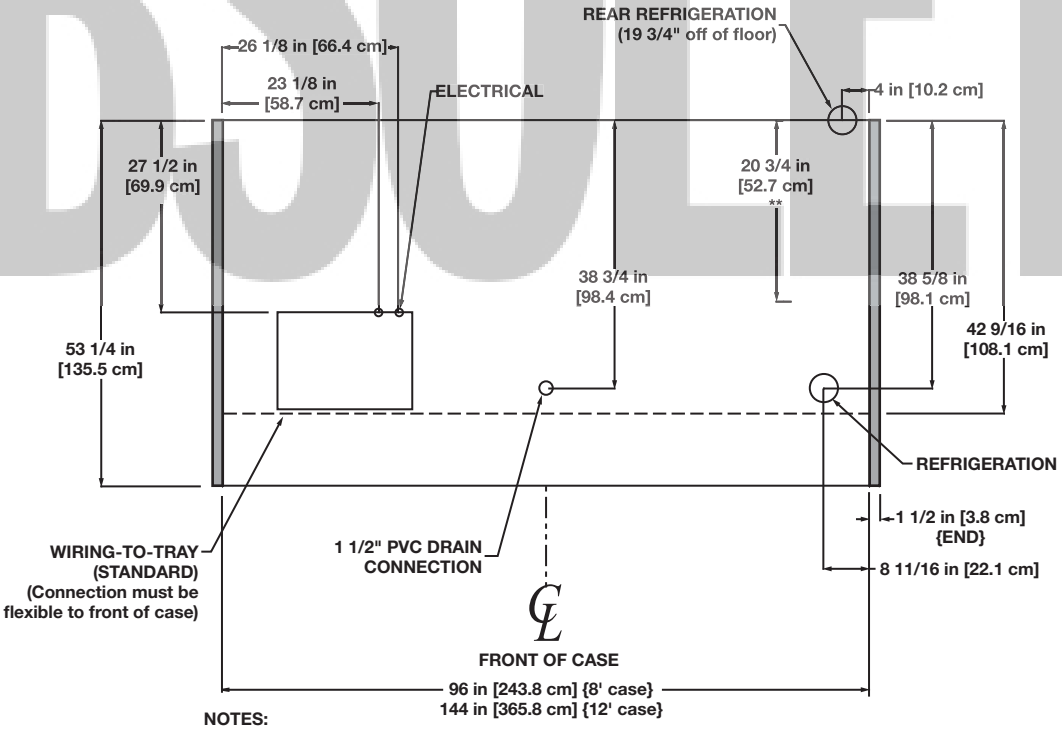
All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

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
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-20" & 1-24"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

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

Guidelines & Control Settings

Model	Front Sill Heights	[1,2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3UD	Std. Dairy	958[3]	Enh.	22	6-8	30	45	225

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

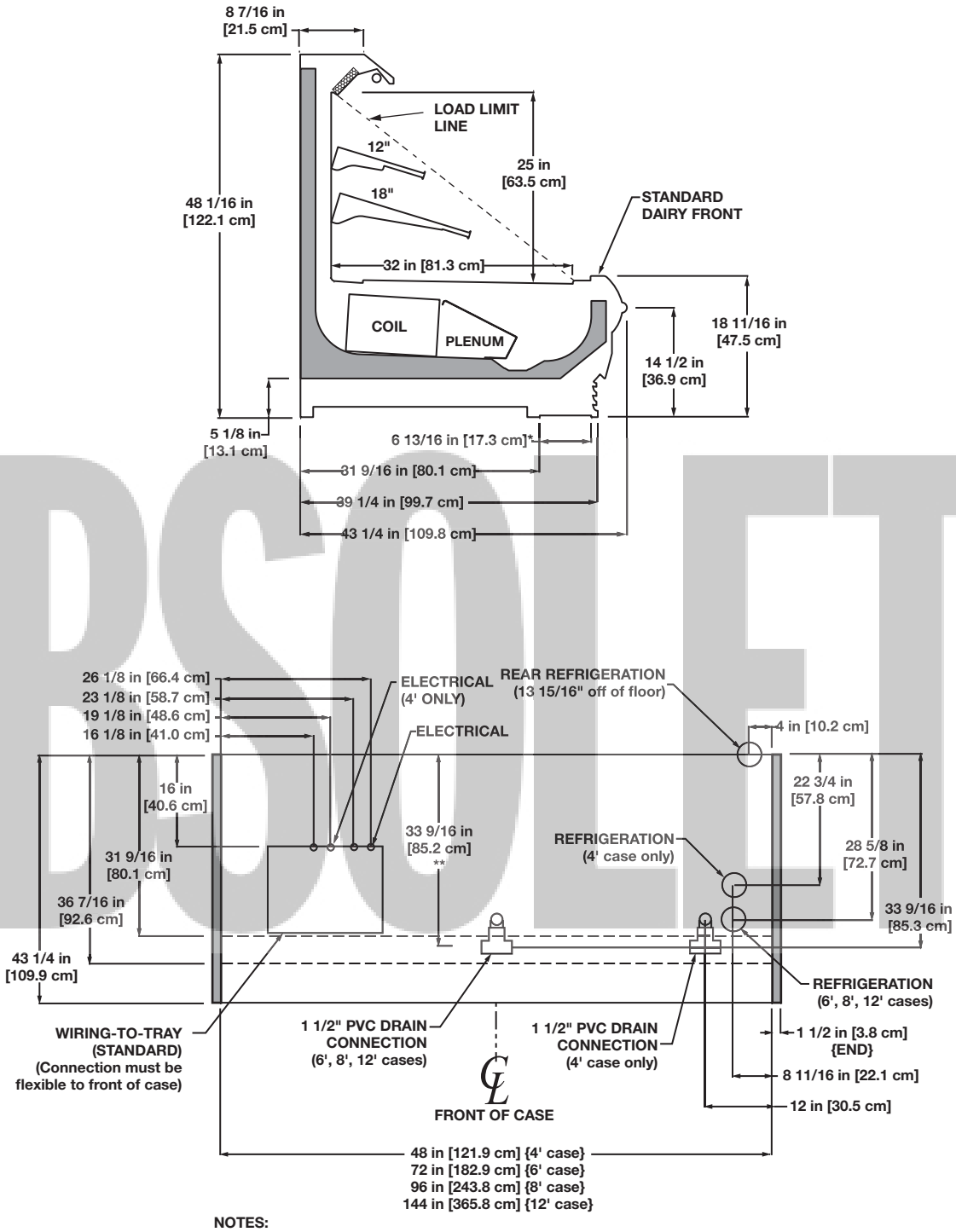
Defrost Controls

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)
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 ARI 1200 - 2002 specifications.



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 (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

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

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ON3.5UM[2]	927[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
ON3.5UM	3	6 - 8	40	47	45	45	26	45	45	45

Medium Temperature Defrost Schedule

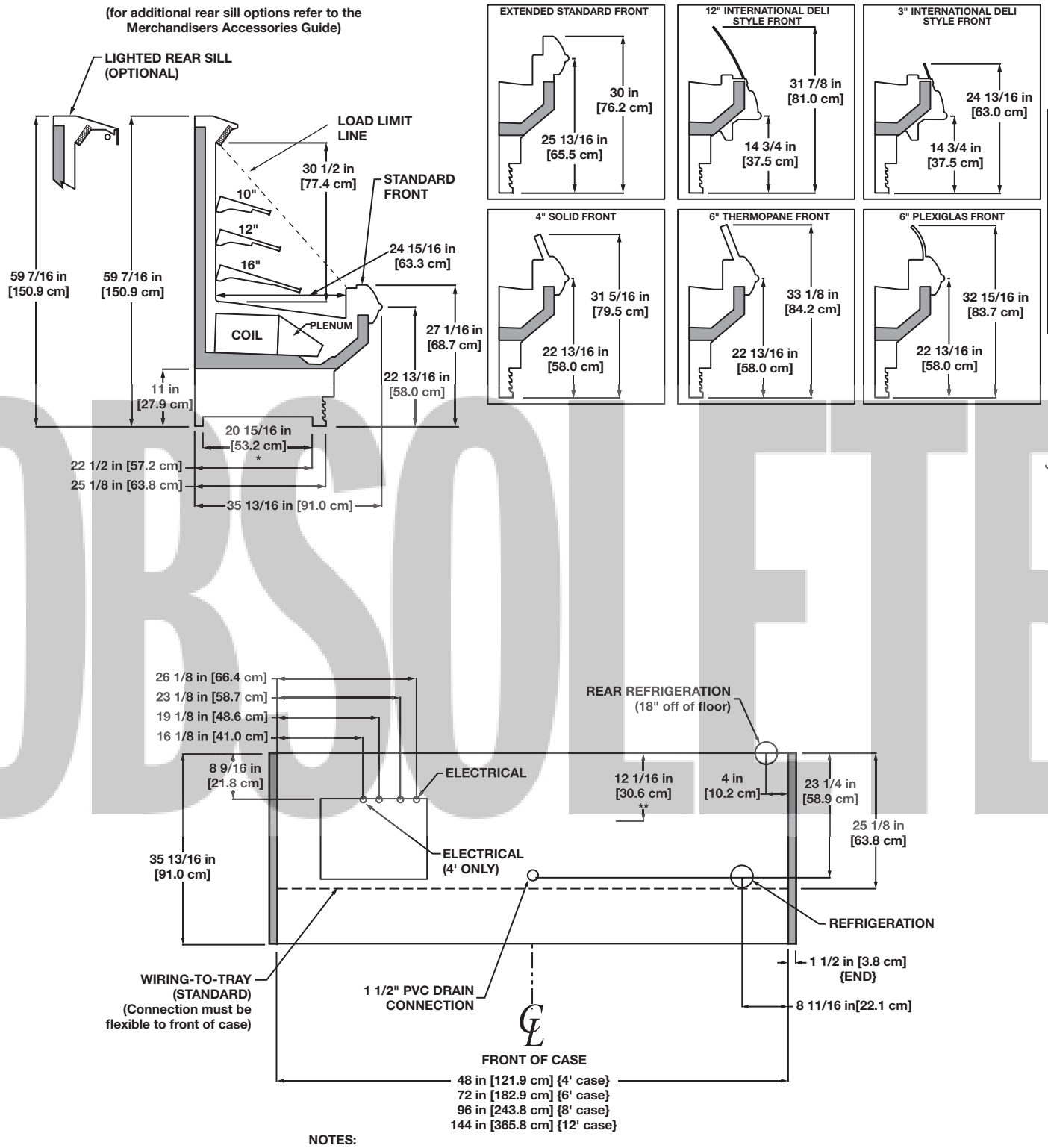
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY

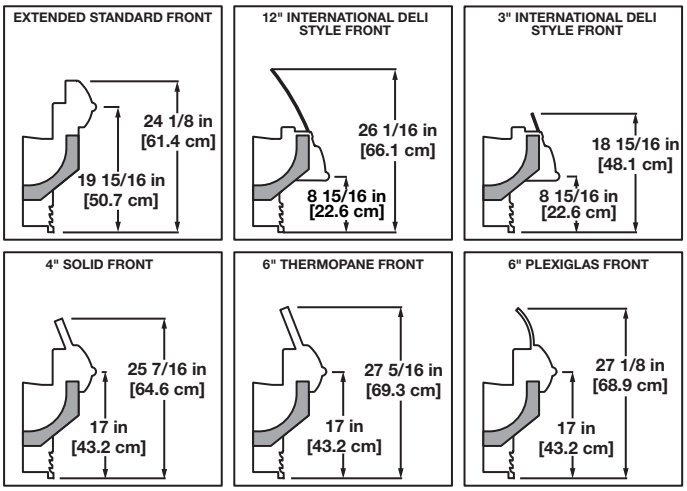


NOTES:

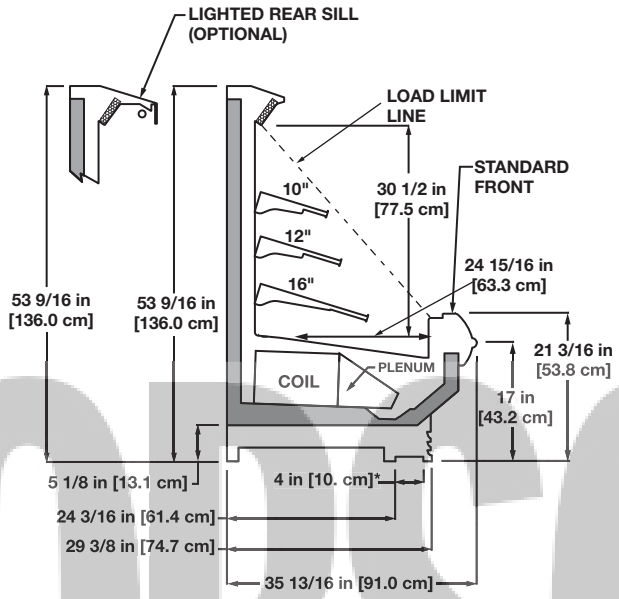
* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

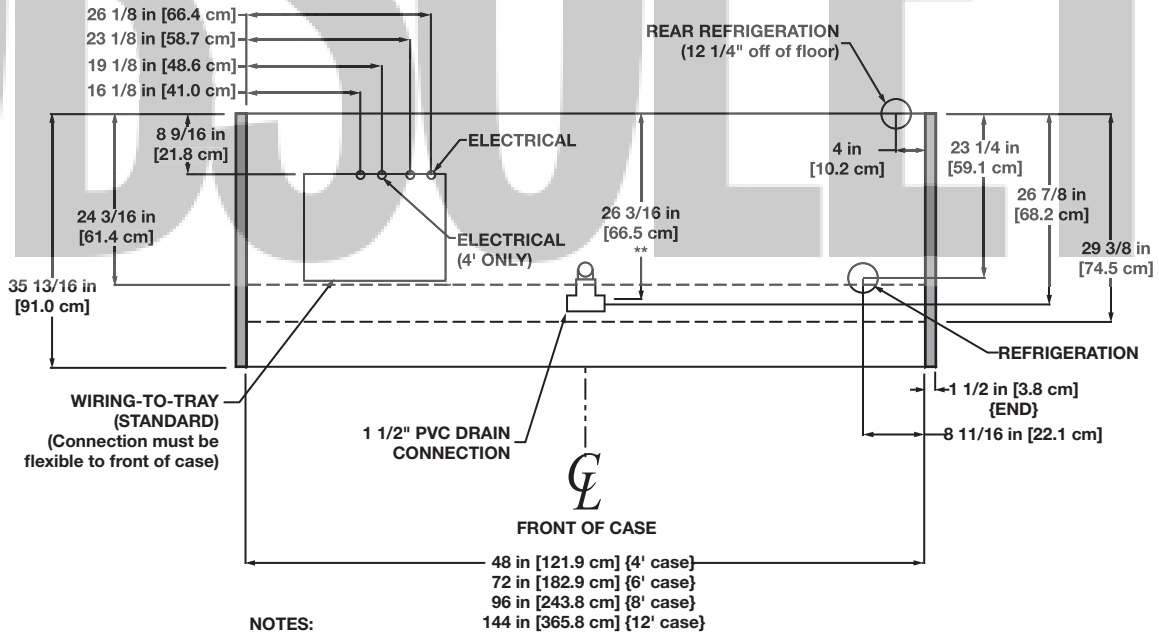
- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-10", 1-12" & 1-16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

ON3.5UM
(5" BASEFRAME)



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





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NSF COMPONENT

Produce/Dairy/Deli/Meat/Seafood

OBSOLETE

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

Guidelines & Control Settings

Model[2]	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
O3.5UM	1208[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

Defrost Controls

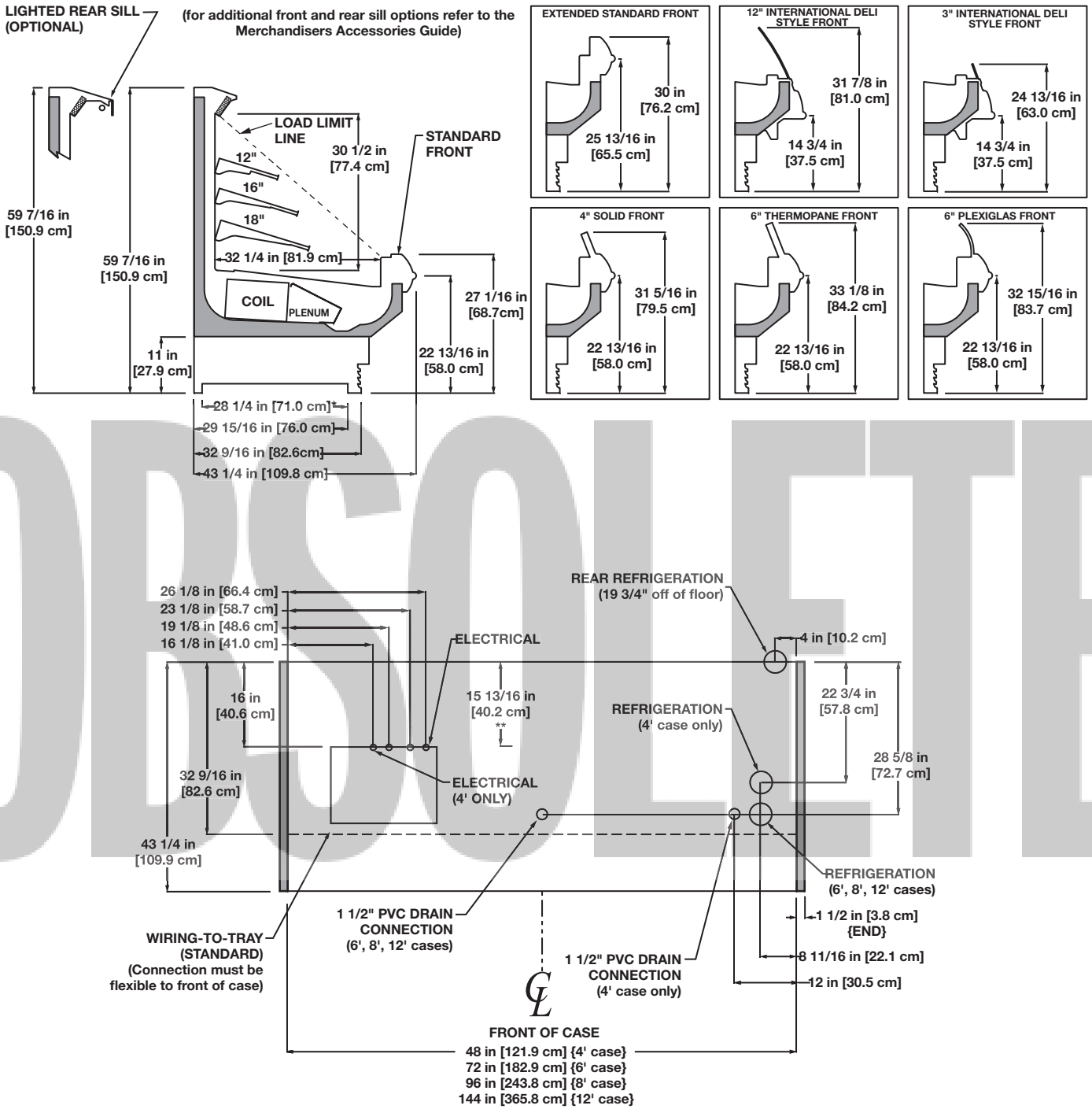
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.

O3.5UM
(11" BASEFRAME)



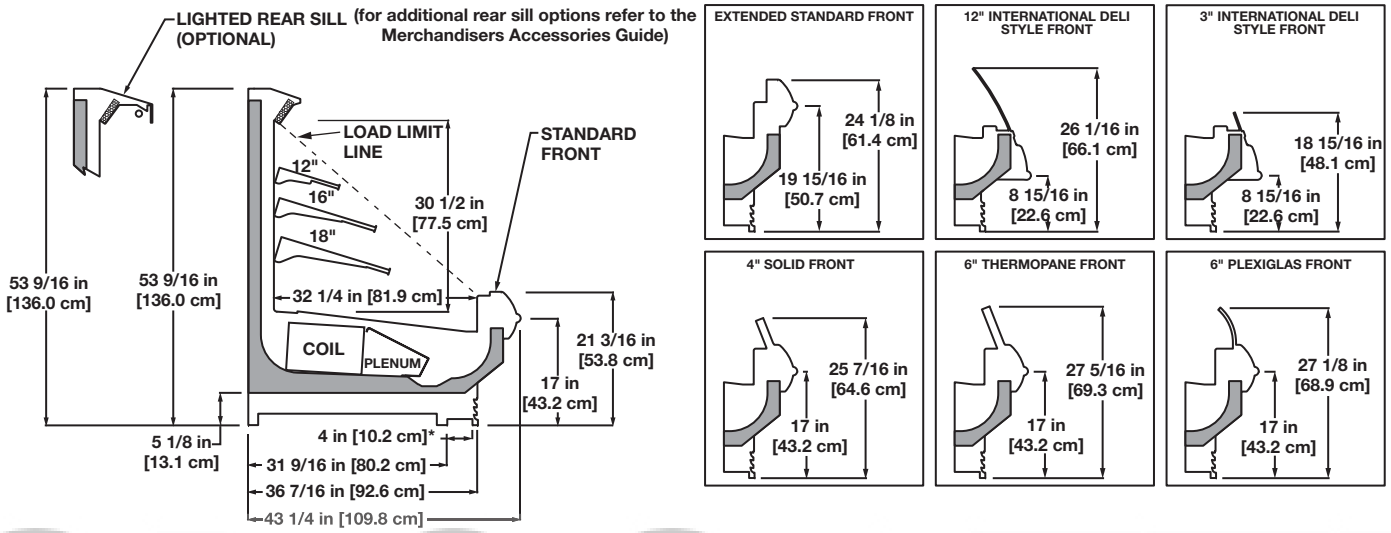
NOTES:

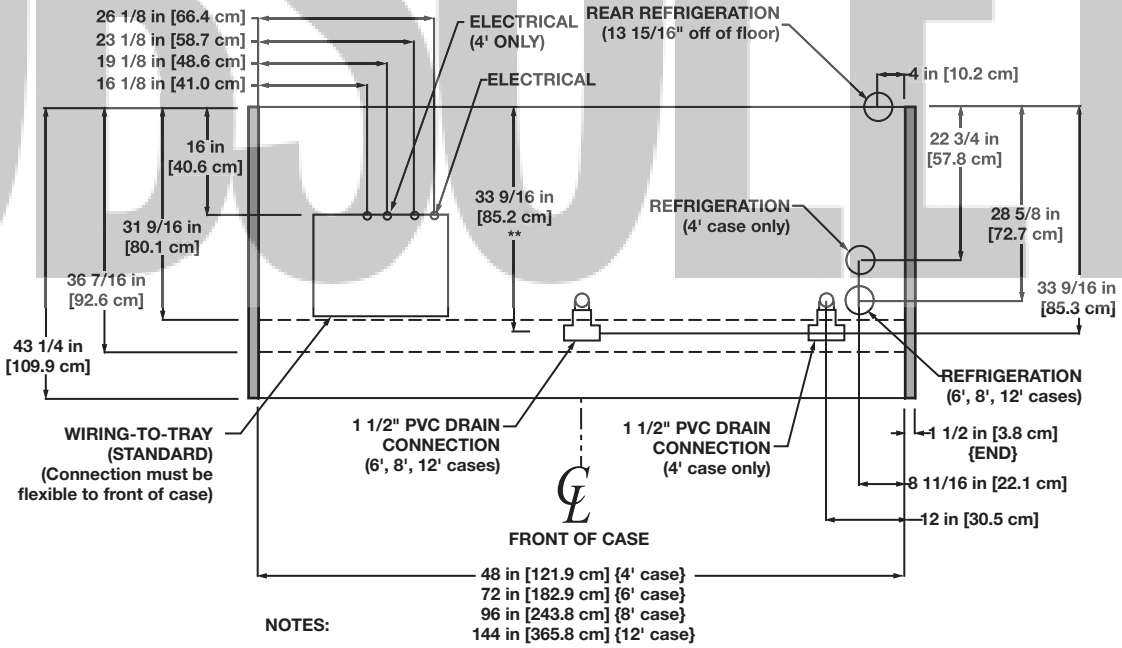
* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- 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 (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12", 1-16" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

O3.5UM
(5" BASEFRAME)





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- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12", 1-16" & 1-18"

NSF COMPONENT

Produce/Dairy/Deli/Meat/Seafood

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	[1,2]BTUH/ft	Coil[2] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3.5UD	Std. Dairy	1208[3]	Enh.	22	6-8	30	45	300

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

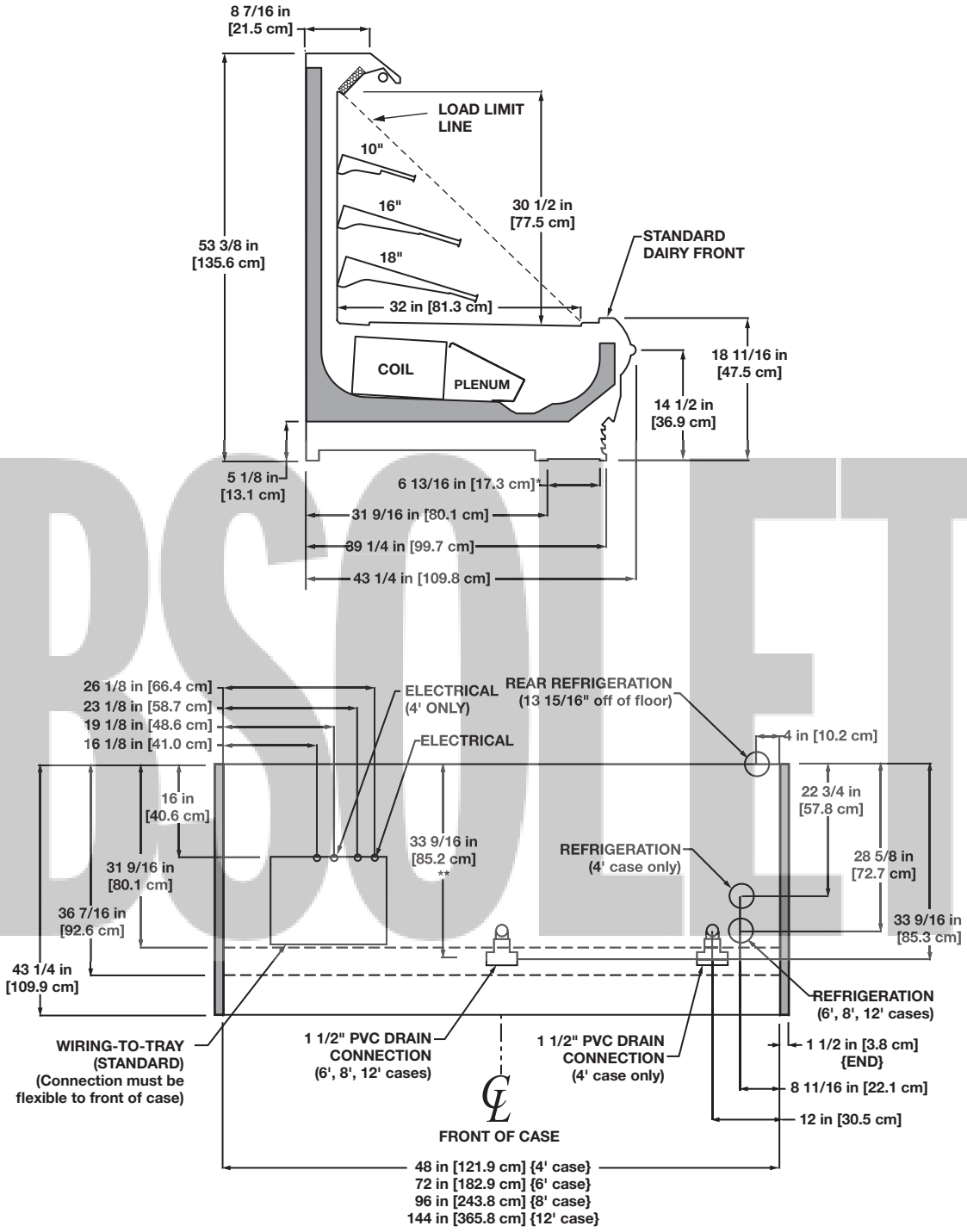
Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3.5UD	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 ARI 1200 - 2002 specifications.



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 (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-10", 1-16" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

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

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ON4UM[2]	1043[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
ON4UM	4	6 - 8	40	47	45	45	26	45	45	45

Medium Temperature Defrost Schedule

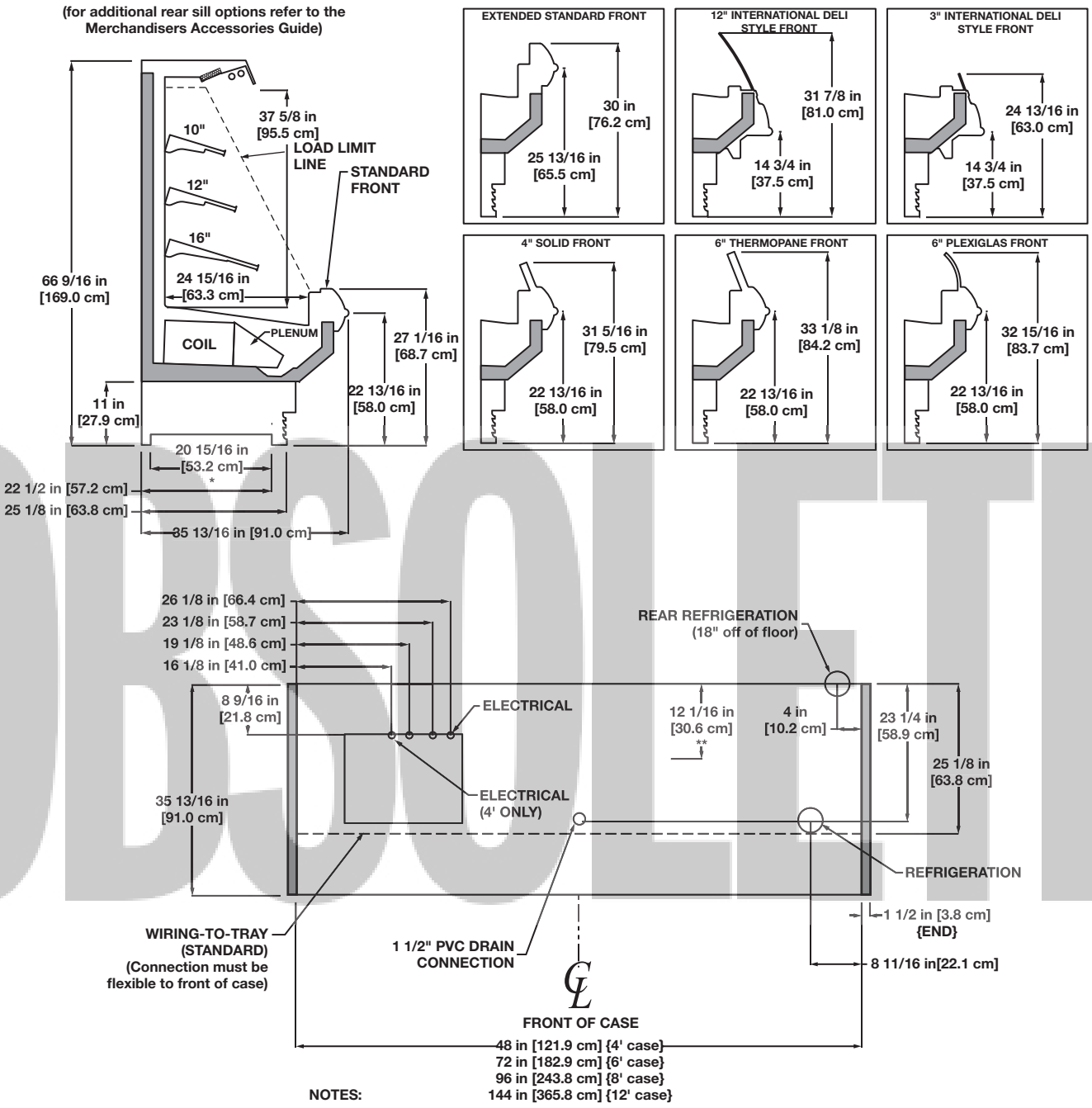
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



NOTES:

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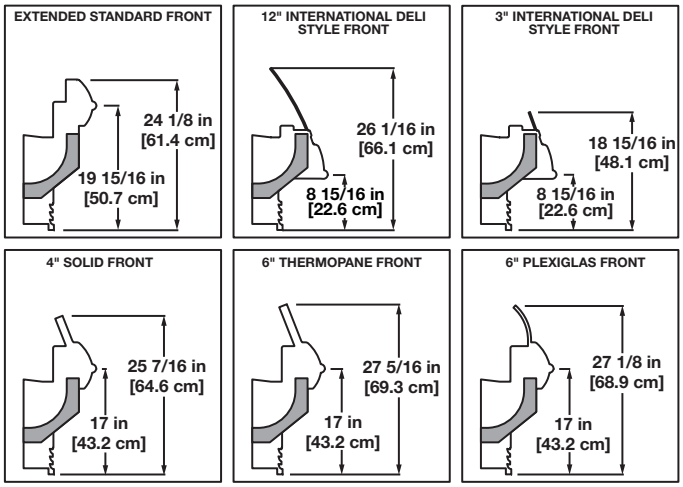
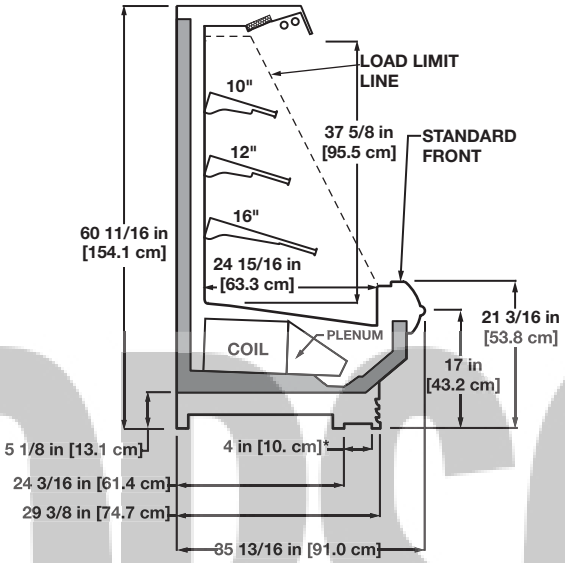
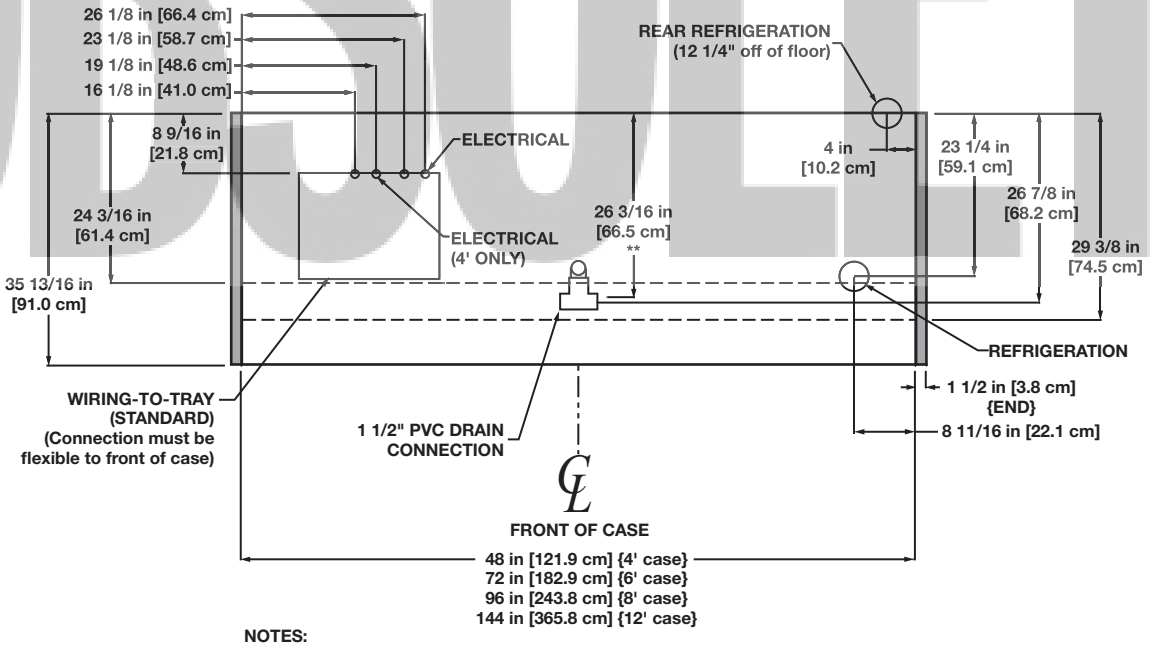
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- 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 (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-10", 1-12" & 1-16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

ON4UM
(5" BASEFRAME)







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- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
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- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
  - PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
  - RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-10", 1-12" & 1-16"

NSF COMPONENT

OBSOLETE

Multi-Deck Produce/Dairy/Deli Merchandiser

O4UM - 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
O4UM	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
O4UM	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	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
O4UM[2]	1368[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

Defrost Controls

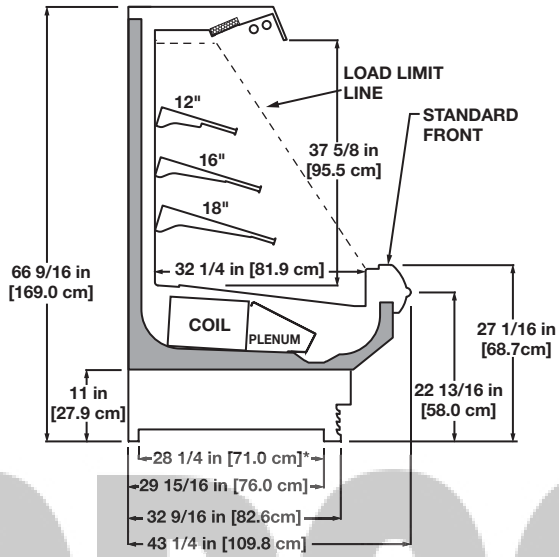
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse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

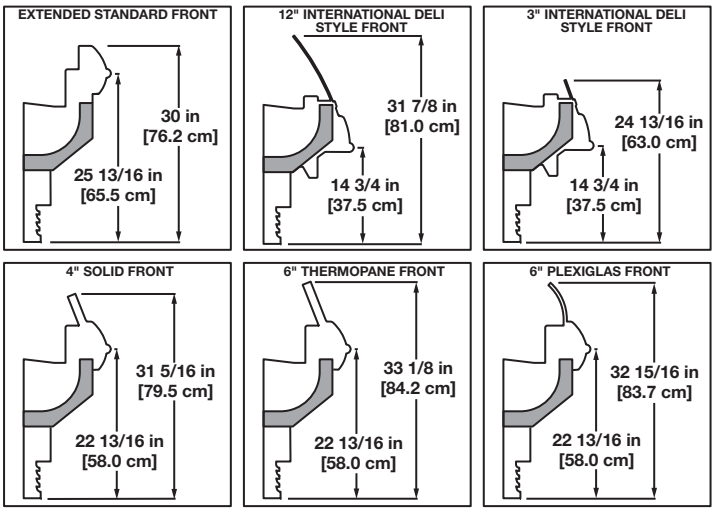
Medium Temperature Defrost Schedule

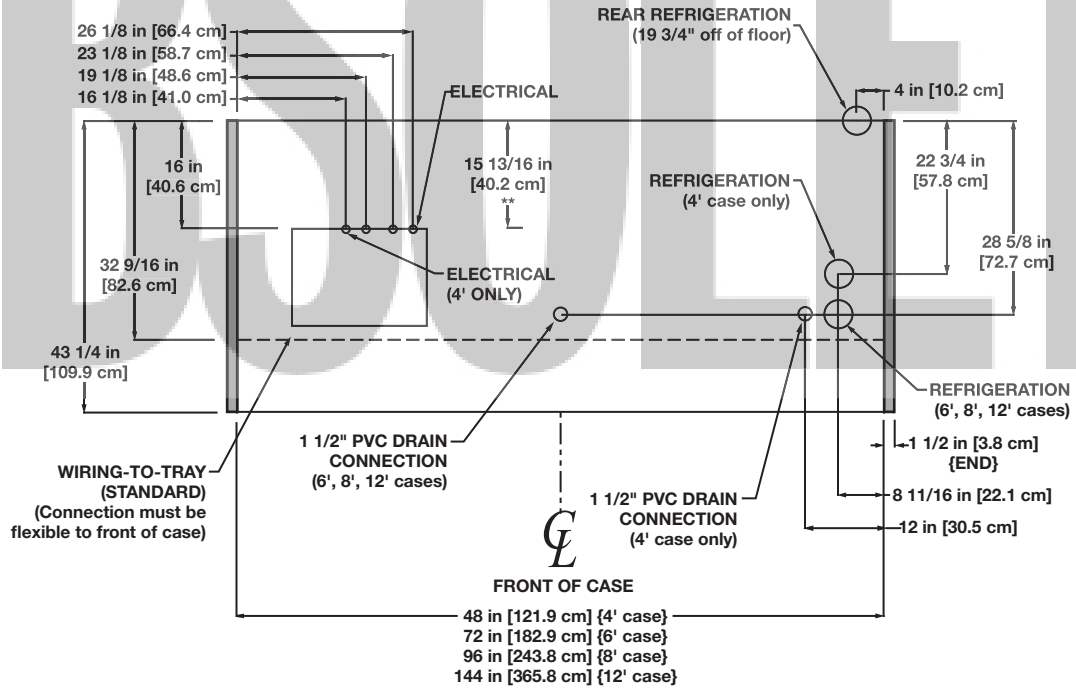
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

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







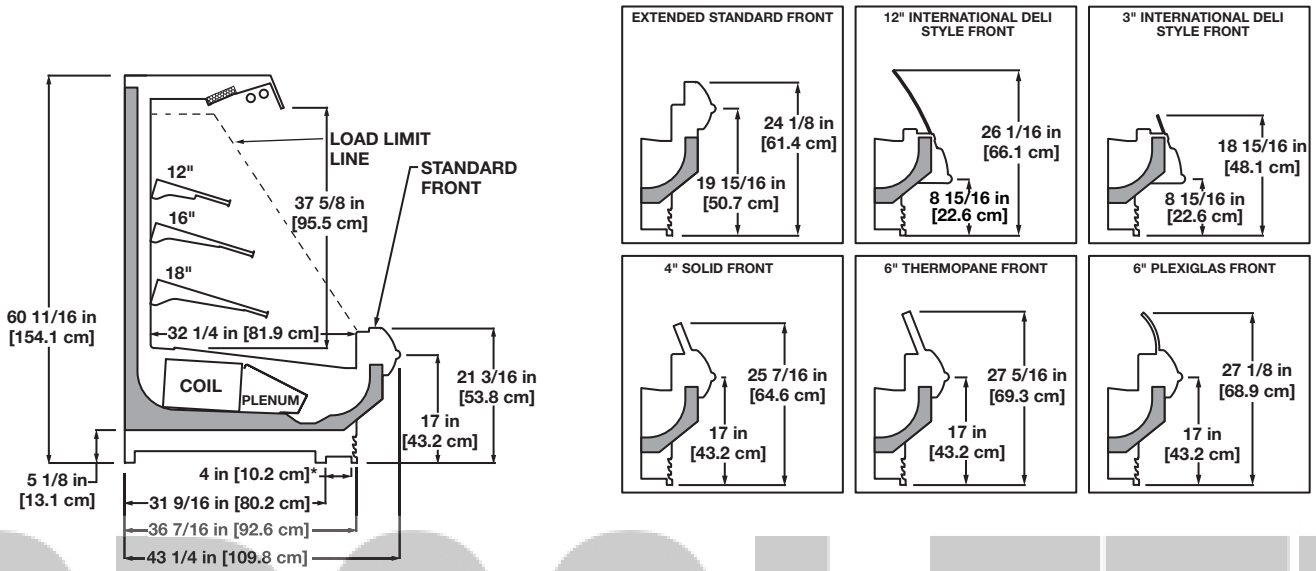
NOTES:

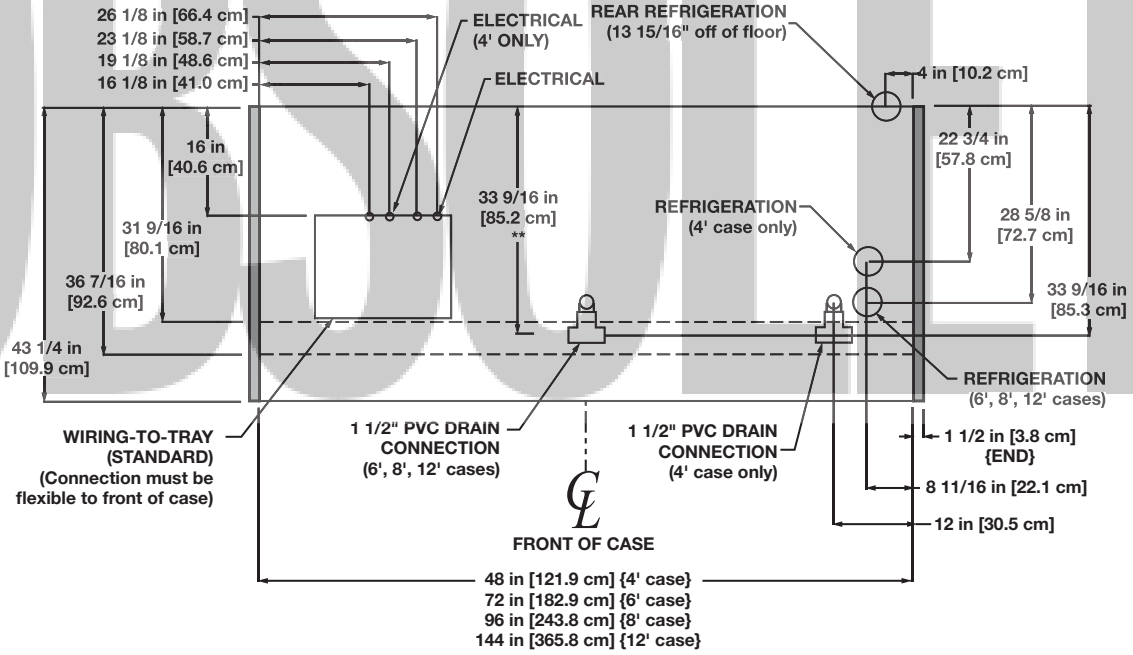
* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- 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 (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12", 1-16" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

O4UM
(5" BASEFRAME)





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- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12", 1-16" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

Narrow Multi-Deck Produce/Dairy/Deli Merchandiser

ON5UM - 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
ON5UM	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
ON5UM	4'	1	4'	0.23	28	1.38	166
	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	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ON5UM[2]	1093[5]	Enh.	22	6-8	31	43	240

2 Model ON5UM only available for deli application with a thermopane glass front or a curved plexiglass front.

3 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

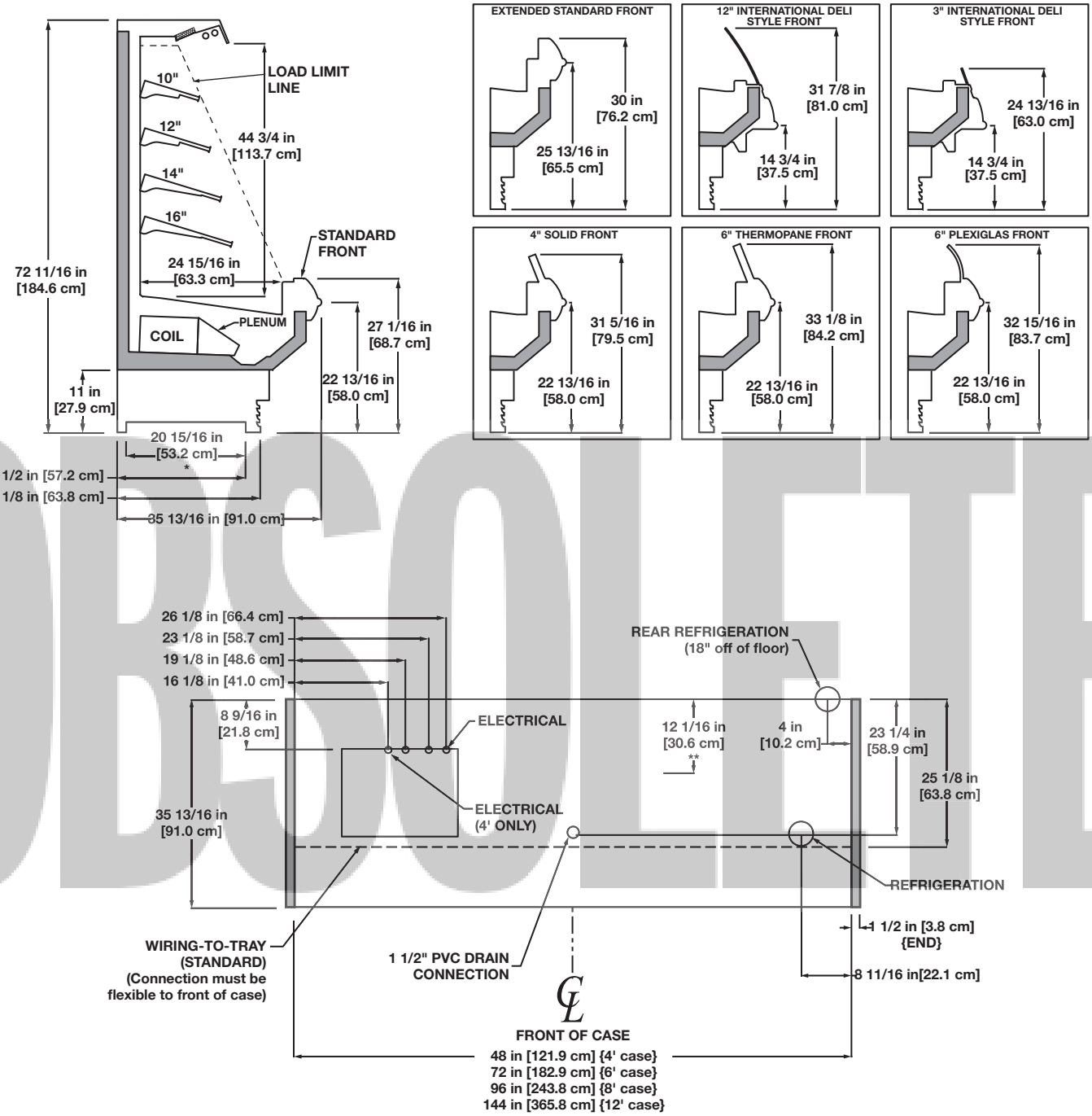
Defrost Controls

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)
ON5UM	4	6 - 8	40	47	45	47	26	45	45	45

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 ARI 1200 - 2002 specifications.



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 - 5/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-10", 1-12", 1-14" & 1-16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
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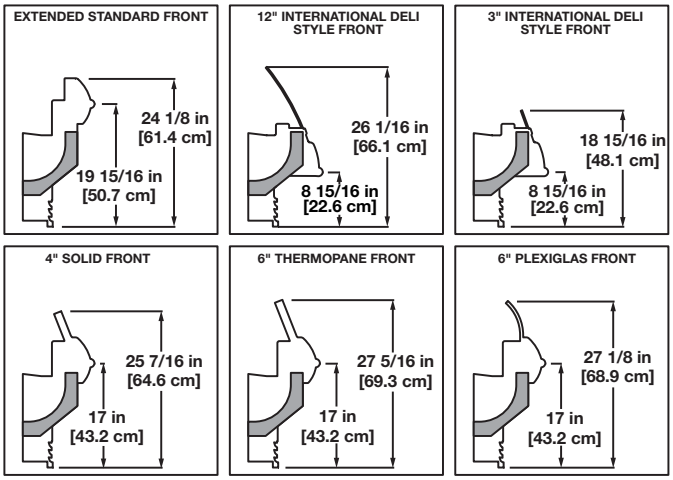
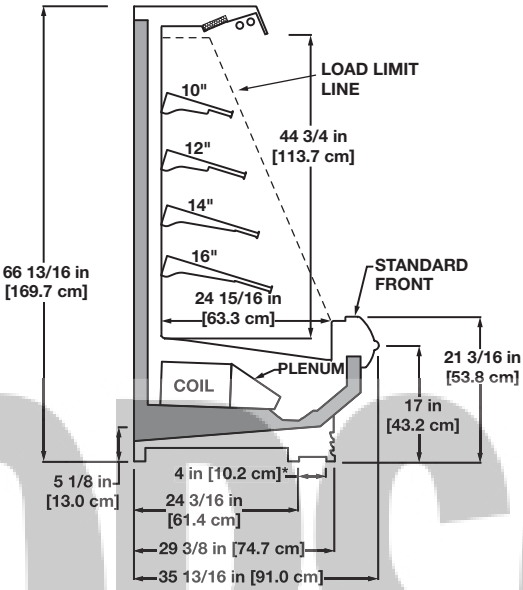
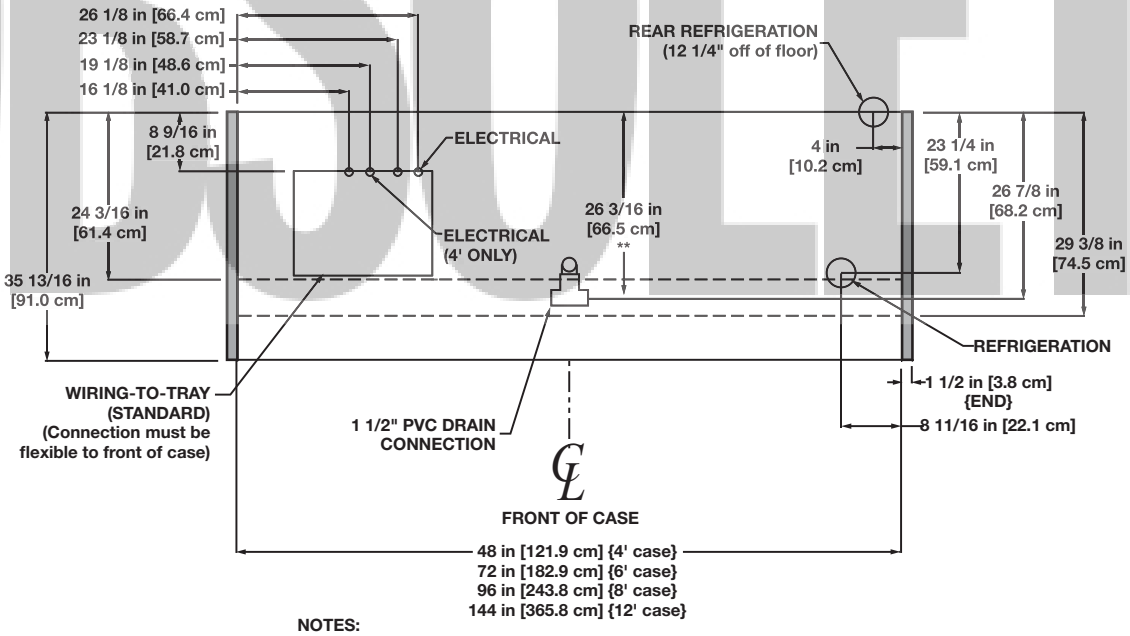
ON5UM
(5" BASEFRAME)







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- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-10", 1-12", 1-14" & 1-16"

NSF COMPONENT

OBSOLETE

Multi-Deck Produce/Dairy/Deli Merchandiser

O5UM - 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
O5UM	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
O5UM	4'	1	4'	0.23	28	1.38	166
	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	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
O5UM[2]	1378[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
O5UM	4	6 - 8	40	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

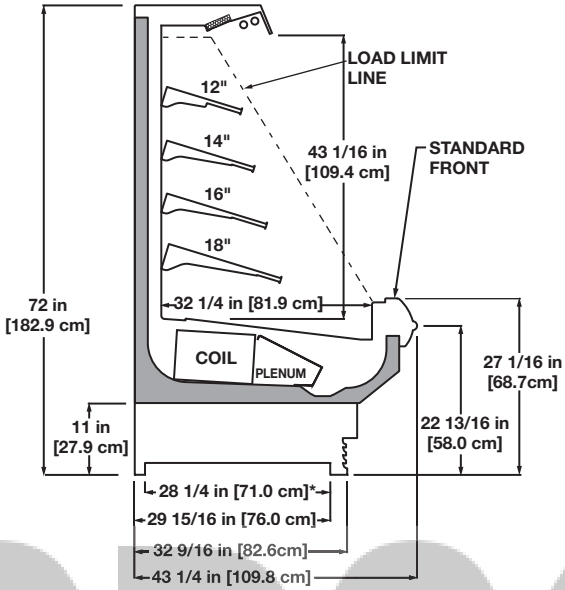
All measurements are taken per ARI 1200 - 2002 specifications.

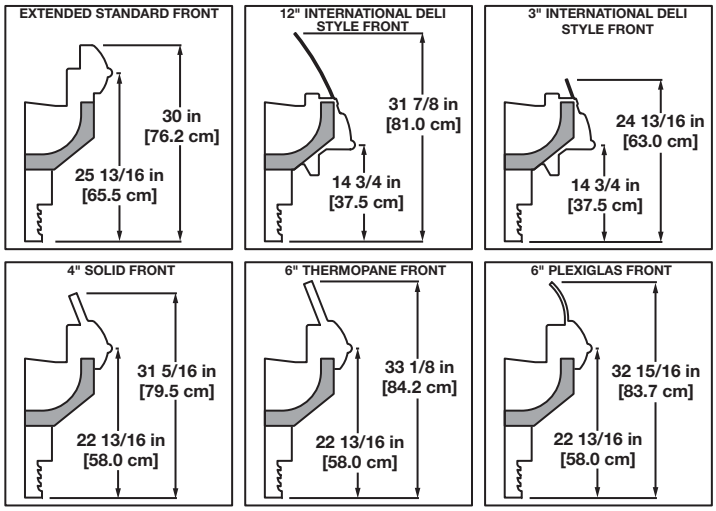
NSF COMPONENT

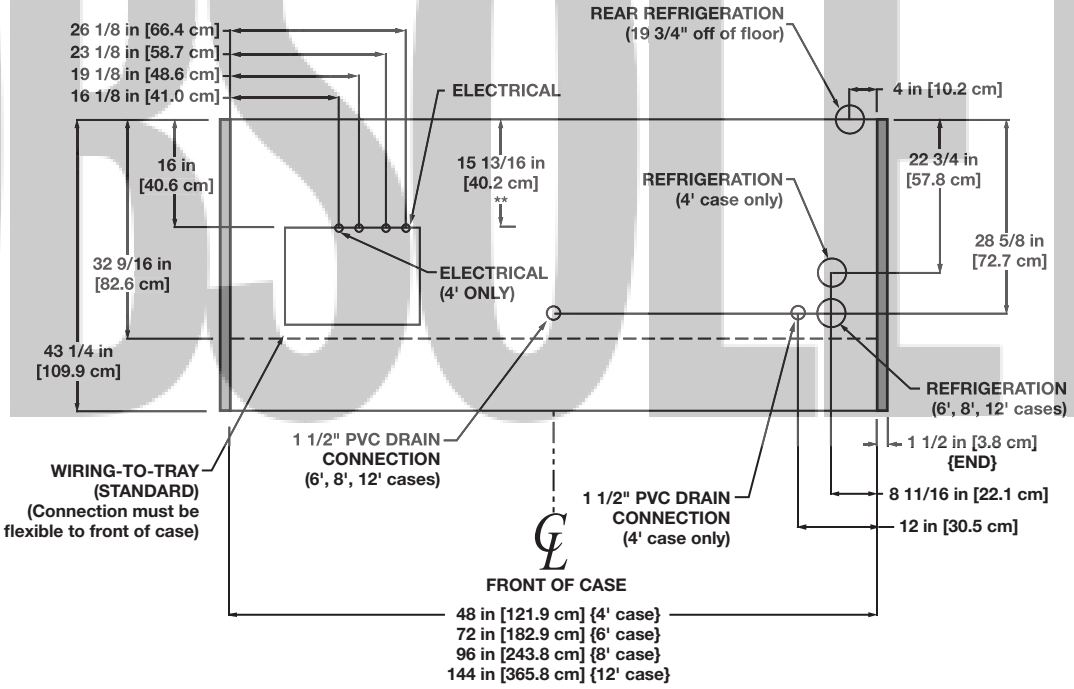
cULus

Hill PHOENIX EXCELLENCE A DOVER COMPANY

O5UM
(11" BASEFRAME)







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 (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12", 1-14", 1-16" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
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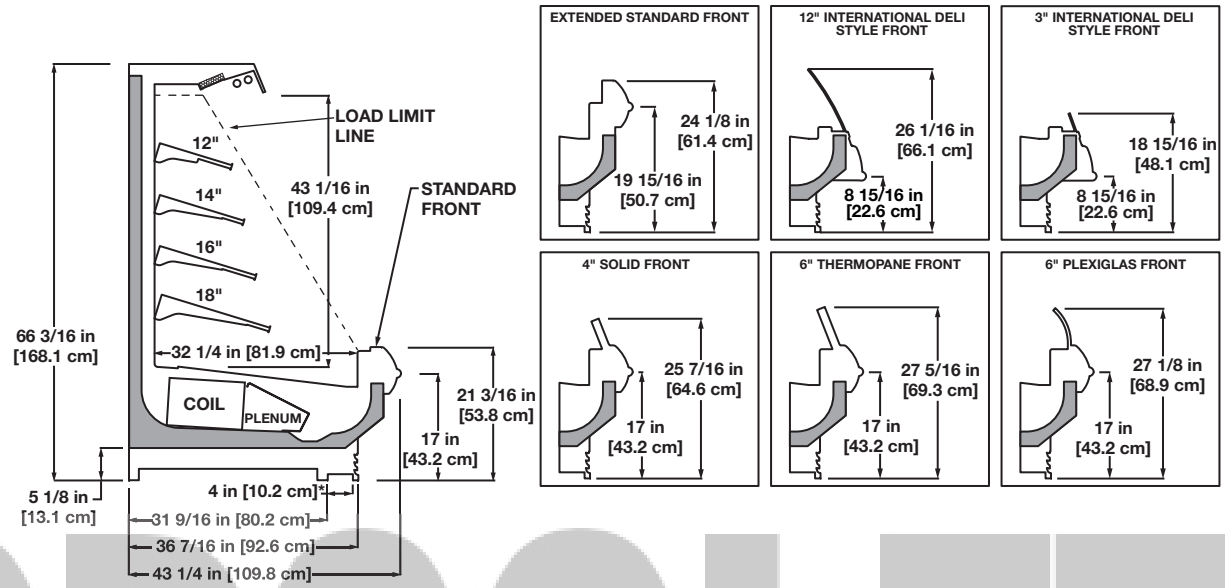
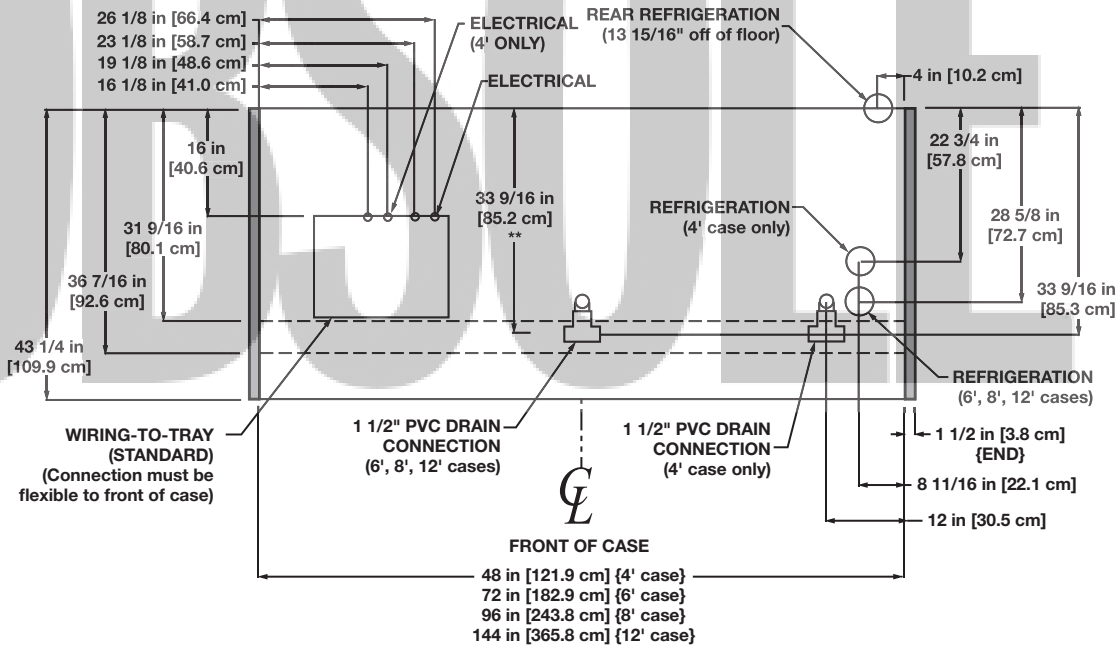
O5UM
(5" BASEFRAME)





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- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ON6UM[2]	960[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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	- - -	- - -

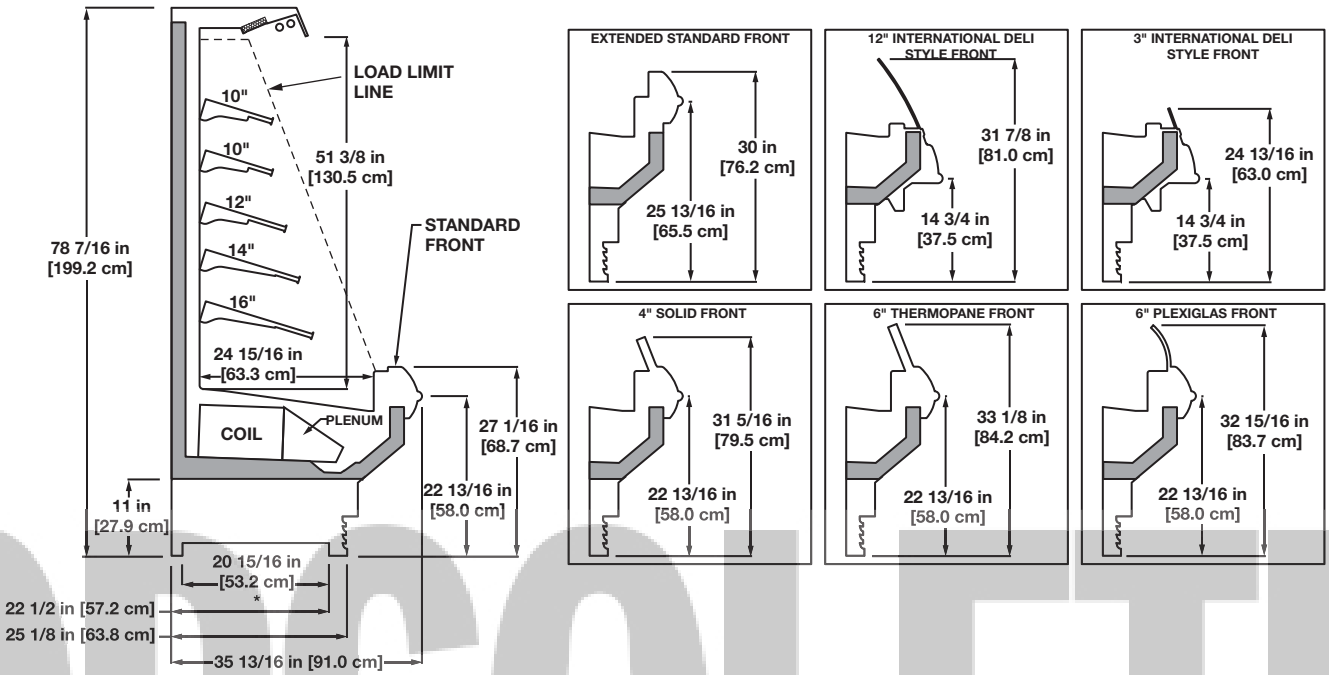
6 NOTE: "- - -" not an option on this case model.

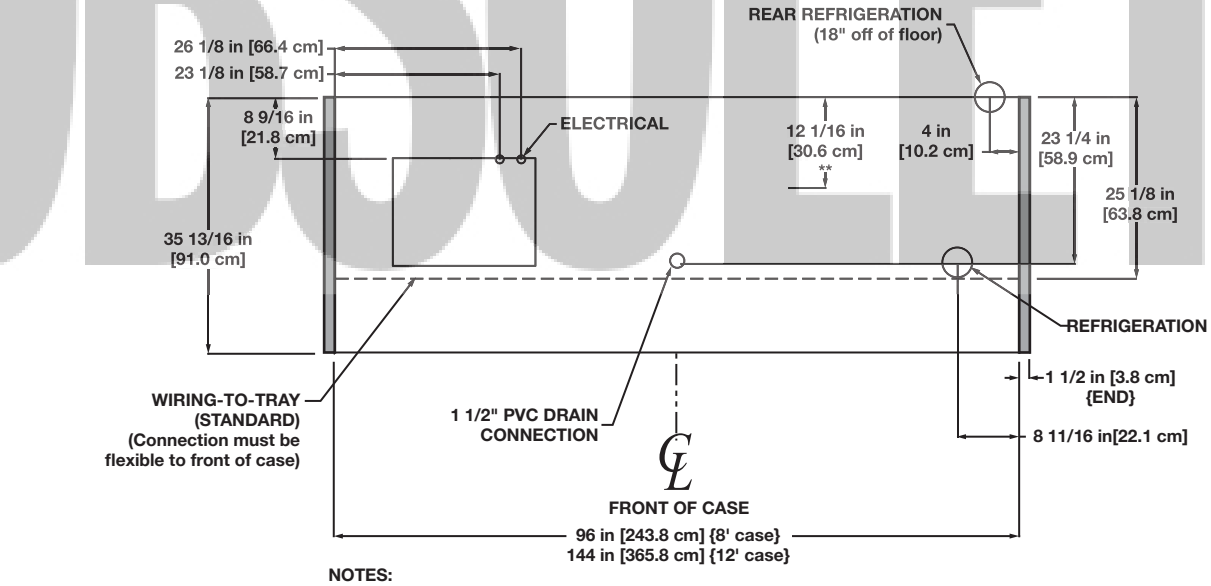
Medium Temperature Defrost Schedule

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 ARI 1200 - 2002 specifications.

ON6UM
(11" BASEFRAME)





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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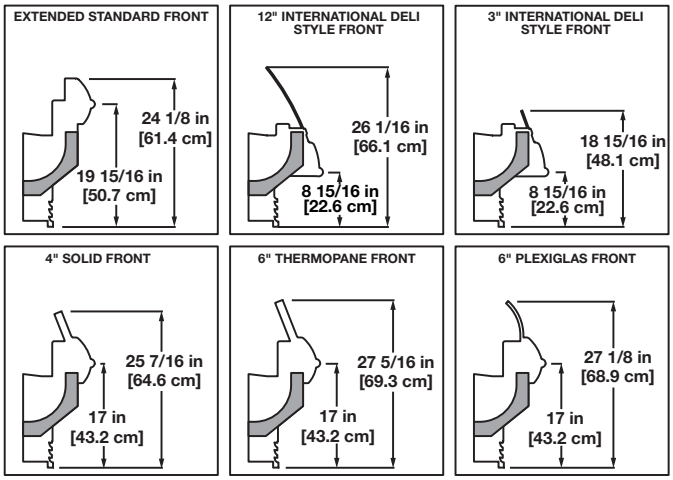
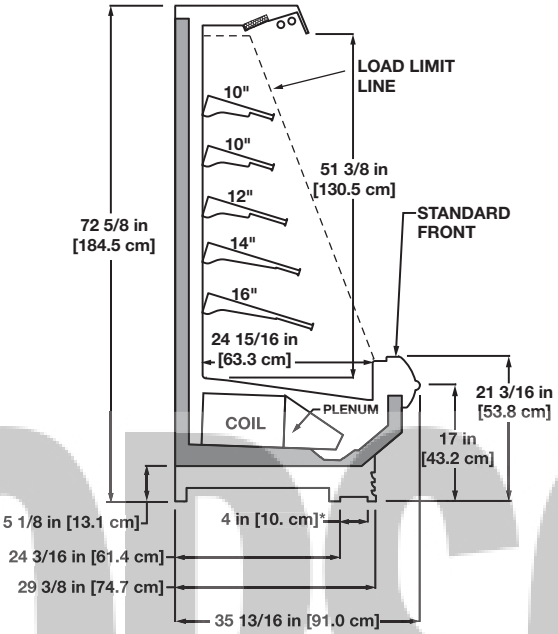
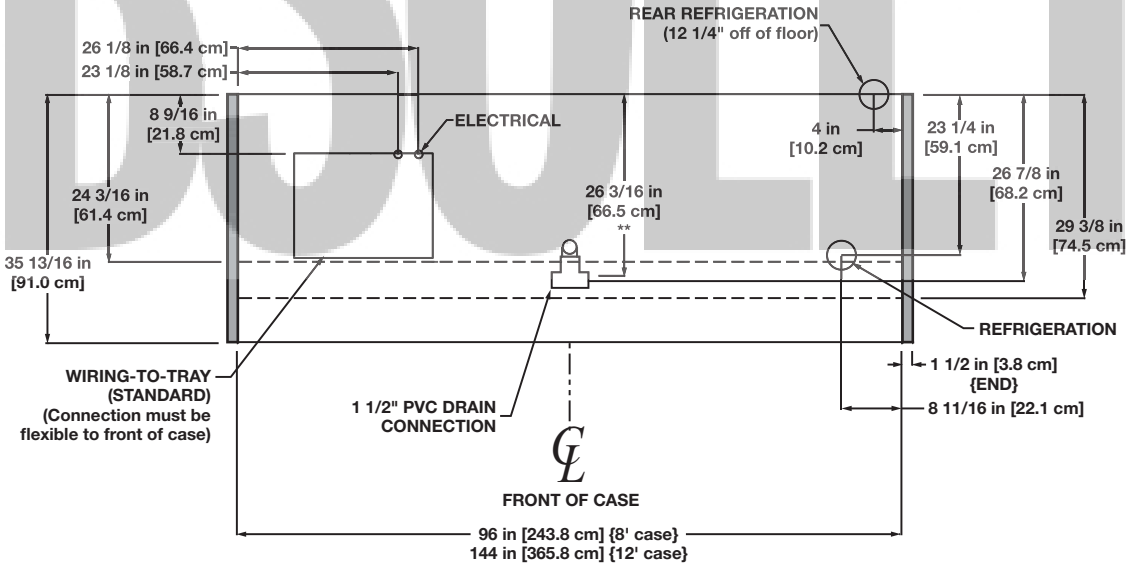
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 2-10", 1-12", 1-14" & 1-16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

ON6UM
(5” BASEFRAME)







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"

NSF COMPONENT

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

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
O6UM[2]	1273[5]	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/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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

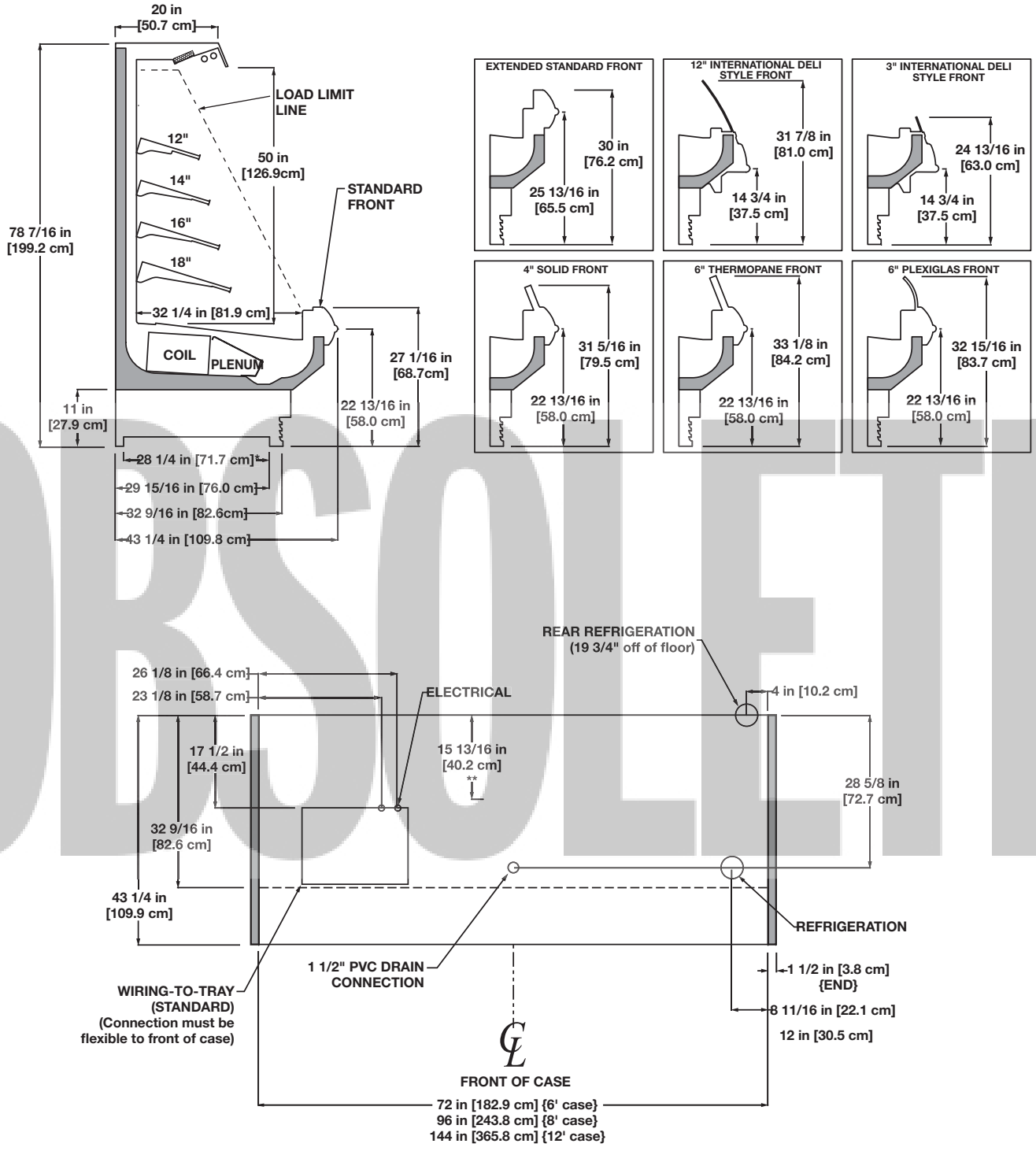
6 NOTE: "- - -" not an option on this case model.

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 ARI 1200 - 2002 specifications.

O6UM
(11" BASEFRAME)



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 (6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12", 1-14", 1-16" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
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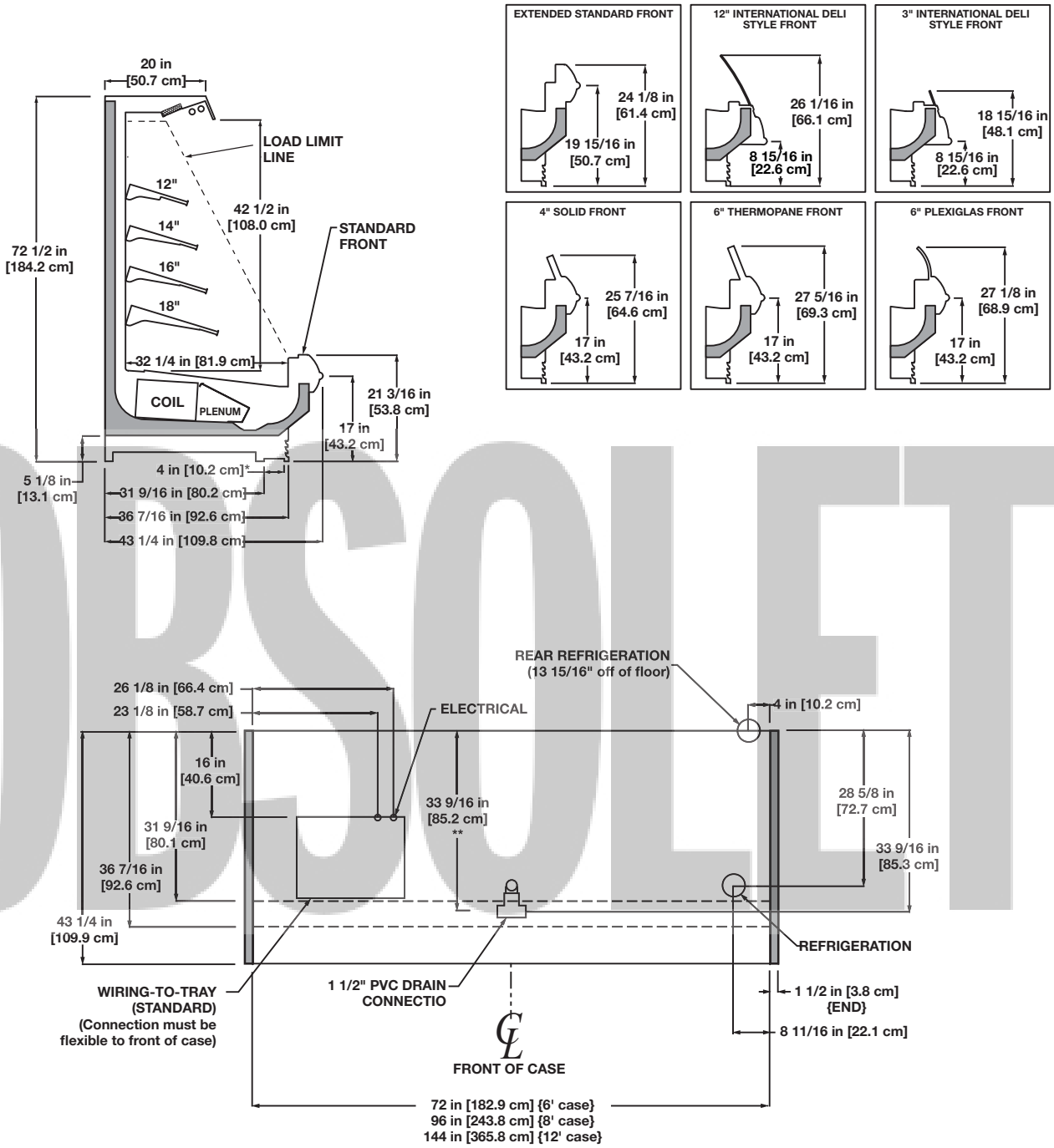
O6UM
(5” BASEFRAME)



NOTES:

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

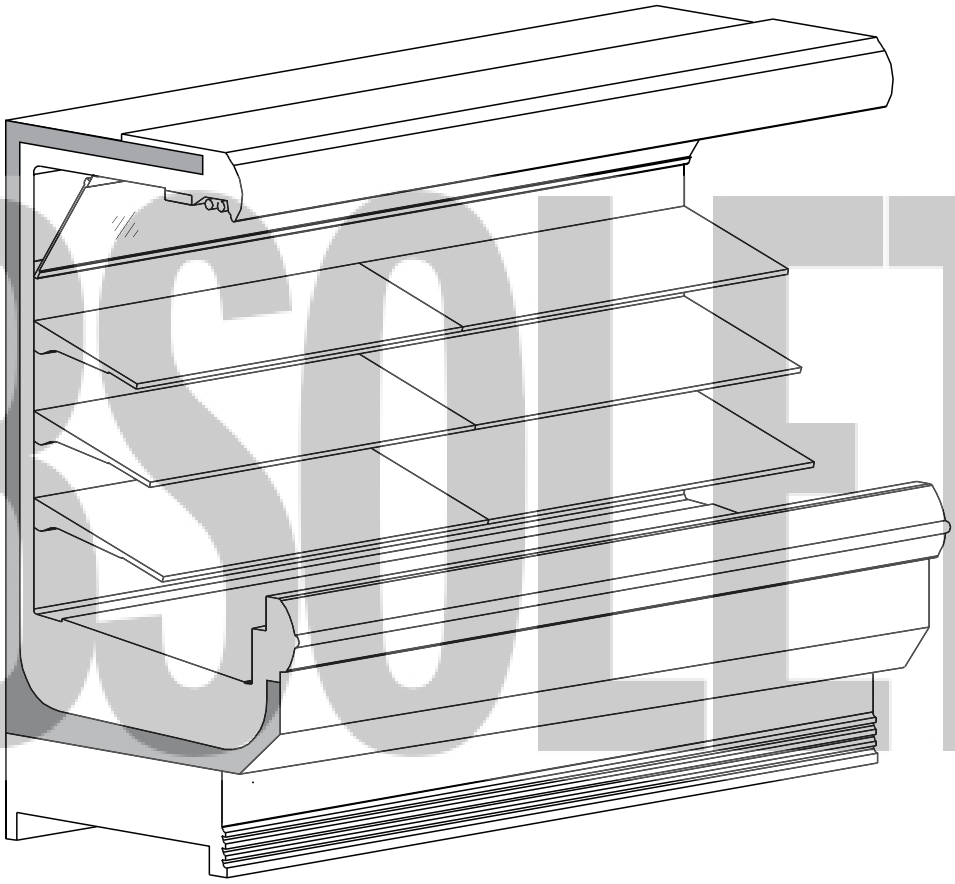
- FRONT AND REAR SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12", 1-14", 1-16" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

OBSOLETE

MULTI-DECK



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8” per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

Narrow Multi-Deck Self-Contained Deli Merchandiser

ONN35UA - 4’

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
ONN35UA	4’	120	1	60	2 wire + ground	23.63	45

Electrical Data

Model		Fans per Case	Standard Fans		Condenser Fan		Drain Pump		Evap. Pan Heater		Maximum Lights	
			120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONN35UA	4’	3	1.02	51	0.85	88	0.9	54	8.34	1000	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[1] (FPM)
ONN35UA		19.9	6-8	35	45	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.
ONN35UA	120	1	60	1/2	12.9	66.3	R134A	2

2 RLA - Running Load Amps.

3 LRA - Locked Rotor Amps.

Defrost Controls

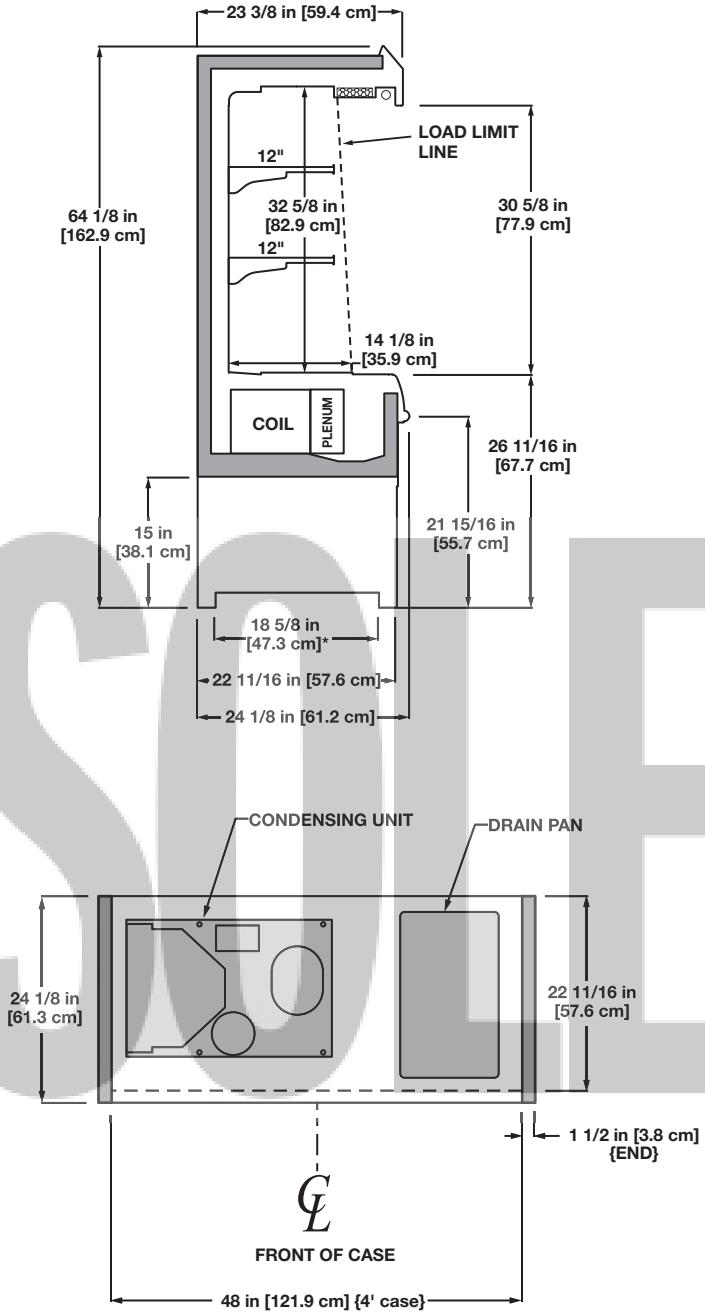
Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
ONN35UA	3	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

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 ARI 1200 - 2002 specifications.



NOTE:

• DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

Narrow Multi-Deck Produce/Dairy/Deli 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	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ON5DM Deli Dairy Cut Produce	Std. Dairy	1691[4]	Enh.	22	6-8	32	47	215
	2.5" Ext.	1646[4]	Enh.	22	6-8	31	44	215
	5" Ext.	1619[4]	Enh.	22	6-8	31	40	215
	7.5" Ext.	1561[4]	Enh.	22	6-8	31	40	215
ON5DM Beverage Bulk Produce	Std. Dairy	1550[4]	Enh.	29	6-8	37	53	215
	2.5" Ext.	1508[4]	Enh.	29	6-8	36	52	215
	5" Ext.	1456[4]	Enh.	29	6-8	36	52	215
	7.5" Ext.	1430[4]	Enh.	29	6-8	36	52	215

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
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 ARI 1200 - 2002 specifications.

NSF COMPONENT

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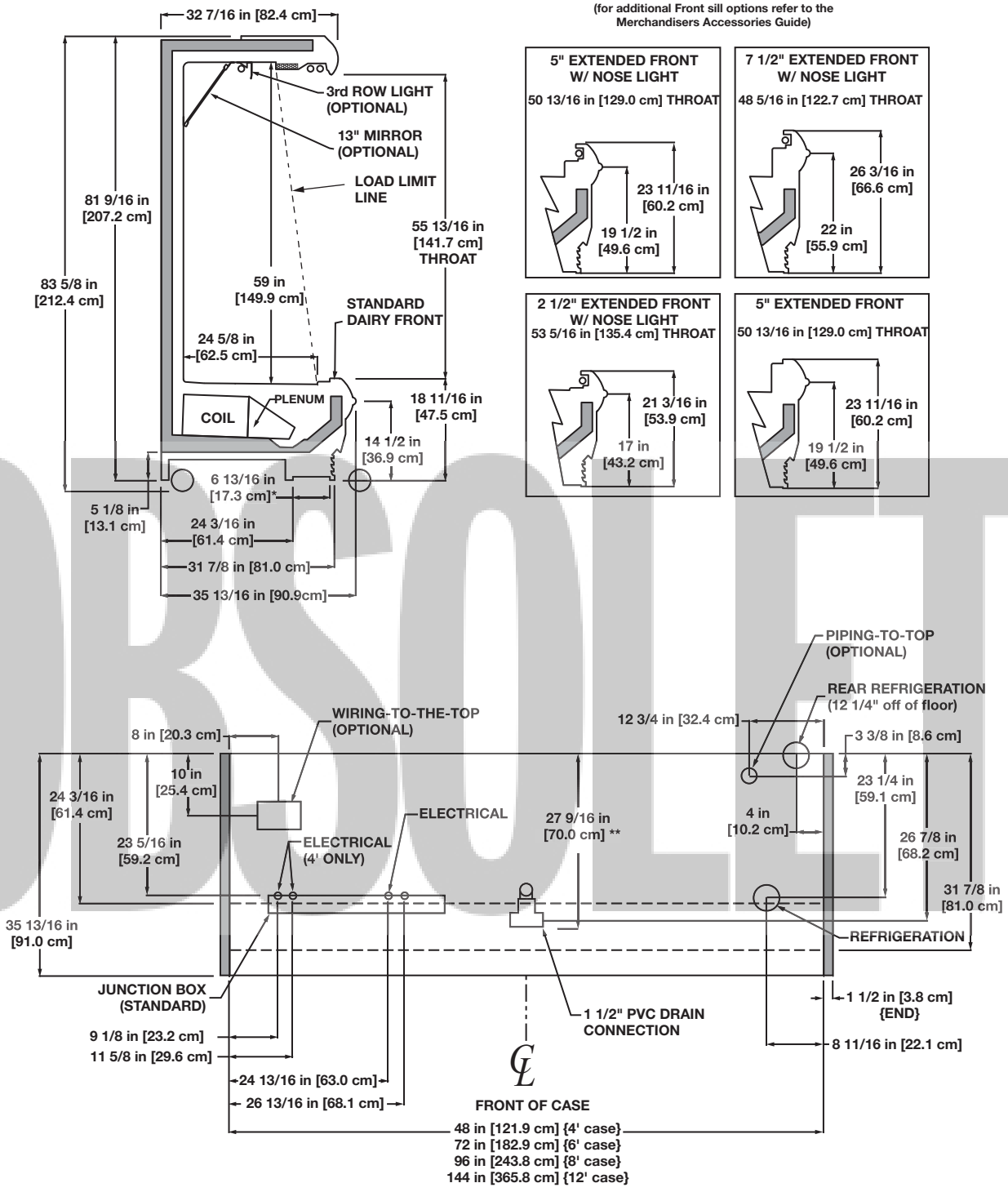

NOTES:

* 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
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- 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)
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

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		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
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 ARI 1200 - 2002 specifications.

NSF COMPONENT

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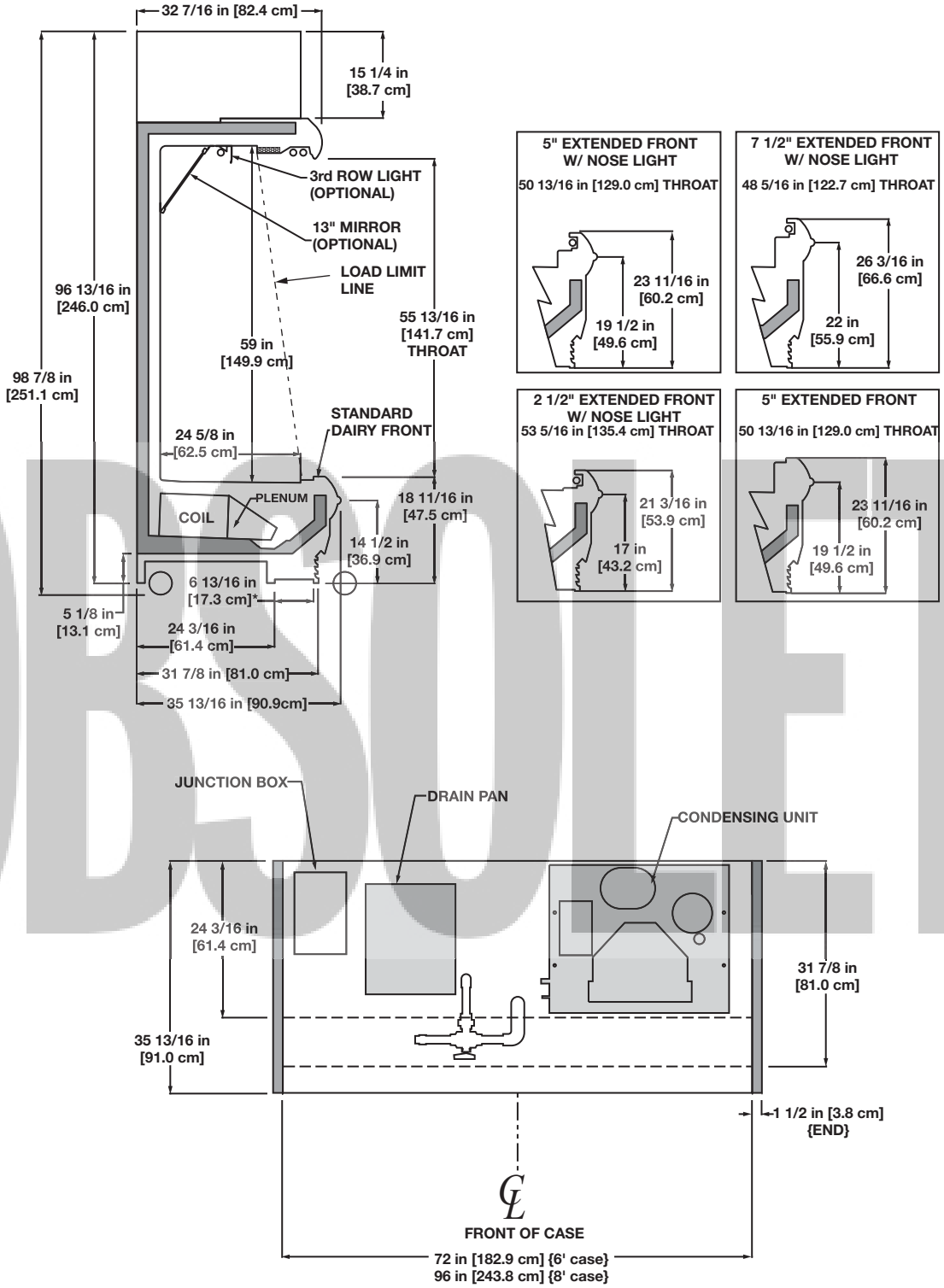

NOTES:

- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ON5DMH Dairy Cut Produce	Std. Dairy	1720[4]	Enh.	22	6-8	33	48	215
	2.5" Ext.	1675[4]	Enh.	22	6-8	33	45	215
	5" Ext.	1659[4]	Enh.	22	6-8	32	41	215
	7.5" Ext.	1580[4]	Enh.	22	6-8	32	41	215
ON5DMH Beverage Bulk Produce	Std. Dairy	1580[4]	Enh.	29	6-8	37	54	215
	2.5" Ext.	1520[4]	Enh.	29	6-8	37	53	215
	5" Ext.	1488[4]	Enh.	29	6-8	36	52	215
	7.5" Ext.	1475[4]	Enh.	29	6-8	36	52	215

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
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 ARI 1200 - 2002 specifications.

NSF COMPONENT

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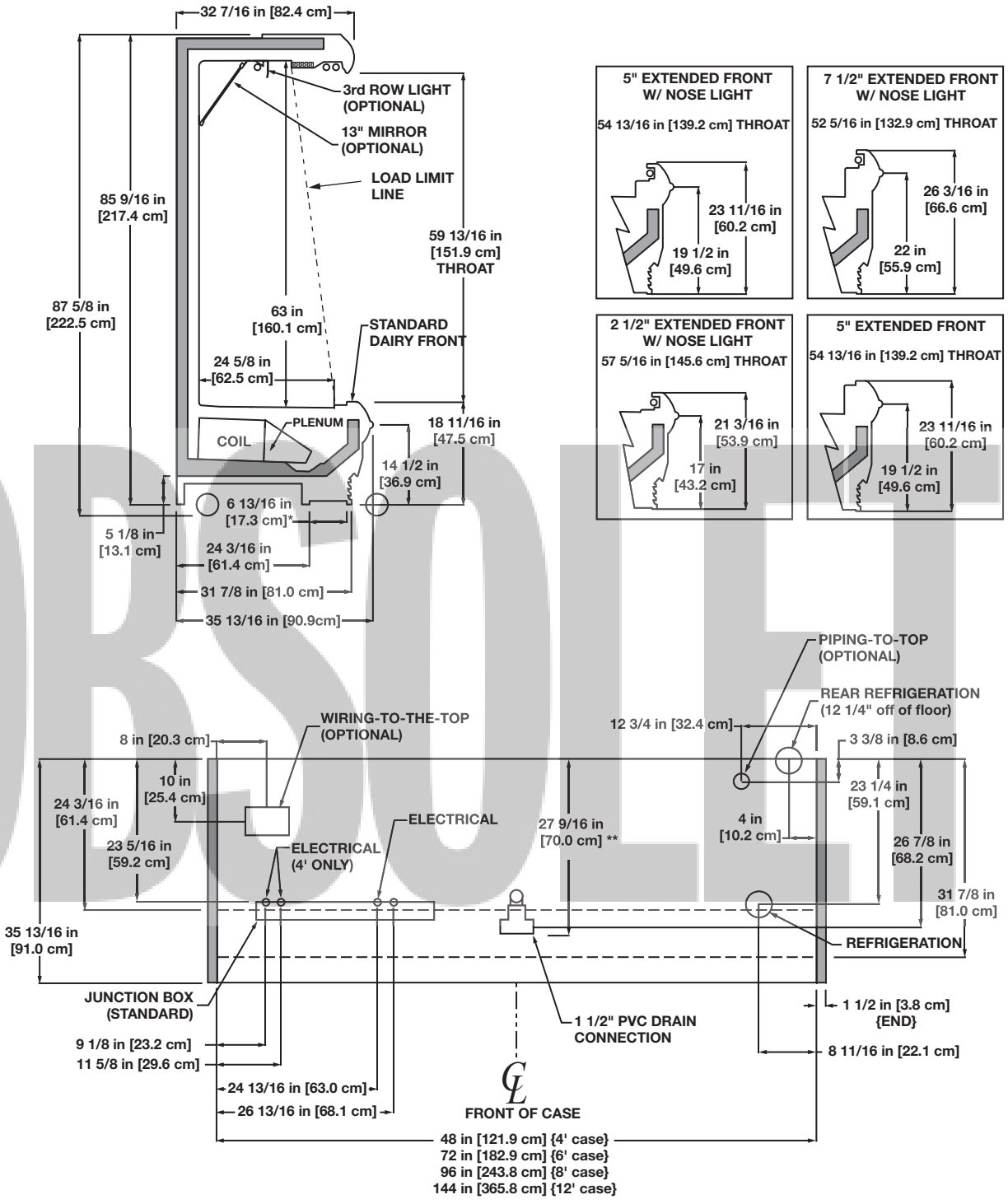

NOTES:

* 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
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O5DM Deli	2.5" Ext.	1458[4]	Enh.	22	6-8	30	44	270
	5" Ext.	1418[4]	Enh.	22	6-8	30	44	270
	7.5" Ext.	1388[4]	Enh.	22	6-8	30	44	270
O5DM Dairy Cut Produce	Std. Dairy	1358[4]	Enh.	26	6-8	34	47	270
	2.5" Ext.	1319[4]	Enh.	26	6-8	34	47	270
	5" Ext.	1289[4]	Enh.	26	6-8	34	47	270
	7.5" Ext.	1258[4]	Enh.	26	6-8	34	47	270
O5DM Beverage Bulk Produce	Std. Dairy	1378[4]	Enh.	29	6-8	36	52	270
	2.5" Ext.	1338[4]	Enh.	29	6-8	36	52	270
	5" Ext.	1308[4]	Enh.	29	6-8	36	52	270
	7.5" Ext.	1278[4]	Enh.	29	6-8	36	52	270

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
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 ARI 1200 - 2002 specifications.

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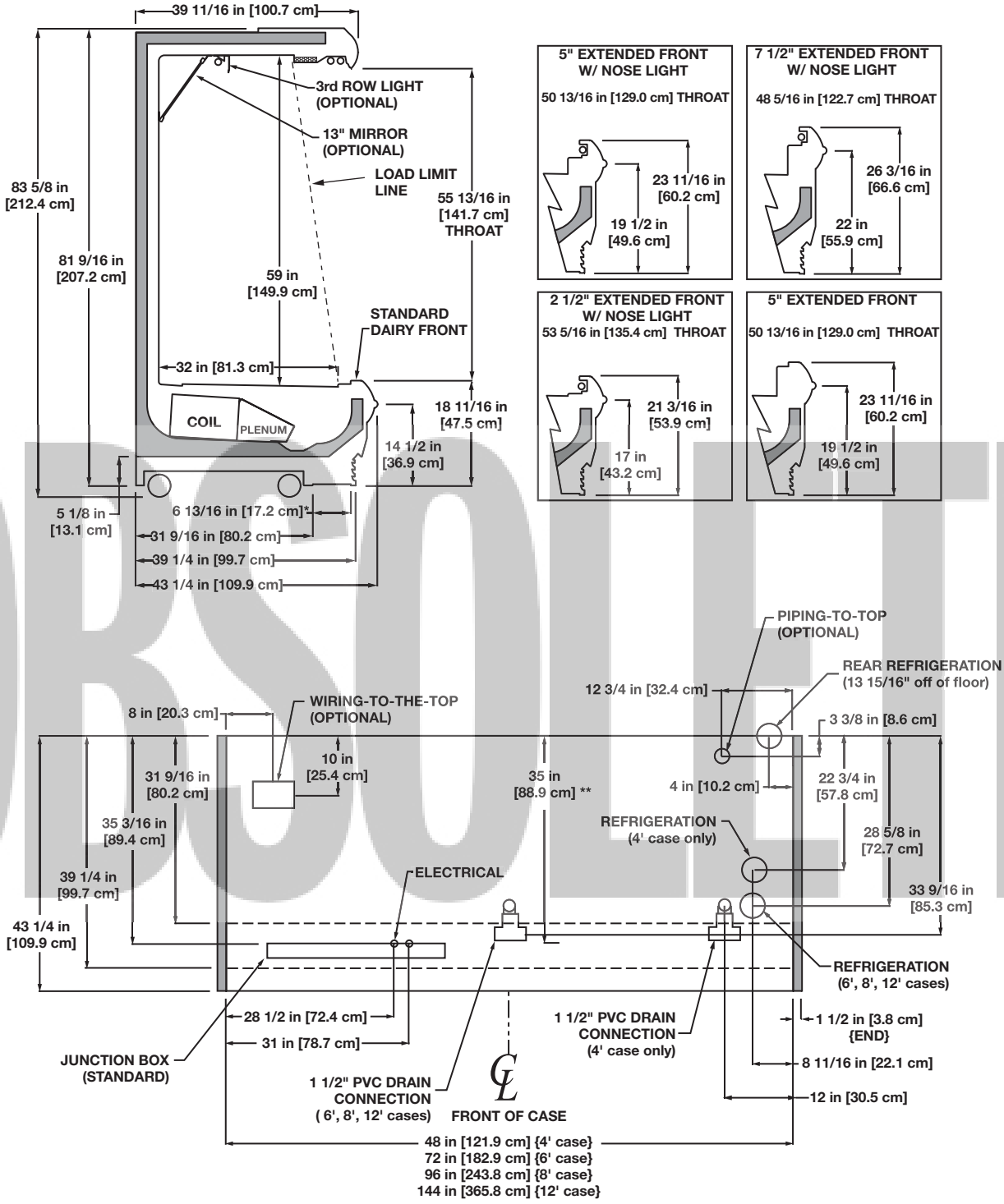

NOTES:

* 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
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
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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		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
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 1/4	12.4	61	R404A	9.7

2 RLA - Running Load Amps.

3 LRA - Locked Rotor Amps.

Defrost Controls

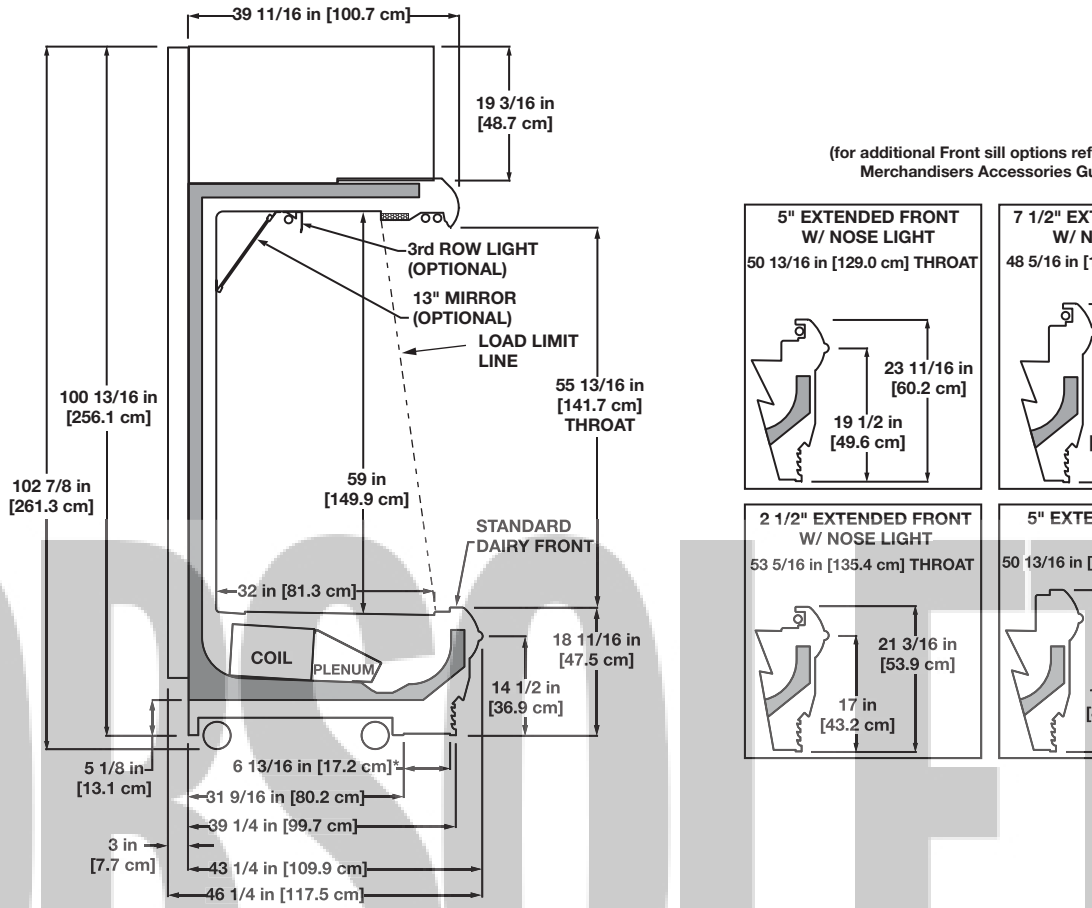
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O5DMA	4	- - -[4]	- - -	42	47	- - -	- - -	- - -	- - -

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

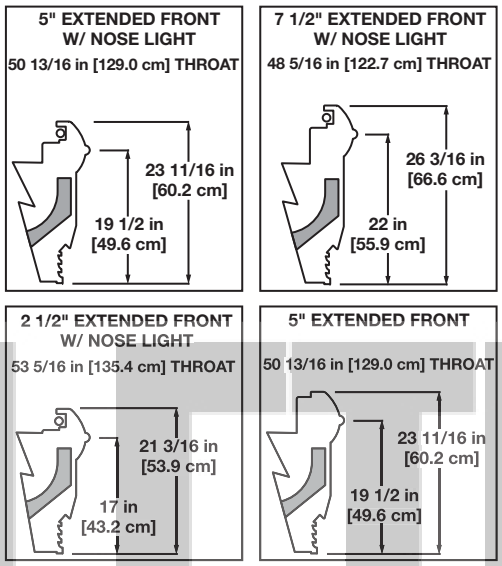
Medium Temperature Defrost Schedule

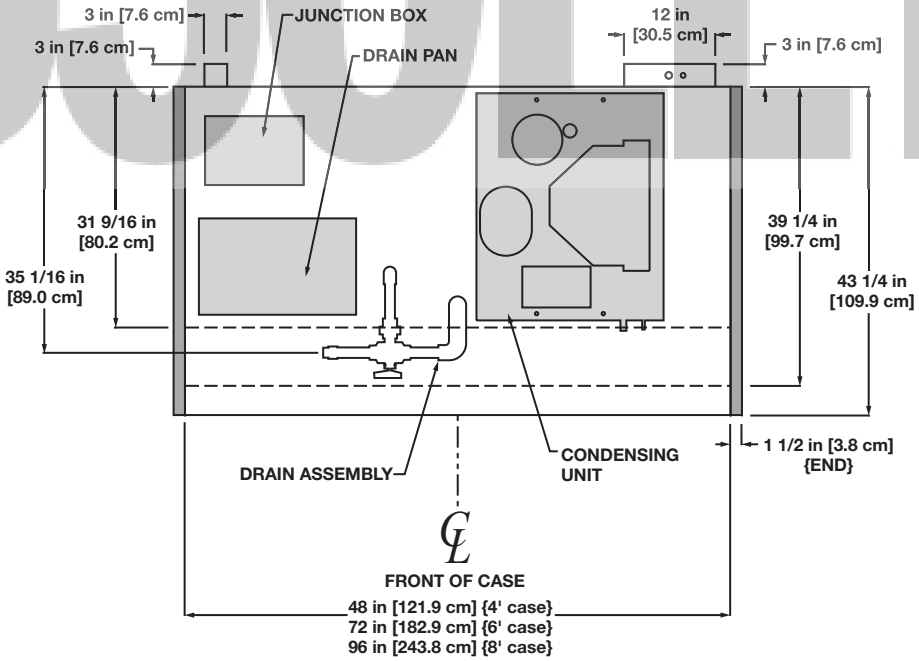
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.



(for additional Front sill options refer to the Merchandisers Accessories Guide)





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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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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	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O5DMH Deli	2.5" Ext.	1500[4]	Enh.	22	6-8	31	43	250
	5" Ext.	1450[4]	Enh.	22	6-8	31	43	250
	7.5" Ext.	1420[4]	Enh.	22	6-8	31	43	250
O5DMH Dairy Cut Produce	Std. Dairy	1435[4]	Enh.	26	6-8	35	47	265
	2.5" Ext.	1380[4]	Enh.	26	6-8	35	47	265
	5" Ext.	1350[4]	Enh.	26	6-8	35	47	265
	7.5" Ext.	1320[4]	Enh.	26	6-8	35	47	265
O5DMH Beverage Bulk Produce	Std. Dairy	1375[4]	Enh.	29	6-8	37	52	270
	2.5" Ext.	1335[4]	Enh.	29	6-8	36	53	270
	5" Ext.	1306[4]	Enh.	29	6-8	36	52	270
	7.5" Ext.	1277[4]	Enh.	29	6-8	36	52	270

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
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 ARI 1200 - 2002 specifications.

NSF COMPONENT

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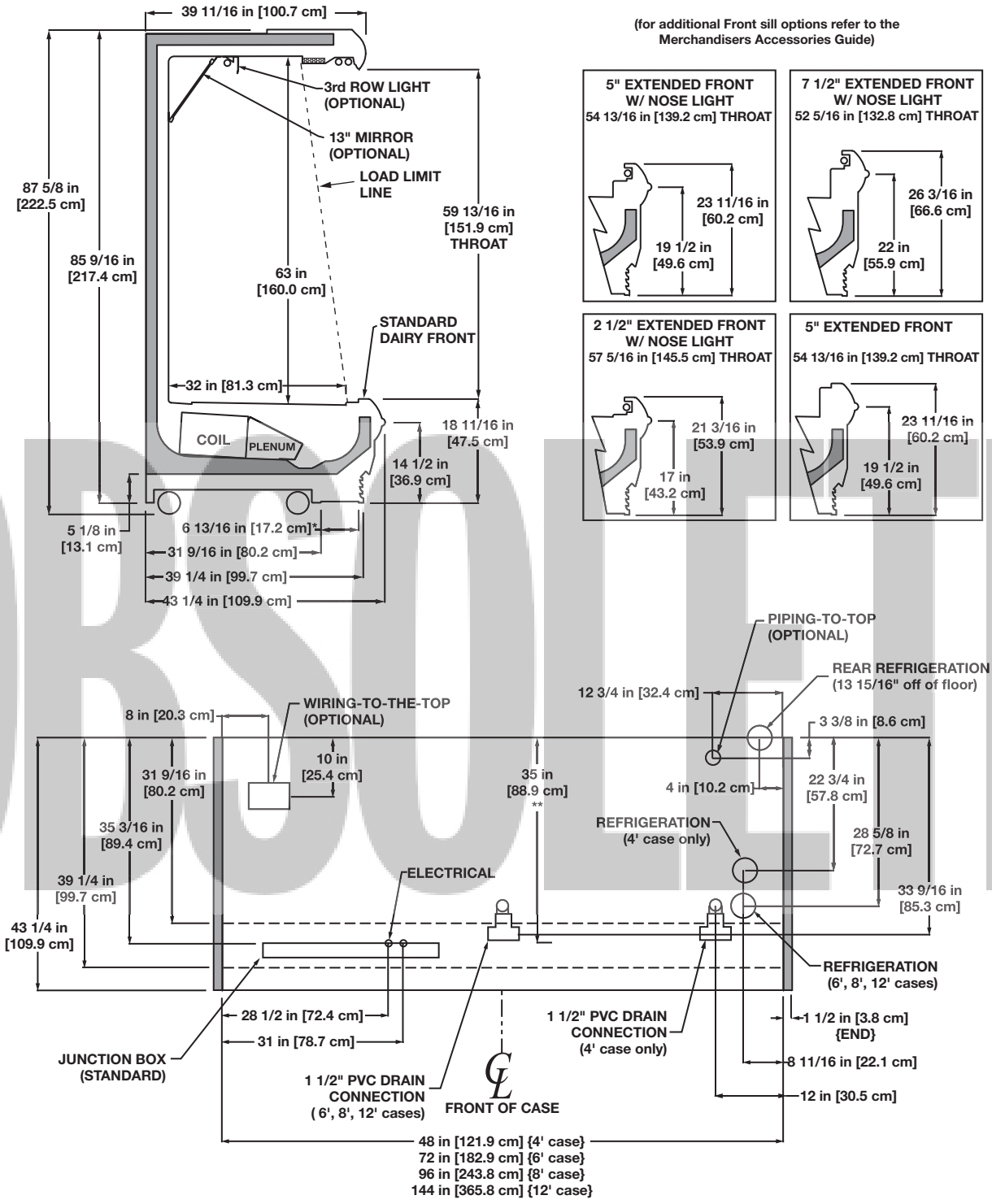
Hill PHOENIX EXCELLENCE A DOVER COMPANY



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
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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

Guidelines & Control Settings

Model	Front Sill Heights	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O5DR Dairy	Std. Dairy	1382[4]	Enh.	22	6-8	32	47	275
	2.5” Ext.	1382[4]	Enh.	22	6-8	32	46	275
	5” Ext.	1333[4]	Enh.	22	6-8	32	42	275
	7.5” Ext.	1305[4]	Enh.	22	6-8	32	42	275
O5DR Beverage	2.5” Ext.	1302[4]	Enh.	26	6-8	35	48	275
	5” Ext.	1269[4]	Enh.	26	6-8	35	47	275

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

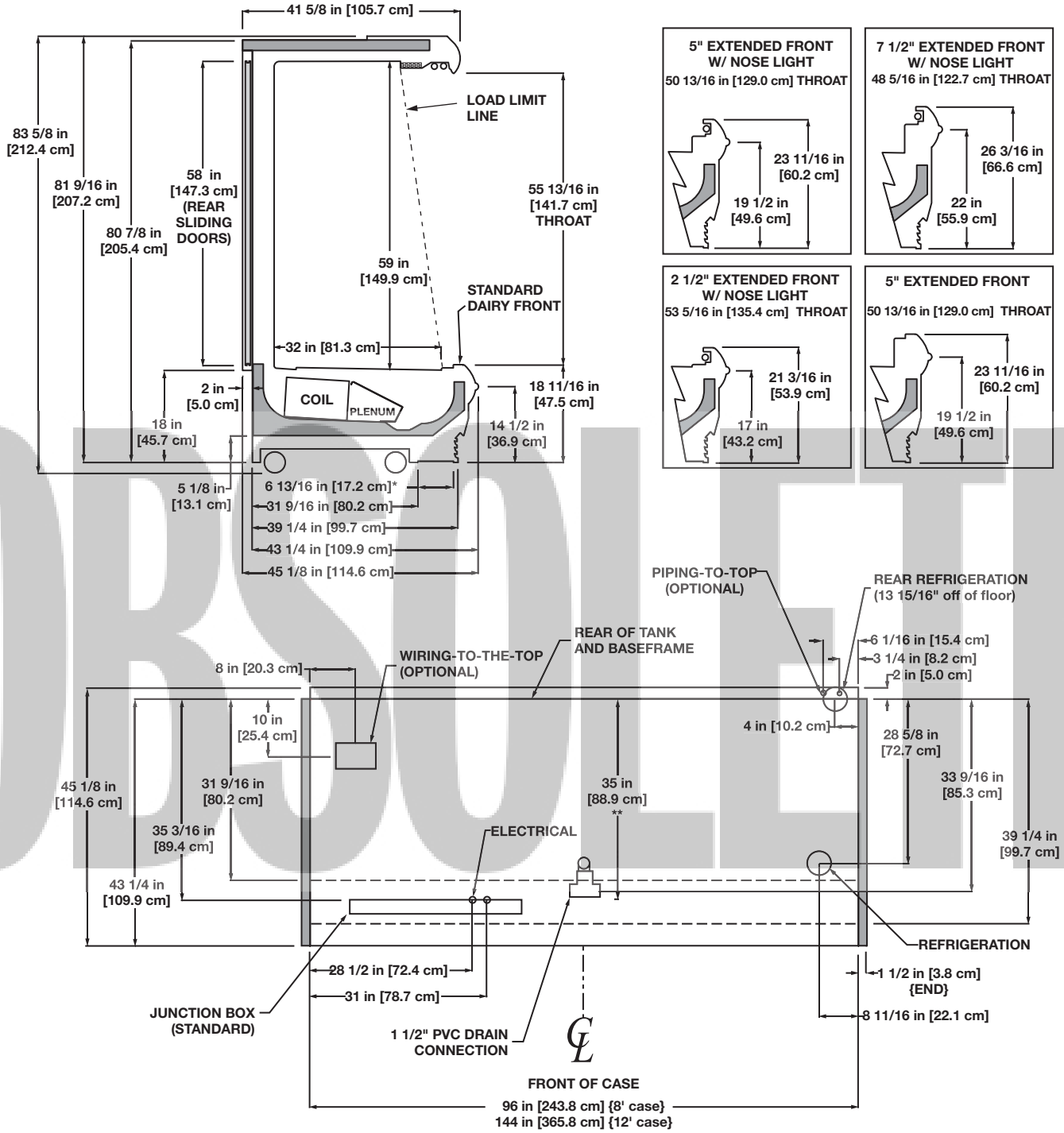
Defrost Controls

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)
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 ARI 1200 - 2002 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
- COOLER OPENING SHOULD BE 82" X CASE LENGTH
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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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

Guidelines & Control Settings

Model	Front Sill Heights	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O5DRH Dairy	Std. Dairy	1423[4]	Enh.	22	6-8	32	47	275
	2.5” Ext.	1423[4]	Enh.	22	6-8	32	46	275
	5” Ext.	1373[4]	Enh.	22	6-8	32	42	275
	7.5” Ext.	1344[4]	Enh.	22	6-8	32	42	275
O5DRH Beverage	2.5” Ext.	1341[4]	Enh.	26	6-8	35	48	275
	5” Ext.	1307[4]	Enh.	26	6-8	35	47	275

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
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 ARI 1200 - 2002 specifications.

NSF COMPONENT

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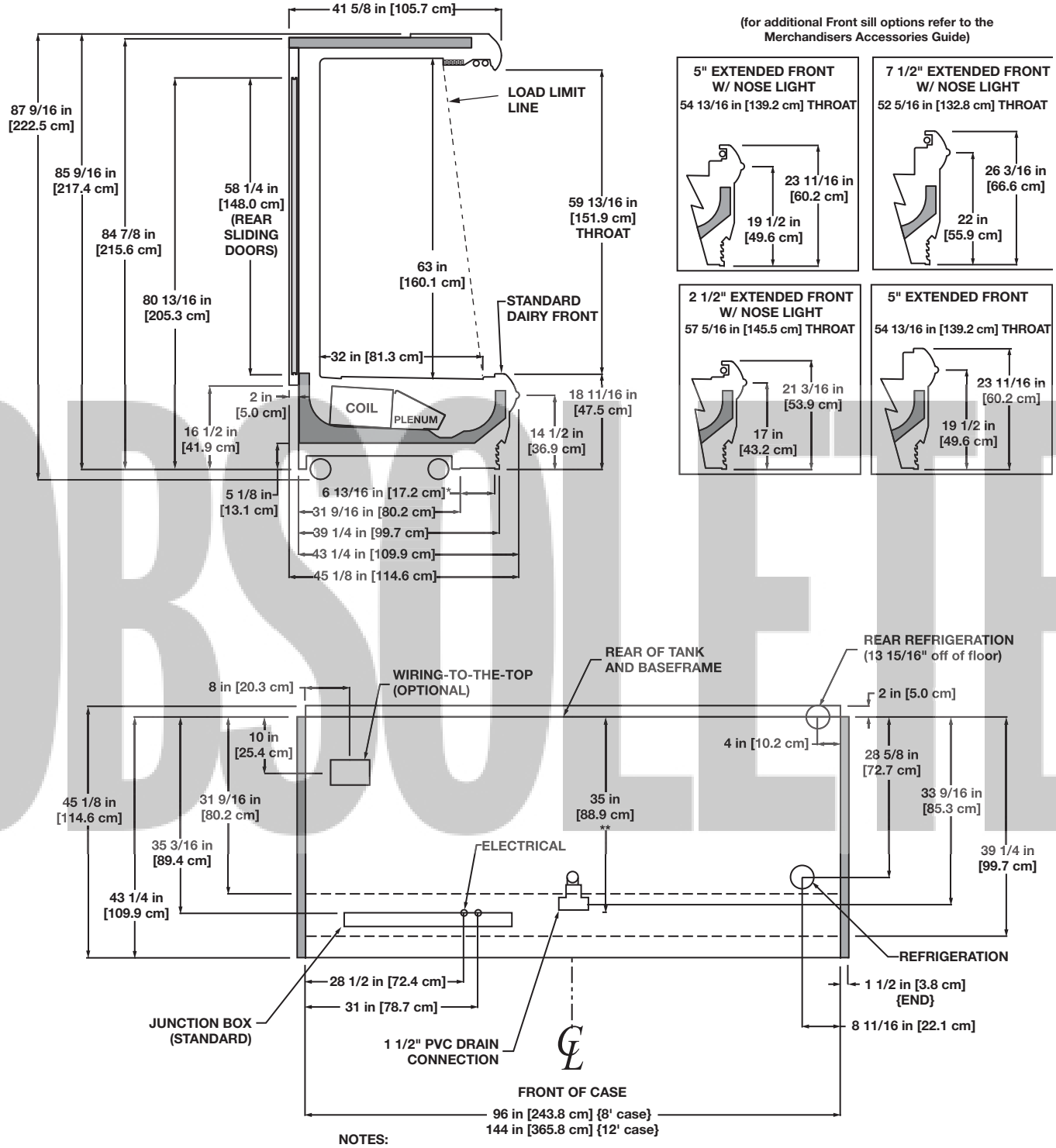
Hill PHOENIX EXCELLENCE A DOVER COMPANY



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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
- COOLER OPENING SHOULD BE 86" X CASE LENGTH
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20", 22" & 24"

NSF COMPONENT

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Multi-Deck Deli/Meat Merchandiser

O5M - 4', 6', 8' & 12'

Electrical Data

Model		Fans per Case	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
O5M	4'	2	0.47	28	- - -[1]	- - -	1.92	400	2.22	532
	6'	2	0.47	28	- - -	- - -	2.88	600	3.33	798
	8'	3	0.70	42	- - -	- - -	3.85	800	4.44	1065
	12'	4	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
O5M	4'	1	4'	0.23	28	1.15	138
	6'	2	3'	0.37	44	1.85	222
	8'	2	4'	0.47	56	2.35	282
	12'	3	4'	0.70	84	3.50	420

Guidelines & Control Settings

Model	Application	Front Sill Height	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O5M	Fresh Meat	Thermopane	1680[4]	Enh.	17	6-8	26	38	225

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.20.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

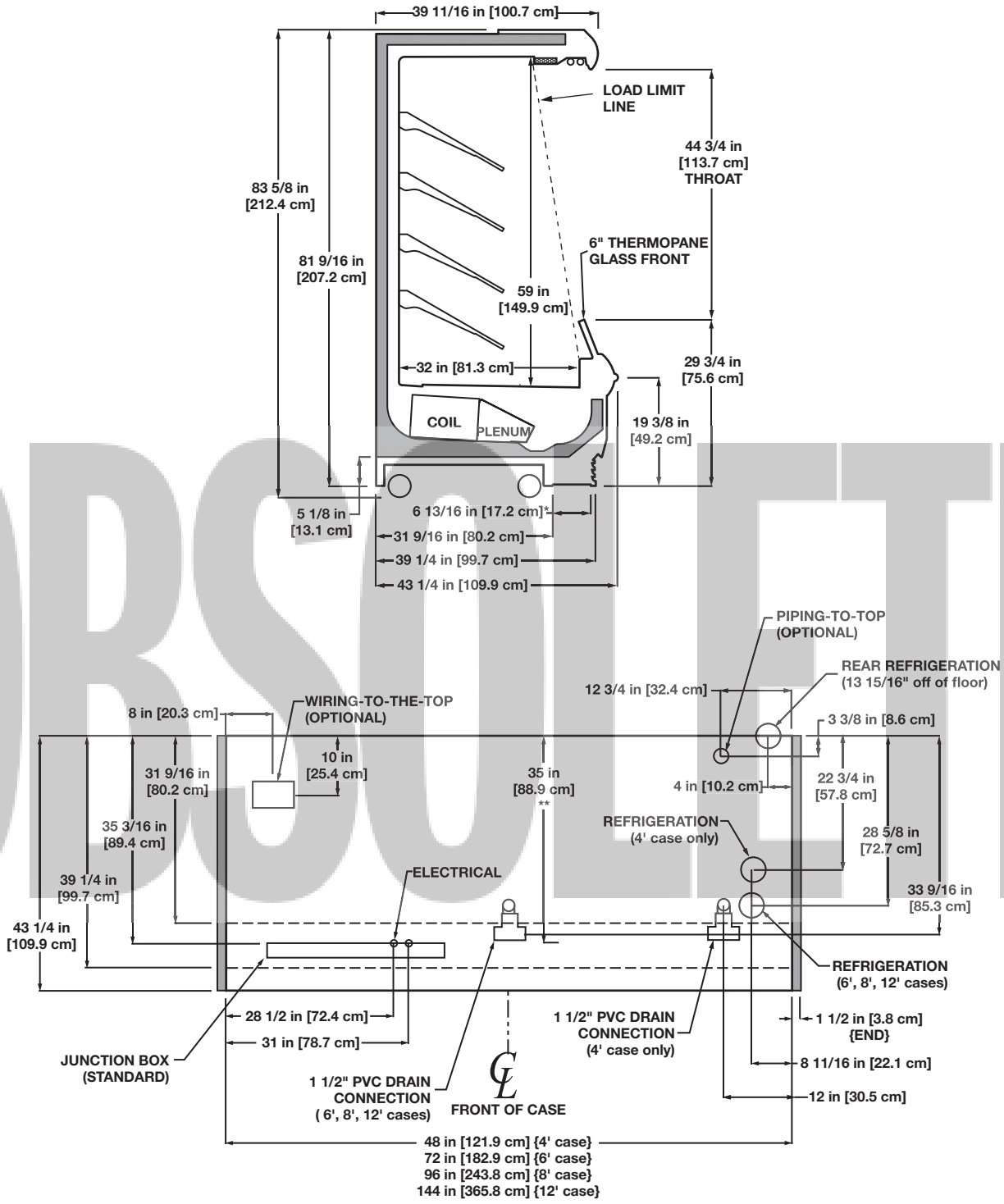
4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
O5M	6	6 - 8	40	47	45	45	26	45	45	45

All measurements are taken per ARI 1200 - 2002 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
- 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 (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 18" & 20" ARTICULATED ONLY (4 ROWS RECOMMENDED)
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

Multi-Deck Rear Load Deli/Meat Merchandiser

O5MR - 8' & 12'

Electrical Data

Model		Fans per Case	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
O5MR	8'	4	1.44	142	- - -[1]	- - -	3.85	800	4.44	1065
	12'	5	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
O5MR	8'	2	4'	0.47	56	2.35	282
	12'	3	4'	0.70	84	3.50	420

Guidelines & Control Settings

Model	Application	Front Sill Height	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O5MR	Fresh Meat	Thermopane	1587[4]	Enh.	17	6-8	31	40	275

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.20.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

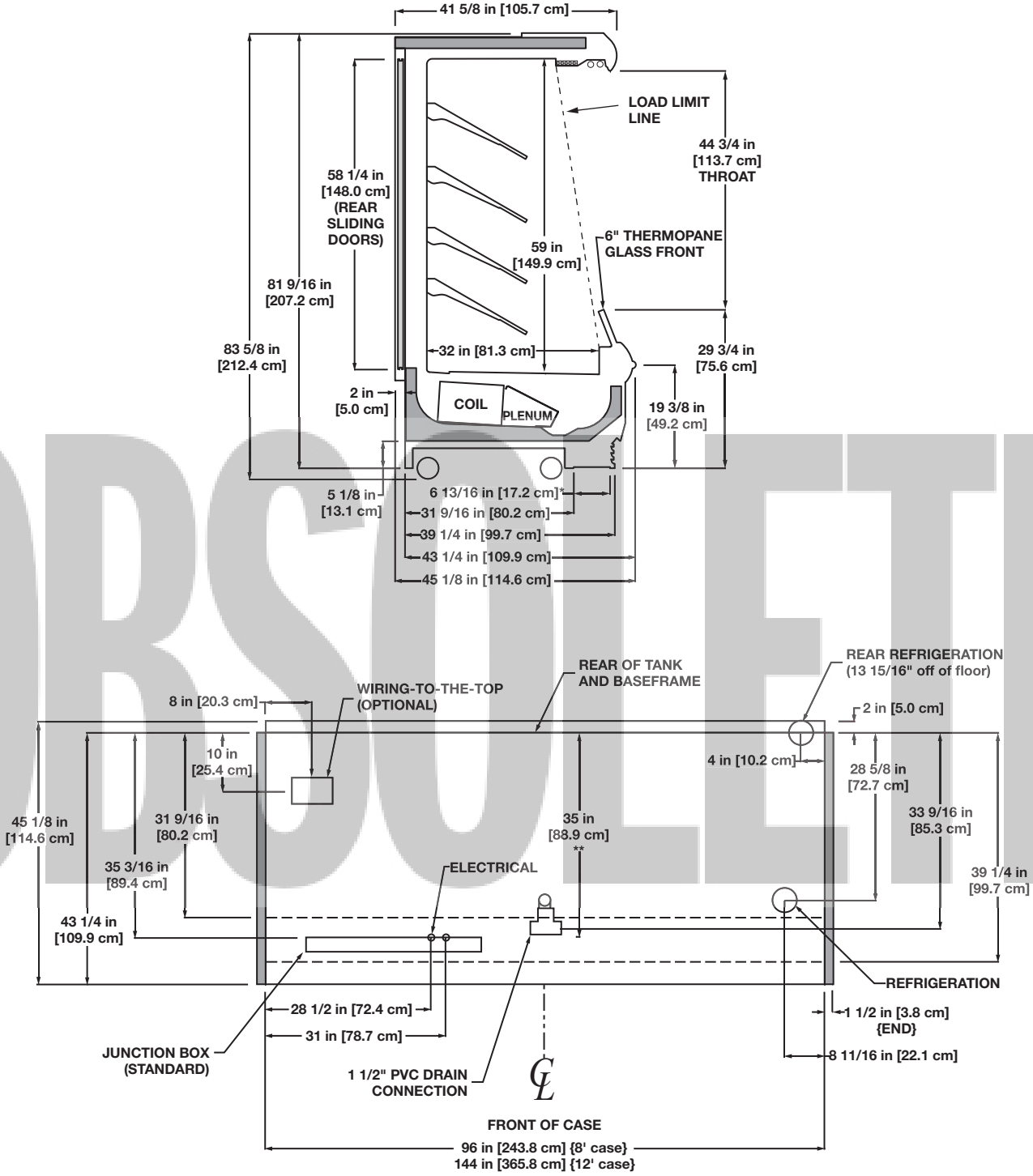
Defrost Controls

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)
O5MR	6	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 ARI 1200 - 2002 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 - 3/8"
- AVAILABLE SHELF SIZES: 18" & 20" ARTICULATED ONLY (4 ROWS RECOMMENDED)
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

Multi-Deck Frozen Food Merchandiser

O5Z 22" FRONT - 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	1.47	124	2.25[2]	270	9.99[3]	3600	11.53[3]	4794
	8'	5	3	2	10	5.70	352	1.84	155	3.10[2]	344	13.32[3]	4800	15.37[3]	6390
	12'	7	4	3	14	7.98	490	2.57	217	4.18[2]	493	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	2.16	254

Guidelines & Control Settings

Model	[4, 5]BTUH/ft	Evaporator (°F)	Superheat Set Point @bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[7] (FPM) Pri.	Sec.	Amb.
O5Z-22"	1683[6]	-17	3-5	-5	0	650	425	275
O5Z-28"	1648[6]	-17	3-5	-5	-5	650	425	275

4 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

5 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

6 Standard fans increase refrigeration load by 96 BTUH/fan.

7 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	- - -[8]	- - -	24	60	- - -	- - -

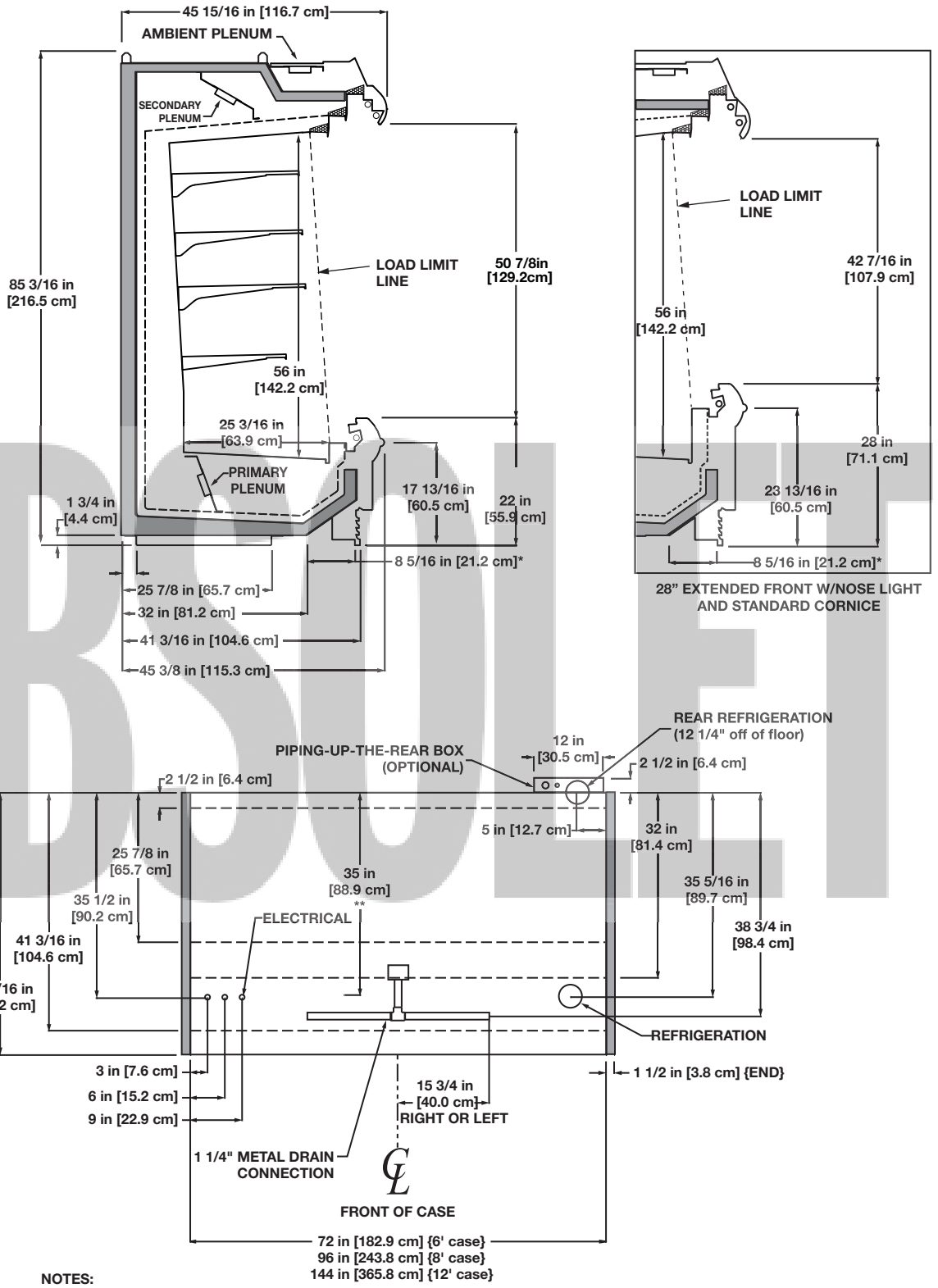
8 NOTE: "- - -" not an option on this case model.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour

All measurements are taken per ARI 1200 - 2002 specifications.



NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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

Guidelines & Control Settings

Model	Front Sill Heights	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONHM	Standard	1320[4]	Enh.	22	6-8	30	41	340
	All Others	1220[4]	Enh.	22	6-8	30	41	340

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
ONHM	4	6 - 8	35	47	45	47	26	45	45	45

Medium Temperature Defrost Schedule

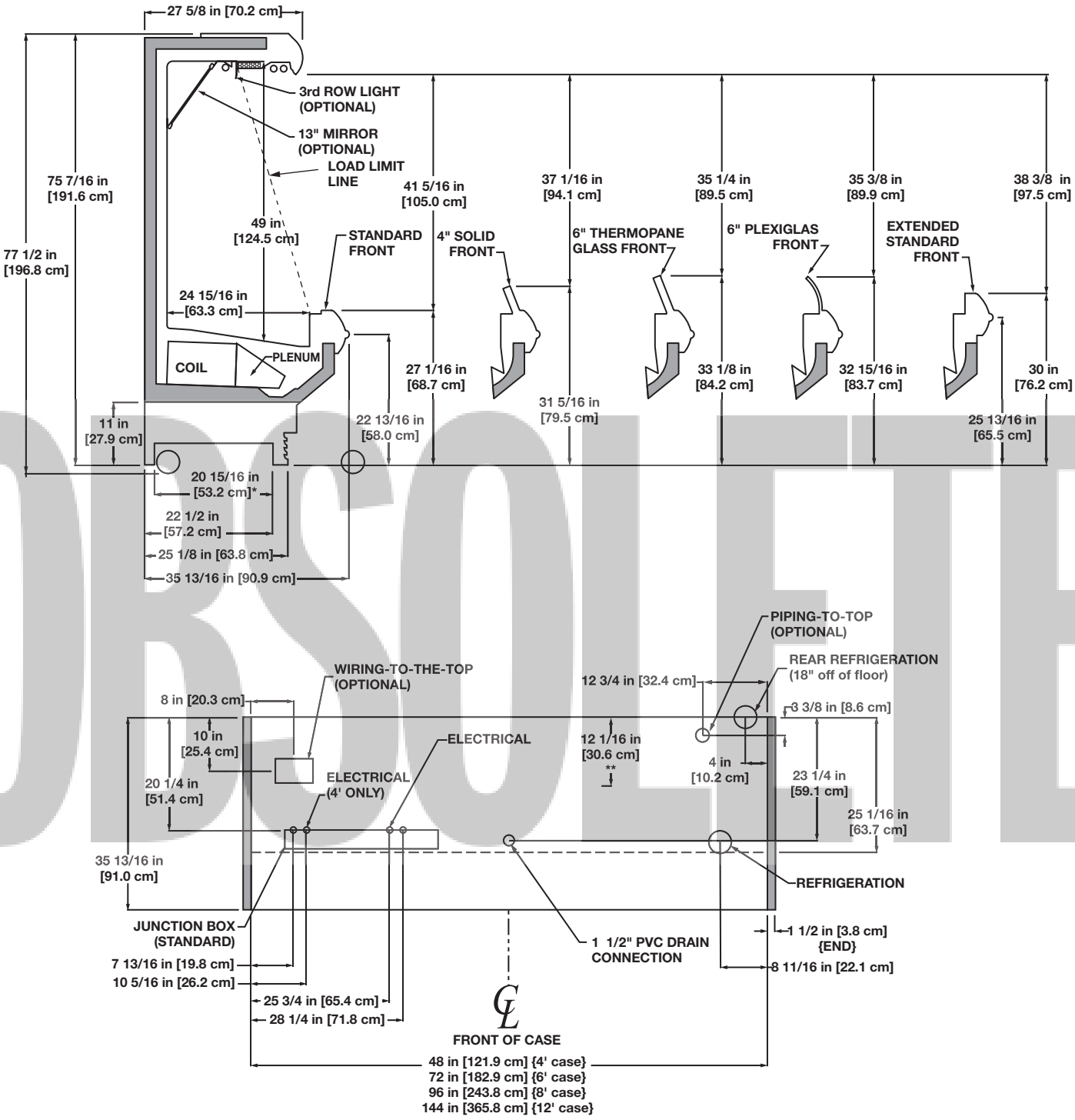
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



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
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12", 1-14", 1-16" & 1-18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

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	[2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONHMH	Standard	1320[3]	Enh.	22	6-8	30	41	340
	All Others	1220[3]	Enh.	22	6-8	29	40	340

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
ONHMH	4	6 - 8	35	47	45	47	26	45	45	45

Medium Temperature Defrost Schedule

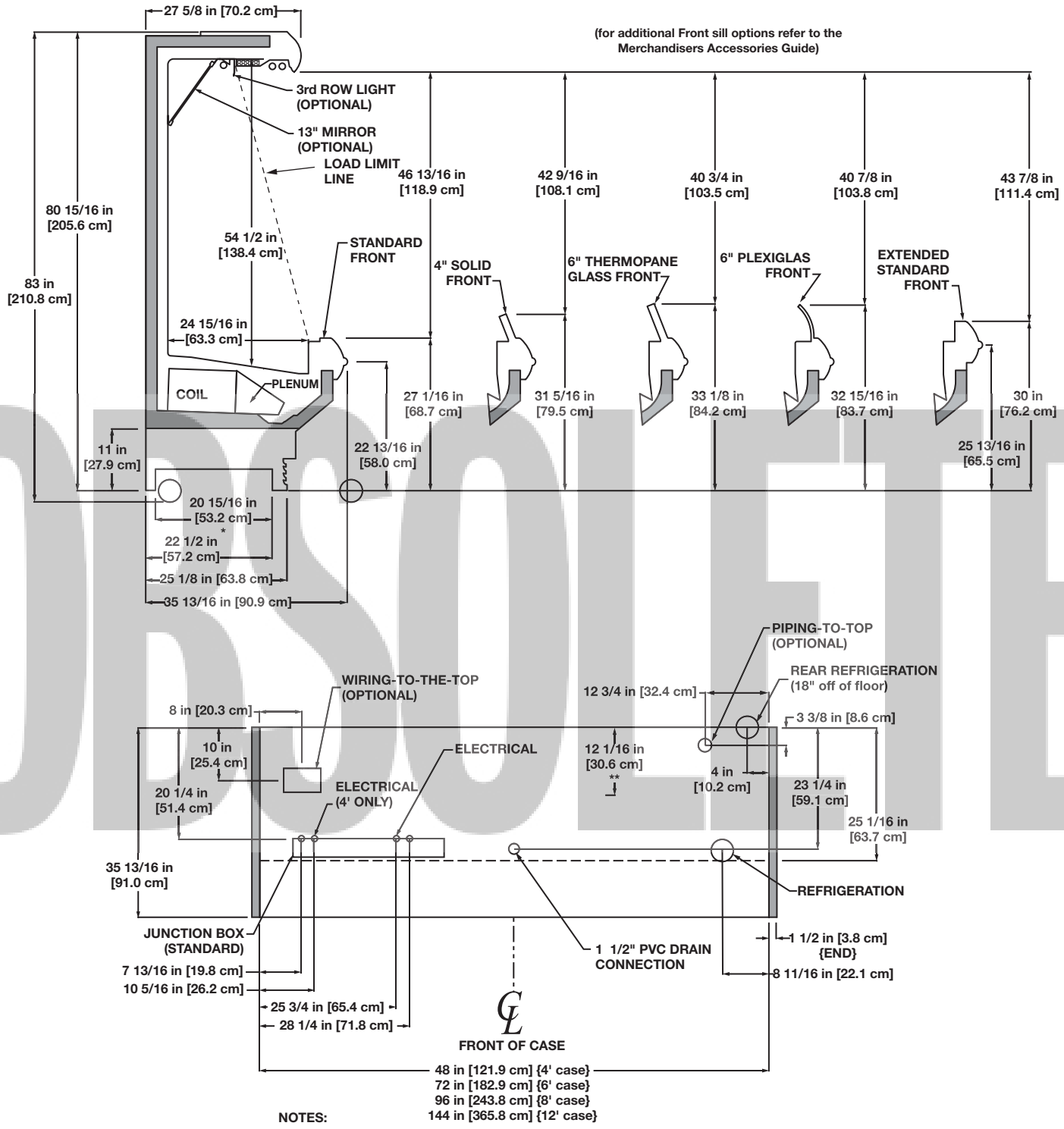
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



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
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12", 1-14", 1-16", 1-18" & 1-20"

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	- - -[1]	- - -	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
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

Guidelines & Control Settings

Model	Front Sill Heights	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OHM	Standard	1273[4]	Enh.	22	6-8	28	38	350
	All Others	1229[4]	Enh.	22	6-8	28	37	350

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
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

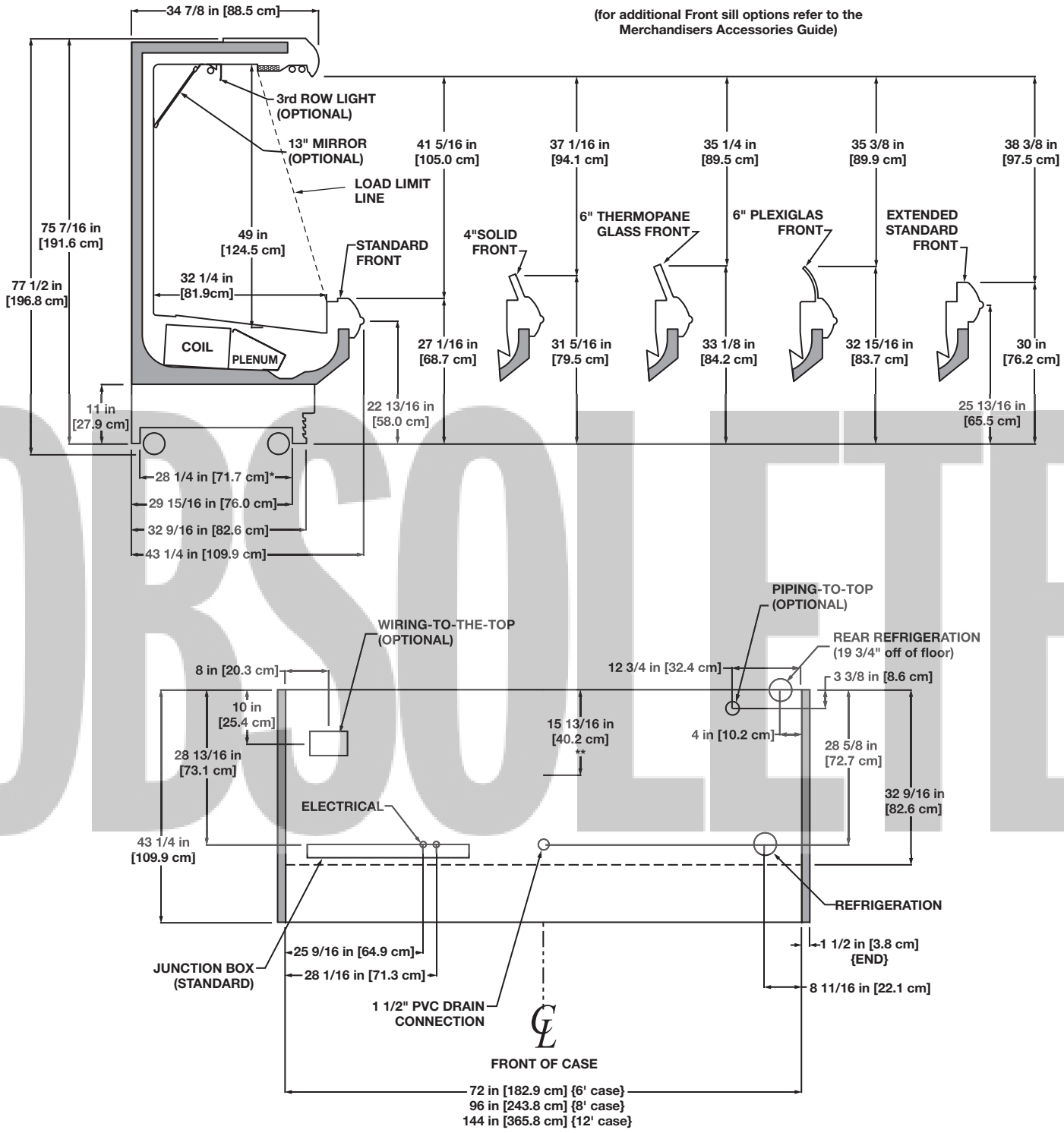
All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY

OHM
(11" BASEFRAME)



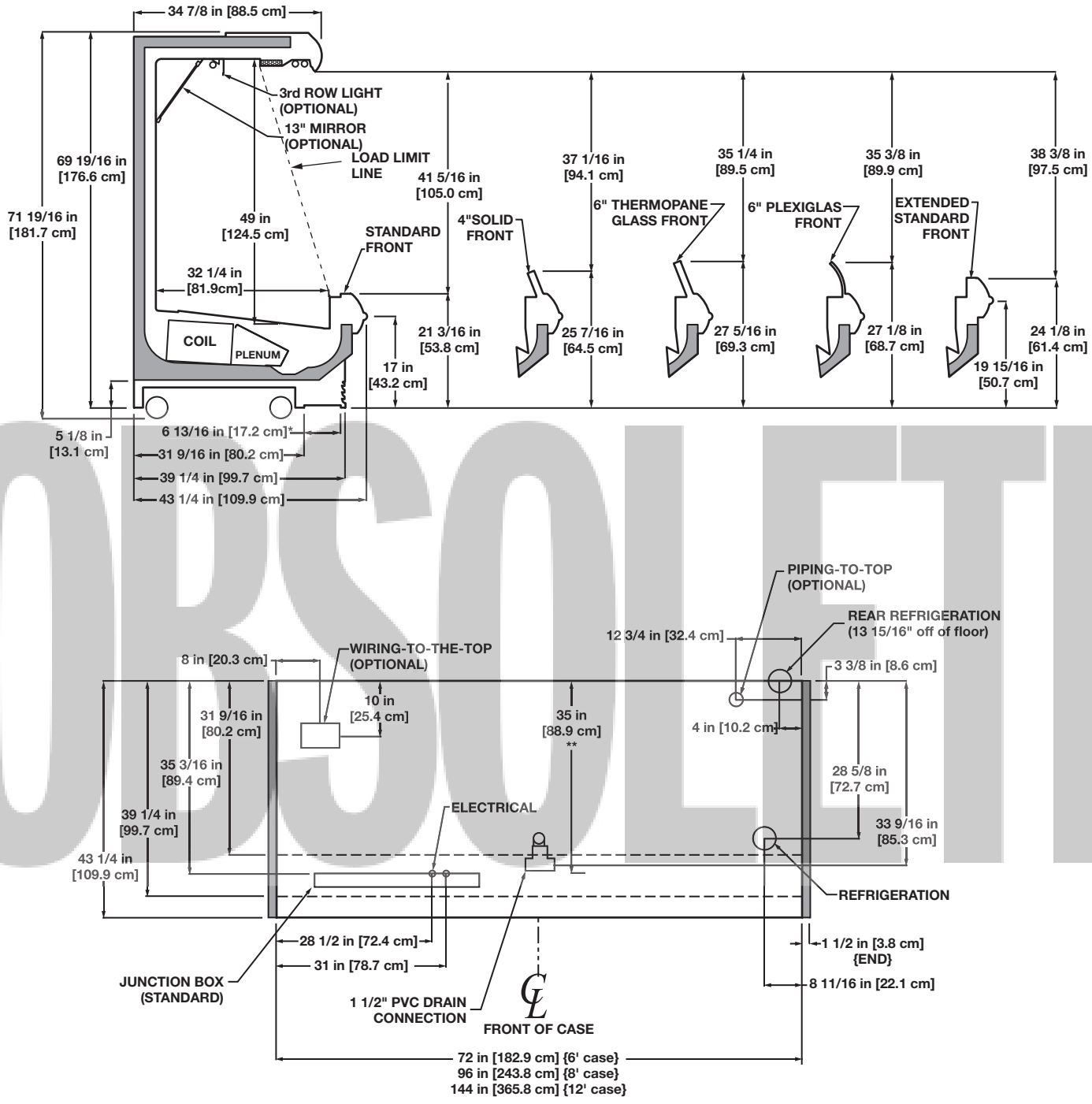
NOTES:

* 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
- SUCTION LINE (6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

OHM
(5” BASEFRAME)



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
- SUCTION LINE (6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

High Multi-Deck Deli/Meat Merchandiser

OHMH- 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
OHMH	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
OHMH	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	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OHMH	Standard	1314[4]	Enh.	22	6-8	29	41	330
	All Others	1220[4]	Enh.	22	6-8	29	38	330

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

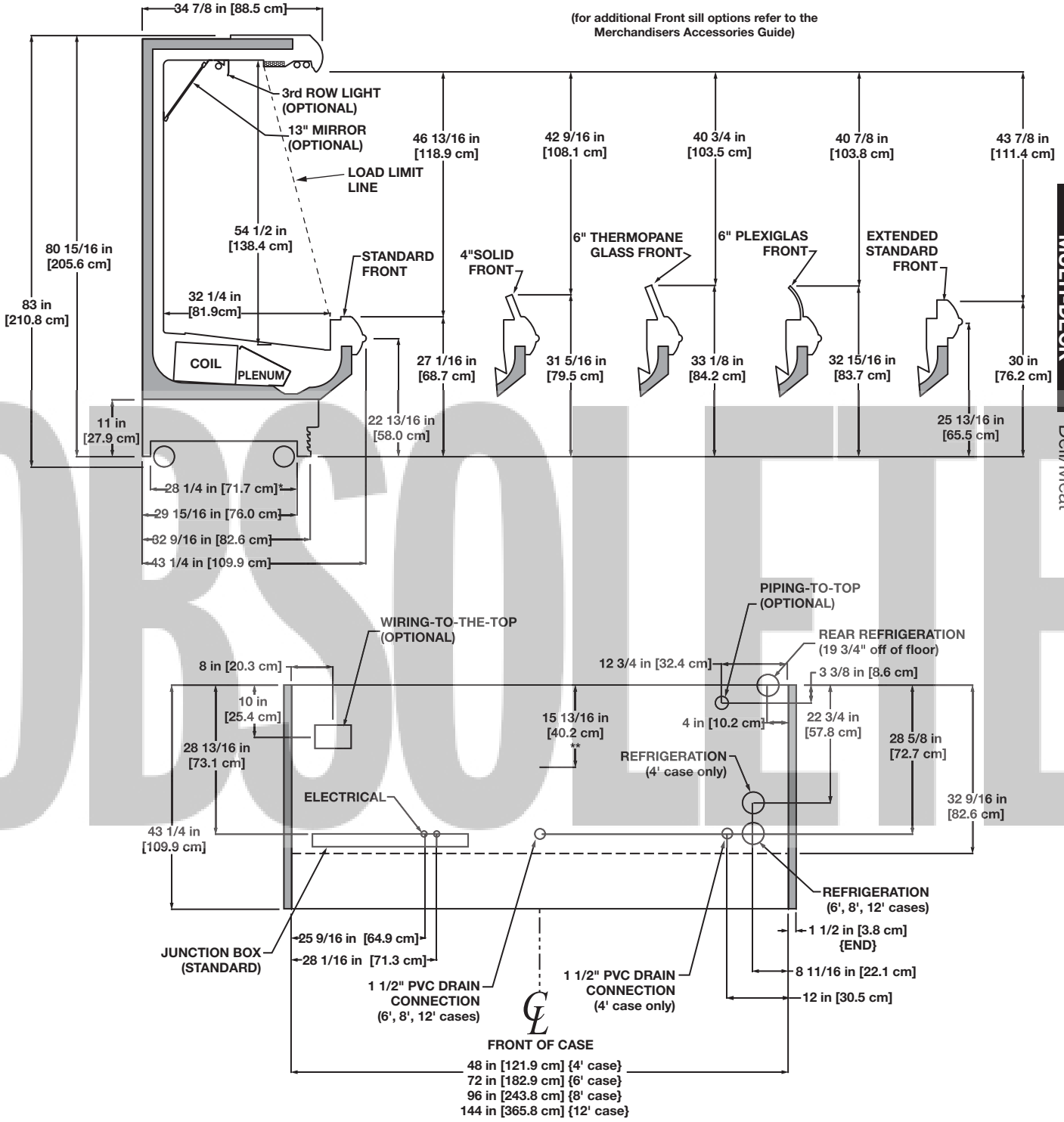
Defrost Controls

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)
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 ARI 1200 - 2002 specifications.



NOTES:

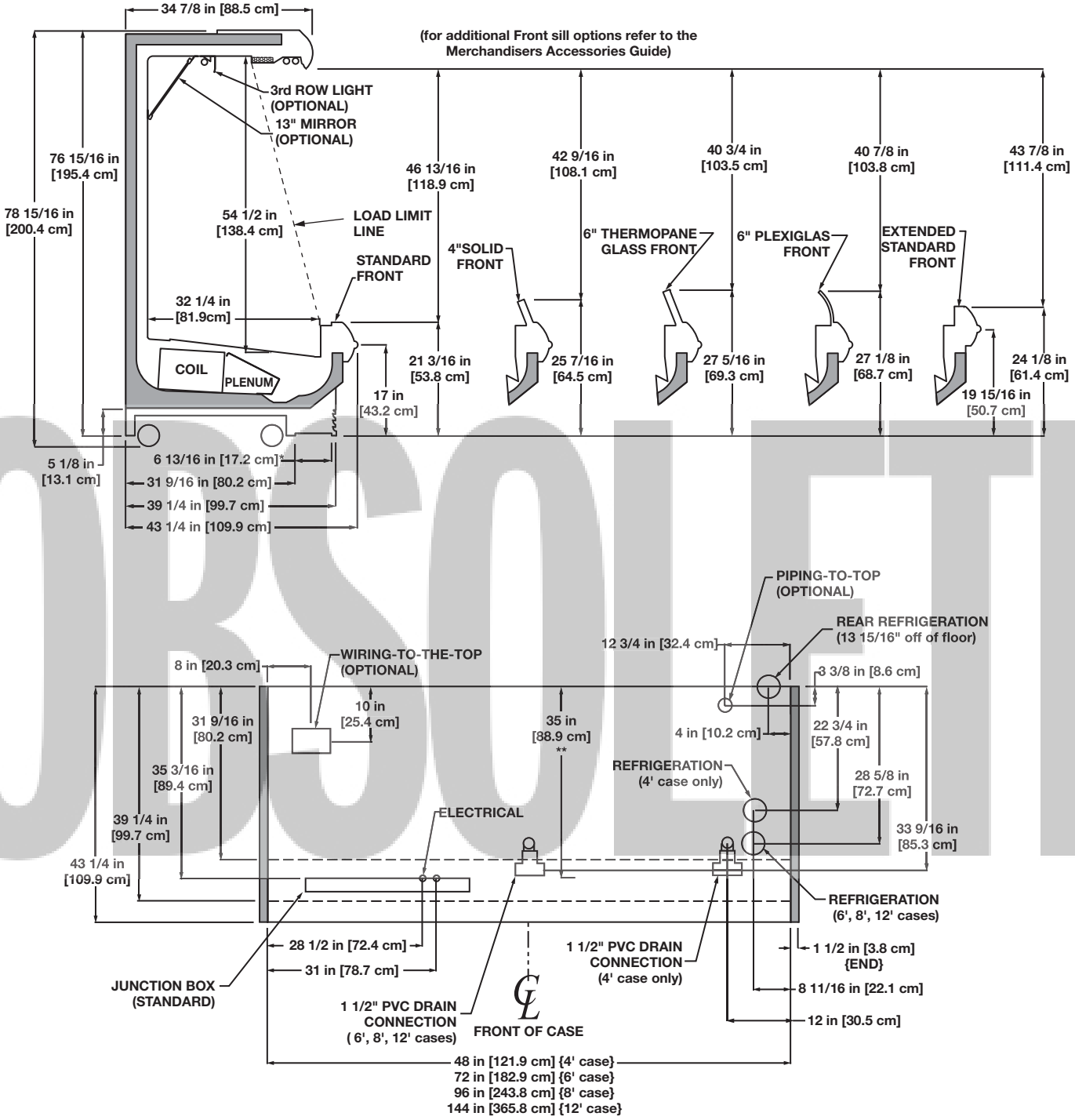
* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- 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
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OHMH
(5” BASEFRAME)



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
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONHP Cut Produce	1198[4]	Enh.	26	6-8	32	45	350
ONHP Bulk Produce	818[4]	Enh.	29	6-8	36	48	250

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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

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

Medium Temperature Defrost Schedule

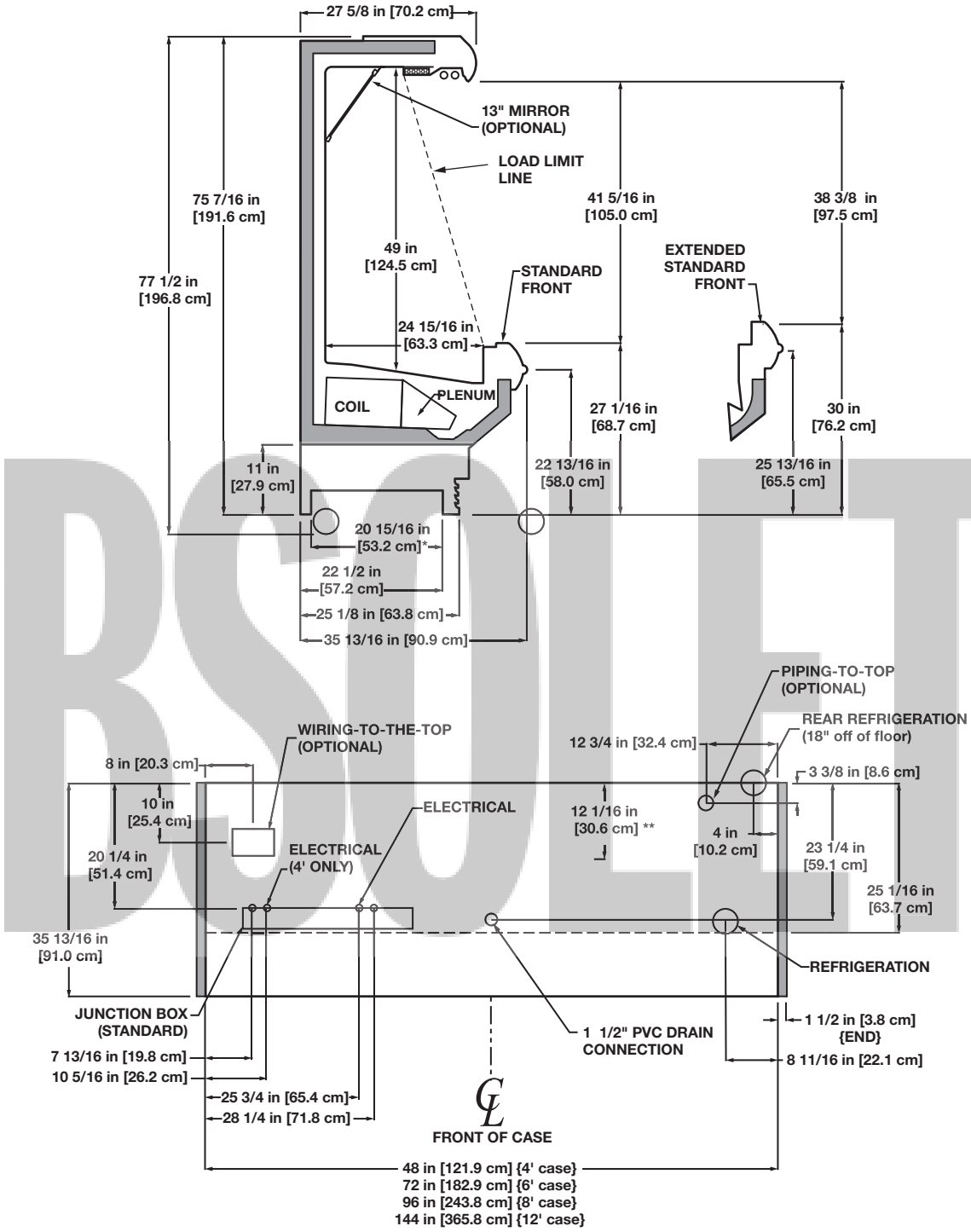
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



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
- BULK PRODUCE, SUCTION LINE (6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- CUT PRODUCE, SUCTION LINE (6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

High Narrow Multi-Deck Produce Merchandiser

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

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters[1] 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	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	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONHPH Cut Produce	1210[4]	Enh.	26	6-8	34	46	330
ONHPH Bulk Produce	825[4]	Enh.	29	6-8	37	47	230

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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

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

Medium Temperature Defrost Schedule

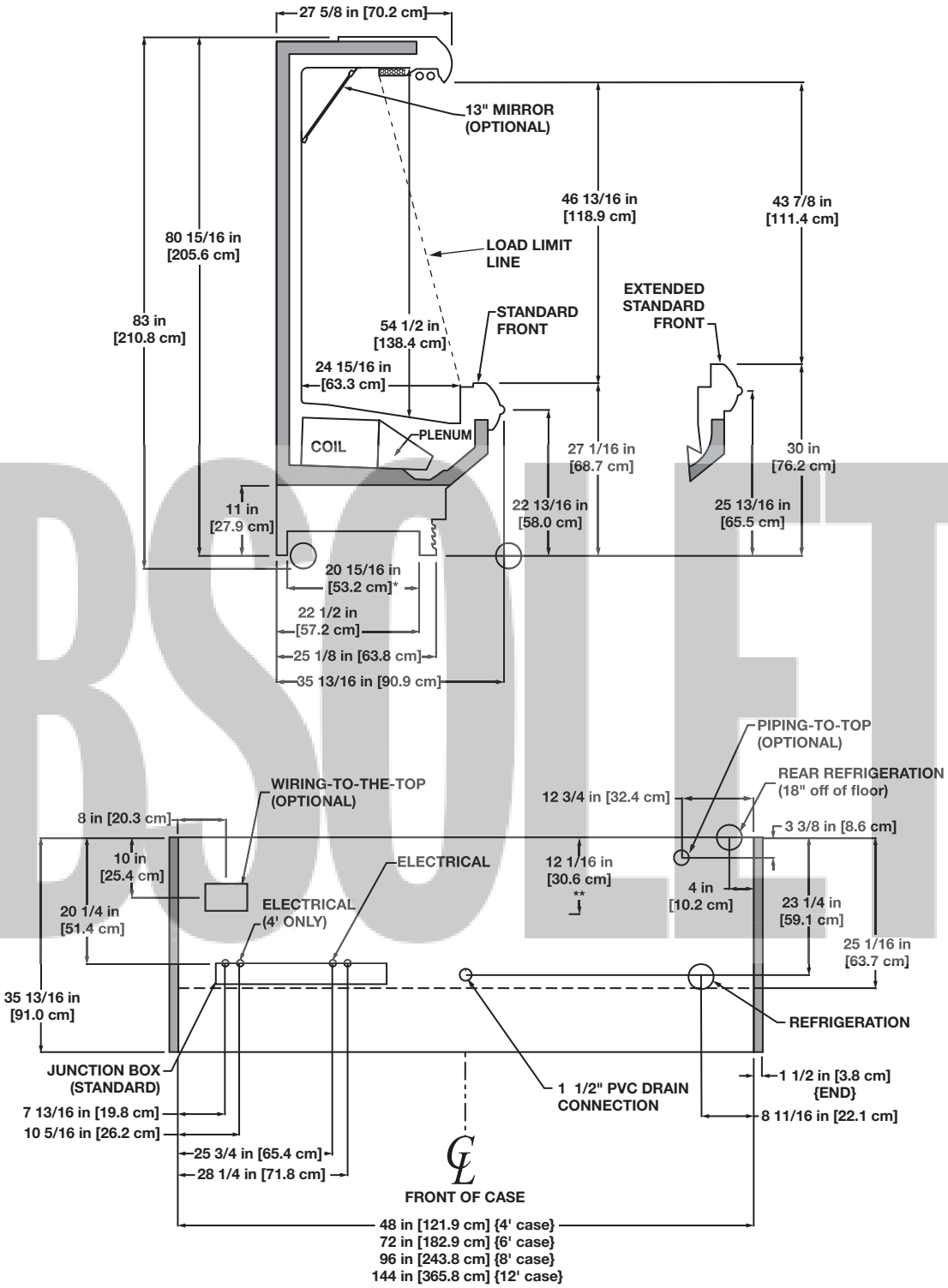
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



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
- BULK PRODUCE, SUCTION LINE (6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- CUT PRODUCE, SUCTION LINE (6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

Multi-Deck Produce Merchandiser

OHP - 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
OHP	4'	2	1.00	60	0.47	28	0.30[1]	36	1.92	400	2.22	532
	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	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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OHP Cut Produce	1103[4]	Enh.	26	6-8	31	45	350
OHP Bulk Produce	743[4]	Enh.	29	6-8	36	48	250

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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

Medium Temperature Defrost Schedule

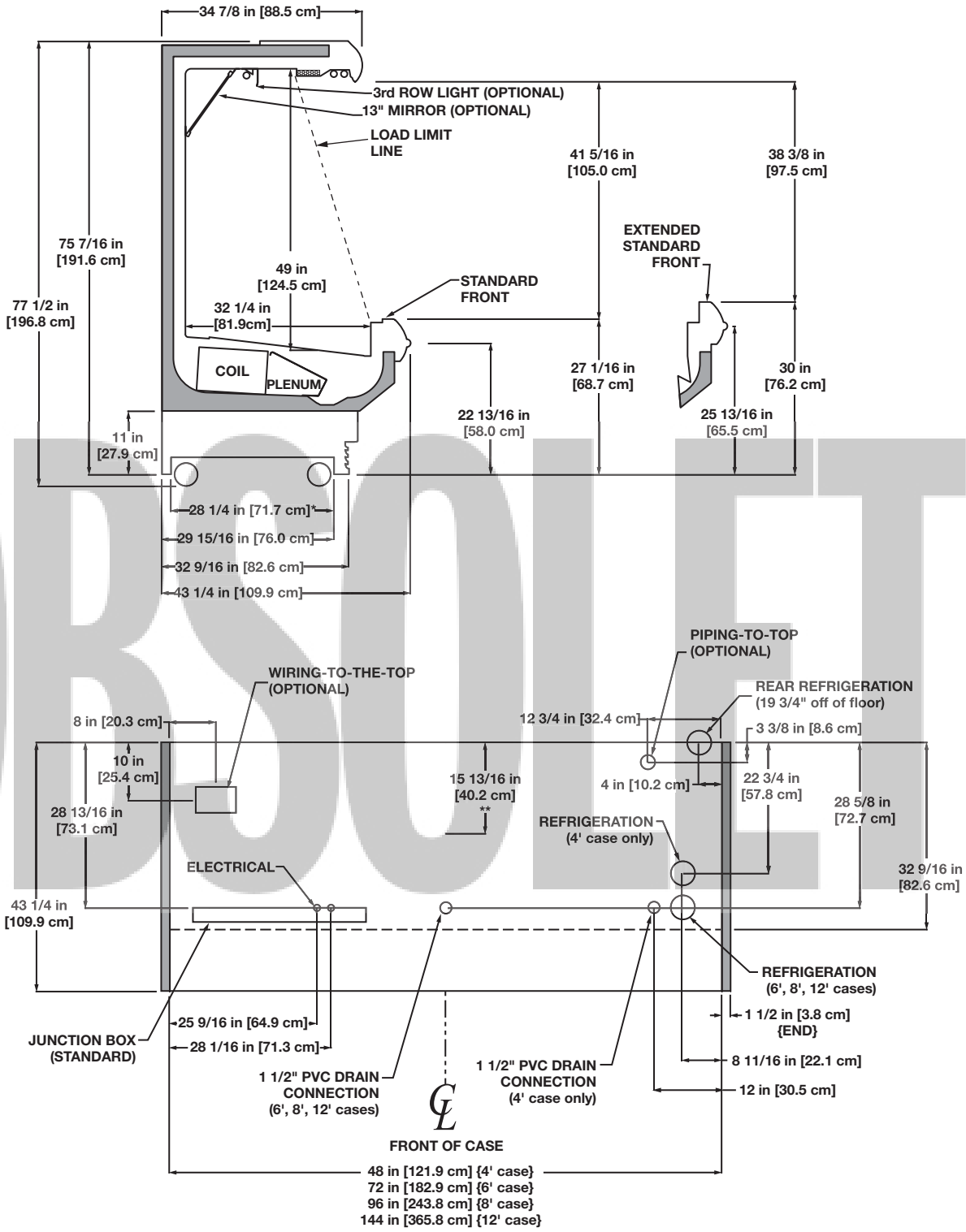
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



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
- BULK PRODUCE, SUCTION LINE (4' & 6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- CUT PRODUCE, SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

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[1]	48	2.88	600	3.33	798
	8'	4	2.00	120	0.93	56	0.58[1]	70	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	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
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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OHPH Cut Produce	1340[4]	Enh.	26	6-8	30	45	330
OHPH Bulk Produce	1095[4]	Enh.	29	6-8	31	45	230

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
OHPH	3	6 - 8	35	47	45	47	26	45	50	45

Medium Temperature Defrost Schedule

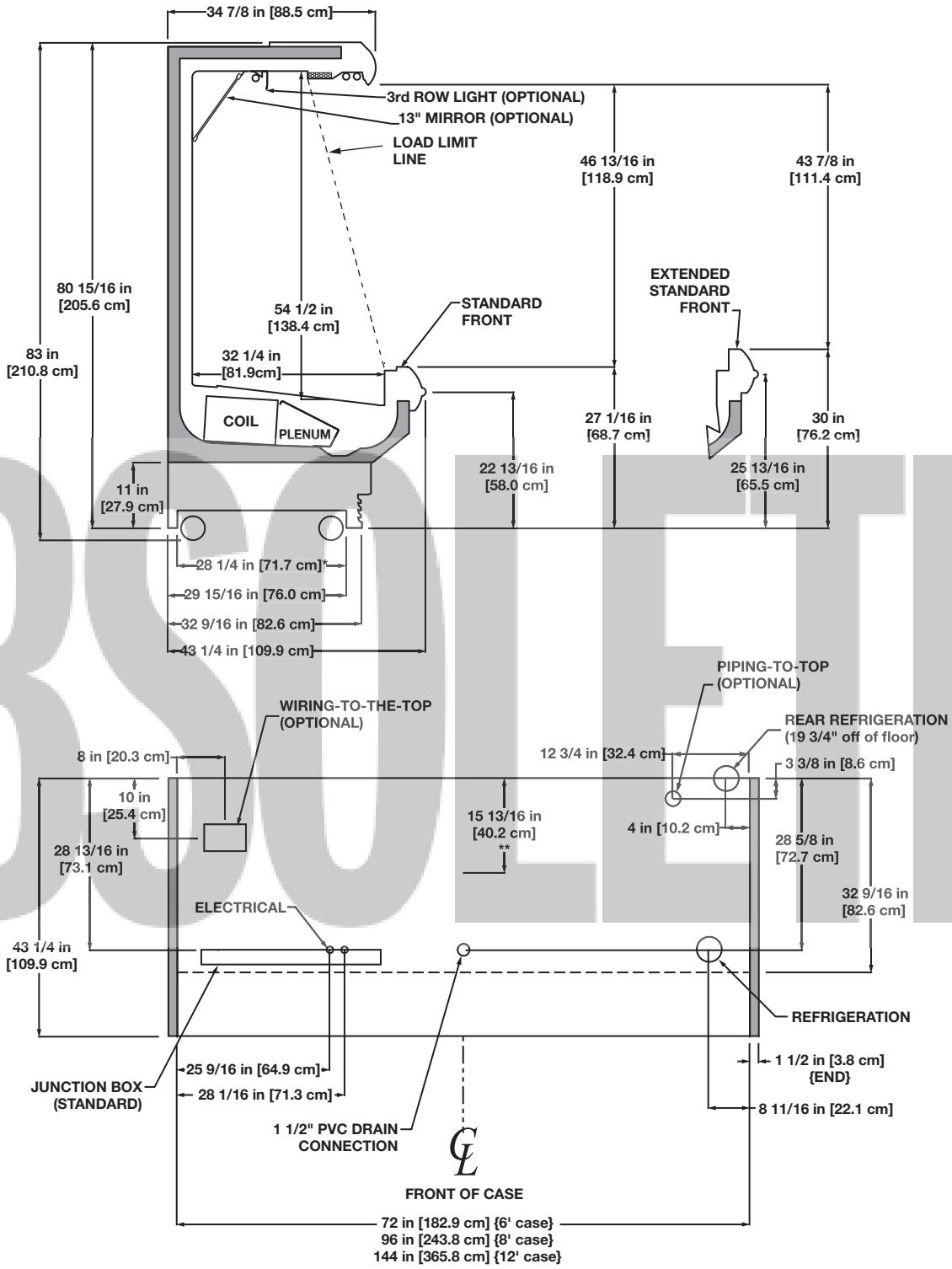
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



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
- BULK PRODUCE, SUCTION LINE (6') - 1/2", SUCTION LINE (8' & 12') - 5/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- CUT PRODUCE, SUCTION LINE (6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18" & 20"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OWHP Cut Produce	1480[4]	Enh.	26	6-8	31	45	350
OWHP Bulk Produce	1008[4]	Enh.	29	6-8	36	48	250

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

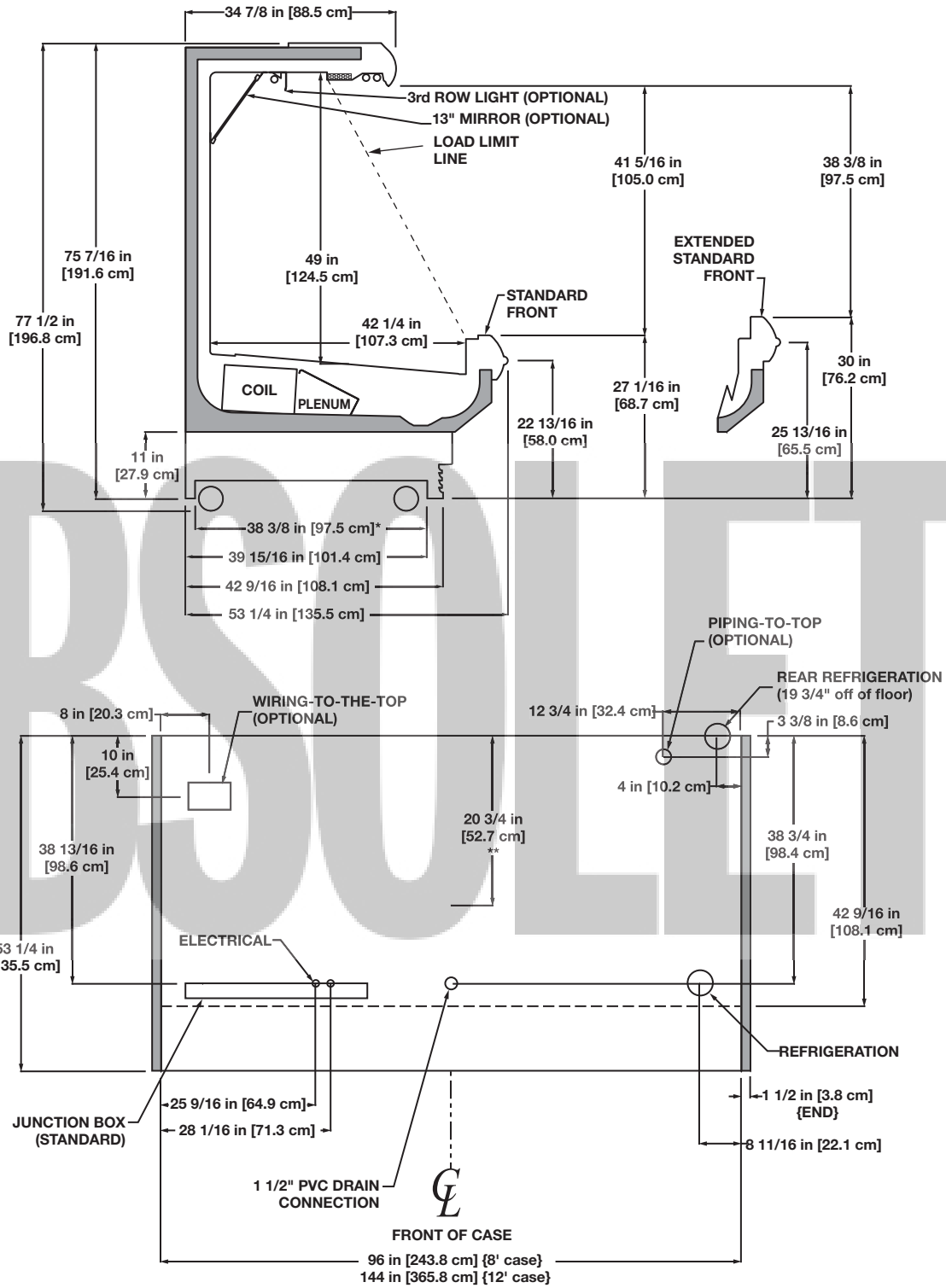
Defrost Controls

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)
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 ARI 1200 - 2002 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
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BULK PRODUCE, SUCTION LINE - 5/8", LIQUID LINE - 3/8"
- CUT PRODUCE, SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20" & 22"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

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[1]	70	3.85	800	4.44	1065
	12'	5	2.50	150	1.17	70	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
OWHPH	8'	2	4'	0.47	56	3.73	448
	12'	3	4'	0.70	84	5.60	672

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OWHPH Cut Produce	1793[4]	Enh.	26	6-8	30	45	330
OWHPH Bulk Produce	1472[4]	Enh.	29	6-8	31	45	230

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

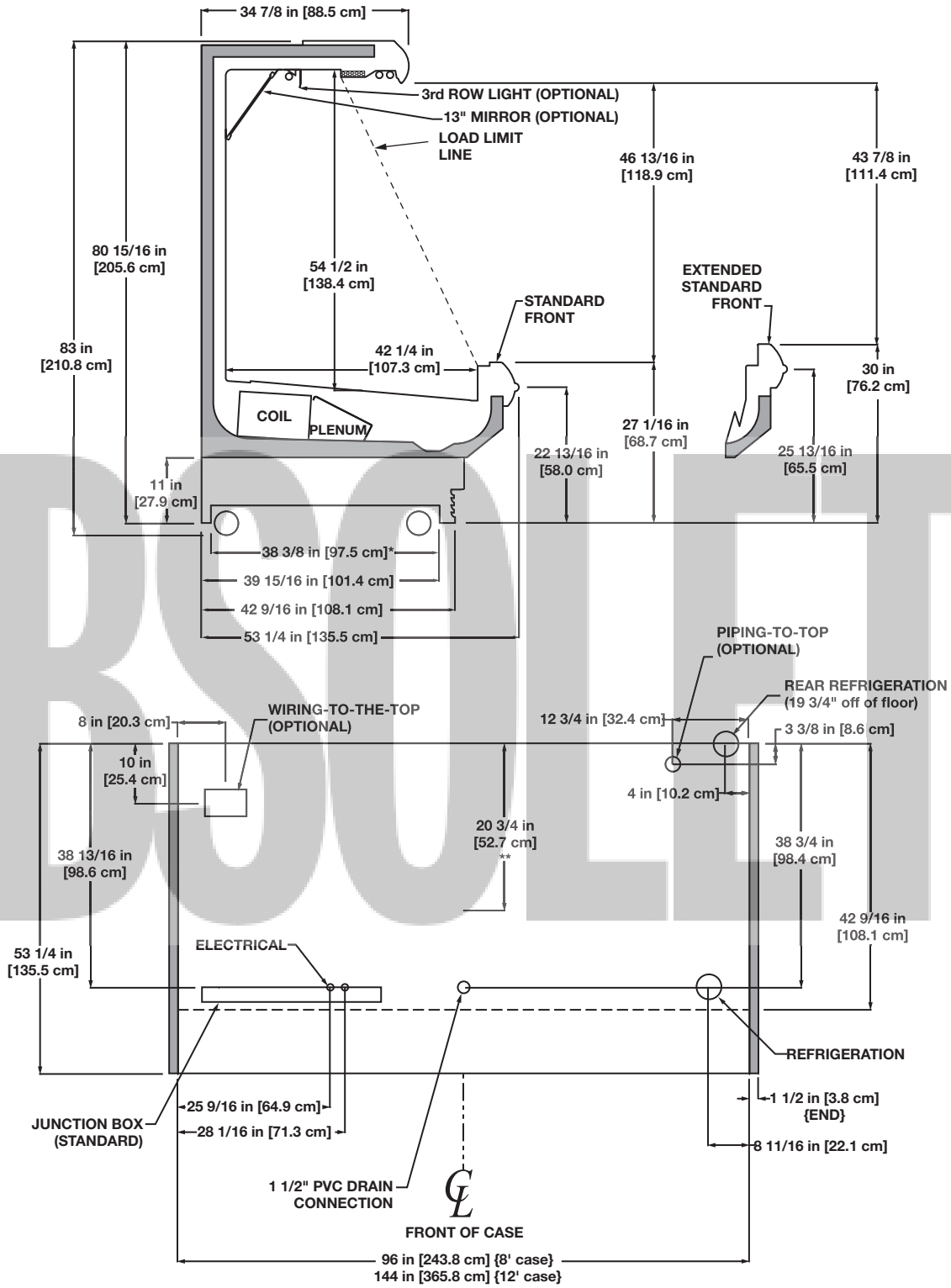
Defrost Controls

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)
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 ARI 1200 - 2002 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
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- BULK PRODUCE, SUCTION LINE - 5/8", LIQUID LINE - 3/8"
- CUT PRODUCE, SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16", 18", 20" & 2
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE2"

Narrow Multi-Deck Self-Contained Dairy Merchandiser
ONNA

System Requirements

Model	Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Overcurrent Protection
ONNA-47”	120	1	60	2 wire + ground	23.63	45

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	Condenser Fan 120 Volts Amps	Condenser Fan 120 Volts Watts	Drain Pump 120 Volts Amps	Drain Pump 120 Volts Watts	Evap. Pan Heater 120 Volts Amps	Evap. Pan Heater 120 Volts Watts	Maximum Lights 120 Volts Amps	Maximum Lights 120 Volts Watts
ONNA	47”	3	1.02	51	0.85	88	0.9	54	8.34	1000	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[1] (FPM)
ONNA-47”	37.2	19.9	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”	120	1	60	1/2	12.9	66.3	R134A	2

2 RLA - Running Load Amps.
3 LRA - Locked Rotor Amps.

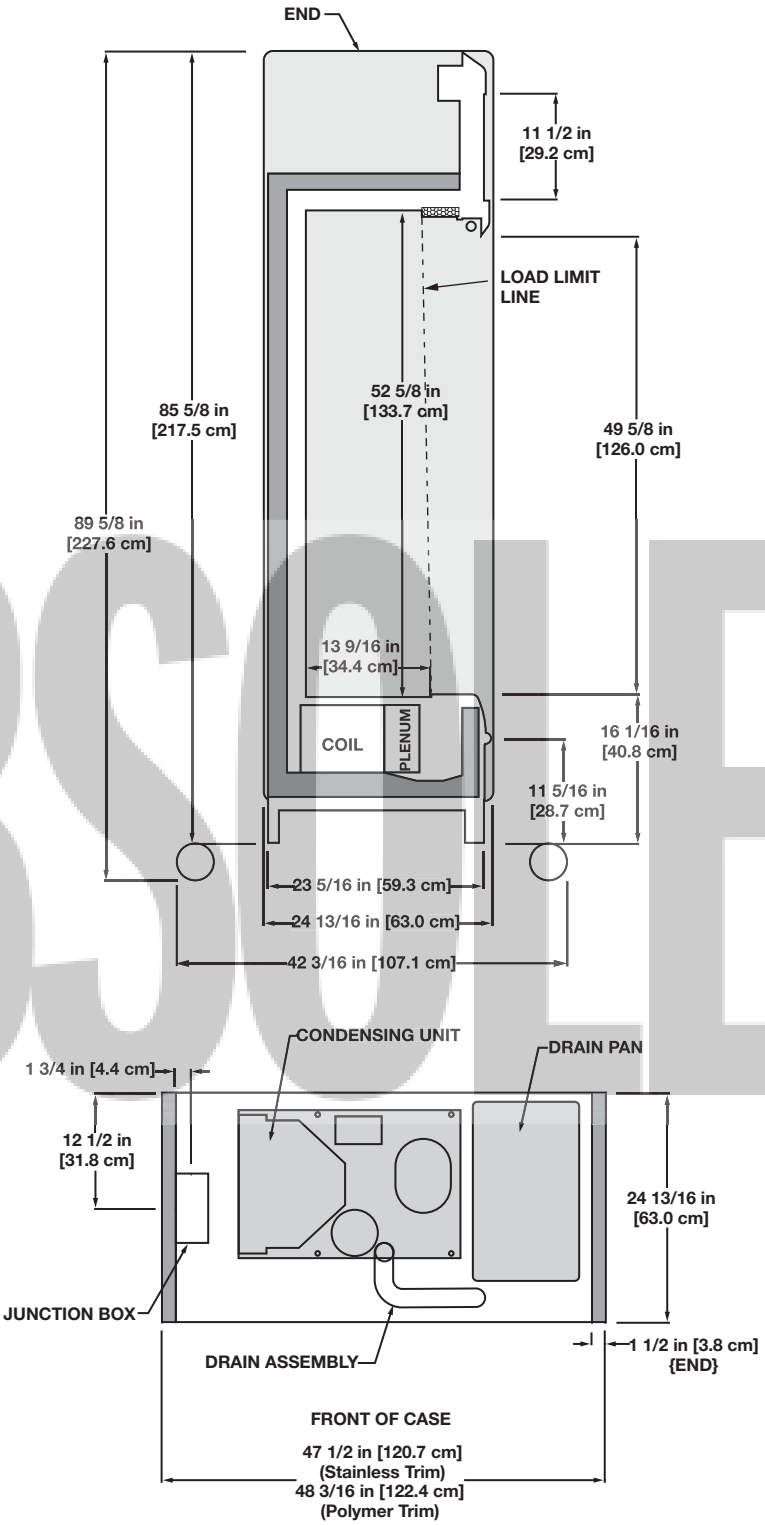
Defrost Controls

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	6	- - -	- - -	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 ARI 1200 - 2002 specifications.



NOTES:

- **A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL**
- **ENDS ARE ALSO AVAILABLE IN 1" WIDTHS**
- **AVAILABLE SHELF SIZES: 12"**

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	[3,4]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ONU[2]	1322[5]	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 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

Defrost Controls

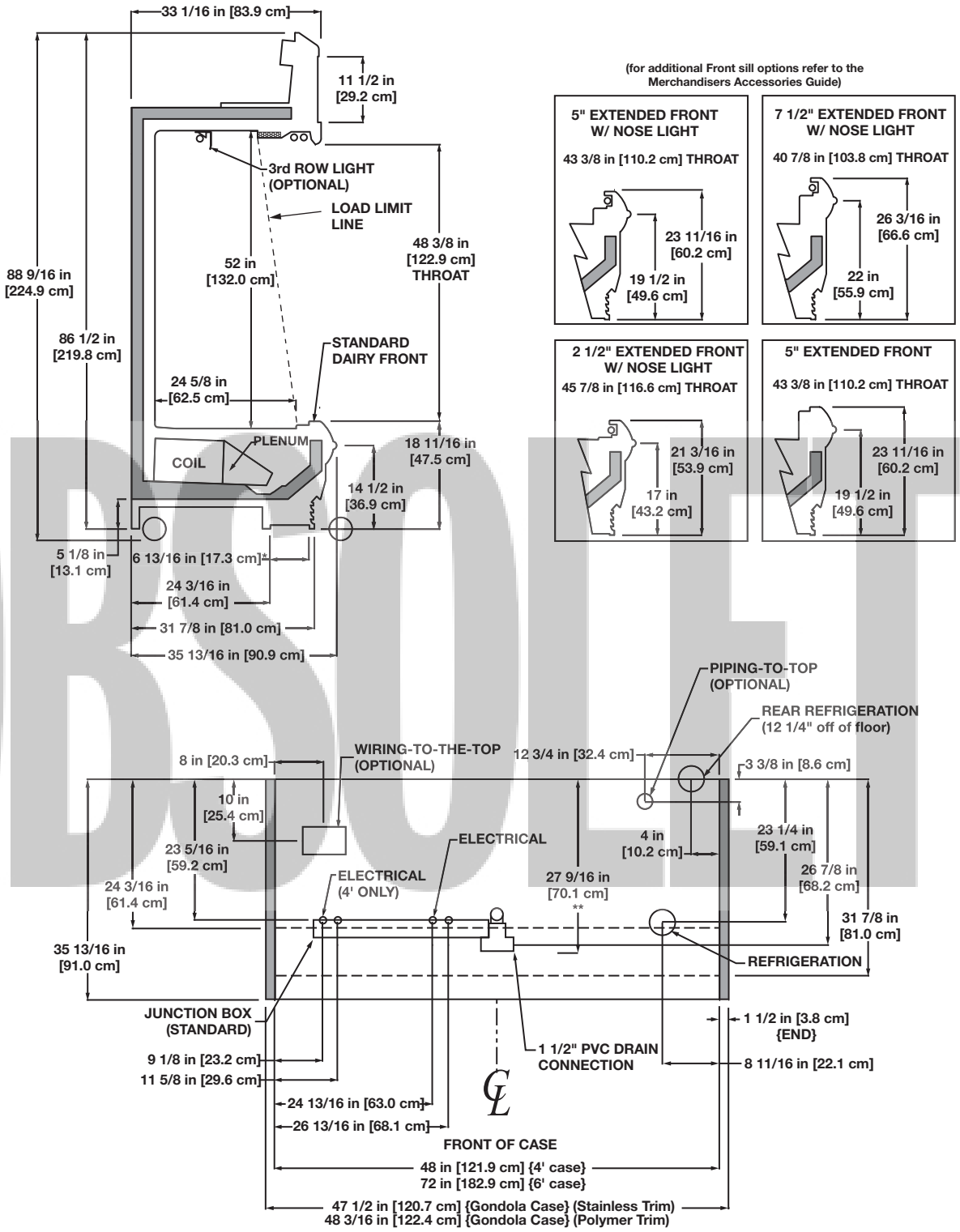
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONU	4	6 - 8	35	47	45[7]	47[7]	25	45	- - -	- - -

7 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 ARI 1200 - 2002 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
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE - 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

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 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
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

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

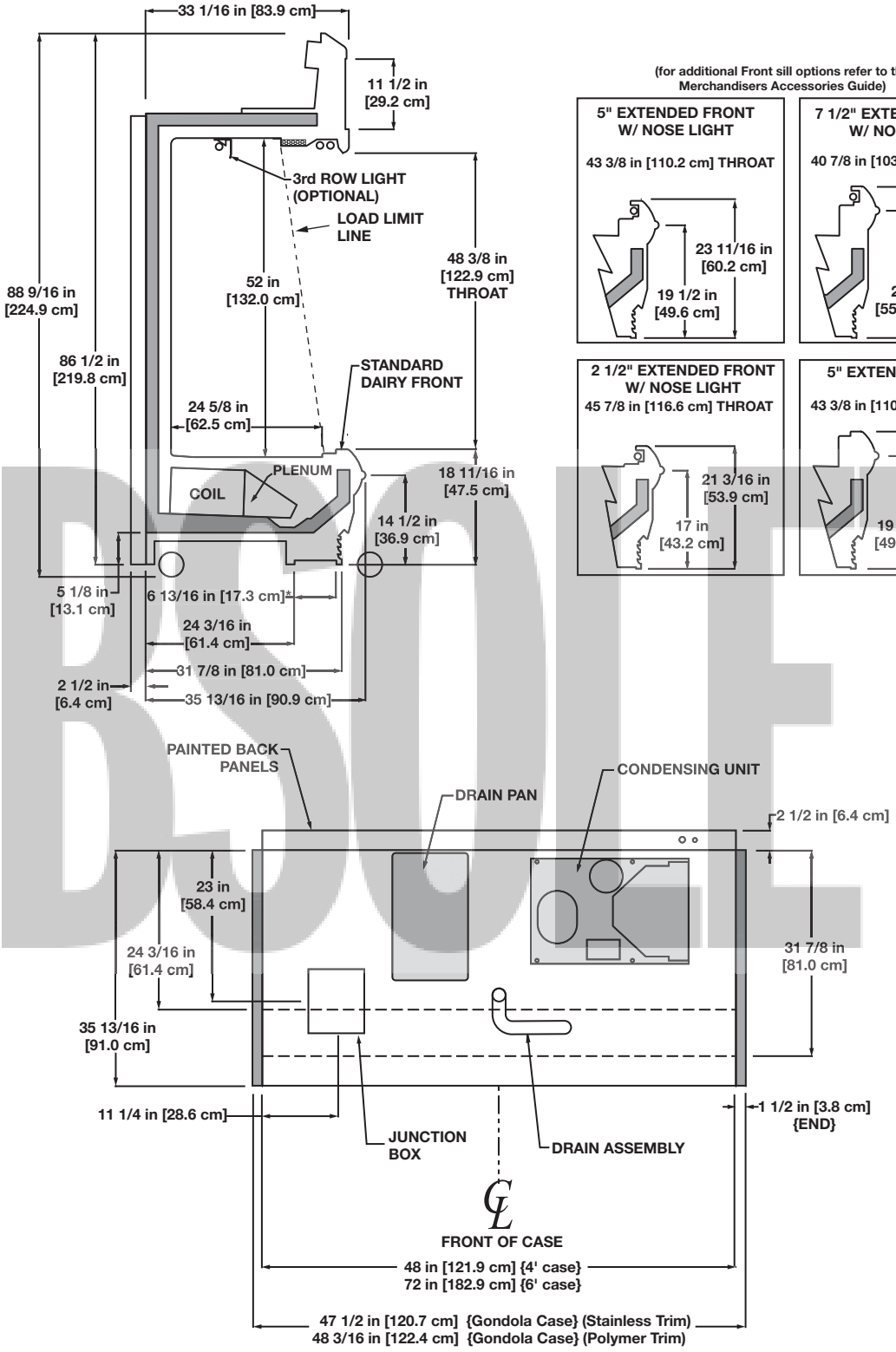
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination 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 ARI 1200 - 2002 specifications.



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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ORDR[1]	659[4]	17	6-8	28	44	310

1 Back-up coils with a capacity of 1666 BTUH/ft at a suction temperature of 20ºF 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. The cooler box must have a maximum temperature of no more than 34ºF.

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

Defrost Controls

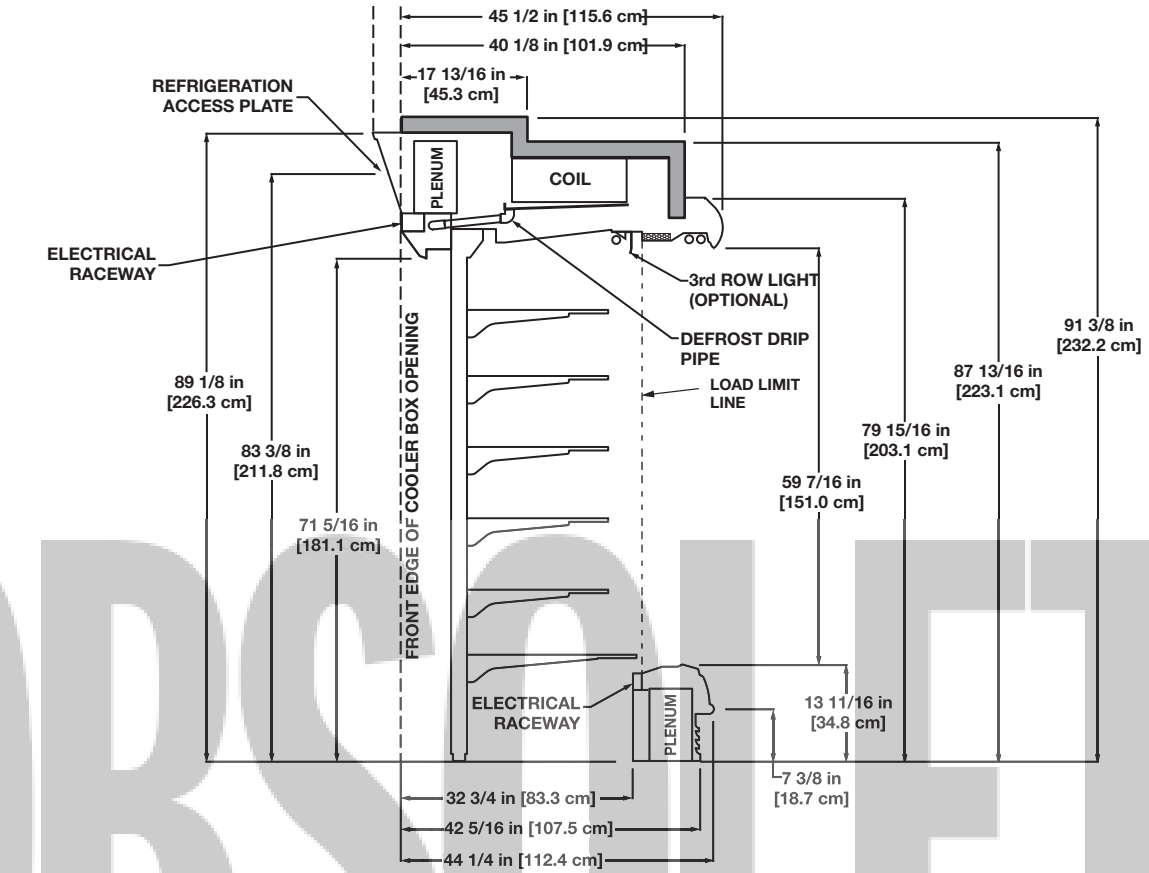
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
ORDR	4	6 - 8	30	47	30	47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

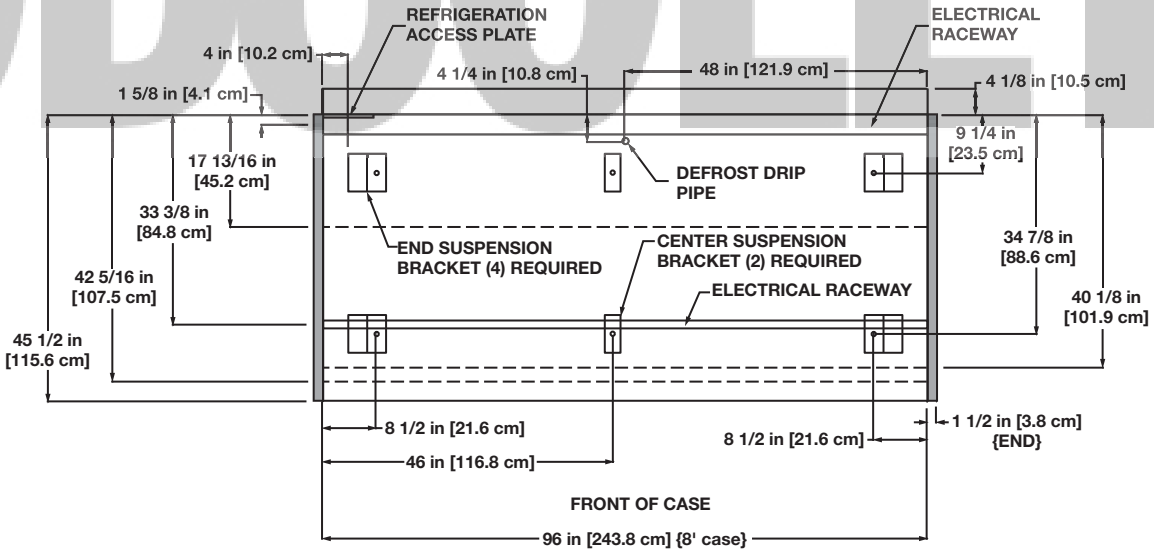
6 NOTE: "- - -" not an option on this case model.

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

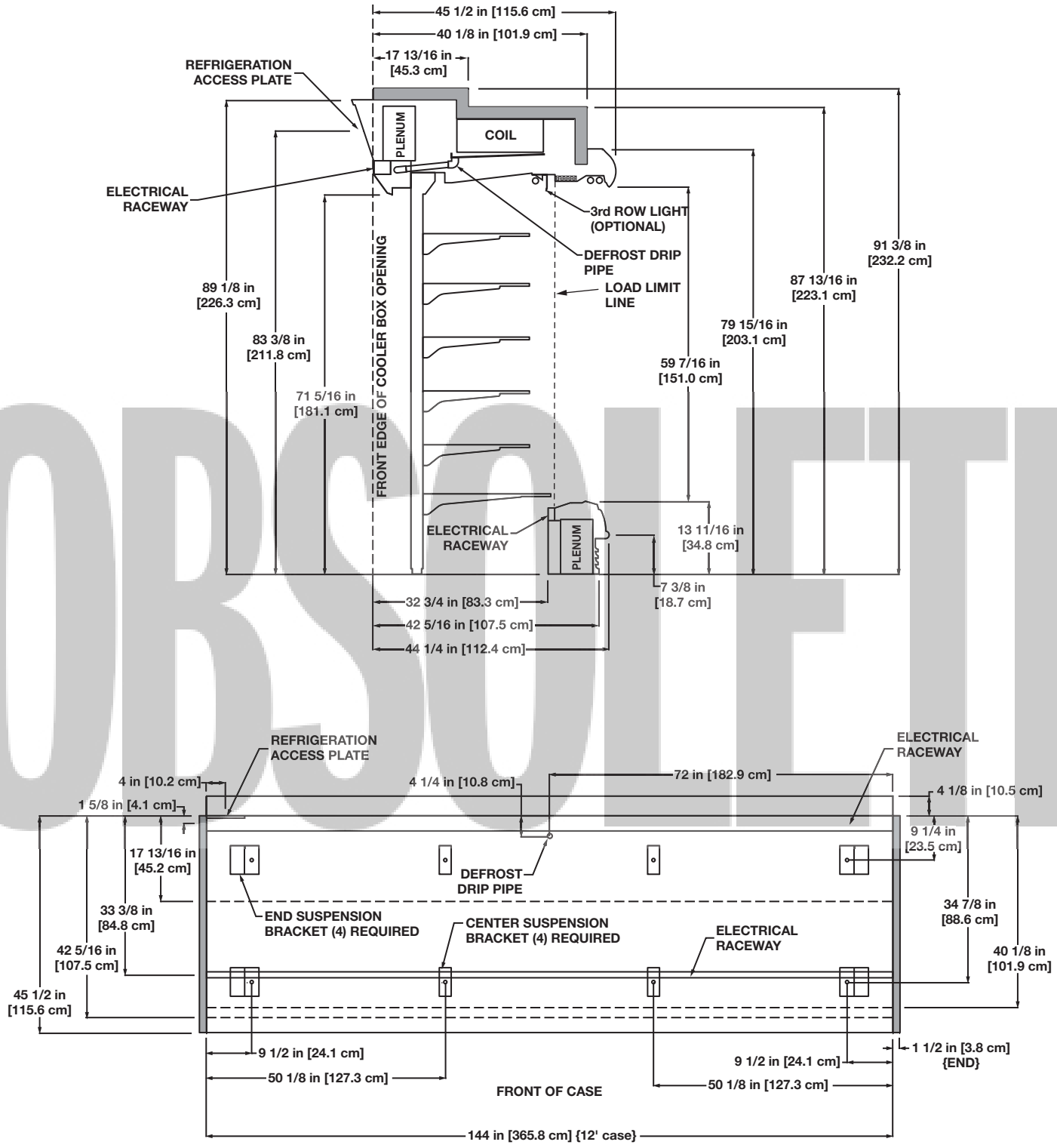
All measurements are taken per ARI 1200 - 2002 specifications.





NOTES:

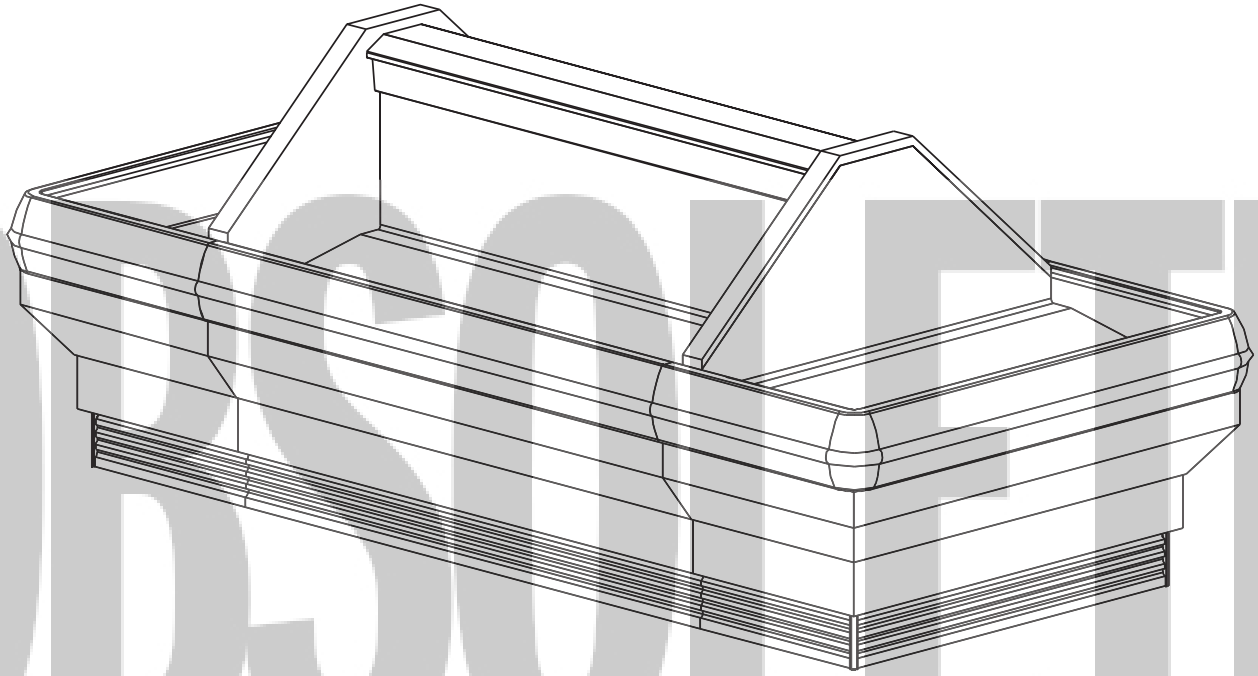
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 20" & 24"
- RECOMMENDED CONFIGURATION IS 5 ROWS OF 20" SHELVES WITH 1 ROW OF 24"SHELVES IN THE LOWEST POSITION



NOTES:

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 20" & 24"
- RECOMMENDED CONFIGURATION IS 5 ROWS OF 20" SHELVES WITH 1 ROW OF 24"SHELVES IN THE LOWEST POSITION

END CAPS



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8" per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

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	[2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONEMZ	1608[3]	Std.	0	3-5	11	22	120

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.07.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

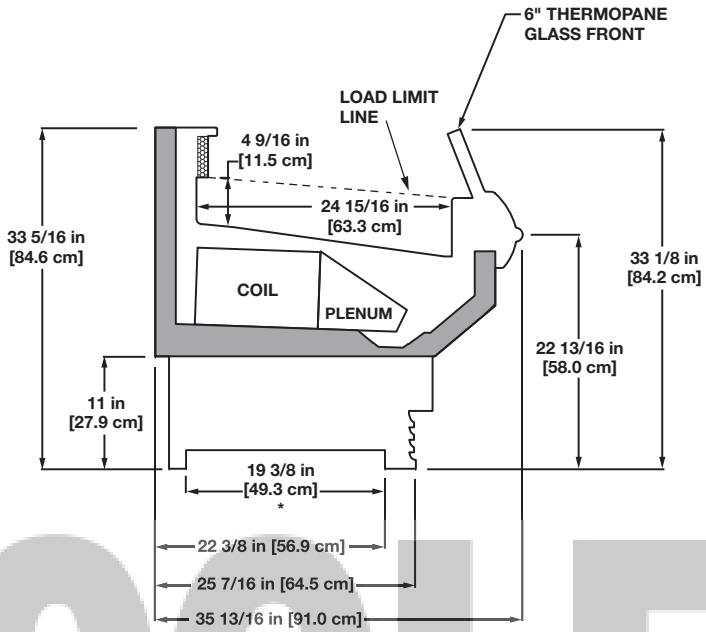
Defrost Controls

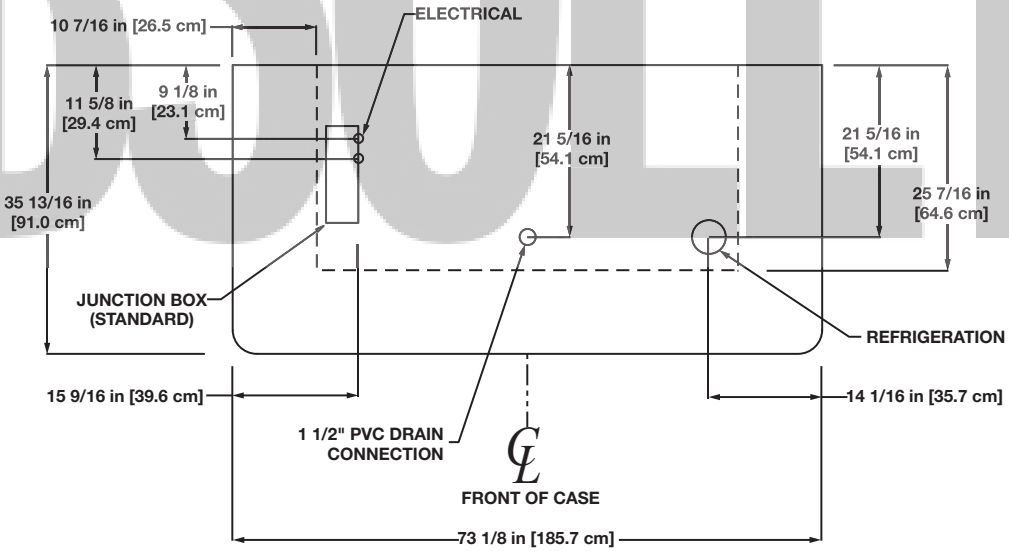
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse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

All measurements are taken per ARI 1200 - 2002 specifications.



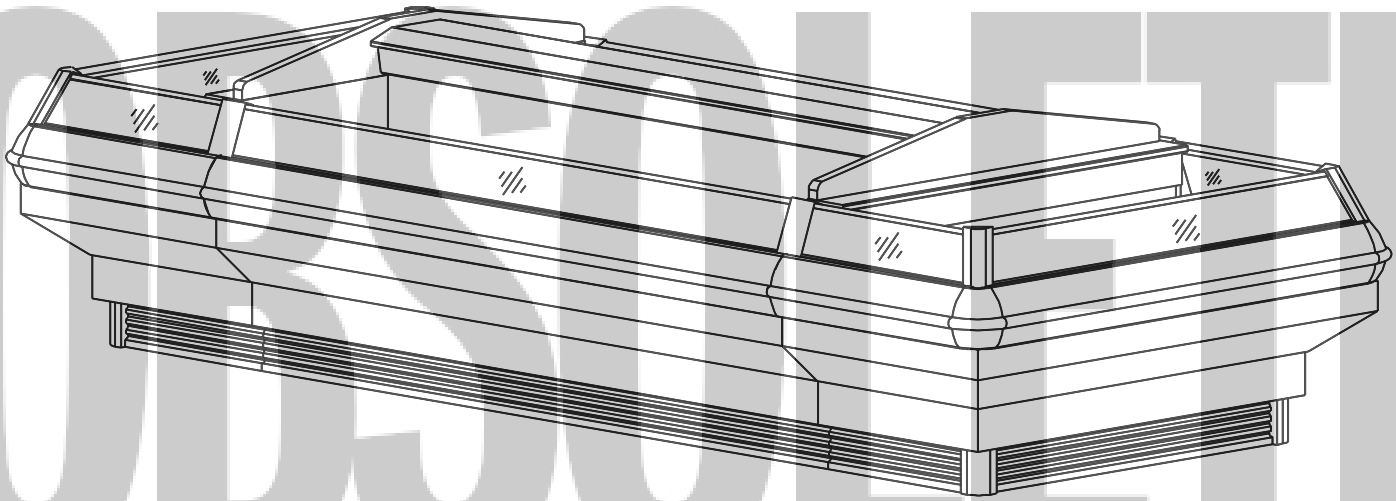


NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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



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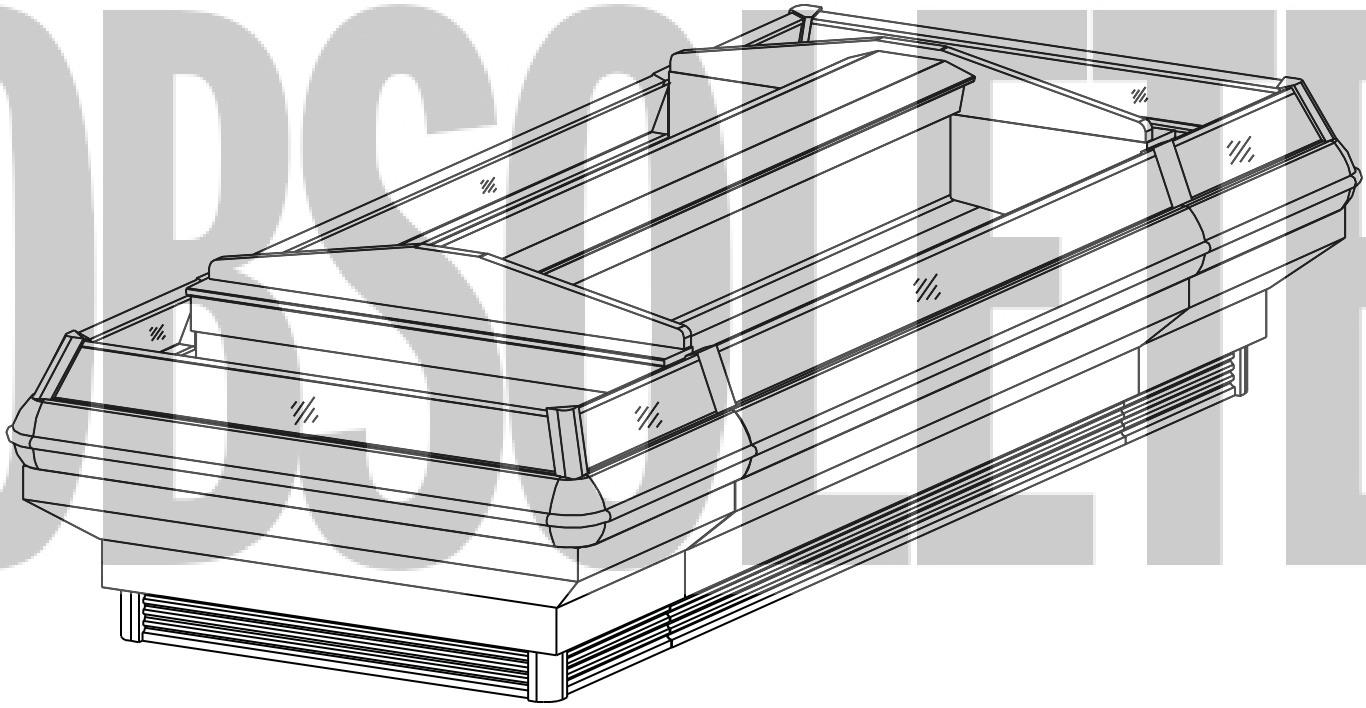


Single Deck Deli/Meat End Cap Merchandiser
OEM

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	[2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OEM	2726[3]	Enh.	22	6-8	29	37	232

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.06.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

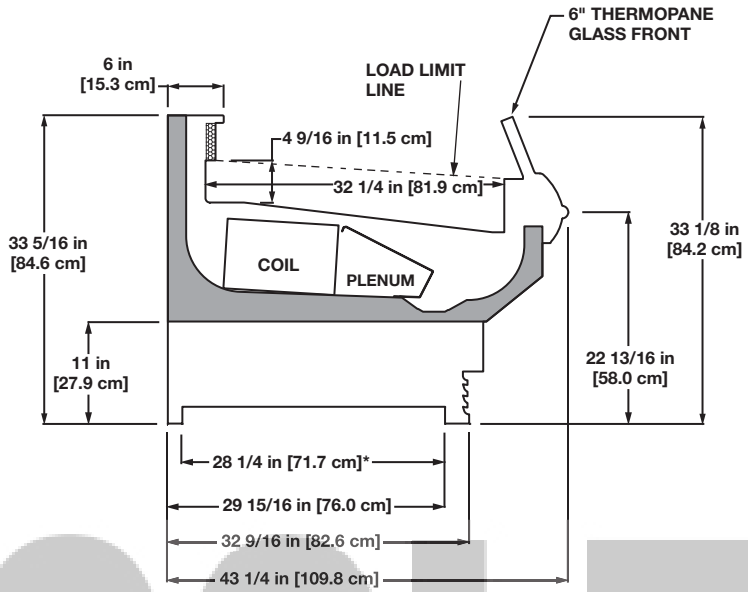
Defrost Controls

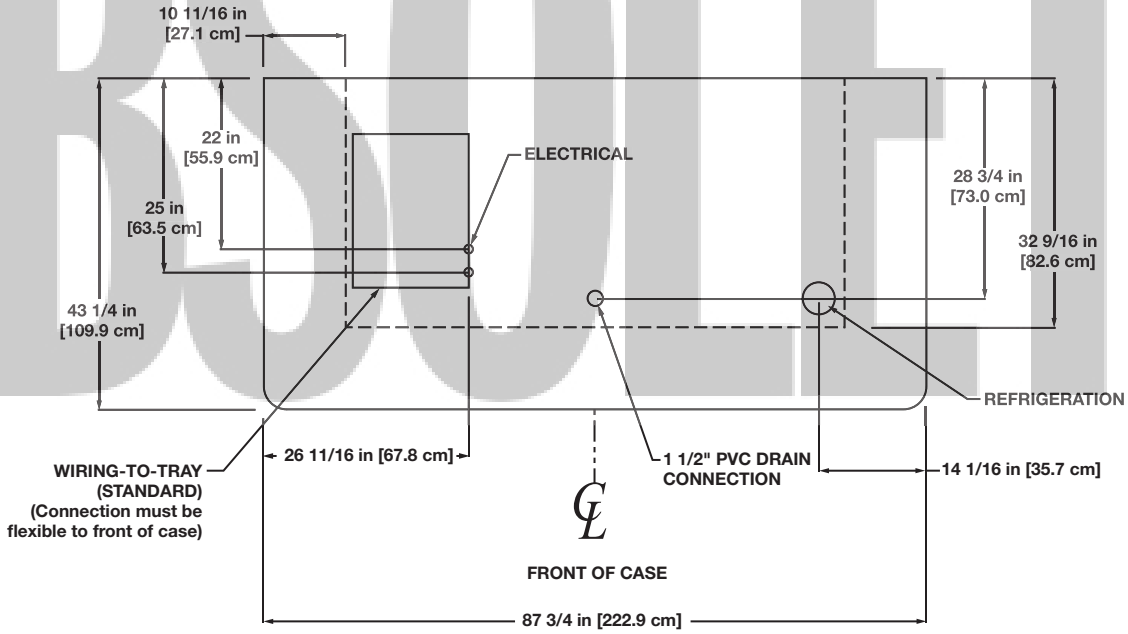
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse 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 ARI 1200 - 2002 specifications.



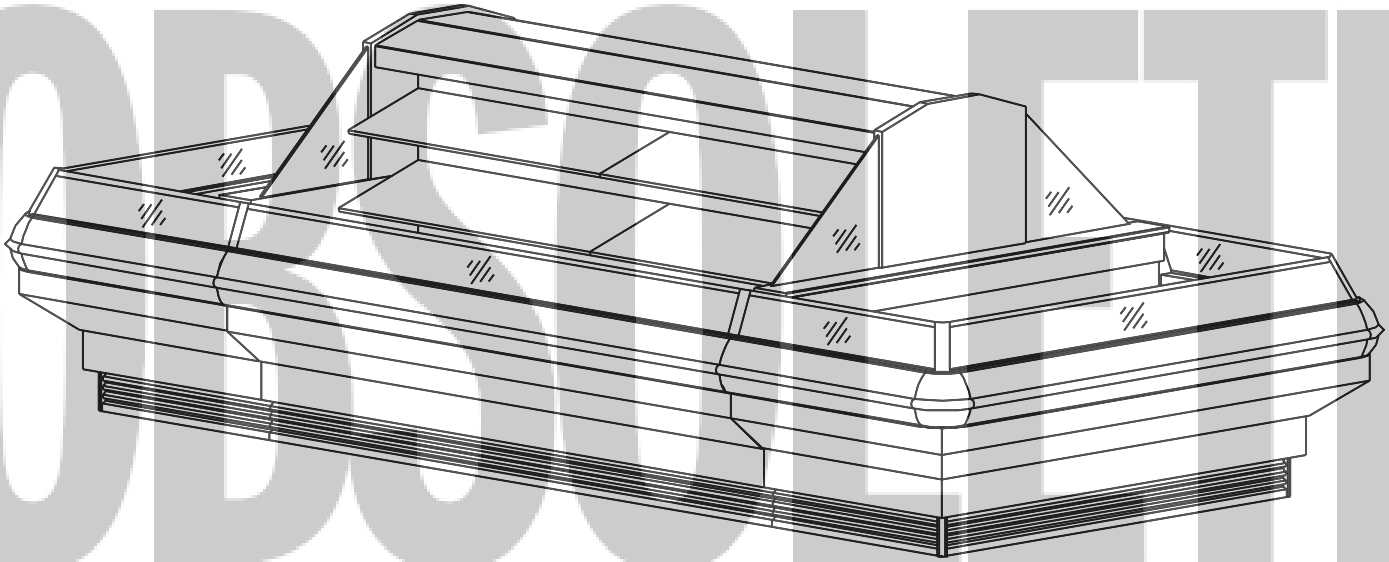


NOTES:

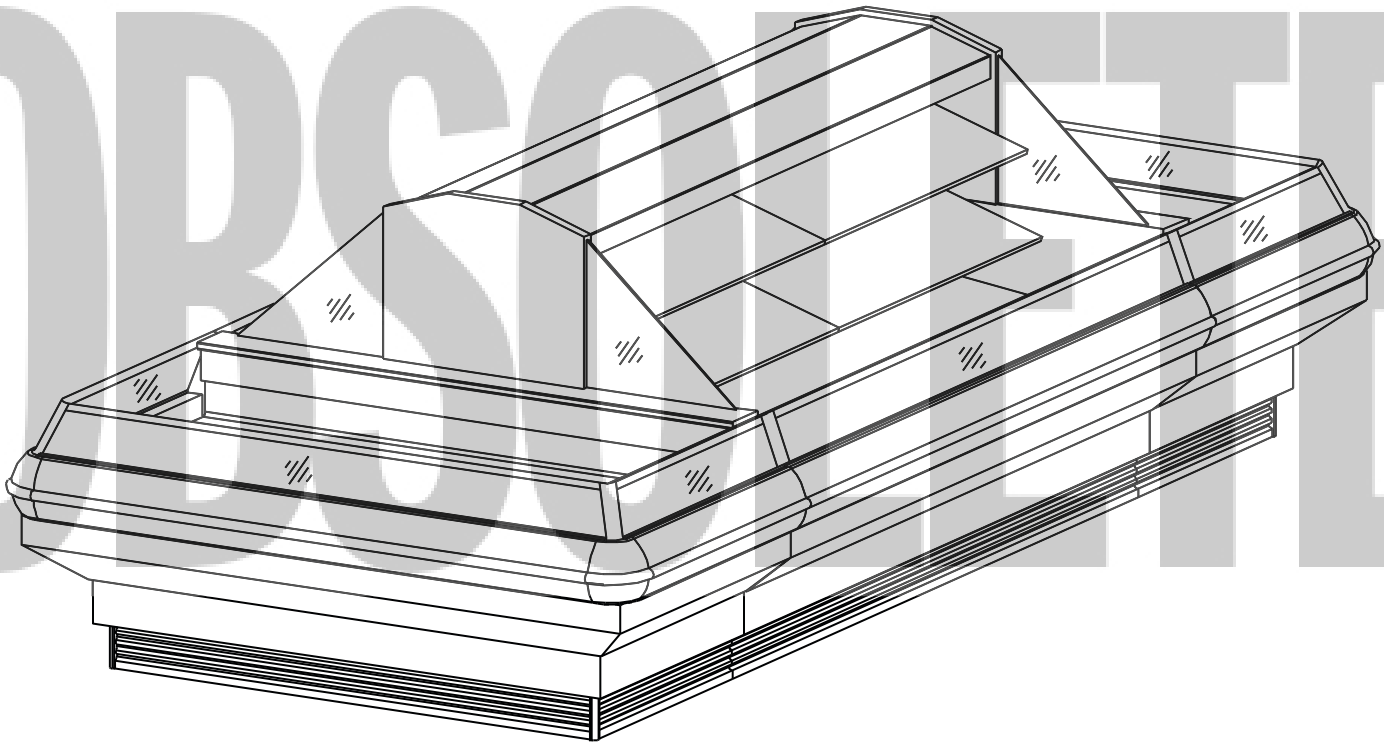
* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 3/8"

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



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



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

Guidelines & Control Settings

Model	[1,2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON3EM	5648[3]	Enh.	22	6-8	33	45	275

1 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

2 Listed case BTUH/ft indicates unlighted shelves. Add 100BTUH per 5' lighted shelf, 80 BTUH per 4' lighted shelf, and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

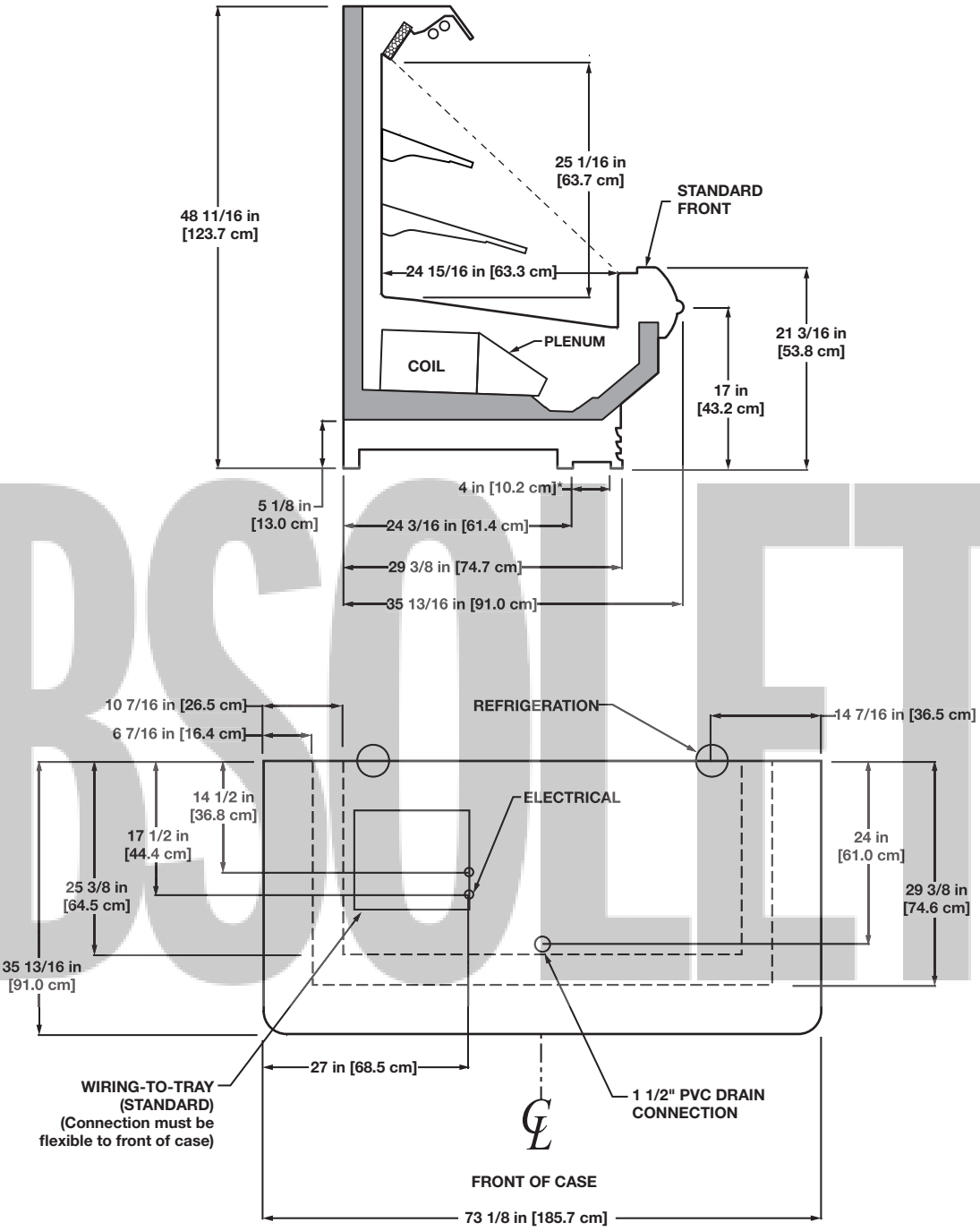
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ON3EM	4	6 - 8	40	47	45	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 ARI 1200 - 2002 specifications.

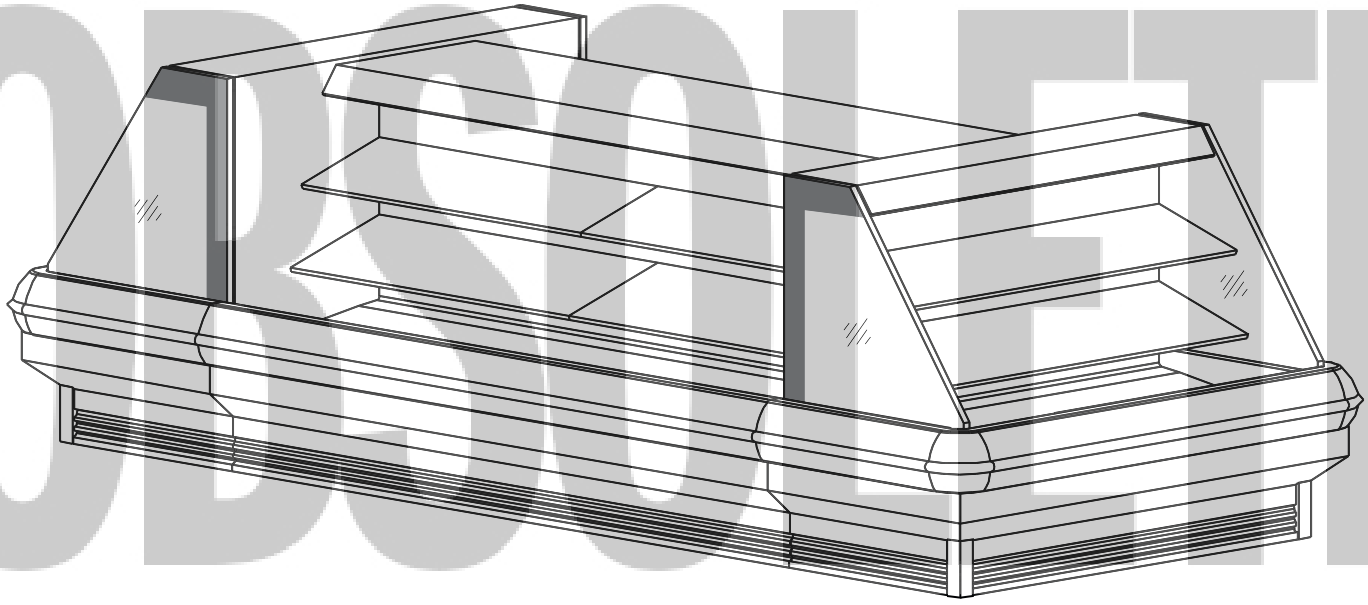


NOTES:

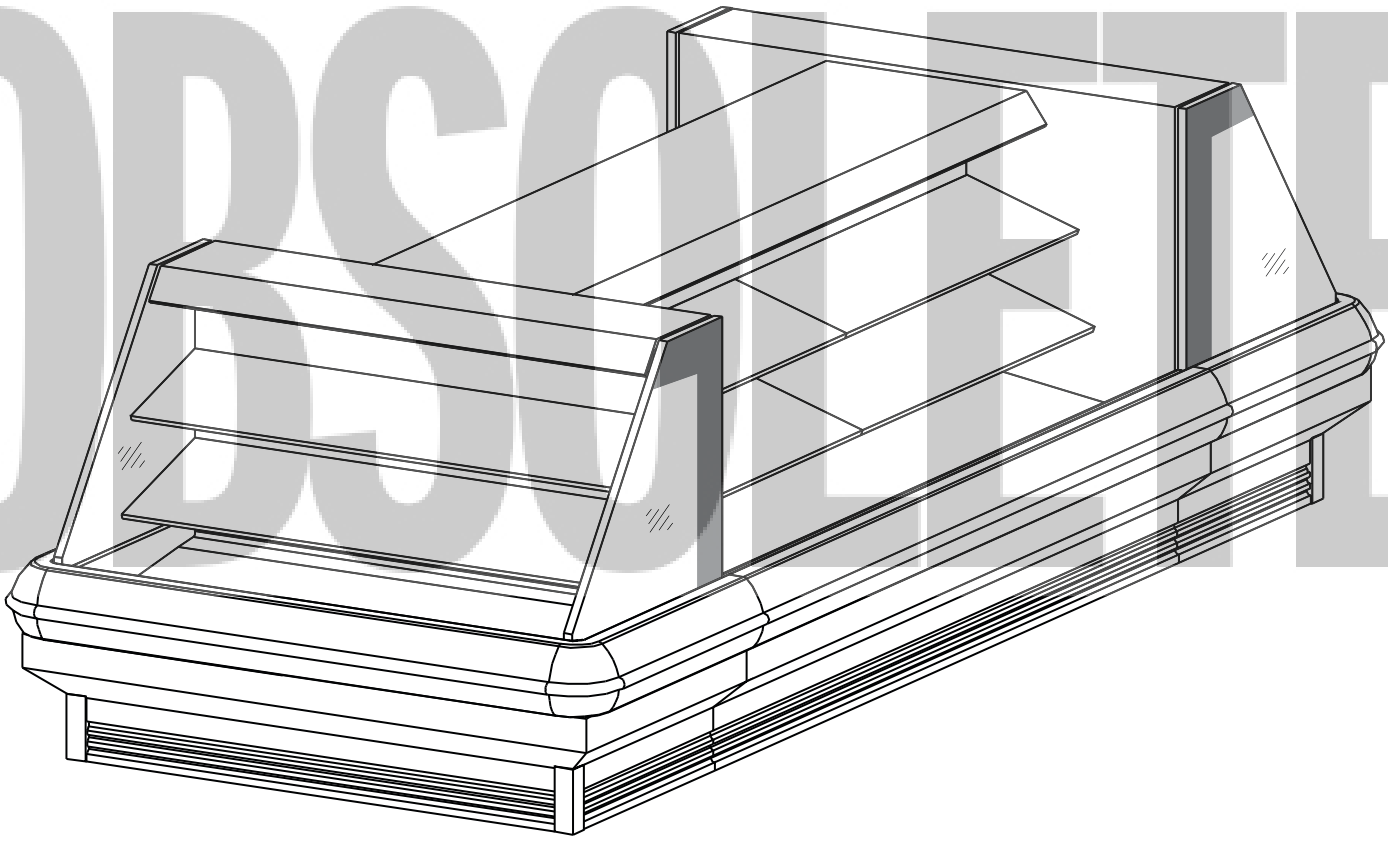
* STUB-UP AREA

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

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



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



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

Guidelines & Control Settings

Model	[1,2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3EM	6388[3]	Enh.	22	6-8	33	45	275

1 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

2 Listed case BTUH/ft indicates unlighted shelves. Add 100BTUH per 5' lighted shelf, 80 BTUH per 4' lighted shelf, and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

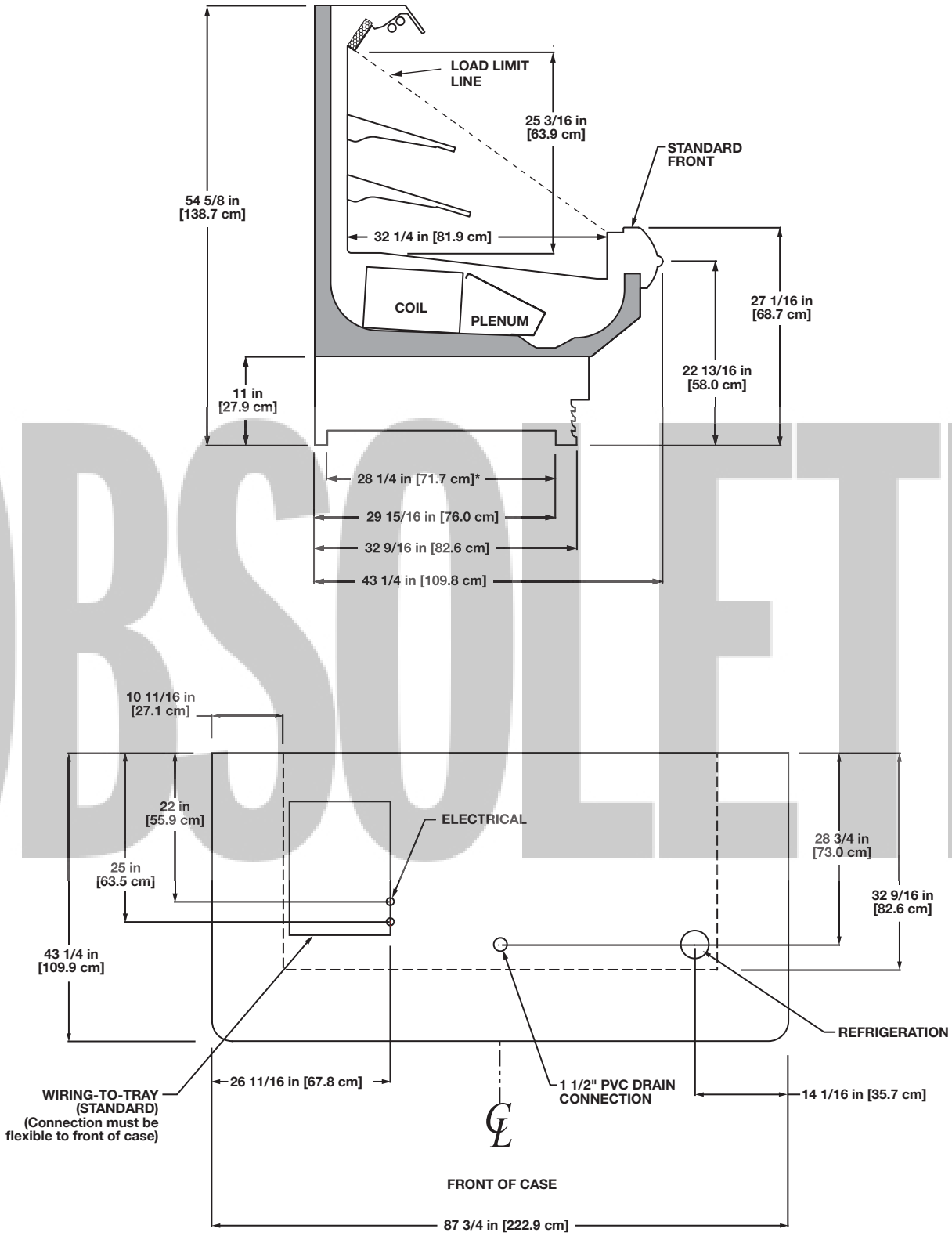
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
O3EM	4	6 - 8	40	47	45	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 ARI 1200 - 2002 specifications.



NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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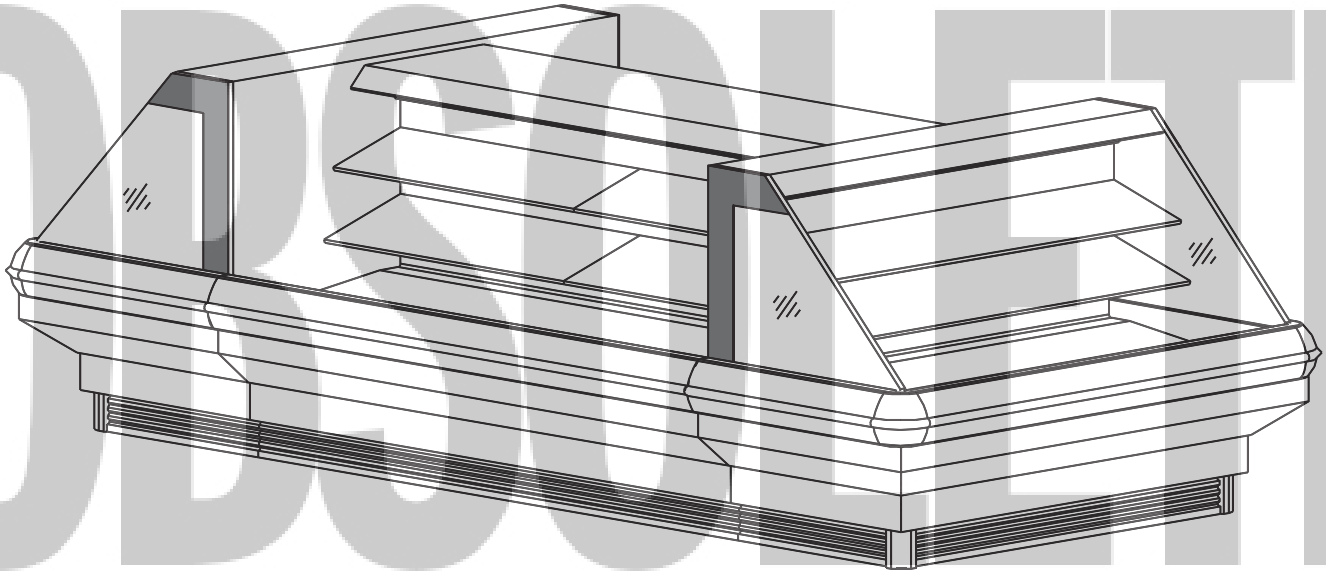
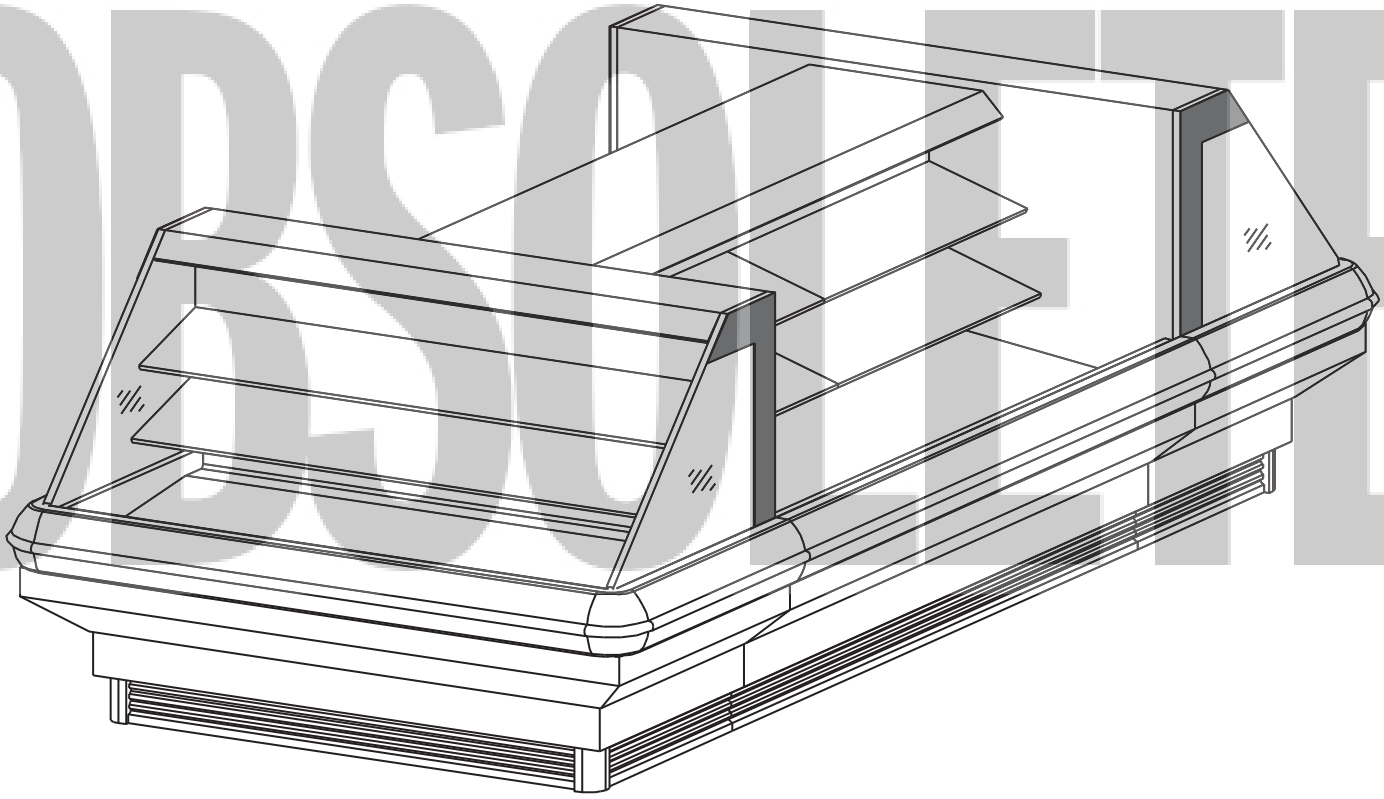
The O3EMs shown below are unitized with two O3UM-8'cases with lighted rear sills, standard fronts, and 14" & 16" shelves.



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



Narrow Multi-Deck Deli/Meat End Cap Merchandiser
ON3.5EM

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
ON3.5EM	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
ON3.5EM	1	5'	0.28	34	1.42	170

Guidelines & Control Settings

Model	[1,2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON3.5EM	6668[3]	Enh.	22	6-8	33	45	275

1 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

2 Listed case BTUH/ft indicates unlighted shelves. Add 100BTUH per 5' lighted shelf, 80 BTUH per 4' lighted shelf, and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ON3.5EM	4	6 - 8	40	47	45	45	- - -[4]	- - -	- - -	- - -

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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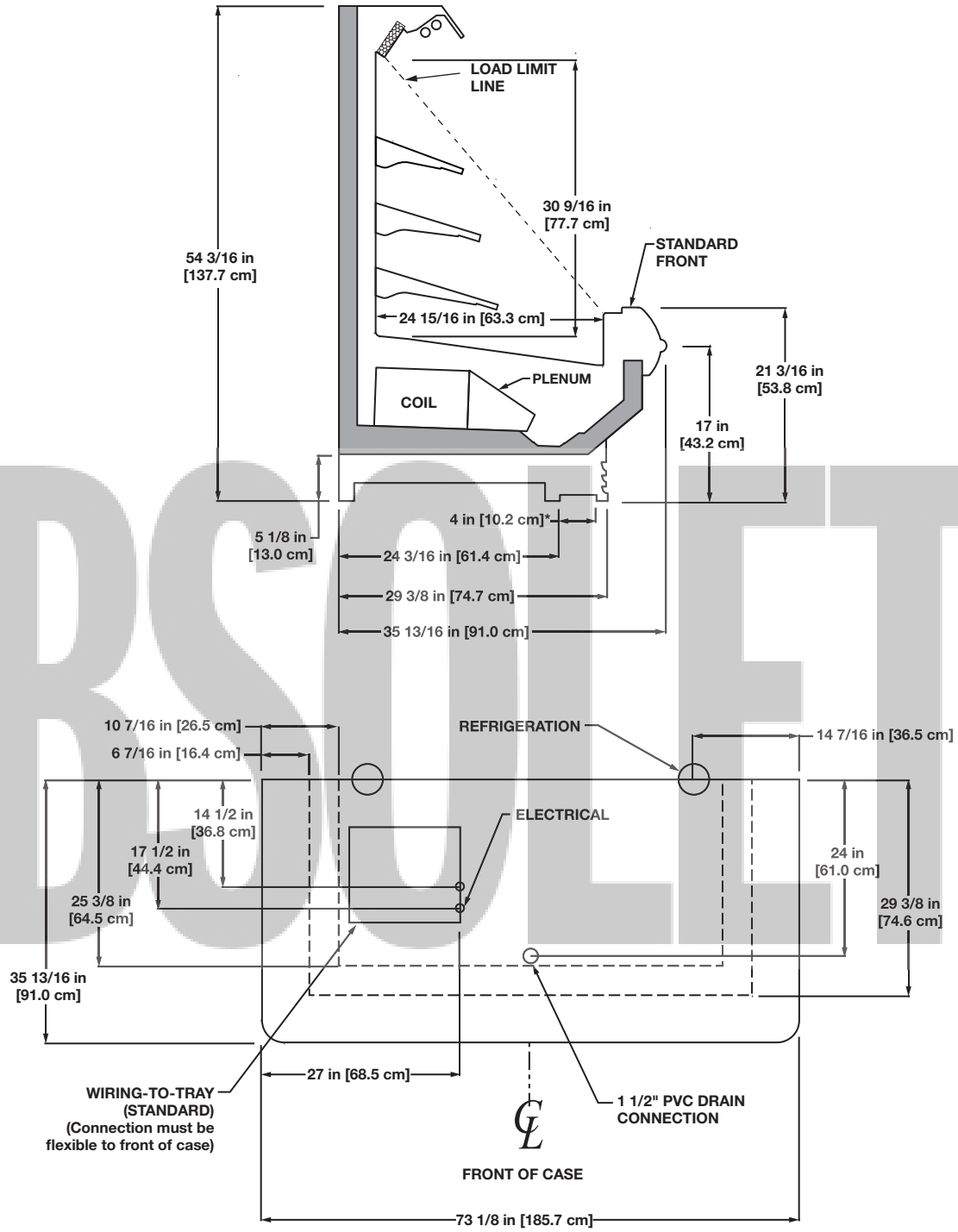
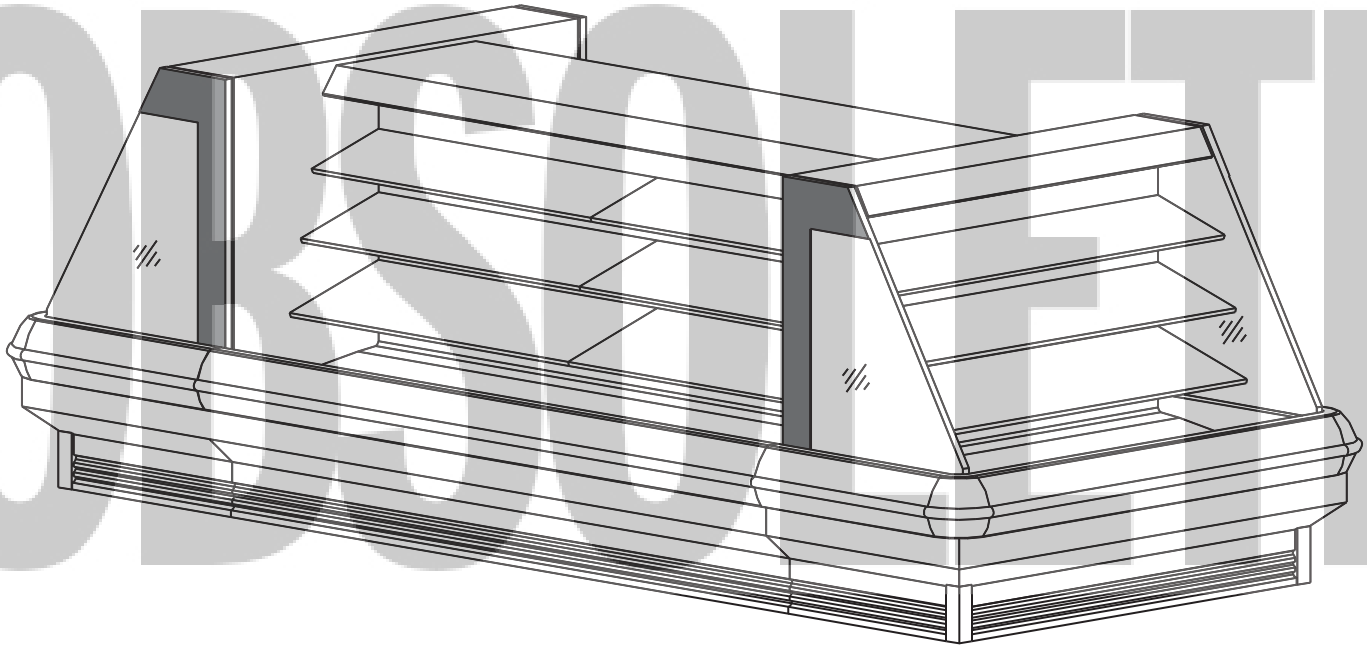


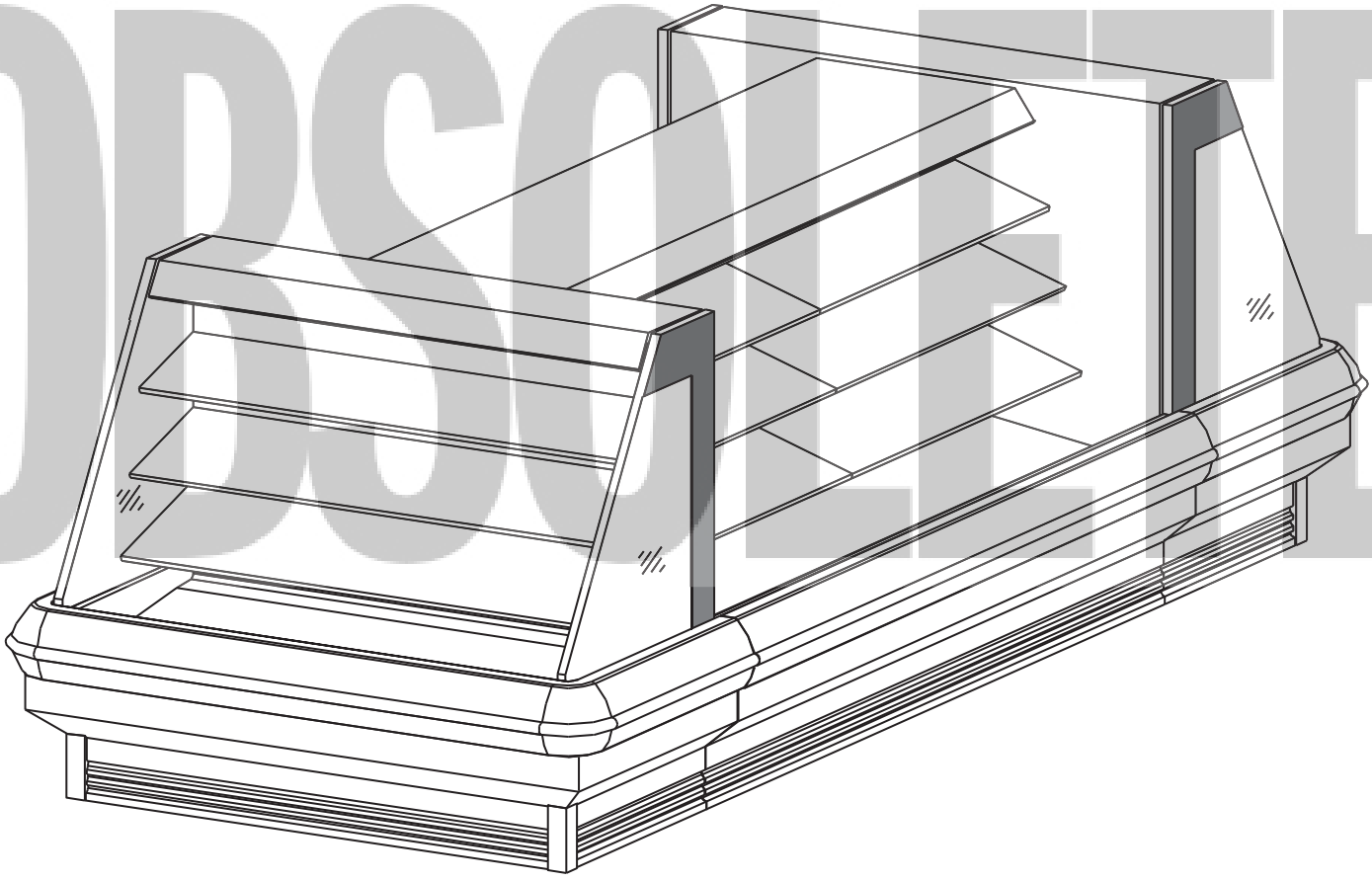
NOTES:

* STUB-UP AREA

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



The ON3.5EMs shown below are unitized with two ON3.5UM-8' cases with lighted rear sills, standard fronts, and 12, 14" & 16" shelves.



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

Guidelines & Control Settings

Model	[1,2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3.5EM	8037[3]	Enh.	22	6-8	33	45	275

1 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

2 Listed case BTUH/ft indicates unlighted shelves. Add 100BTUH per 5' lighted shelf, 80 BTUH per 4' lighted shelf, and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

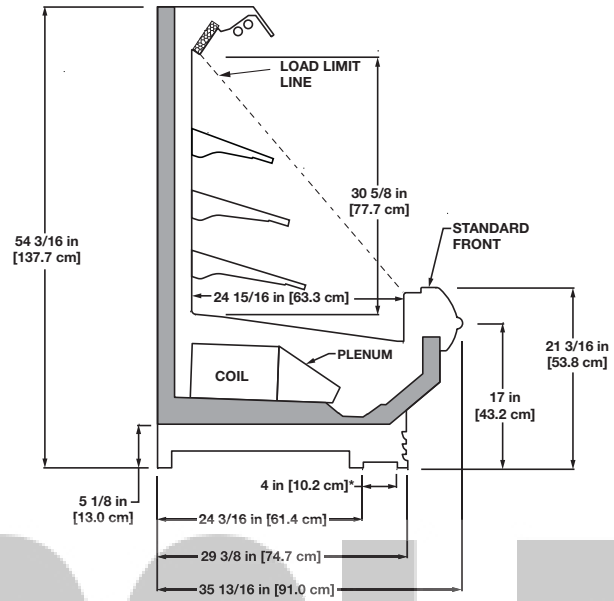
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse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

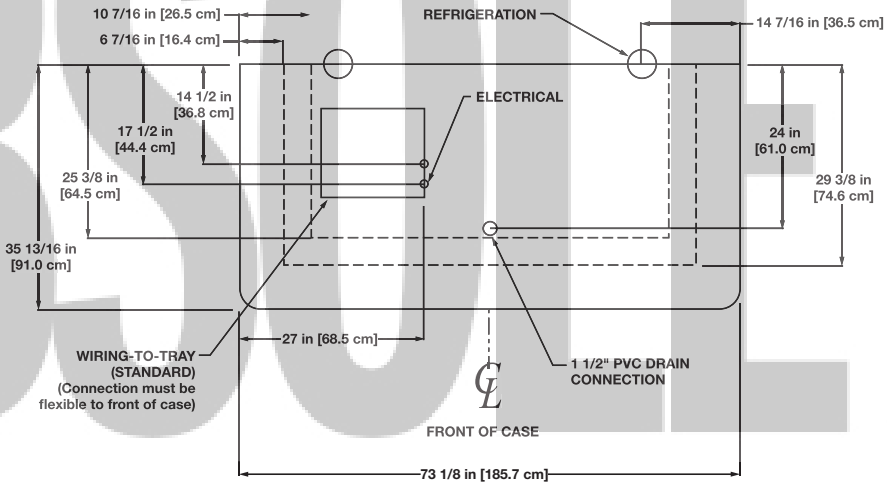
5 NOTE: "- - -" not an option on this case model.

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 ARI 1200 - 2002 specifications.





NOTES:

* **STUB-UP AREA**

- **SUCTION LINE - 7/8", LIQUID LINE - 3/8"**
- **AVAILABLE SHELF SIZES: 10", 12", 14" & 16"**
- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

NSF COMPONENT

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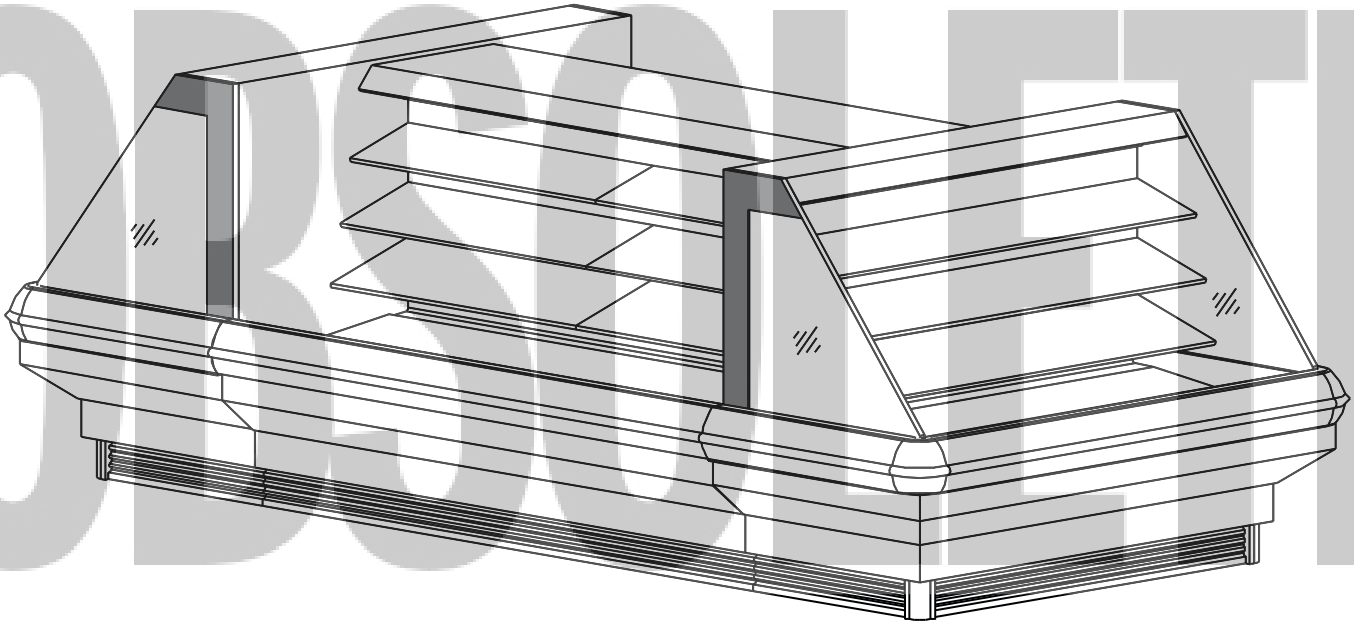
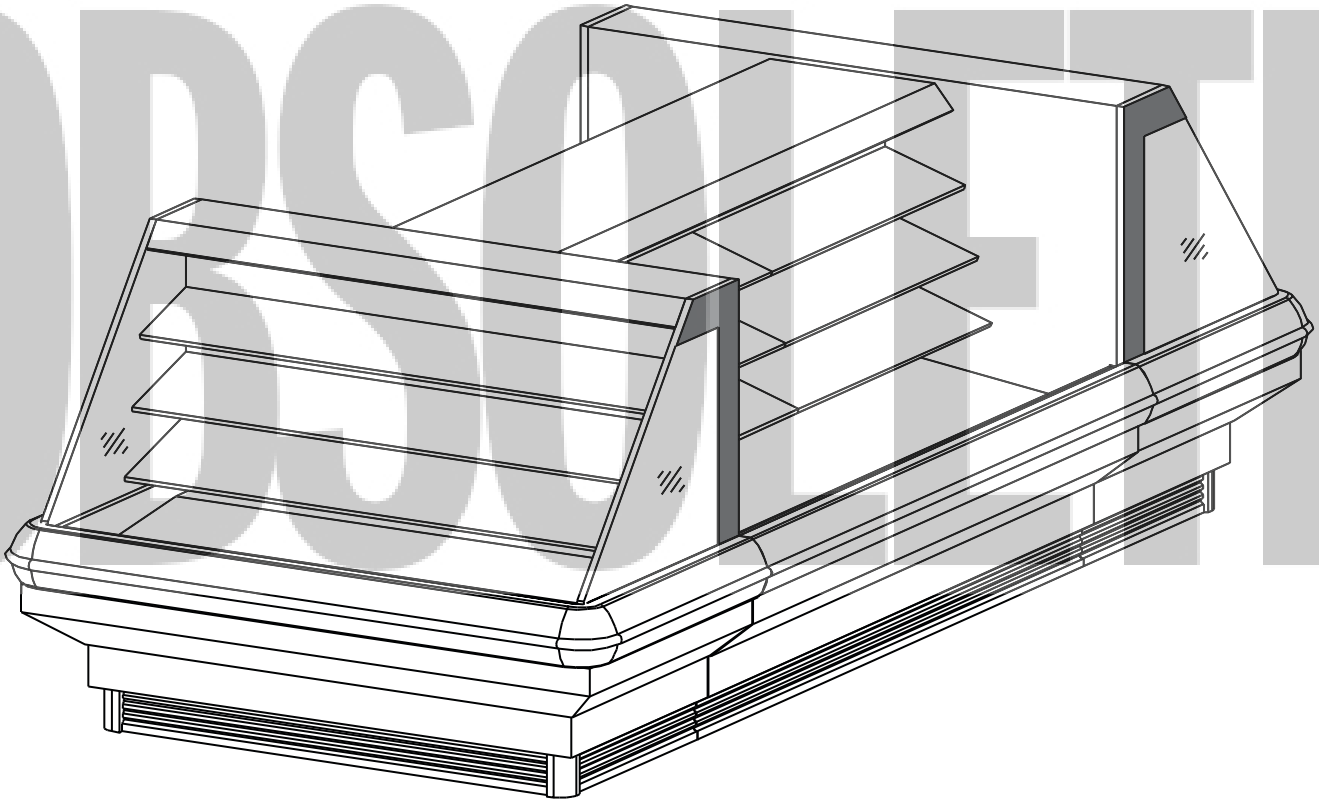


The O3.5EMs shown below are unitized with two O3.5UM-8'cases with lighted rear sills, standard fronts, and 12", 14" & 16" shelves.



Narrow Multi-Deck Deli End Cap Merchandiser
ON4EM

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
ON4EM	2	1.00	60	0.23	14	0.99	119	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
ON4EM	1	5'	0.28	34	1.42	170

Guidelines & Control Settings

Model	[1,2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON4EM	5998[3]	Enh.	22	6-8	30	40	280

1 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.20.

2 Listed case BTUH/ft indicates unlighted shelves. Add 100BTUH per 5' lighted shelf, 80 BTUH per 4' lighted shelf, and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

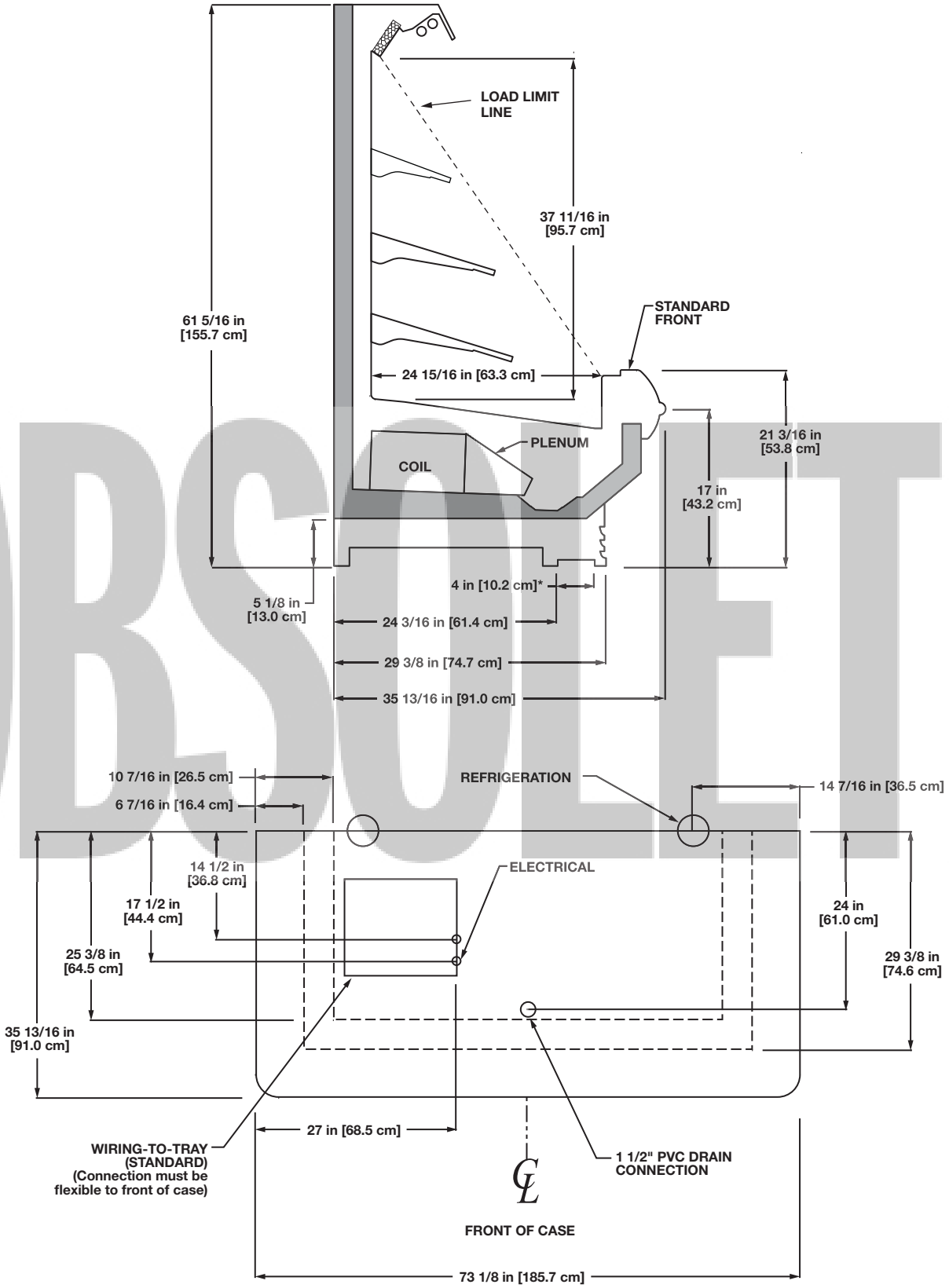
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ON4EM	6	6 - 8	40	47	45	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 ARI 1200 - 2002 specifications.

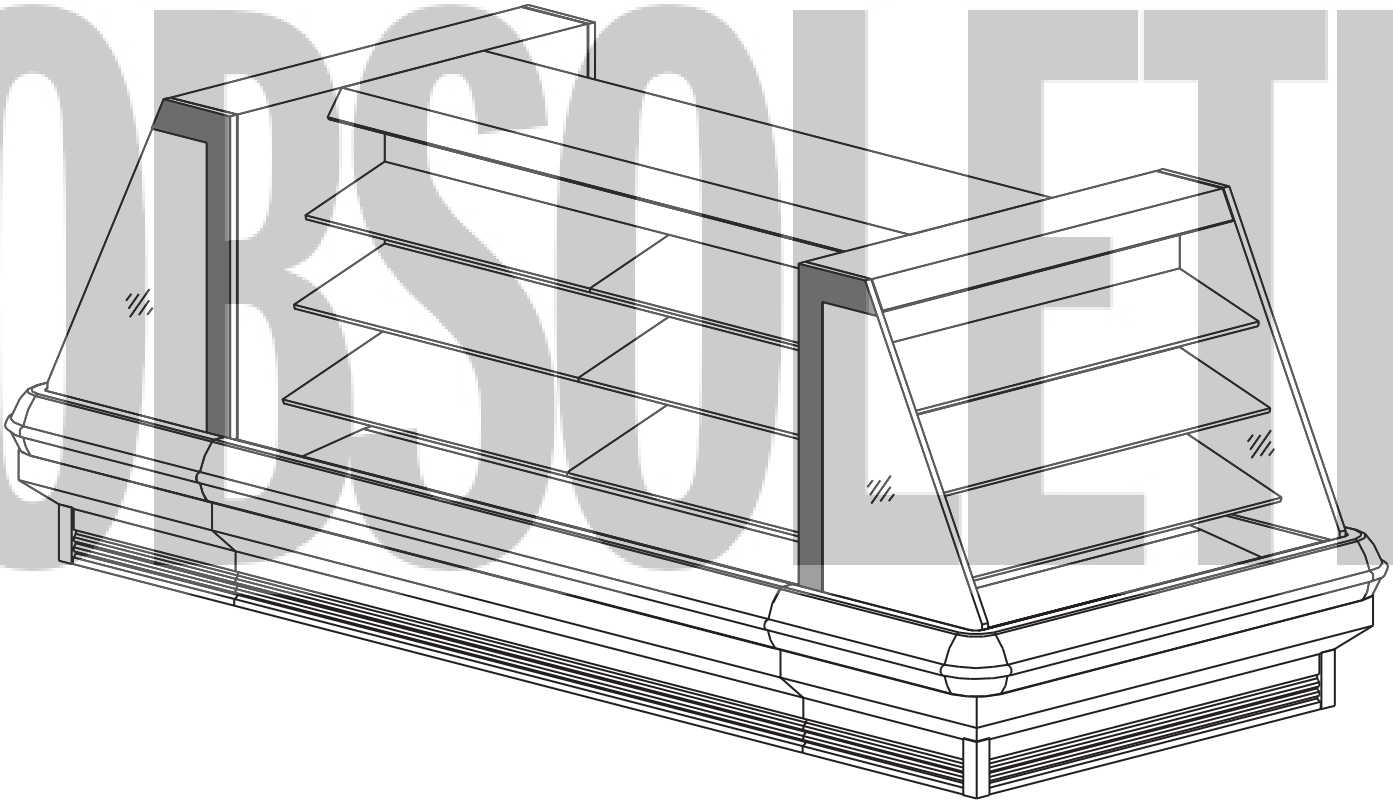


NOTES:

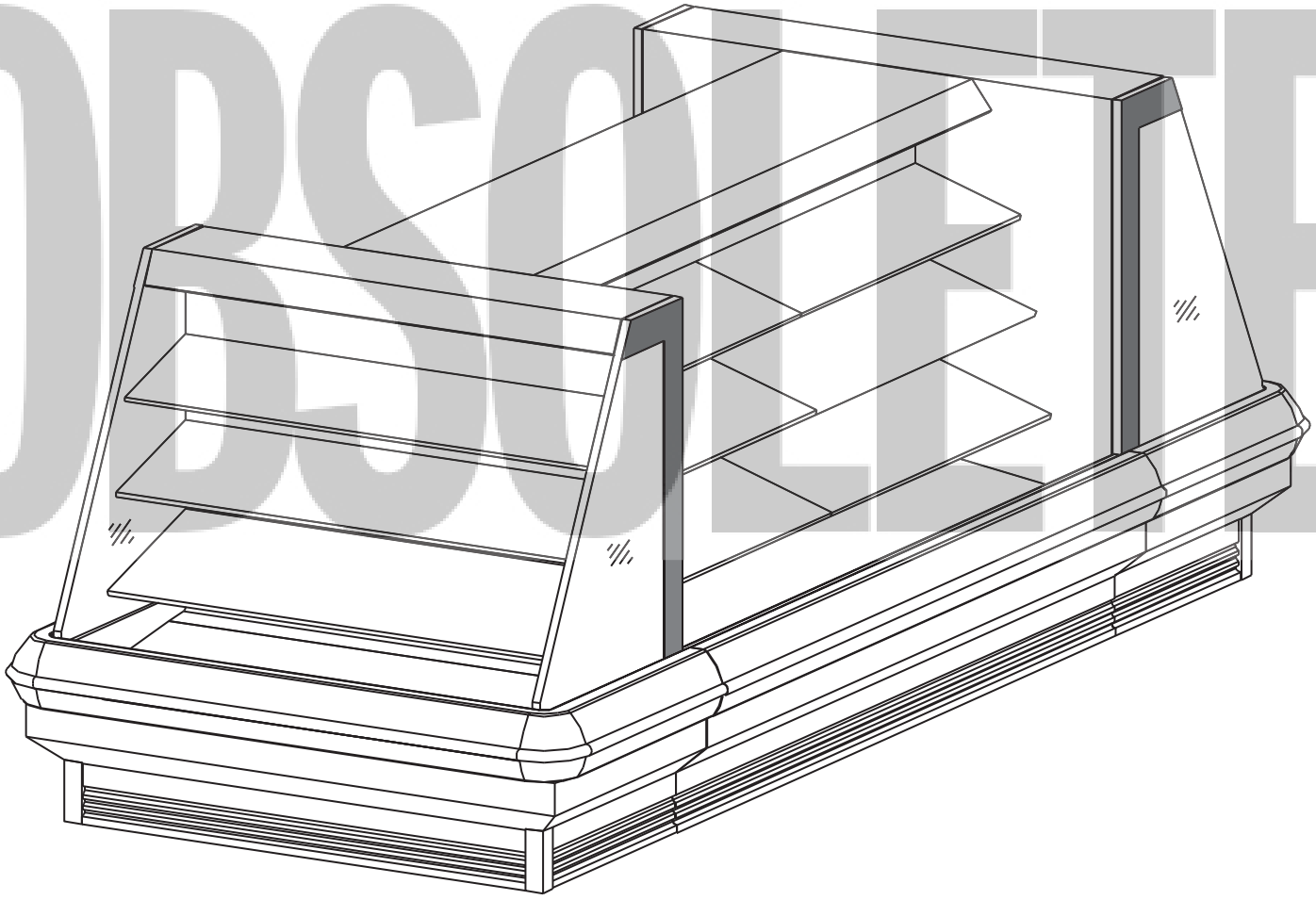
* STUB-UP AREA

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

The ON4EMs shown below are unitized with two ON4UM-8' cases with lighted rear sills, standard fronts, and 14", 16" & 18" shelves.



The ON4EMs shown below are unitized with two ON4UM-8' cases with lighted rear sills, standard fronts, and 14", 16" & 18" shelves.



Narrow Multi-Deck Deli End Cap Merchandiser
ON5EM

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
ON5EM	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
ON5EM	1	5'	0.28	34	1.42	170

Guidelines & Control Settings

Model	[1,2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON5EM	6258[3]	Enh.	22	6-8	30	40	300

1 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.20.

2 Listed case BTUH/ft indicates unlighted shelves. Add 100BTUH per 5' lighted shelf, 80 BTUH per 4' lighted shelf, and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
ON5EM	6	6 - 8	40	47	45	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 ARI 1200 - 2002 specifications.

NSF COMPONENT

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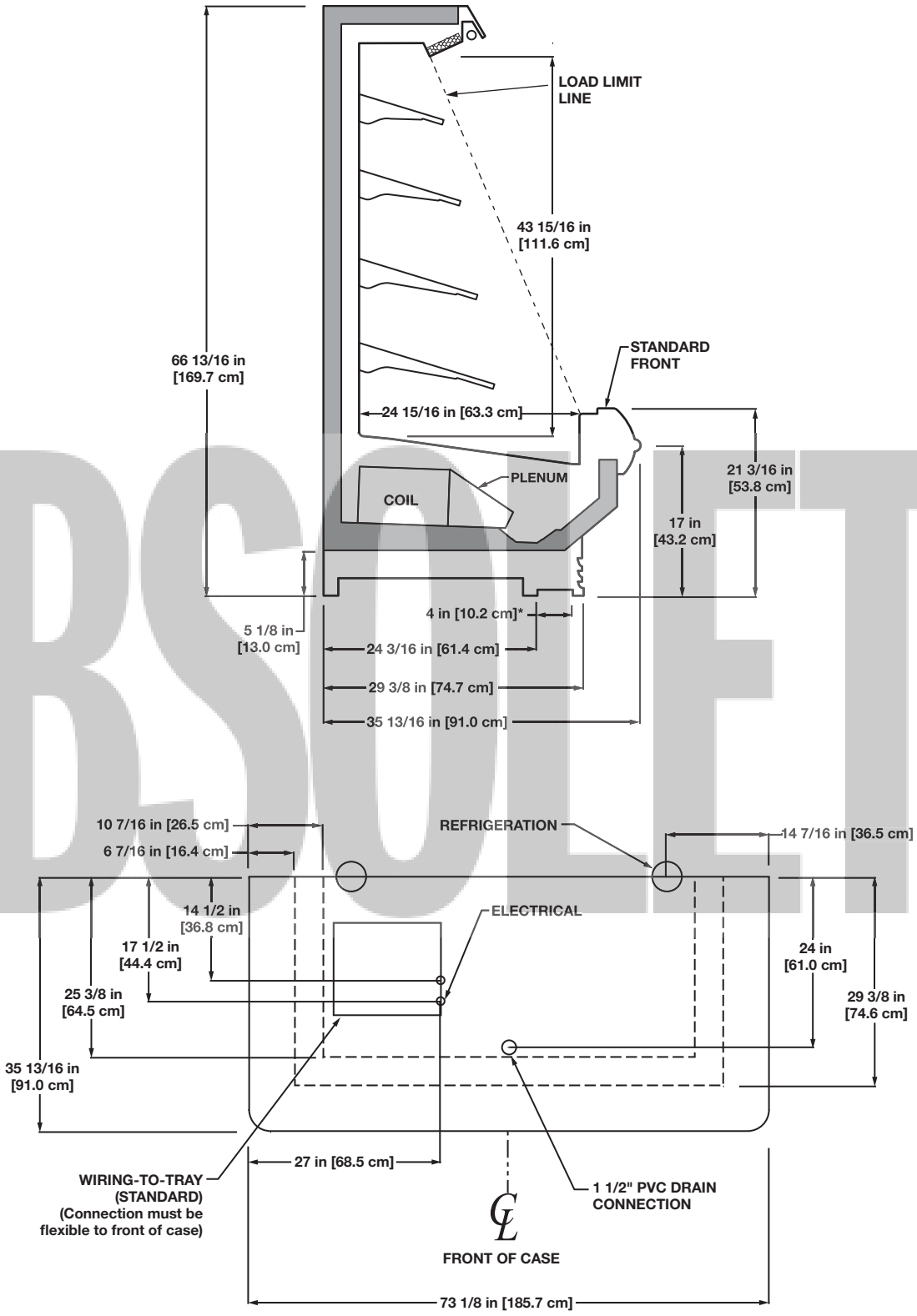

NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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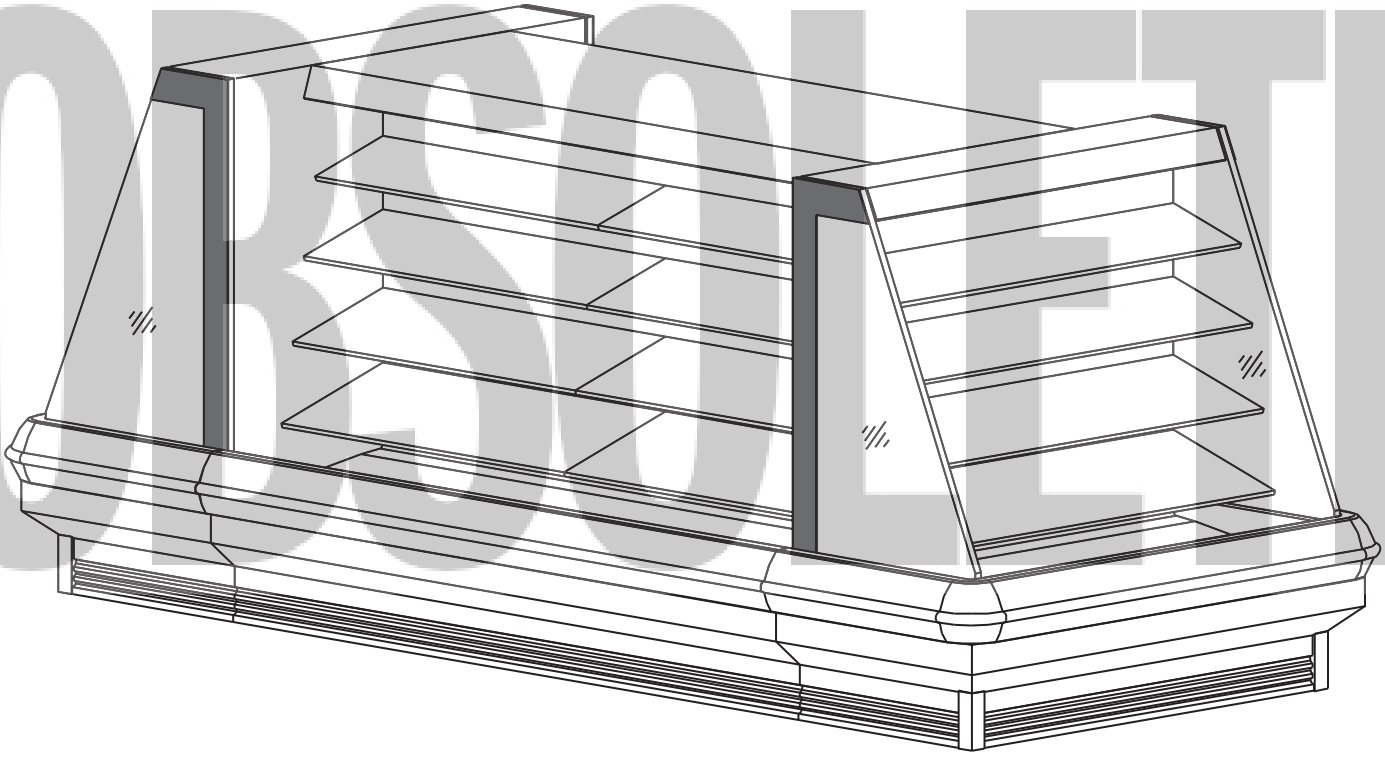
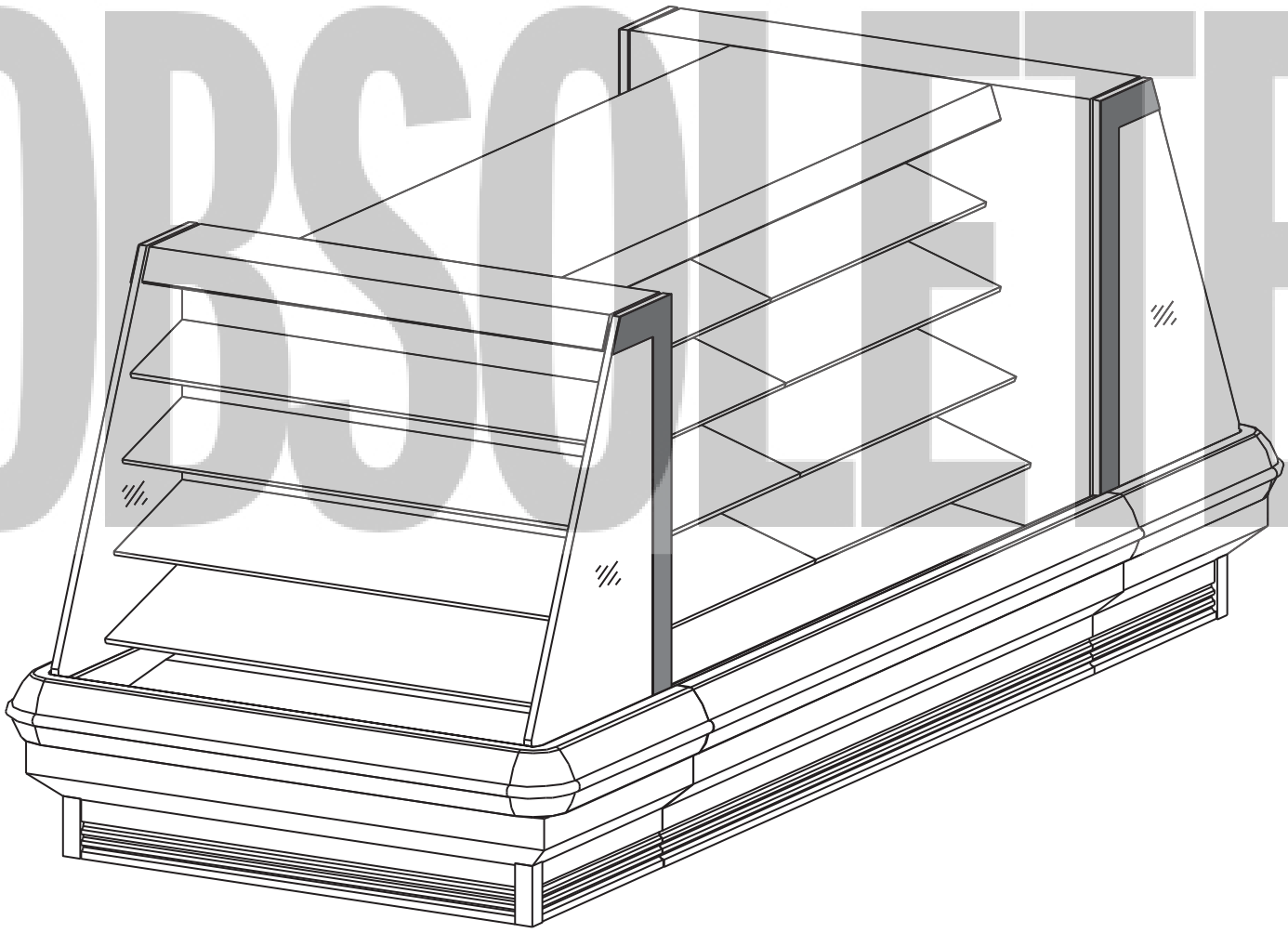
The ON5EMs shown below are unitized with two ON5UM-8' cases with lighted rear sills, standard fronts, and 12, 14" & 16" shelves.



The ON5EMs shown below are unitized with two ON5UM-8' cases with lighted rear sills, standard fronts, and 12, 14" & 16" shelves.



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	- - -	- - -	- - -	- - -	- - -	- - -

Guidelines & Control Settings

Model	[2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OEP Bulk Produce	2052[3]	Enh.	29	6-8	NA	47	NA[5]

2 BTUHs/case listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.06.

3 Standard fans increase refrigeration load by 96 BTUHs/fan.

4 Average discharge air velocity at peak of defrost.

5 Not Applicable

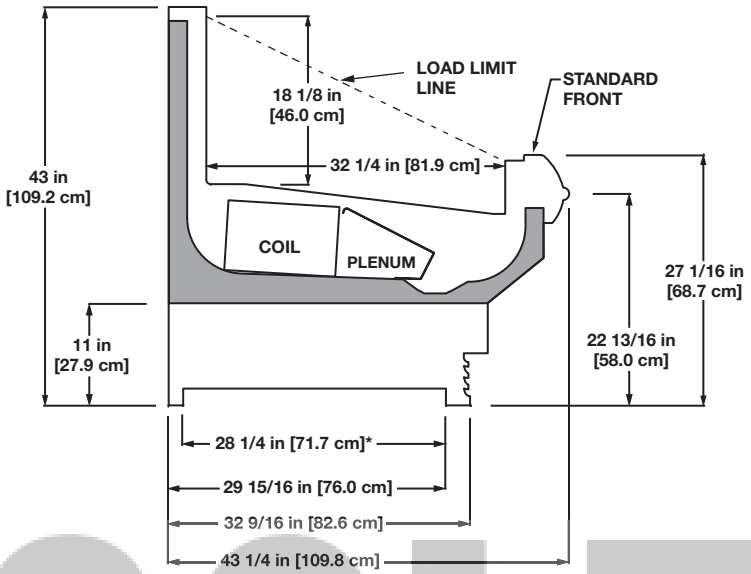
Defrost Controls

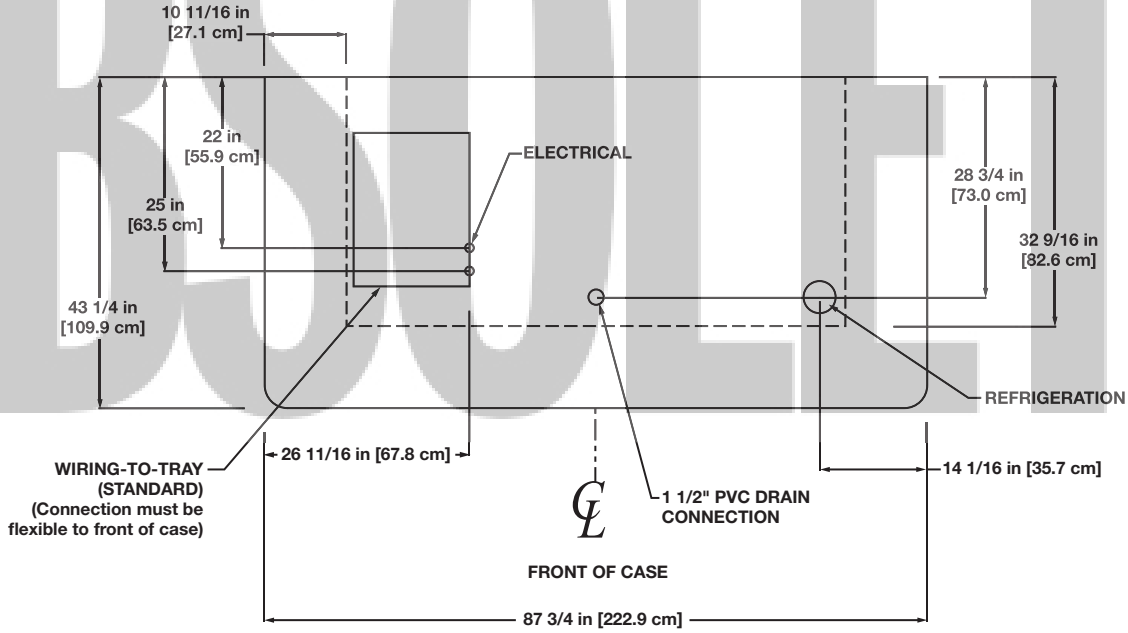
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse 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 ARI 1200 - 2002 specifications.



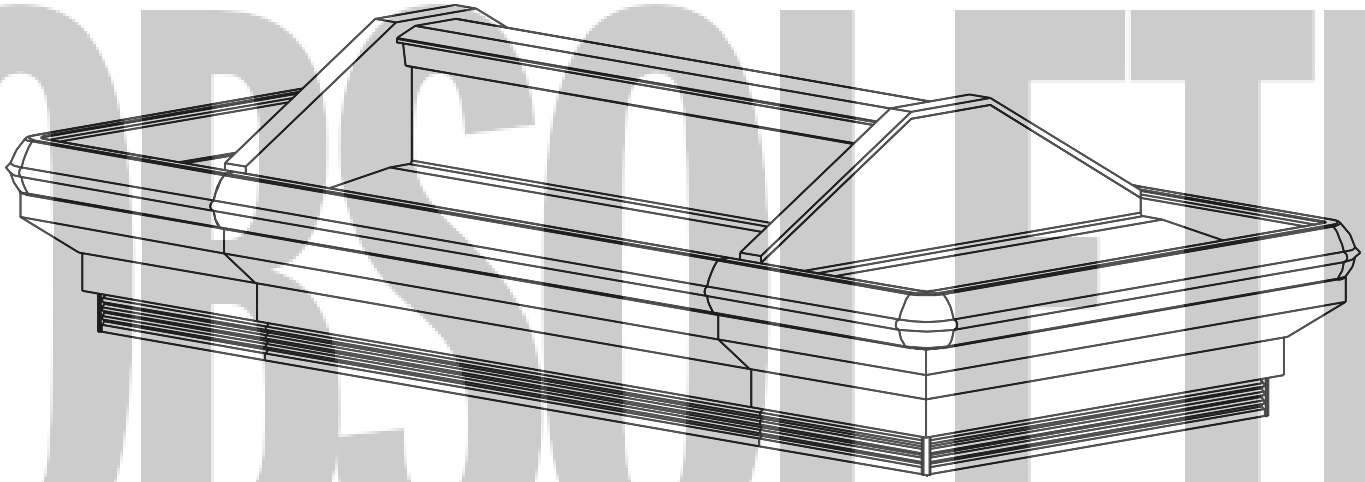


NOTES:

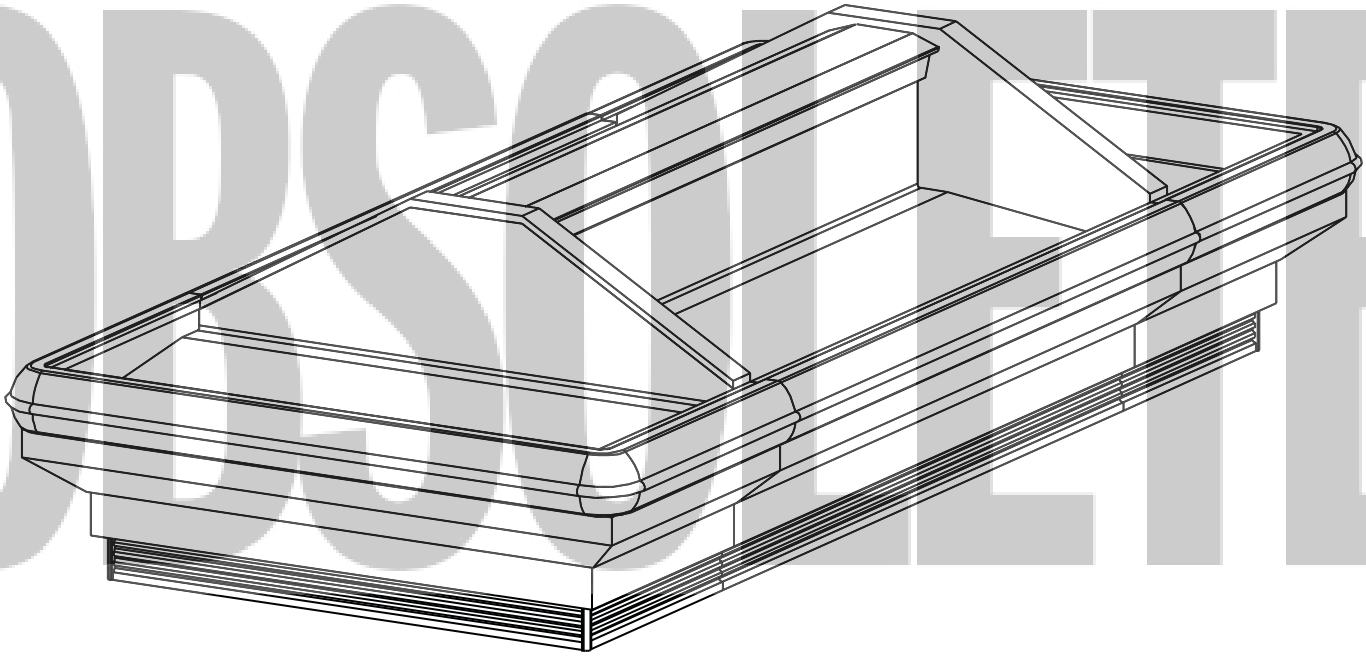
* STUB-UP AREA

• SUCTION LINE - 7/8", LIQUID LINE - 3/8"

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



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



Narrow Multi-Deck Bulk Produce End Cap Merchandiser
ON3EP

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
ON3EP	2	1.00	60	0.15	9.2	- - -[1]	- - -	2.31	480	2.66	640

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
ON3EP	- - -	- - -	- - -	- - -	- - -	- - -

Guidelines & Control Settings

Model	[2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON3EP Bulk Produce	3908[3]	Enh.	29	6-8	NA	46	NA[5]

2 BTUHs/case listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.06.

3 Standard fans increase refrigeration load by 96 BTUHs/fan.

4 Average discharge air velocity at peak of defrost.

5 Not Applicable

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)
ON3EP	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 ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

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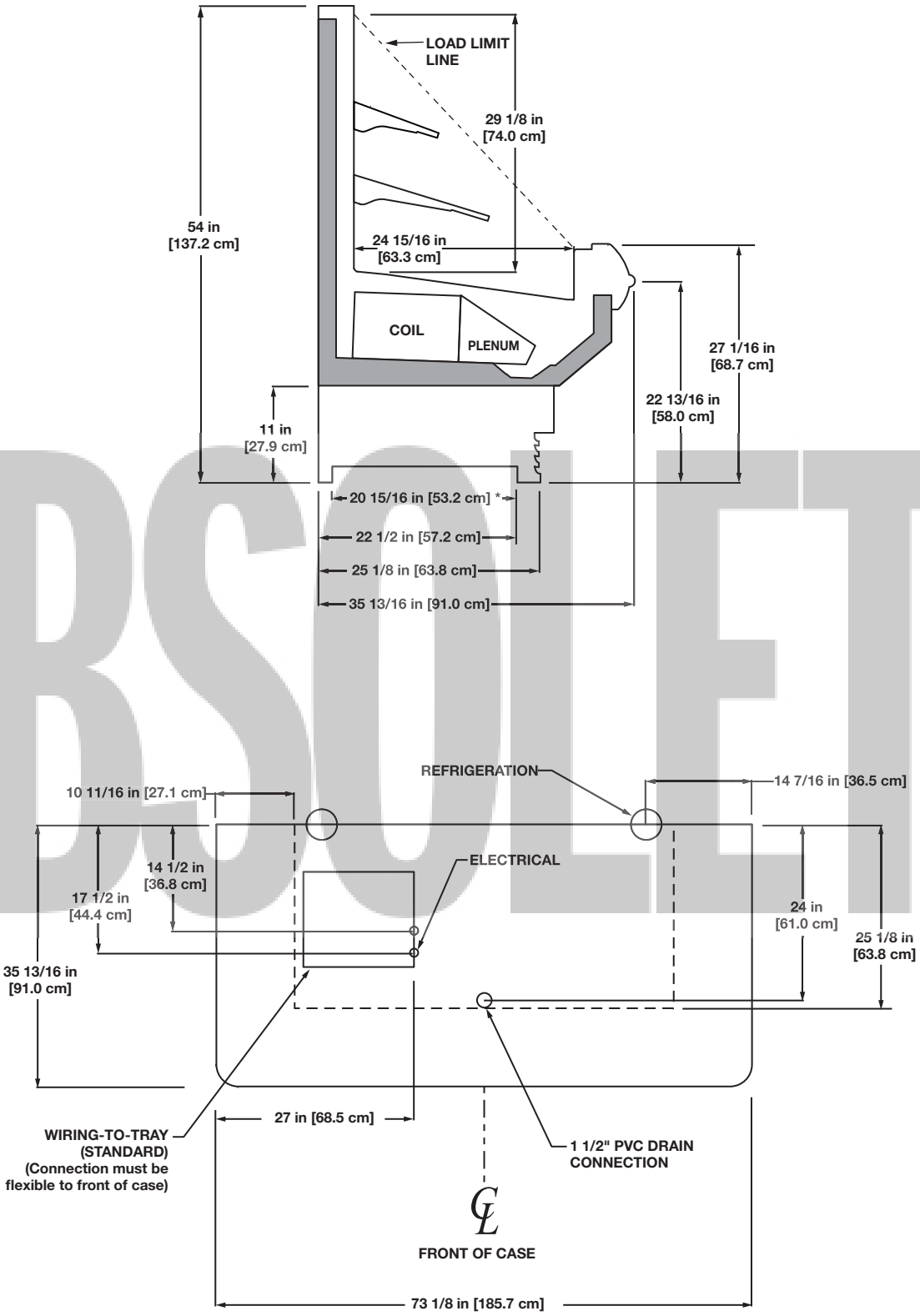
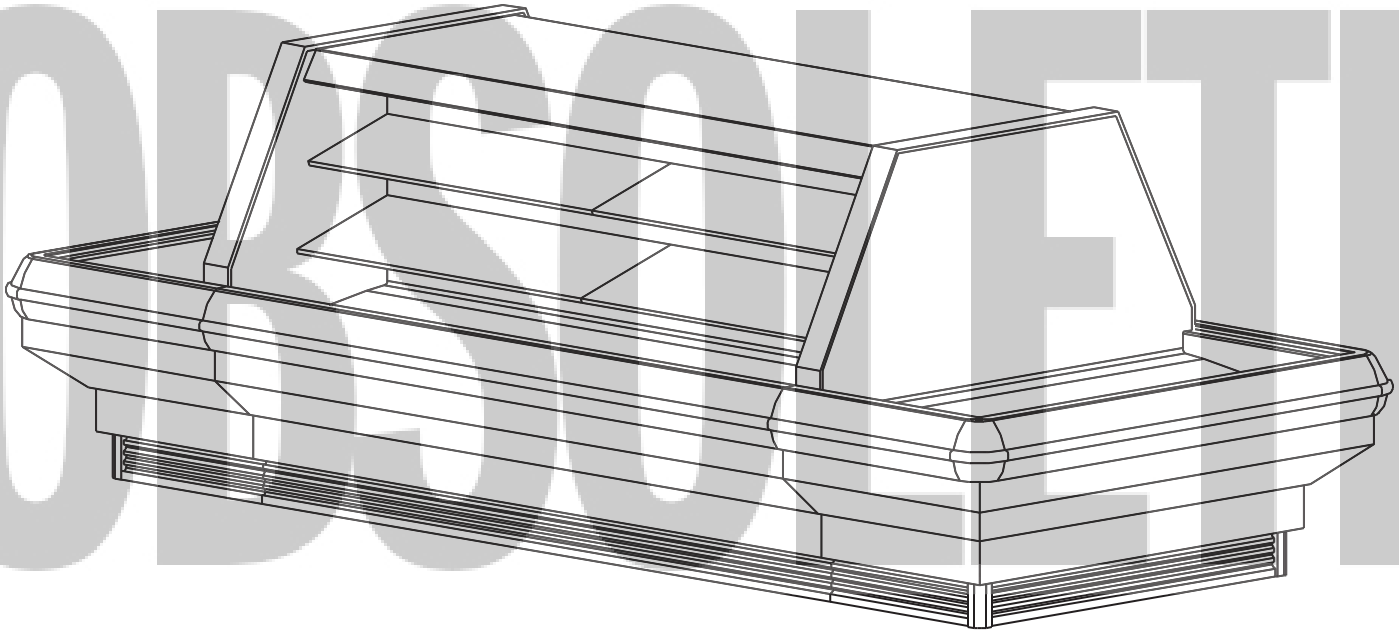


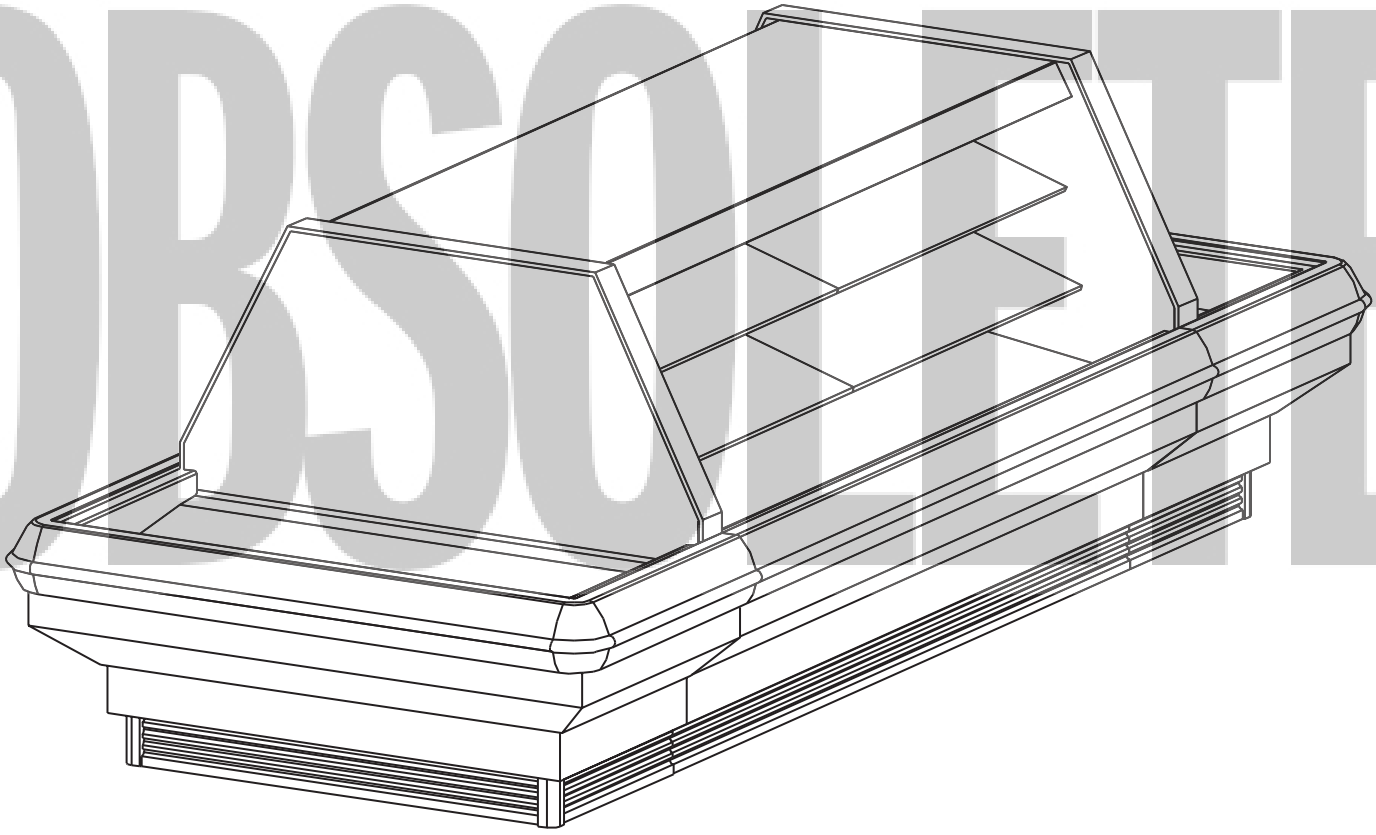
NOTES:
* STUB-UP AREA
• SUCTION LINE - 7/8", LIQUID LINE - 1/2"

COMPONENT

The ON3EPs shown below are unitized with two ON3UM-8' cases with 16" lighted rear sills, standard fronts, and 14" & 16" shelves.



The ON3EPs shown below are unitized with two ON3UM-8' cases with 16" lighted rear sills, standard fronts, and 14" & 16" shelves.



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	- - -	- - -	- - -	- - -	- - -	- - -

Guidelines & Control Settings

Model	[2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3EP Bulk Produce	2405[3]	Enh.	29	6-8	NA	47	NA[5]

2 BTUHs/case listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.06.

3 Standard fans increase refrigeration load by 96 BTUHs/fan.

4 Average discharge air velocity at peak of defrost.

5 Not Applicable

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 ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

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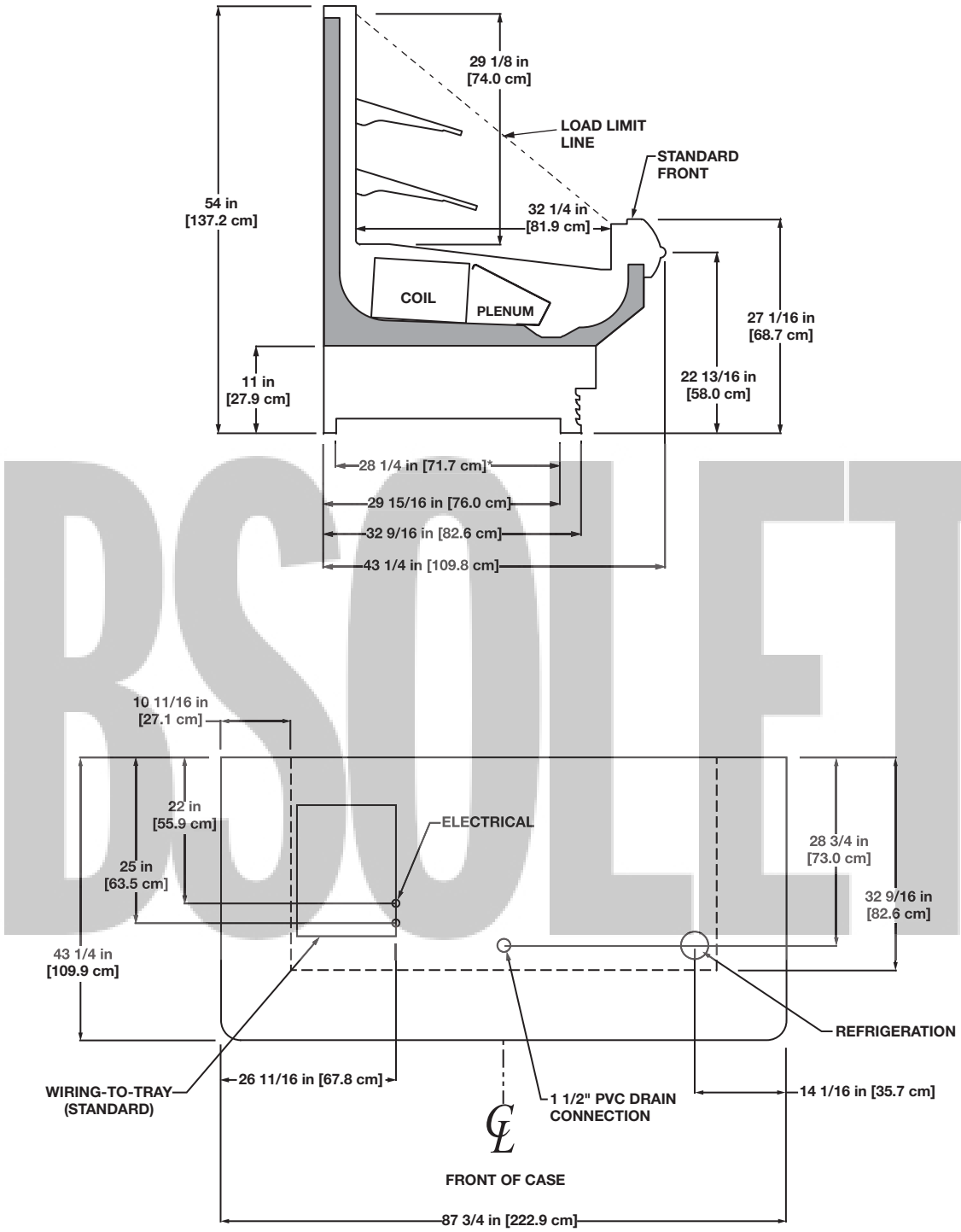


NOTES:

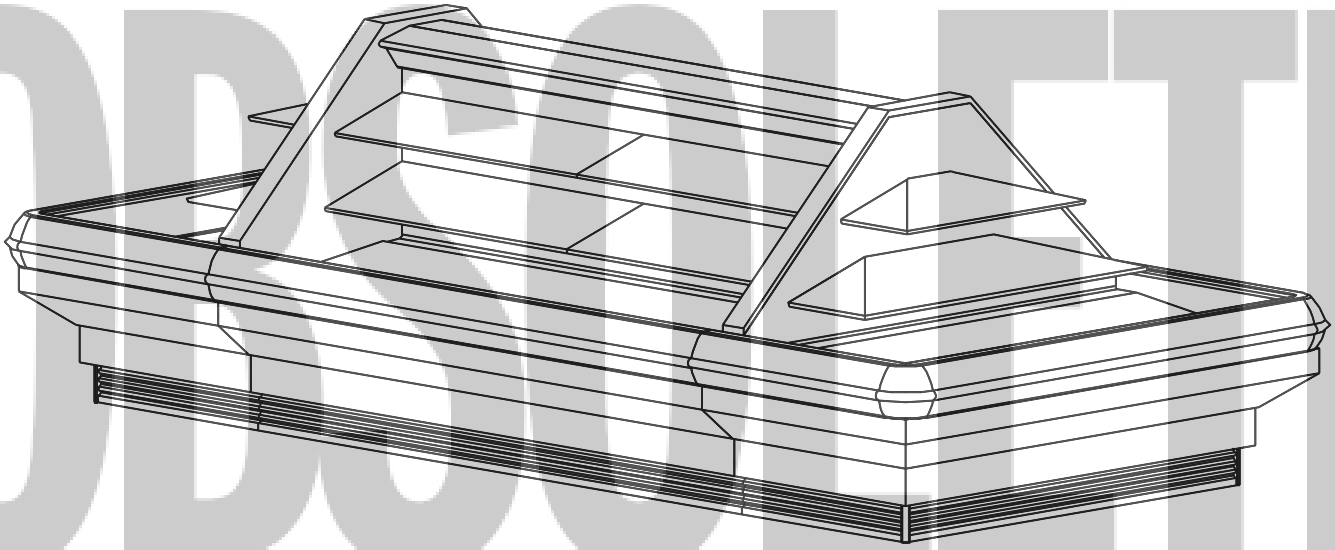
*** STUB-UP AREA**

• SUCTION LINE - 7/8", LIQUID LINE - 3/8"

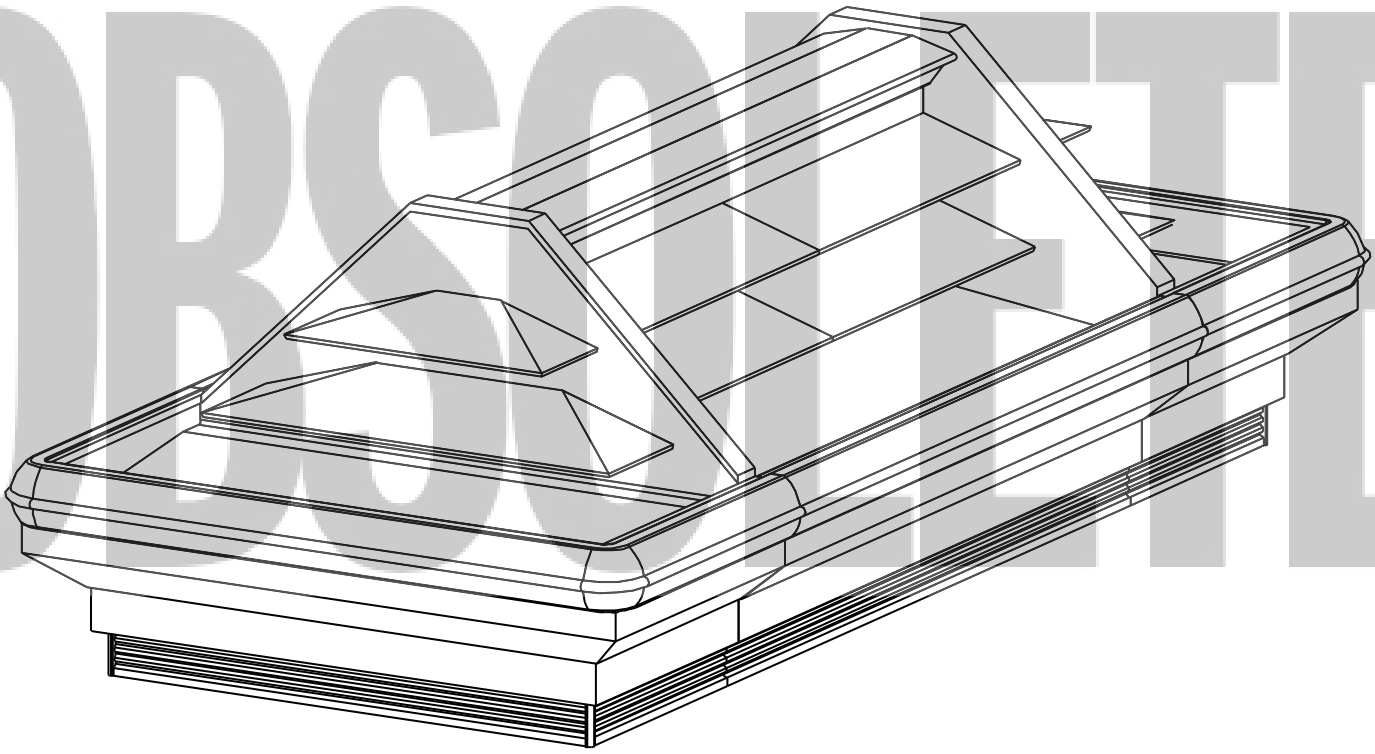
NSF COMPONENT

c UL us

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



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



OBSOLETE

REACH-IN

NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8" per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

Narrow Glass Door Reach-in Beverage Merchandiser

ONRB - 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	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONRB	2-door	2	1.00	60	0.31	18	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	28	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	37	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46	7.96	1655	9.17	2201
	6-door	6	3.00	180	0.92	55	9.40	1955	10.79	2589

Lighting Data

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ONRB	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

Anti-Condensate Heater Data

Model		Anthony 101 120 Volts Amps	Anthony 101 120 Volts Watts	Anthony[1] Eliminator 120 Volts Amps	Anthony[1] Eliminator 120 Volts Watts	Anthony[1] Eliminator 2 120 Volts Amps	Anthony[1] Eliminator 2 120 Volts Watts	Gemtron Tundra (NT) 120 Volts Amps	Gemtron Tundra (NT) 120 Volts Watts
ONRB	2-door	1.02	122	0.75	90	0.75	90	0.97	116
	3-door	1.50	180	1.11	133	1.11	133	1.43	172
	4-door	1.97	236	1.44	173	1.44	173	1.93	231
	5-door	2.41	289	1.75	210	1.75	210	2.40	288
	6-door	2.93	351	2.14	257	2.14	257	3.60	432

1 Eliminator values given for doors with no heat on the glass.

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 ARI 1200 - 2002 specifications.

Narrow Glass Door Reach-in Beverage Merchandiser

ONRB - 2, 3, 4, 5 & 6-door

Guidelines & Control Settings

Model	BTUHs[3] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[5] (ºF)
ONRB[2]: Deli/Dairy	734[4]	Enh.	32	6-8	36	38	460
ONRB[2]: Beverage	704[4]	Enh	34	6-8	39	40	460

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

3 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrost per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ONRB	4[6]	6-8	30	47	30	40	24	47	---[7]	---

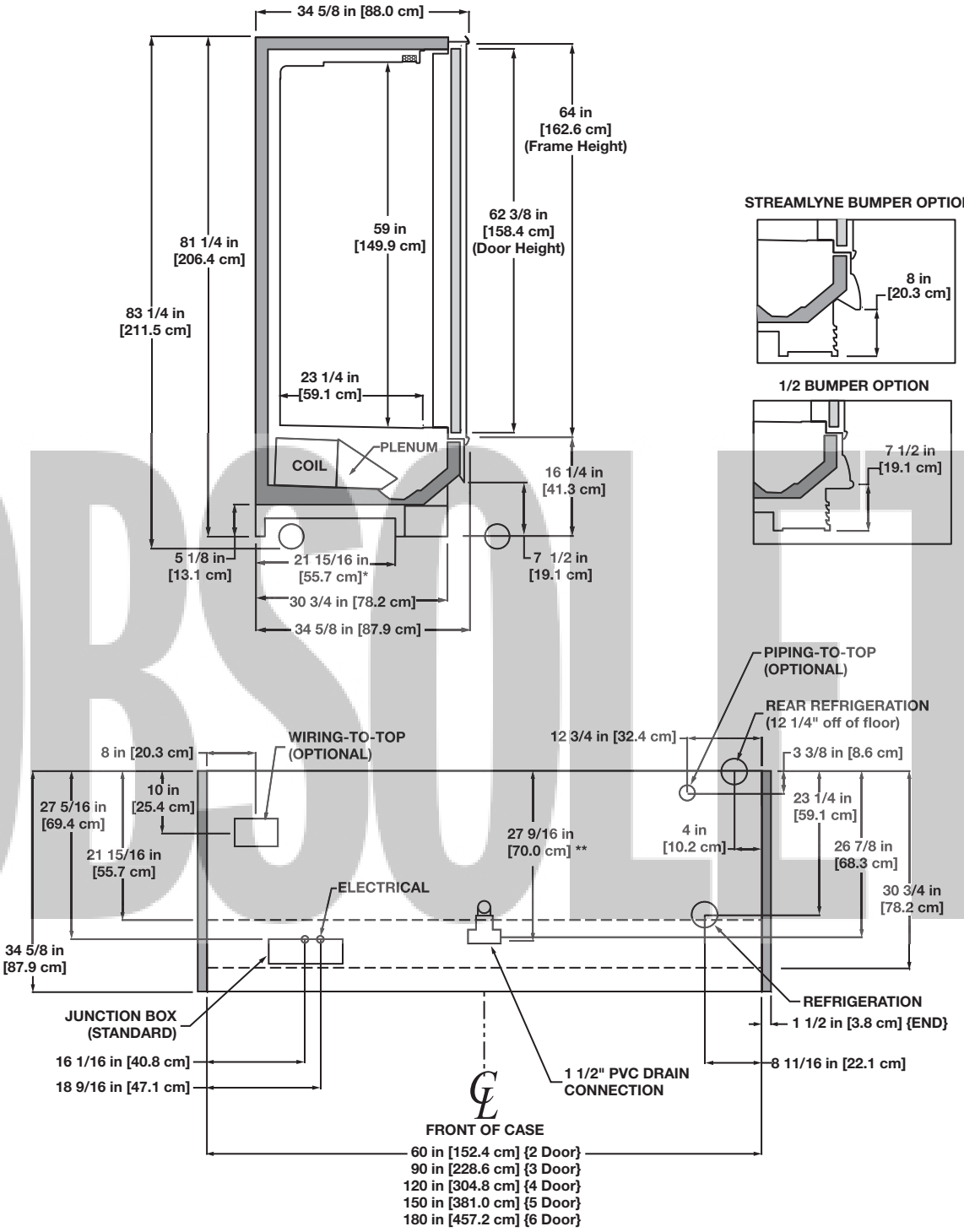
7 If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrost per day.

8 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 ARI 1200 - 2002 specifications.



NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (ALL LENGTHS) 1/2"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

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	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	118	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	28	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	37	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46	7.96	1655	9.17	2201

Lighting Data

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ONRBH	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86

Anti-Condensate Heater Data

Model		Anthony 101 120 Volts Amps	Anthony 101 120 Volts Watts	Anthony[1] Eliminator 120 Volts Amps	Anthony[1] Eliminator 120 Volts Watts	Anthony[1] Eliminator 2 120 Volts Amps	Anthony[1] Eliminator 2 120 Volts Watts	Gemtron Tundra (NT) 120 Volts Amps	Gemtron Tundra (NT) 120 Volts Watts
ONRBH	2-door	1.06	127	0.78	94	0.78	94	1.00	121
	3-door	1.54	185	1.13	136	1.13	136	1.49	179
	4-door	2.06	247	1.51	181	1.51	181	2.00	242
	5-door	2.53	304	1.84	221	1.84	221	2.48	298

1 Eliminator values given for doors with no heat on the glass.

High Narrow Glass Door Reach-in Beverage Merchandiser

ONRBH - 2, 3, 4 & 5-door

Guidelines & Control Settings

Model	BTUHs[3] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[5] (ºF)
ONRBH[2]: Deli/Dairy	734[4]	Enh.	32	6-8	36	38	405
ONRBH[2]: Beverage	704[4]	Enh.	34	6-8	38	40	405

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

3 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrost per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ONRBH	4[6]	6-8	30	47	30	40	24	47	---[7]	---

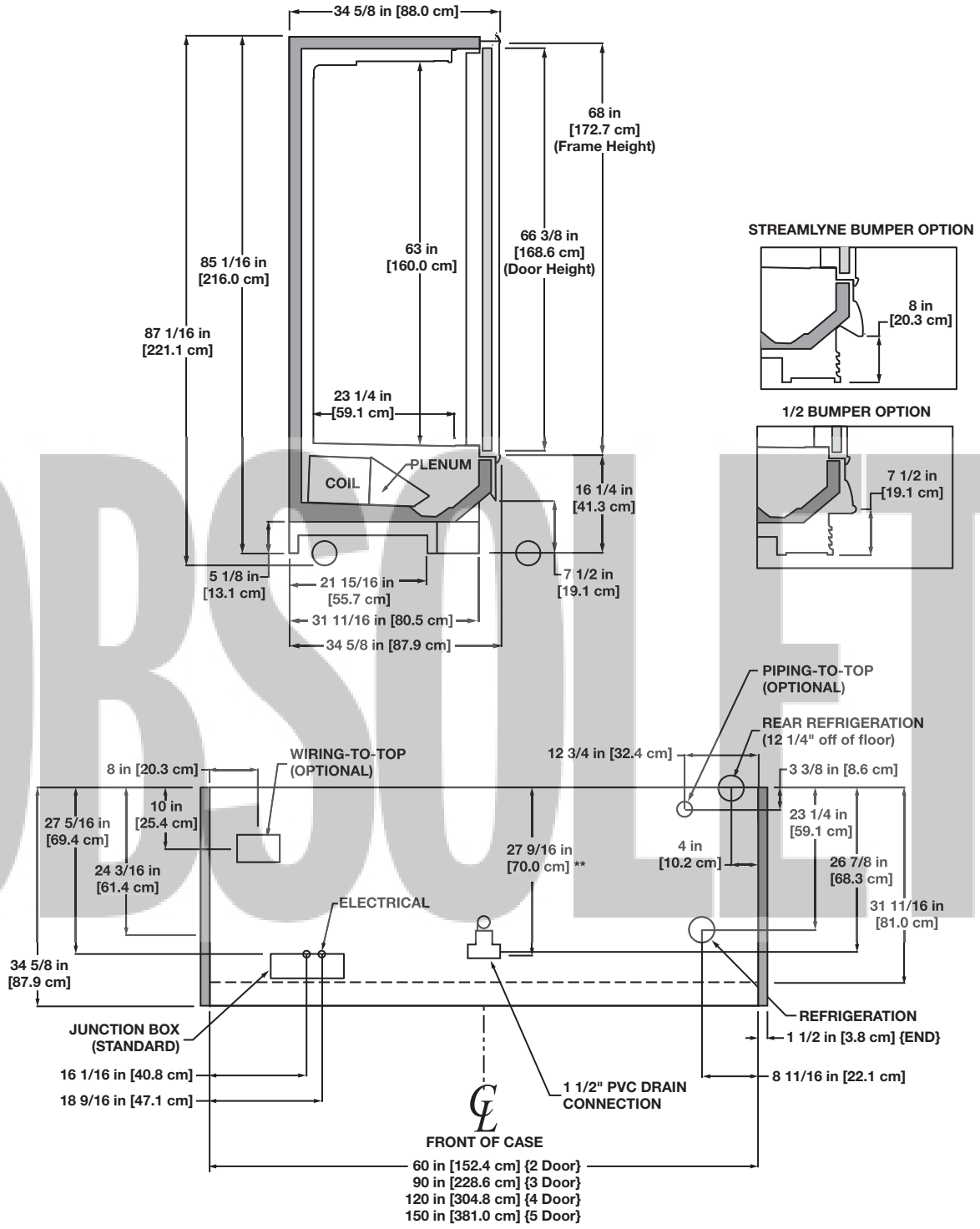
6 If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrost per day.

7 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 ARI 1200 - 2002 specifications.



NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (ALL LENGTHS) 1/2"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

Glass Door Reach-in Beverage Merchandiser

ORB - 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	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ORB	2-door	2	1.00	60	0.31	18	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	28	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	37	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46	7.96	1655	9.17	2201
	6-door	6	3.00	180	0.92	55	9.40	1955	10.79	2589

Lighting Data

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ORB	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

Anti-Condensate Heater Data

Model		Anthony 101 120 Volts Amps	Anthony 101 120 Volts Watts	Anthony[1] Eliminator 120 Volts Amps	Anthony[1] Eliminator 120 Volts Watts	Anthony[1] Eliminator 2 120 Volts Amps	Anthony[1] Eliminator 2 120 Volts Watts	Gemtron Tundra (NT) 120 Volts Amps	Gemtron Tundra (NT) 120 Volts Watts
ORB	2-door	1.02	122	0.75	90	0.75	90	0.97	116
	3-door	1.50	180	1.11	133	1.11	133	1.43	172
	4-door	1.97	236	1.44	173	1.44	173	1.93	231
	5-door	2.41	289	1.75	210	1.75	210	2.40	288
	6-door	2.93	351	2.14	257	2.14	257	3.60	432

1 Eliminator values given for doors with no heat on the glass.

All measurements are taken per ARI 1200 - 2002 specifications.

Glass Door Reach-in Beverage Merchandiser

ORB - 2, 3, 4, 5 & 6-door

Guidelines & Control Settings

Model	BTUHs[2] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[4] (ºF)
ORB: Deli/Dairy	734[3]	Enh.	32	6-8	36	38	380
ORB: Beverage	704[3]	Enh.	34	6-8	38	40	380

2 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

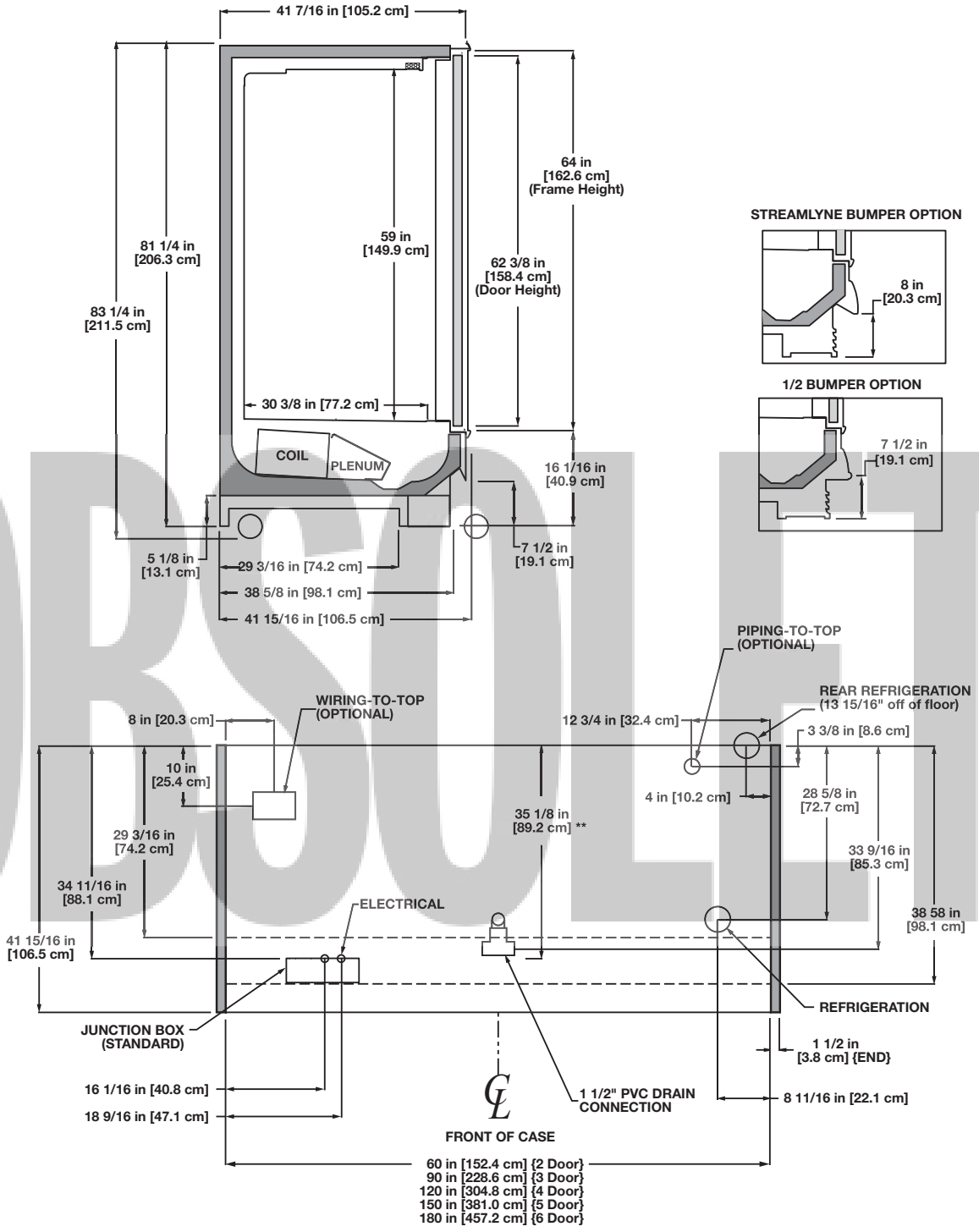
Model	Defrost per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ORB	4[5]	6-8	30	47	30	40	24	47	---[6]	---

5 If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrost per day.

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



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
- SUCTION LINE (ALL LENGTHS) 1/2"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

Glass Door Reach-in Rear Load Beverage Merchandiser

ORBR - 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	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ORBR	8'	3	1.50	90	0.46	28	3.85	800	4.44	1065
	12'	4	2.00	120	0.61	37	5.75	1200	6.67	1600

Lighting Data

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ORBR	8'	1.90	228	0.93	102	100	0.73	87	115	0.88	105	101
	12'	2.40	288	1.23	136	92	0.93	116	106	1.17	140	91

Anti-Condensate Heater Data

Model		Anthony 101 120 Volts Amps	Anthony 101 120 Volts Watts	Anthony[1] Eliminator 120 Volts Amps	Anthony[1] Eliminator 120 Volts Watts	Anthony[1] Eliminator 2 120 Volts Amps	Anthony[1] Eliminator 2 120 Volts Watts
ORBR	8'	1.55	93	1.13	135	1.13	135
	12'	2.15	258	1.56	187	1.56	187

1 Eliminator values given for doors with no heat on the glass.

Guidelines & Control Settings

Model	BTUHs[3] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[5] (ºF)
ORBR[2]	1054[4]	Enh.	34	6-8	38	40	380

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

3 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

All measurements are taken per ARI 1200 - 2002 specifications.

Glass Door Reach-in Rear Load Beverage Merchandiser

ORBR - 8’ & 12’

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 (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ORBR	4[6]	6-8	30	47	30	40	24	47	---[7]	---

6 If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrost per day.

7 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

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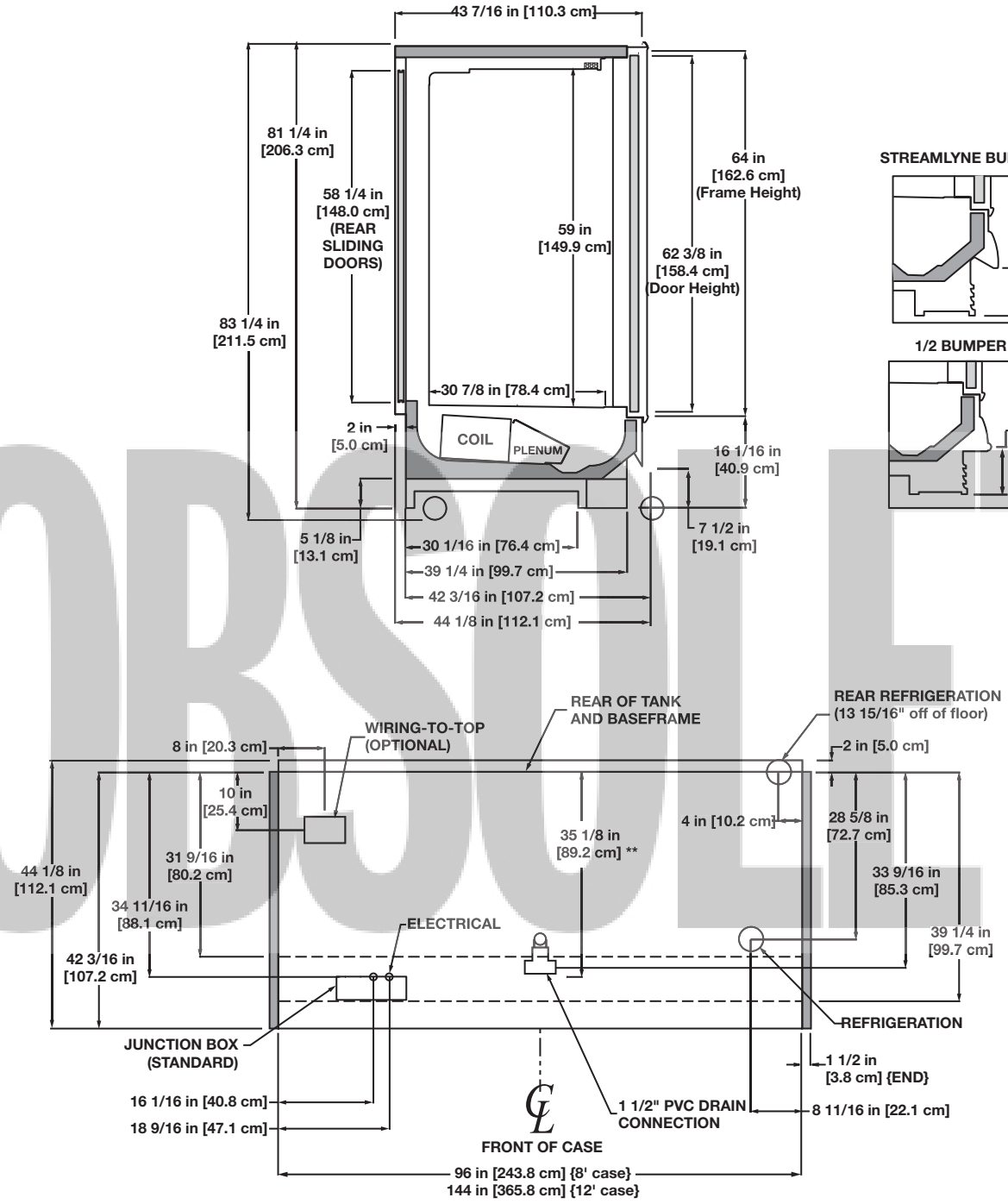


NOTES:

* 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
- SUCTION LINE (ALL LENGTHS) 1/2"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

High Glass Door Reach-in Beverage Merchandiser

ORBH - 2, 3, 4, 5, 6-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	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	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	28	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	37	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46	7.96	1655	9.17	2201
	6-door	6	3.00	180	0.92	55	9.40	1955	10.79	2589
	8'	3	1.50	90	0.46	28	3.85	800	4.44	1065
	12'	4	2.00	120	0.61	37	5.78	1200	6.67	1600

Lighting Data

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ORBH	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83
	8'	1.90	228	0.85	102	100	0.73	87	115	0.88	105	101
	12'	2.40	288	1.13	136	92	0.97	116	106	1.17	140	91

Anti-Condensate Heater Data

Model		Anthony 101 120 Volts Amps	Anthony 101 120 Volts Watts	Anthony [1] Eliminator 120 Volts Amps	Anthony [1] Eliminator 120 Volts Watts	Anthony [1] Eliminator 2 120 Volts Amps	Anthony [1] Eliminator 2 120 Volts Watts	Gemtron Tundra (NT) 120 Volts Amps	Gemtron Tundra (NT) 120 Volts Watts
ORBH	2-door	1.06	127	0.78	94	0.78	94	1.00	121
	3-door	1.54	185	1.13	136	1.13	136	1.49	179
	4-door	2.06	247	1.51	181	1.51	181	2.00	242
	5-door	2.53	304	1.84	221	1.84	221	2.48	298
	6-door	3.05	366	2.23	267	2.23	267	2.97	356
	8'	1.61	193	--- [2]	---	---	---	---	---
	12'	2.23	268	---	---	---	---	---	---

1 Eliminator values given for doors with no heat on the glass.

2 NOTE: "---" indicates that this feature is not available for this case model.

All measurements are taken per ARI 1200 - 2002 specifications.

High Glass Door Reach-in Beverage Merchandiser

ORBH - 2, 3, 4, 5, 6-door, 8' & 12'

Guidelines & Control Settings

Model	BTUHs[4] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[6] (ºF)
ORBH: Deli/Dairy (2-, 3-, 4-, 5-, & 6-door)	734[5]	Enh.	32	6-8	36	38	280
ORBH: Beverage (2-, 3-, 4-, 5-, & 6-door)	704[5]	Enh.	34	6-8	38	40	280
ORBH: Deli/Dairy (8' & 12')[3]	853[5]	Enh.	32	6-8	36	38	280
ORBH: Beverage (8' & 12')[3]	823[5]	Enh.	34	6-8	38	40	280

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

4 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

Defrost Controls

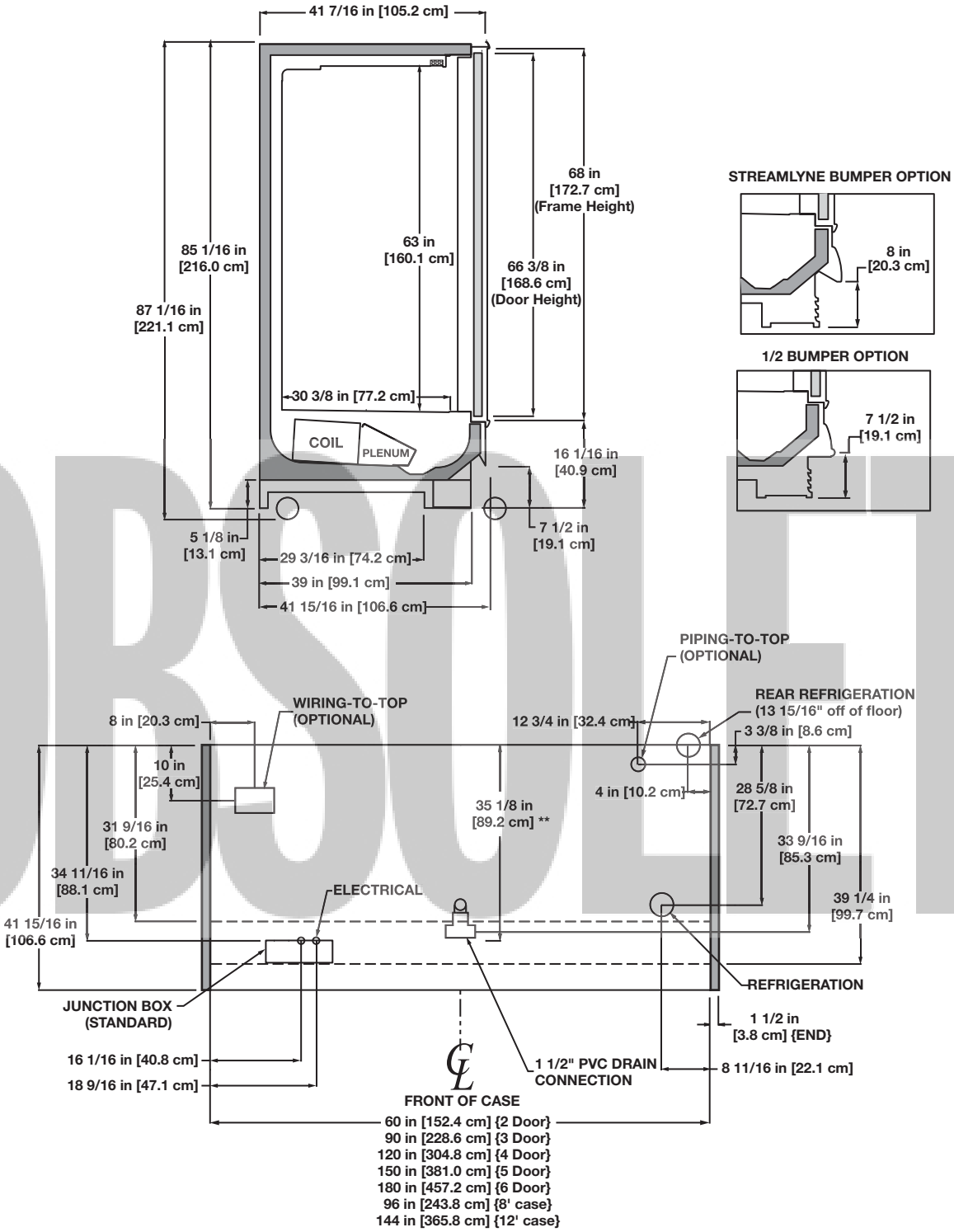
Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ORBH	4[7]	6-8	30	47	30	40	24	47	---[8]	---

7 If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrost per day.

8 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



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
- SUCTION LINE (ALL LENGTHS) 1/2"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

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

ONRZ - 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	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters (3-Phase) 208 Volts Amps[1]	Defrost Heaters (3-Phase) 208 Volts Watts	Defrost Heaters (3-Phase) 240 Volts Amps[1]	Defrost Heaters (3-Phase) 240 Volts Watts
ONRZ	2-door	2	1.00	60	0.31	18	13.17	2742	15.18	3645	7.62	2742	8.78	3645
	3-door	3	1.50	90	0.46	28	14.88	3096	17.13	4110	8.60	3096	9.90	4110
	4-door	4	2.00	120	0.611	37	19.53	4065	22.65	5439	11.30	4065	13.10	5439
	5-door	5	2.50	150	0.77	46	23.88	4965	27.51	6603	13.80	4965	15.90	6603
	6-door	6	3.00	180	0.92	55	28.20	5865	32.37	7767	16.30	5865	18.71	7767

1 Figure given is maximum amps per phase.

Lighting Data

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ONRZ	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

Anti-Condensate Heater Data

Model		Anthony 101 120 Volts Amps	Anthony 101 120 Volts Watts	Anthony[2] Eliminator 120 Volts Amps	Anthony[2] Eliminator 120 Volts Watts	Anthony[2] Eliminator 2 120 Volts Amps	Anthony[2] Eliminator 2 120 Volts Watts	Gemtron Polar 120 Volts Amps	Gemtron Polar 120 Volts Watts	Gemtron Polar LE 120 Volts Amps	Gemtron Polar LE 120 Volts Watts	Gemtron Polar EF 120 Volts Amps	Gemtron Polar EF 120 Volts Watts
ONRZ	2-door	3.42	410	1.74	209	1.21	145	2.69	323	1.67	201	1.21	145
	3-door	4.90	588	2.58	309	1.78	213	4.00	480	2.47	297	1.78	213
	4-door	6.37	764	3.36	403	2.30	276	5.39	648	3.35	404	2.43	292
	5-door	7.85	942	4.22	506	2.89	346	6.67	801	4.12	496	2.97	356
	6-door	9.34	1121	5.06	607	3.47	416	8.00	961	4.94	595	3.56	427

2 Eliminator values given for doors with no heat on the glass.

All measurements are taken per ARI 1200 - 2002 specifications.

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

ONRZ - 2, 3, 4, 5 & 6-door

Guidelines & Control Settings

Model	BTUHs[5] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[7] (ºF)
ONRZ: F[3] - Standard	1249[6]	Enh.	-11	3-5	-3	0	460
ONRZ: C[3] - Standard	1309[6]	Enh.	-17	3-5	-8	-5	460
ONRZ: F[3] - Eliminator/Polar LE[4]	1095[6]	Enh.	-11	3-5	-3	0	460
ONRZ: C[3] - Eliminator/Polar LE[4]	1133[6]	Enh.	-17	3-5	-8	-5	460

3 "F" = Frozen food, "C" = Ice cream.

4 Data given for cases with Eliminator and Polar LE Doors.

5 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

6 Standard fans increase refrigeration load by 96 BTUH/fan.

7 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ONRZ	1	13-15	46	73[8]	- - -[9]	- - -	24	73[10]	- - -	- - -

8 The recommended location is in the center of the coil on the second pass. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

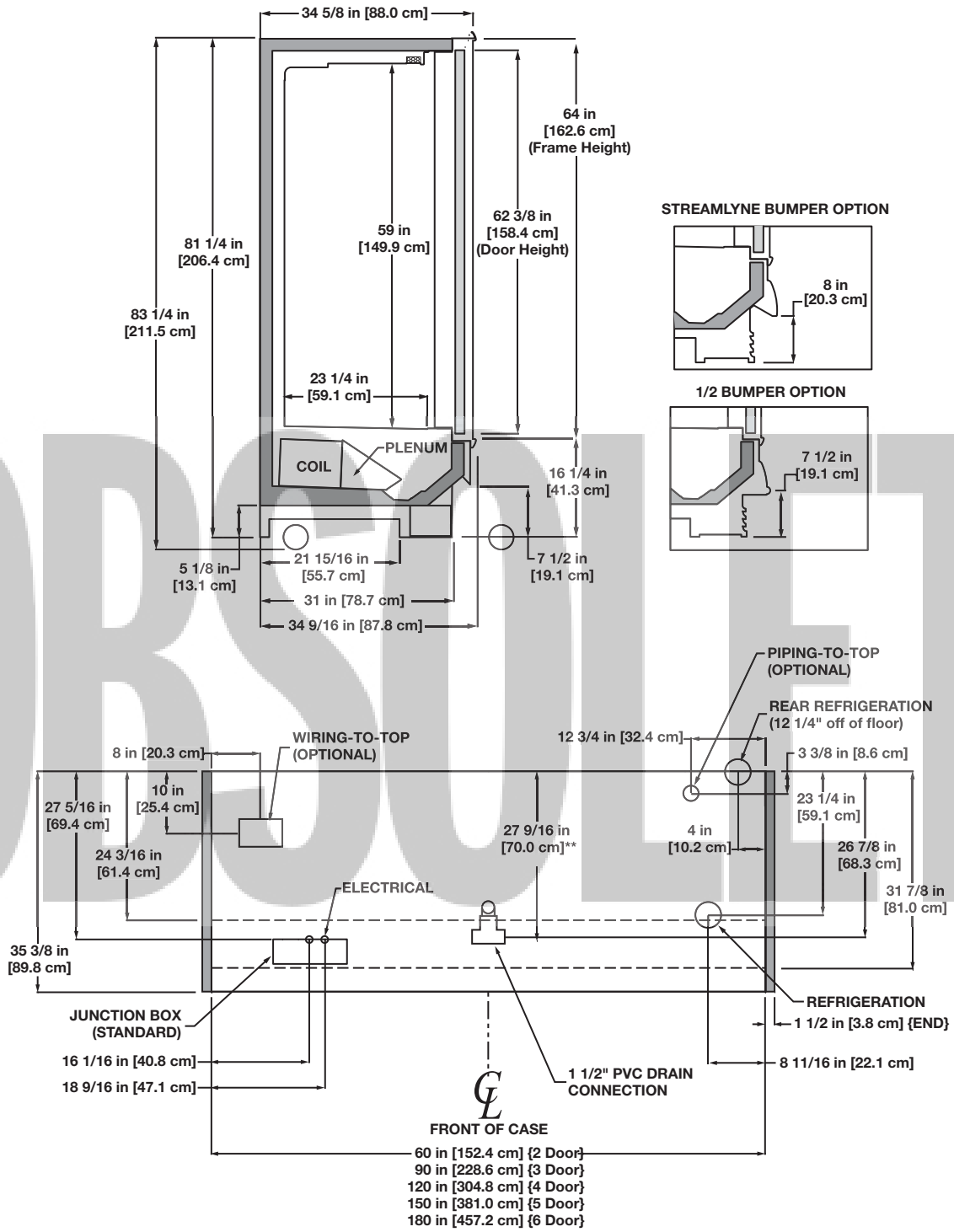
9 NOTE: "---" not an option on this case model.

10 The recommended location is on the dump line. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour



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
- SUCTION LINE (2DR & 3DR) 5/8", SUCTION LINE (4DR, 5DR & 6DR) 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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OBSOLETE

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

ONRZH - 2, 3, 4, 5 & 6-door

Electrical Data

Model		Fans per Case	Standard Fans		High Efficiency Fans		Defrost Heaters (1-Phase)				Defrost Heaters (3-Phase)			
			120 Volts		120 Volts		208 Volts		240 Volts		208 Volts		240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps[1]	Watts	Amps[1]	Watts
ONRZH	2-door	2	1.00	60	0.31	18	13.17	2742	15.18	3645	7.62	2742	8.78	3645
	3-door	3	1.50	90	0.46	28	14.88	3096	17.13	4110	8.60	3096	9.90	4110
	4-door	4	2.00	120	0.611	37	19.53	4065	22.65	5439	11.30	4065	13.10	5439
	5-door	5	2.50	150	0.77	46	23.88	4965	27.51	6603	13.80	4965	15.90	6603
	6-door	6	3.00	180	0.92	55	28.20	5865	32.37	7767	16.30	5865	18.71	7767

1 Figure given is maximum amps per phase.

Lighting Data

Model		Fluorescent		Optimax 2 LED		Optimax 2 BTUH Credit (per door)	Gen 3 LED		Gen 3 BTUH Credit (per door)	Crossfire LED		Crossfire BTUH Credit (per door)
		120 Volts		120 Volts			120 Volts			120 Volts		
		Amps	Watts	Amps	Watts		Amps	Watts		Amps	Watts	
ONRZH	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

Anti-Condensate Heater Data

Model		Anthony 101		Anthony[2] Eliminator		Anthony[2] Eliminator 2		Gemtron Polar		Gemtron Polar LE		Gemtron Polar EF	
		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONRZH	2-door	4.10	492	1.79	214	1.24	149	2.39	287	1.67	201	1.19	143
	3-door	5.89	707	2.63	315	1.81	217	3.58	430	2.50	301	1.78	214
	4-door	7.77	932	3.46	415	2.37	284	4.77	573	3.33	401	2.37	285
	5-door	9.61	1154	4.35	522	2.98	358	6.00	720	4.20	505	3.00	360
	6-door	11.23	1347	5.20	624	3.56	427	7.14	857	4.98	599	3.54	425

2 Eliminator values given for doors with no heat on the glass.

All measurements are taken per ARI 1200 - 2002 specifications.

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

ONRZH - 2, 3, 4, 5 & 6-door

Guidelines & Control Settings

Model	BTUHs[5] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[7] (ºF)
ONRZH: F[3] - Standard	1249[6]	Enh.	-11	3-5	-3	0	405
ONRZH: C[3] - Standard	1309[6]	Enh.	-17	3-5	-8	-5	405
ONRZH: F[3] - Eliminator/Polar LE[4]	1095[6]	Enh.	-11	3-5	-3	0	405
ONRZH: C[3] - Eliminator/Polar LE[4]	1133[6]	Enh.	-17	3-5	-8	-5	405

3 "F" = Frozen food, "C" = Ice cream.

4 Data given for cases with Eliminator and Polar LE Doors.

5 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

6 Standard fans increase refrigeration load by 96 BTUH/fan.

7 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ONRZH	1	13-15	46	73[8]	- - -[9]	- - -	24	73[10]	- - -	- - -

8 The recommended location is in the center of the coil on the second pass. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

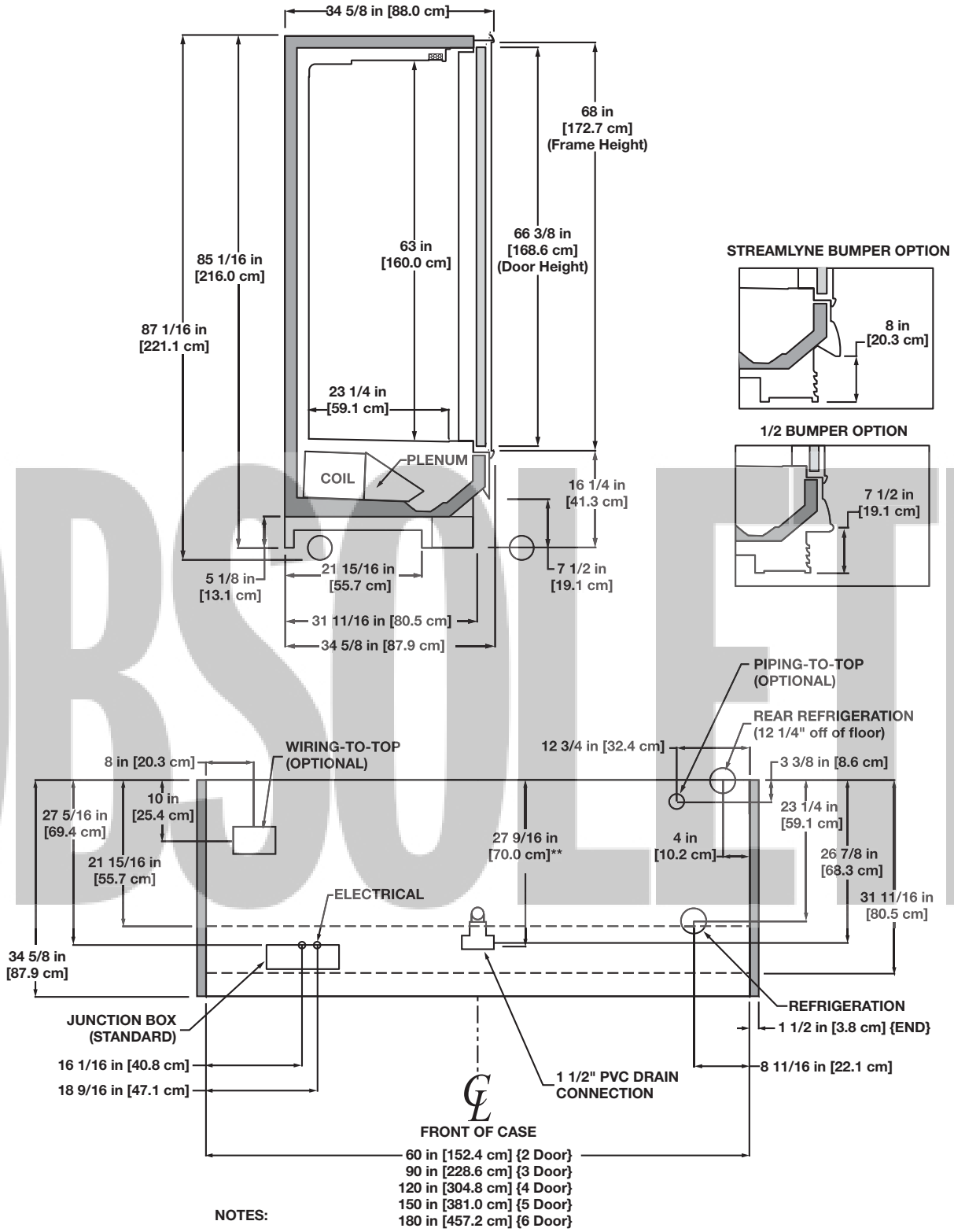
9 NOTE: "---" not an option on this case model.

10 The recommended location is on the dump line. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour



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
- SUCTION LINE (2DR & 3DR) 5/8", SUCTION LINE (4DR, 5DR & 6DR) 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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)
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

OBSOLETE

Glass Door Reach-in Back-to-Back Frozen Food/Ice Cream Merchandiser
ONRZHBO - 2-door

Electrical Data

Model		Fans per Case	Standard Fans		High Efficiency Fans		Defrost Heaters (1-Phase)				Defrost Heaters (3-Phase)			
			120 Volts		120 Volts		208 Volts		240 Volts		208 Volts		240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps[1]	Watts	Amps[1]	Watts
ONRZHBO	2-door	4	1.0	60	0.4	18	13.17	2742	15.18	3645	7.62	2742	8.78	3645

1 Figure given is maximum amps per phase.

Lighting Data

Model		Fluorescent		Optimax 2 LED		Optimax 2 BTUH Credit (per door)	Gen 3 LED		Gen 3 BTUH Credit (per door)
		120 Volts		120 Volts			120 Volts		
		Amps	Watts	Amps	Watts		Amps	Watts	
ONRZHBO	2-door	1.50	180	0.57	68	115	0.48	58	126

Anti-Condensate Heater Data

Model		Anthony C2K		Anthony[2] Eliminator		Anthony[2] Eliminator 2		Gemtron Polar		Gemtron Polar LE		Gemtron Polar EF	
		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONRZHBO	2-door	4.25	510	---[3]	---	---	---	---	---	---	---	---	---

2 Eliminator values given for doors with no heat on the glass.
3 NOTE: "---" not an option on this case model.

All measurements are taken per ARI 1200 - 2002 specifications.

Glass Door Reach-in Back-to-Back Frozen Food/Ice Cream Merchandiser
ONRZHBO - 2-door

Guidelines & Control Settings

Model	BTUHs[4] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[6] (ºF)
ONRZHBO	1194[5]	Enh.	-17	3 - 5	-8	-5	405

4 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

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 (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ONRZHBO	1	13-15	46[7]	73	- - -[8]	- - -	24	73[9]	- - -	- - -

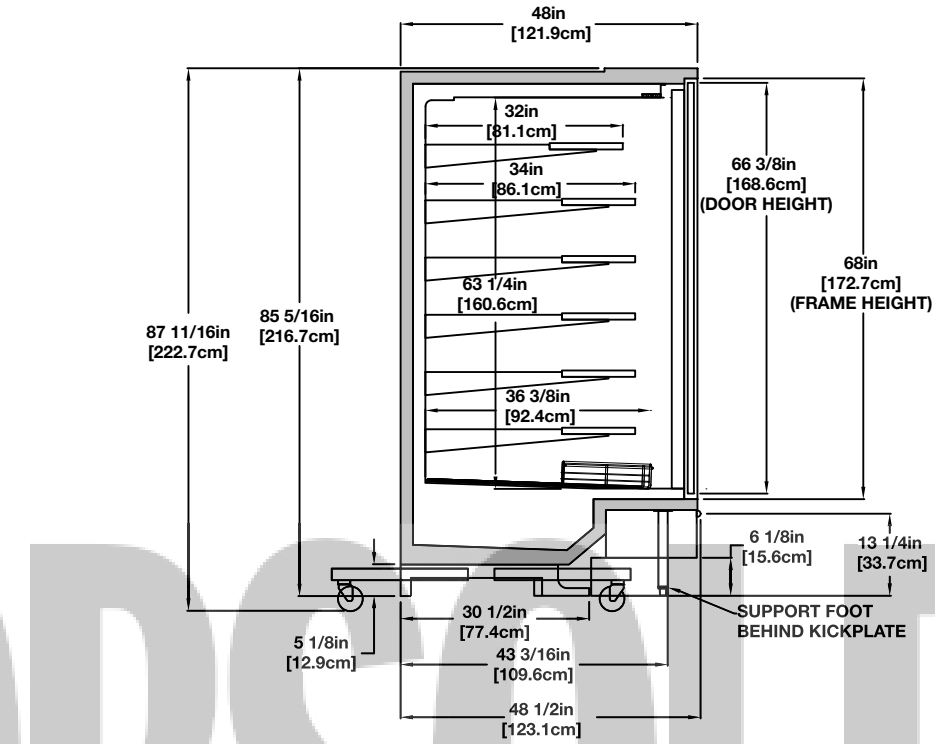
7 The recommended location is in the center of the coil on the second pass. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

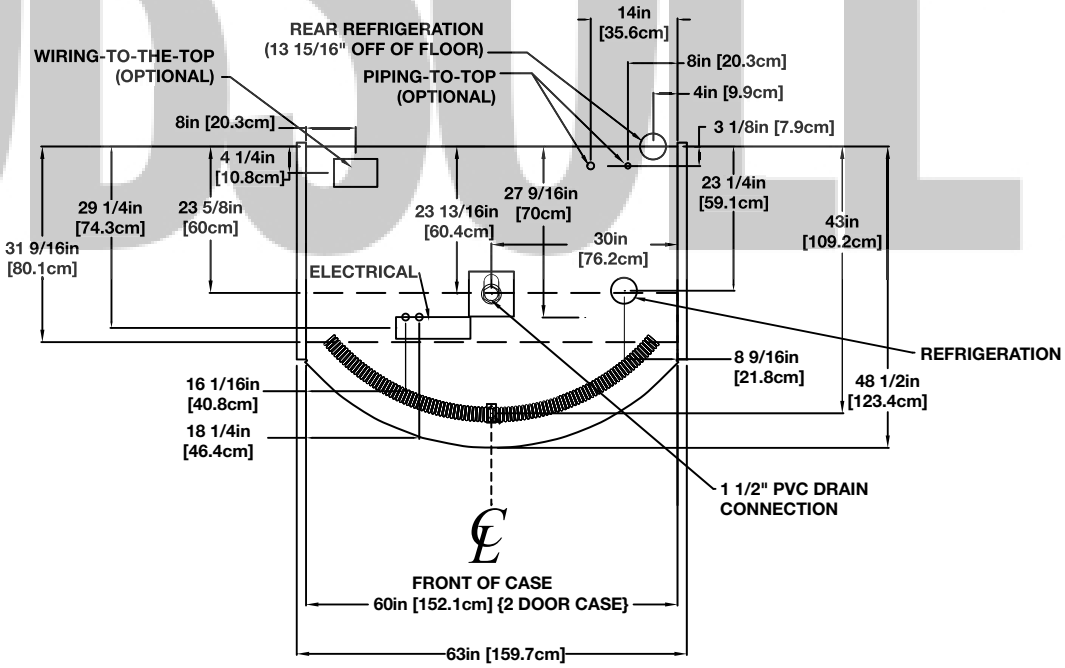
8 The recommended location is on the dump line. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour





NOTES:*
***DASHED LINES SIGNIFY INSIDE AREA OF BASE RAIL
ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT
WIRING-TO-THE-TOP ADDS APPROXIMATELY 3-1/2" 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: 5/8" LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE W/HOT GAS DEFROST (ALL LENGTHS) - 1/2"
AVAILABLE SHELF SIZES: SOLID SHELVES 32" & 34"
(RECOMMENDED CONFIGURATION IS 32" TOP SHELF AND 34" 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		High Efficiency Fans		Defrost Heaters (1-Phase)				Defrost Heaters (3-Phase)			
			120 Volts		120 Volts		208 Volts		240 Volts		208 Volts		240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps[1]	Watts	Amps[1]	Watts
ORZ	2-door	2	1.00	60	0.31	18	13.17	2742	15.18	3645	7.62	2742	8.78	3645
	3-door	3	1.50	90	0.46	28	14.88	3096	17.13	4110	8.60	3096	9.90	4110
	4-door	4	2.00	120	0.611	37	19.53	4065	22.65	5439	11.30	4065	13.10	5439
	5-door	5	2.50	150	0.77	46	23.88	4965	27.51	6603	13.80	4965	15.90	6603
	6-door	6	3.00	180	0.92	55	28.20	5865	32.37	7767	16.30	5865	18.71	7767

1 Figure given is maximum amps per phase.

Lighting Data

Model		Fluorescent		Optimax 2 LED		Optimax 2 BTUH Credit (per door)	Gen 3 LED		Gen 3 BTUH Credit (per door)	Crossfire LED		Crossfire BTUH Credit (per door)
		120 Volts		120 Volts			120 Volts			120 Volts		
		Amps	Watts	Amps	Watts		Amps	Watts		Amps	Watts	
ORZ	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

Anti-Condensate Heater Data

Model		Anthony 101		Anthony[2] Eliminator		Anthony[2] Eliminator 2		Gemtron Polar		Gemtron Polar LE		Gemtron Polar EF	
		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ORZ	2-door	3.42	410	1.74	209	1.21	145	2.69	323	1.67	201	1.21	145
	3-door	4.90	588	2.58	309	1.78	213	4.00	480	2.47	297	1.78	213
	4-door	6.37	764	3.36	403	2.30	276	5.39	648	3.35	404	2.43	292
	5-door	7.85	942	4.22	506	2.89	346	6.67	801	4.12	496	2.97	356
	6-door	9.34	1121	5.06	607	3.47	416	8.00	961	4.94	595	3.56	427

2 Eliminator values given for doors with no heat on the glass.

All measurements are taken per ARI 1200 - 2002 specifications.

Glass Door Reach-in Frozen Food/Ice Cream Merchandiser
ORZ - 2, 3, 4, 5 & 6-door

Guidelines & Control Settings

Model	BTUHs[5] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[7] (ºF)
ORZ: F[3] - Standard	1249[6]	Enh.	-11	3-5	-3	0	405
ORZ: C[3] - Standard	1309[6]	Enh.	-17	3-5	-8	-5	405
ORZ: F[3] - Eliminator/Polar LE[4]	1095[6]	Enh.	-11	3-5	-3	0	405
ORZ: C[3] - Eliminator/Polar LE[4]	1133[6]	Enh.	-17	3-5	-8	-5	405

3 "F" = Frozen food, "C" = Ice cream.

4 Data given for cases with Eliminator and Polar LE Doors.

5 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

6 Standard fans increase refrigeration load by 96 BTUH/fan.

7 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ORZ	1	13-15	46	73[8]	---[9]	---	24	73[10]	---	---

8 The recommended location is in the center of the coil on the second pass. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

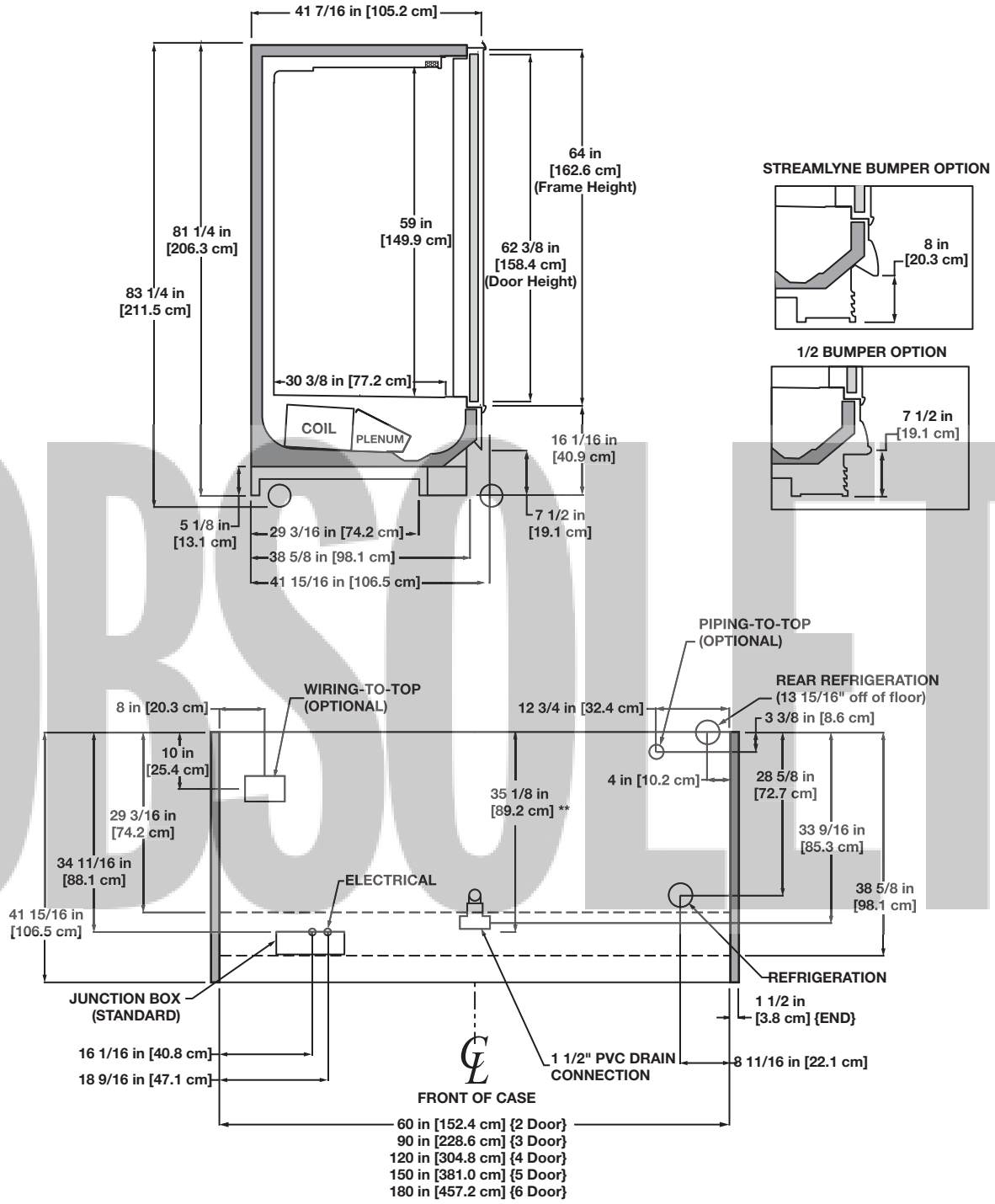
9 NOTE: "---" not an option on this case model.

10 The recommended location is on the dump line. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour



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
- SUCTION LINE (2DR & 3DR) 5/8", SUCTION LINE (4DR, 5DR & 6DR) 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

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	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters (3-Phase) 208 Volts Amps[1]	Defrost Heaters (3-Phase) 208 Volts Watts	Defrost Heaters (3-Phase) 240 Volts Amps[1]	Defrost Heaters (3-Phase) 240 Volts Watts
ORZH	2-door	2	1.00	60	0.31	18	13.17	2742	15.18	3645	7.62	2742	8.78	3645
	3-door	3	1.50	90	0.46	28	14.88	3096	17.13	4110	8.60	3096	9.90	4110
	4-door	4	2.00	120	0.611	37	19.53	4065	22.65	5439	11.30	4065	13.10	5439
	5-door	5	2.50	150	0.77	46	23.88	4965	27.51	6603	13.80	4965	15.90	6603
	6-door	6	3.00	180	0.92	55	28.20	5865	32.37	7767	16.30	5865	18.71	7767

1 Figure given is maximum amps per phase.

Lighting Data

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ORZH	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

Anti-Condensate Heater Data

Model		Anthony 101 120 Volts Amps	Anthony 101 120 Volts Watts	Anthony[2] Eliminator 120 Volts Amps	Anthony[2] Eliminator 120 Volts Watts	Anthony[2] Eliminator 2 120 Volts Amps	Anthony[2] Eliminator 2 120 Volts Watts	Gemtron Polar 120 Volts Amps	Gemtron Polar 120 Volts Watts	Gemtron Polar LE 120 Volts Amps	Gemtron Polar LE 120 Volts Watts	Gemtron Polar EF 120 Volts Amps	Gemtron Polar EF 120 Volts Watts
ORZH	2-door	4.10	492	1.79	214	1.24	149	2.39	287	1.67	201	1.19	143
	3-door	5.89	707	2.63	315	1.81	217	3.58	430	2.50	301	1.78	214
	4-door	7.77	932	3.46	415	2.37	284	4.77	573	3.33	401	2.37	285
	5-door	9.61	1154	4.35	522	2.98	358	6.00	720	4.20	505	3.00	360
	6-door	11.23	1347	5.20	624	3.56	427	7.14	857	4.98	599	3.54	425

2 Eliminator values given for doors with no heat on the glass.

All measurements are taken per ARI 1200 - 2002 specifications.

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

ORZH - 2, 3, 4, 5 & 6-door

Guidelines & Control Settings

Model	BTUHs[5] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[7] (ºF)
ORZH: F[3] - Standard	1249[6]	Enh.	-11	3-5	-3	0	405
ORZH: C[3] - Standard	1309[6]	Enh.	-17	3-5	-8	-5	405
ORZH: F[3] - Eliminator/Polar LE[4]	1095[6]	Enh.	-11	3-5	-3	0	405
ORZH: C[3] - Eliminator/Polar LE[4]	1133[6]	Enh.	-17	3-5	-8	-5	405

3 "F" = Frozen food, "C" = Ice cream.

4 Data given for cases with Eliminator and Polar LE Doors.

5 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

6 Standard fans increase refrigeration load by 96 BTUH/fan.

7 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ORZH	1	13-15	46	73[8]	---[9]	---	24	73[10]	---	---

8 The recommended location is in the center of the coil on the second pass. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

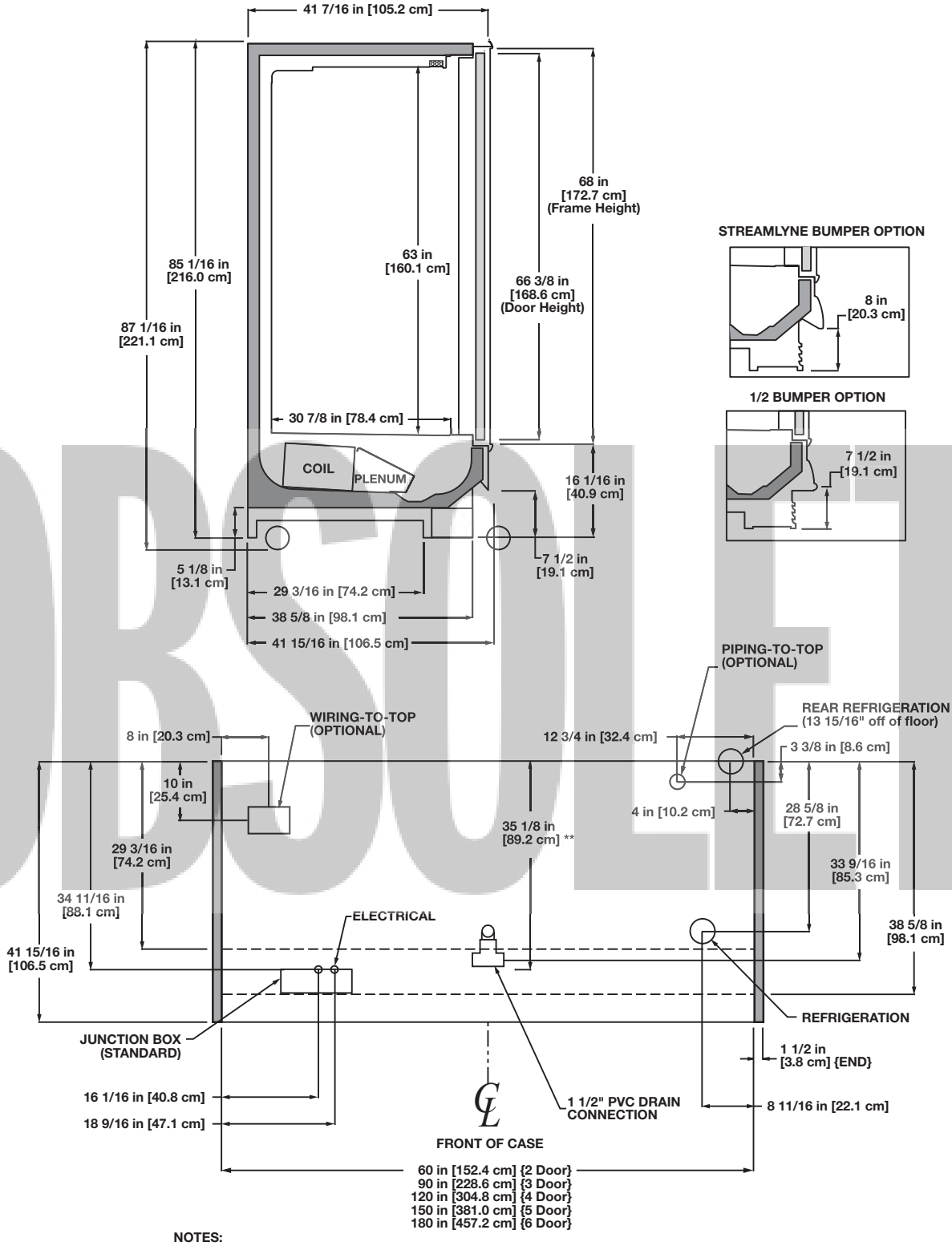
9 NOTE: "---" not an option on this case model.

10 The recommended location is on the dump line. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour



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
- SUCTION LINE (2DR & 3DR) 5/8", SUCTION LINE (4DR, 5DR & 6DR) 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OBSOLETE

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

ONRIZ - 4, 6, 8, 10 & 12-door

Electrical Data

BACK-TO-BACK CONFIGURATION [1]

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	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters (3-Phase) 208 Volts Amps[2]	Defrost Heaters (3-Phase) 208 Volts Watts	Defrost Heaters (3-Phase) 240 Volts Amps[2]	Defrost Heaters (3-Phase) 240 Volts Watts
ONRIZ	4-door	4	2.00	120	0.61	37	26.34	5484	30.36	7290	15.24	5484	17.56	7290
	6-door	6	3.00	180	0.92	55	29.76	6192	34.26	8220	17.21	6192	19.80	8220
	8-door	8	4.00	240	1.22	74	39.06	8130	45.3	10878	22.59	8130	26.20	10878
	10-door	10	5.00	300	1.53	92	47.76	9930	55.02	13206	27.60	9930	31.81	13206
	12-door	12	6.00	360	1.84	110	56.4	11730	64.74	15534	32.60	11730	37.41	15534
SINGLE-SIDE DATA														
ONRIZ	2-door	2	1.00	60	0.31	18	13.17	2742	15.18	3645	7.62	2742	8.78	3645
	3-door	3	1.50	90	0.46	28	14.88	3096	17.13	4110	8.60	3096	9.90	4110
	4-door	4	2.00	120	0.611	37	19.53	4065	22.65	5439	11.30	4065	13.10	5439
	5-door	5	2.50	150	0.77	46	23.88	4965	27.51	6603	13.80	4965	15.90	6603
	6-door	6	3.00	180	0.92	55	28.20	5865	32.37	7767	16.30	5865	18.71	7767

1For back-to-back configurations, customers are required to install seperate current-limiting devices for each side of the case per the amperages listed.
(Current-limiting devices are available for purchase through Hill PHOENIX)
2 Figure given is maximum amps per phase.

Lighting Data

BACK-TO-BACK CONFIGURATION

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ONRIZ	4-door	3.00	360	1.13	136	115	0.97	116	126	1.17	140	113
	6-door	3.80	456	1.70	204	100	1.45	174	112	1.75	210	97
	8-door	4.80	576	2.27	272	92	1.93	232	105	2.33	280	90
	10-door	5.80	696	2.83	340	88	2.42	290	100	2.92	350	86
	12-door	6.80	816	3.40	408	85	2.90	348	98	3.50	420	83
SINGLE-SIDE DATA												
ONRIZ	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

All measurements are taken per ARI 1200 - 2002 specifications.

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

ONRIZ - 4, 6, 8, 10 & 12-door

Anti-Condensate Heater Data

BACK-TO-BACK CONFIGURATION													
		Anthony 101		Anthony[3] Eliminator		Anthony[3] Eliminator 2		Gemtron Polar		Gemtron Polar LE		Gemtron Polar EF	
		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
Model		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONRIZ	4-door	6.83	820	3.48	418	2.42	290	5.38	646	3.34	402	2.42	290
	6-door	9.79	1176	5.15	618	3.56	427	8.00	961	4.94	595	3.56	427
	8-door	12.73	1528	6.72	807	4.60	552	10.78	1296	6.70	808	4.86	584
	10-door	15.70	1884	8.43	1012	5.77	693	13.34	1602	8.24	992	5.94	712
	12-door	18.67	2241	10.13	1215	6.93	832	16.00	1922	9.88	1190	7.12	854
SINGLE-SIDE DATA													
ONRIZ	2-door	3.42	410	1.74	209	1.21	145	2.69	323	1.67	201	1.21	145
	3-door	4.90	588	2.58	309	1.78	213	4.00	480	2.47	297	1.78	213
	4-door	6.37	764	3.36	403	2.30	276	5.39	648	3.35	404	2.43	292
	5-door	7.85	942	4.22	506	2.89	346	6.67	801	4.12	496	2.97	356
	6-door	9.34	1121	5.06	607	3.47	416	8.00	961	4.94	595	3.56	427

3 Eliminator values given for doors with no heat on the glass.

Guidelines & Control Settings

Model	BTUHs[6] per door (per side)	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[8] (ºF)
ONRIZ: F[4] - Standard	1066[7]	Enh.	-11	3-5	-3	0	460
ONRIZ: C[4] - Standard	1138[7]	Enh.	-17	3-5	-8	-5	460
ONRIZ: F[4] - Eliminator/Polar LE[5]	966[7]	Enh.	-11	3-5	-3	0	460
ONRIZ: C[4] - Eliminator/Polar LE[5]	983[7]	Enh.	-17	3-5	-8	-5	460

4 "F" = Frozen food, "C" = Ice cream.

5 Data given for cases with Eliminator and Polar LE Doors.

6 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04. BTUHs listed are per side/per door.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ONRIZ	1	13-15	46	73[9]	---[10]	---	24	73[11]	---	---

9 The recommended location is in the center of the coil on the second pass. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

10 NOTE: "---" not an option on this case model.

11 The recommended location is on the dump line. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour

04/09

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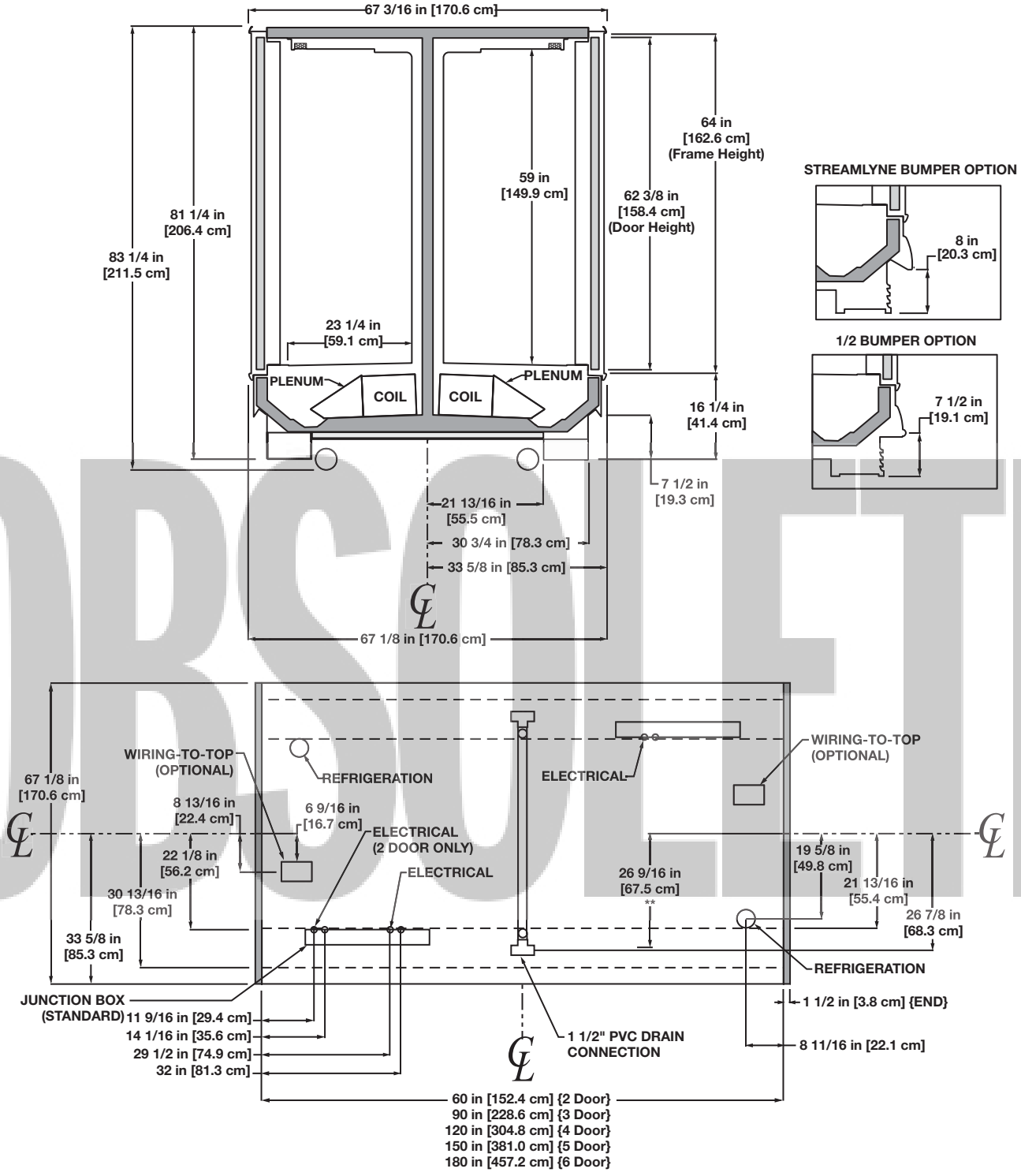
ONRIZ



NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE (2DR & 3DR) 5/8", SUCTION LINE (4DR, 5DR & 6DR) 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

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

ONRIZH - 4, 6, 8, 10 & 12-door

Electrical Data

BACK-TO-BACK CONFIGURATION [1]

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	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters (3-Phase) 208 Volts Amps[2]	Defrost Heaters (3-Phase) 208 Volts Watts	Defrost Heaters (3-Phase) 240 Volts Amps[2]	Defrost Heaters (3-Phase) 240 Volts Watts
ONRIZH	4-door	4	2.00	120	0.61	37	26.34	5484	30.36	7290	15.24	5484	17.56	7290
	6-door	6	3.00	180	0.92	55	29.76	6192	34.26	8220	17.21	6192	19.80	8220
	8-door	8	4.00	240	1.22	74	39.06	8130	45.3	10878	22.59	8130	26.20	10878
	10-door	10	5.00	300	1.53	92	47.76	9930	55.02	13206	27.60	9930	31.81	13206
	12-door	12	6.00	360	1.84	110	56.4	11730	64.74	15534	32.60	11730	37.41	15534
SINGLE-SIDE DATA														
ONRIZH	2-door	2	1.00	60	0.31	18	13.17	2742	15.18	3645	7.62	2742	8.78	3645
	3-door	3	1.50	90	0.46	28	14.88	3096	17.13	4110	8.60	3096	9.90	4110
	4-door	4	2.00	120	0.611	37	19.53	4065	22.65	5439	11.30	4065	13.10	5439
	5-door	5	2.50	150	0.77	46	23.88	4965	27.51	6603	13.80	4965	15.90	6603
	6-door	6	3.00	180	0.92	55	28.20	5865	32.37	7767	16.30	5865	18.71	7767

1 For back-to-back configurations, customers are required to install seperate current-limiting devices for each side of the case per the amperages listed.
(Current-limiting devices are available for purchase through Hill PHOENIX)

2 Figure given is maximum amps per phase.

Lighting Data

BACK-TO-BACK CONFIGURATION

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ONRIZH	4-door	3.00	360	1.13	136	115	0.97	116	126	1.17	140	113
	6-door	3.80	456	1.70	204	100	1.45	174	112	1.75	210	97
	8-door	4.80	576	2.27	272	92	1.93	232	105	2.33	280	90
	10-door	5.80	696	2.83	340	88	2.42	290	100	2.92	350	86
	12-door	6.80	816	3.40	408	85	2.90	348	98	3.50	420	83
SINGLE-SIDE DATA												
ONRIZH	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

All measurements are taken per ARI 1200 - 2002 specifications.

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

ONRIZH - 4, 6, 8, 10 & 12-door

Anti-Condensate Heater Data

BACK-TO-BACK CONFIGURATION													
		Anthony 101		Anthony[3] Eliminator		Anthony[3] Eliminator 2		Gemtron Polar		Gemtron Polar LE		Gemtron Polar EF	
		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
Model		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONRIZH	4-door	8.20	985	3.57	428	2.48	297	4.78	574	3.34	402	2.38	286
	6-door	11.78	1414	5.26	631	3.62	434	7.16	860	5.00	602	3.56	428
	8-door	15.54	1864	6.92	830	4.74	568	9.54	1145	6.66	801	4.74	569
	10-door	19.23	2308	8.70	1044	5.97	716	12.00	1440	8.40	1010	6.00	720
	12-door	22.45	2694	10.40	1248	7.12	855	14.28	1715	9.96	1199	7.08	851
SINGLE-SIDE DATA													
ONRIZH	2-door	4.10	492	1.79	214	1.24	149	2.39	287	1.67	201	1.19	143
	3-door	5.89	707	2.63	315	1.81	217	3.58	430	2.50	301	1.78	214
	4-door	7.77	932	3.46	415	2.37	284	4.77	573	3.33	401	2.37	285
	5-door	9.61	1154	4.35	522	2.98	358	6.00	720	4.20	505	3.00	360
	6-door	11.23	1347	5.20	624	3.56	427	7.14	857	4.98	599	3.54	425

3 Eliminator values given for doors with no heat on the glass.

Guidelines & Control Settings

Model	BTUHs[6] per door (per side)	Coil Type	Evaporator (°F)	Superheat Set Point @bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (°F)
ONRIZH: F[4] - Standard	1066[7]	Enh.	-11	3-5	-3	0	460
ONRIZH: C[4] - Standard	1138[7]	Enh.	-17	3-5	-8	-5	460
ONRIZH: F[4] - Eliminator/Polar LE[5]	966[7]	Enh.	-11	3-5	-3	0	460
ONRIZH: C[4] - Eliminator/Polar LE[5]	983[7]	Enh.	-17	3-5	-8	-5	460

4 "F" = Frozen food, "C" = Ice cream.

5 Data given for cases with Eliminator and Polar LE Doors.

6 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04. BTUHs listed are per side/per door.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
ONRIZH	1	13-15	46	73[9]	---[10]	---	24	73[11]	---	---

9 The recommended location is in the center of the coil on the second pass. If using a discharge air temperature to terminate defrost, utilize a 55°F termination temp.

10 NOTE: "---" not an option on this case model.

11 The recommended location is on the dump line. If using a discharge air temperature to terminate defrost, utilize a 55°F termination temp.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour

04/09

NSF COMPONENT

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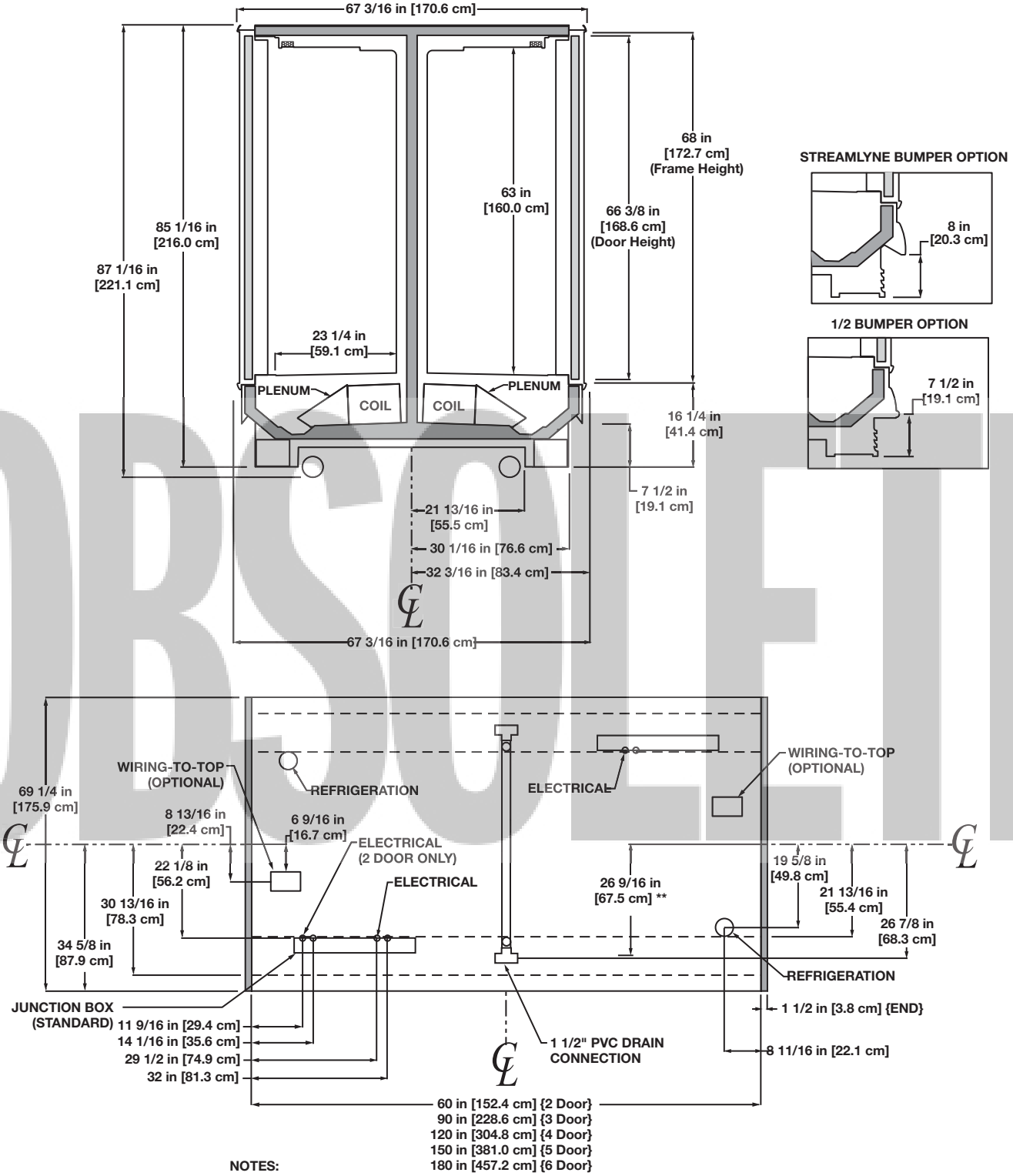


NOTES:

* 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
- SUCTION LINE (2DR & 3DR) 5/8", SUCTION LINE (4DR, 5DR & 6DR) 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

OBSOLETE

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

ORIZ - 4, 6, 8, 10 & 12-door

Electrical Data

BACK-TO-BACK CONFIGURATION [1]

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	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters (3-Phase) 208 Volts Amps[2]	Defrost Heaters (3-Phase) 208 Volts Watts	Defrost Heaters (3-Phase) 240 Volts Amps[2]	Defrost Heaters (3-Phase) 240 Volts Watts
ORIZ	4-door	4	2.00	120	0.61	37	26.34	5484	30.36	7290	15.24	5484	17.56	7290
	6-door	6	3.00	180	0.92	55	29.76	6192	34.26	8220	17.21	6192	19.80	8220
	8-door	8	4.00	240	1.22	74	39.06	8130	45.3	10878	22.59	8130	26.20	10878
	10-door	10	5.00	300	1.53	92	47.76	9930	55.02	13206	27.60	9930	31.81	13206
	12-door	12	6.00	360	1.84	110	56.4	11730	64.74	15534	32.60	11730	37.41	15534
SINGLE-SIDE DATA														
ORIZ	2-door	2	1.00	60	0.31	18	13.17	2742	15.18	3645	7.62	2742	8.78	3645
	3-door	3	1.50	90	0.46	28	14.88	3096	17.13	4110	8.60	3096	9.90	4110
	4-door	4	2.00	120	0.611	37	19.53	4065	22.65	5439	11.30	4065	13.10	5439
	5-door	5	2.50	150	0.77	46	23.88	4965	27.51	6603	13.80	4965	15.90	6603
	6-door	6	3.00	180	0.92	55	28.20	5865	32.37	7767	16.30	5865	18.71	7767

1 For back-to-back configurations, customers are required to install seperate current-limiting devices for each side of the case per the amperages listed.
(Current-limiting devices are available for purchase through Hill PHOENIX)

2 Figure given is maximum amps per phase.

Lighting Data

BACK-TO-BACK CONFIGURATION

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ORIZ	4-door	3.00	360	1.13	136	115	0.97	116	126	1.17	140	113
	6-door	3.80	456	1.70	204	100	1.45	174	112	1.75	210	97
	8-door	4.80	576	2.27	272	92	1.93	232	105	2.33	280	90
	10-door	5.80	696	2.83	340	88	2.42	290	100	2.92	350	86
	12-door	6.80	816	3.40	408	85	2.90	348	98	3.50	420	83
SINGLE-SIDE DATA												
ORIZ	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

All measurements are taken per ARI 1200 - 2002 specifications.

Anti-Condensate Heater Data

BACK-TO-BACK CONFIGURATION													
		Anthony 101		Anthony[3] Eliminator		Anthony[3] Eliminator 2		Gemtron Polar		Gemtron Polar LE		Gemtron Polar EF	
		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
Model		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ORIZ	4-door	6.83	820	3.48	418	2.42	290	5.38	646	3.34	402	2.42	290
	6-door	9.79	1176	5.15	618	3.56	427	8.00	961	4.94	595	3.56	427
	8-door	12.73	1528	6.72	807	4.60	552	10.78	1296	6.70	808	4.86	584
	10-door	15.70	1884	8.43	1012	5.77	693	13.34	1602	8.24	992	5.94	712
	12-door	18.67	2241	10.13	1215	6.93	832	16.00	1922	9.88	1190	7.12	854
SINGLE-SIDE DATA													
ORIZ	2-door	3.42	410	1.74	209	1.21	145	2.69	323	1.67	201	1.21	145
	3-door	4.90	588	2.58	309	1.78	213	4.00	480	2.47	297	1.78	213
	4-door	6.37	764	3.36	403	2.30	276	5.39	648	3.35	404	2.43	292
	5-door	7.85	942	4.22	506	2.89	346	6.67	801	4.12	496	2.97	356
	6-door	9.34	1121	5.06	607	3.47	416	8.00	961	4.94	595	3.56	427

3 Eliminator values given for doors with no heat on the glass.

Guidelines & Control Settings

Model	BTUHs[6] per door (per side)	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[8] (ºF)
ORIZ: F[4] - Standard	1066[7]	Enh.	-11	3-5	-3	0	460
ORIZ: C[4] - Standard	1138[7]	Enh.	-17	3-5	-8	-5	460
ORIZ: F[4] - Eliminator/Polar LE[5]	966[7]	Enh.	-11	3-5	-3	0	460
ORIZ: C[4] - Eliminator/Polar LE[5]	983[7]	Enh.	-17	3-5	-8	-5	460

4 "F" = Frozen food, "C" = Ice cream.

5 Data given for cases with Eliminator and Polar LE Doors.

6 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04. BTUHs are listed per door/per side.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ORIZ	1	13-15	46	73[9]	---[10]	---	24	73[11]	---	---

9 The recommended location is in the center of the coil on the second pass. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

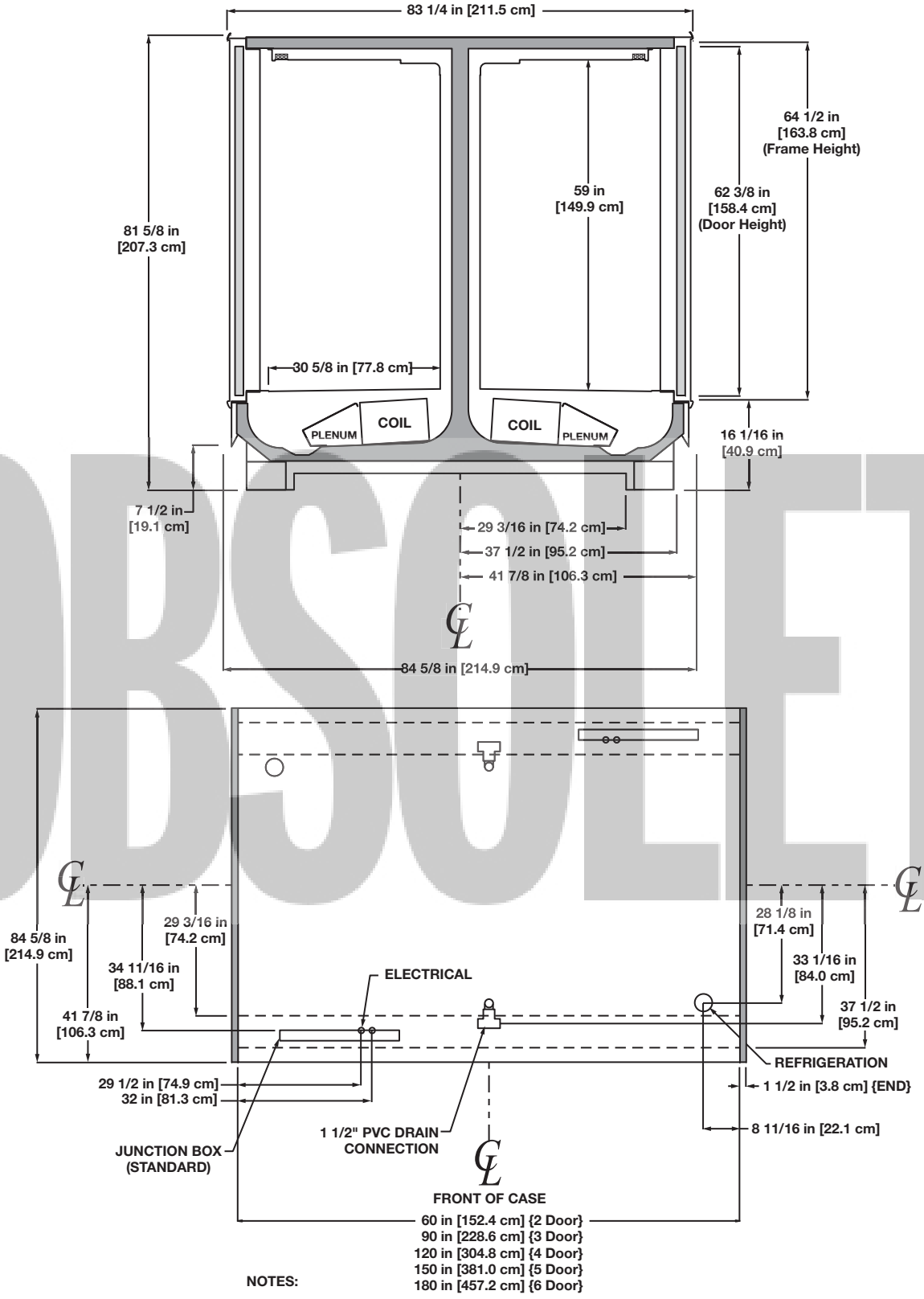
10 NOTE: "---" not an option on this case model.

11 The recommended location is on the dump line. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour



NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OBSOLETE

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

ORIZH - 4, 6, 8, 10 & 12-door

Electrical Data

BACK-TO-BACK CONFIGURATION [1]

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	Defrost Heaters (1-Phase) 208 Volts Amps	Defrost Heaters (1-Phase) 208 Volts Watts	Defrost Heaters (1-Phase) 240 Volts Amps	Defrost Heaters (1-Phase) 240 Volts Watts	Defrost Heaters (3-Phase) 208 Volts Amps[2]	Defrost Heaters (3-Phase) 208 Volts Watts	Defrost Heaters (3-Phase) 240 Volts Amps[2]	Defrost Heaters (3-Phase) 240 Volts Watts
ORIZH	4-door	4	2.00	120	0.61	37	26.34	5484	30.36	7290	15.24	5484	17.56	7290
	6-door	6	3.00	180	0.92	55	29.76	6192	34.26	8220	17.21	6192	19.80	8220
	8-door	8	4.00	240	1.22	74	39.06	8130	45.3	10878	22.59	8130	26.20	10878
	10-door	10	5.00	300	1.53	92	47.76	9930	55.02	13206	27.60	9930	31.81	13206
	12-door	12	6.00	360	1.84	110	56.4	11730	64.74	15534	32.60	11730	37.41	15534

SINGLE-SIDE DATA

ORIZH	2-door	2	1.00	60	0.31	18	13.17	2742	15.18	3645	7.62	2742	8.78	3645
	3-door	3	1.50	90	0.46	28	14.88	3096	17.13	4110	8.60	3096	9.90	4110
	4-door	4	2.00	120	0.611	37	19.53	4065	22.65	5439	11.30	4065	13.10	5439
	5-door	5	2.50	150	0.77	46	23.88	4965	27.51	6603	13.80	4965	15.90	6603
	6-door	6	3.00	180	0.92	55	28.20	5865	32.37	7767	16.30	5865	18.71	7767

1 For back-to-back configurations, customers are required to install seperate current-limiting devices for each side of the case per the amperages listed.
(Current-limiting devices are available for purchase through Hill PHOENIX)

2 Figure given is maximum amps per phase.

Lighting Data

BACK-TO-BACK CONFIGURATION

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Total BTUH BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
ORIZH	4-door	3.00	360	1.13	136	115	0.97	116	126	1.17	140	113
	6-door	3.80	456	1.70	204	100	1.45	174	112	1.75	210	97
	8-door	4.80	576	2.27	272	92	1.93	232	105	2.33	280	90
	10-door	5.80	696	2.83	340	88	2.42	290	100	2.92	350	86
	12-door	6.80	816	3.40	408	85	2.90	348	98	3.50	420	83

SINGLE-SIDE DATA

ORIZH	2-door	1.50	180	0.57	68	115	0.48	58	126	0.58	70	113
	3-door	1.90	228	0.85	102	100	0.73	87	112	0.88	105	97
	4-door	2.40	288	1.13	136	92	0.97	116	105	1.17	140	90
	5-door	2.90	348	1.42	170	88	1.21	145	100	1.46	175	86
	6-door	3.40	408	1.70	204	85	1.45	174	98	1.75	210	83

All measurements are taken per ARI 1200 - 2002 specifications.

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

ORIZH - 4, 6, 8, 10 & 12-door

Anti-Condensate Heater Data

BACK-TO-BACK CONFIGURATION													
		Anthony 101		Anthony[3] Eliminator		Anthony[3] Eliminator 2		Gemtron Polar		Gemtron Polar LE		Gemtron Polar EF	
		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
Model		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ORIZH	4-door	8.20	985	3.57	428	2.48	297	4.78	574	3.34	402	2.38	286
	6-door	11.78	1414	5.26	631	3.62	434	7.16	860	5.00	602	3.56	428
	8-door	15.54	1864	6.92	830	4.74	568	9.54	1145	6.66	801	4.74	569
	10-door	19.23	2308	8.70	1044	5.97	716	12.00	1440	8.40	1010	6.00	720
	12-door	22.45	2694	10.40	1248	7.12	855	14.28	1715	9.96	1199	7.08	851
SINGLE-SIDE DATA													
ORIZH	2-door	4.10	492	1.79	214	1.24	149	2.39	287	1.67	201	1.19	143
	3-door	5.89	707	2.63	315	1.81	217	3.58	430	2.50	301	1.78	214
	4-door	7.77	932	3.46	415	2.37	284	4.77	573	3.33	401	2.37	285
	5-door	9.61	1154	4.35	522	2.98	358	6.00	720	4.20	505	3.00	360
	6-door	11.23	1347	5.20	624	3.56	427	7.14	857	4.98	599	3.54	425

3 Eliminator values given for doors with no heat on the glass.

Guidelines & Control Settings

Model	BTUHs[6] per door (per side)	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[8] (ºF)
ORIZH: F[4] - Standard	1066[7]	Enh.	-11	3-5	-3	0	460
ORIZH: C[4] - Standard	1138[7]	Enh.	-17	3-5	-8	-5	460
ORIZH: F[4] - Eliminator/Polar LE[5]	966[7]	Enh.	-11	3-5	-3	0	460
ORIZH: C[4] - Eliminator/Polar LE[5]	983[7]	Enh.	-17	3-5	-8	-5	460

4 "F" = Frozen food, "C" = Ice cream.

5 Data given for cases with Eliminator and Polar LE Doors.

6 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04. BTUHs are listed per door/per side. These do not include both sides of the case.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
ORIZH	1	13-15	46	73[9]	---[10]	---	24	73[11]	---	---

9 The recommended location is in the center of the coil on the second pass. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

10 NOTE: "---" not an option on this case model.

11The recommended location is on the dump line. If using a discharge air temperature to terminate defrost, utilize a 55ºF termination temp.

Low Temperature Defrost Schedule

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

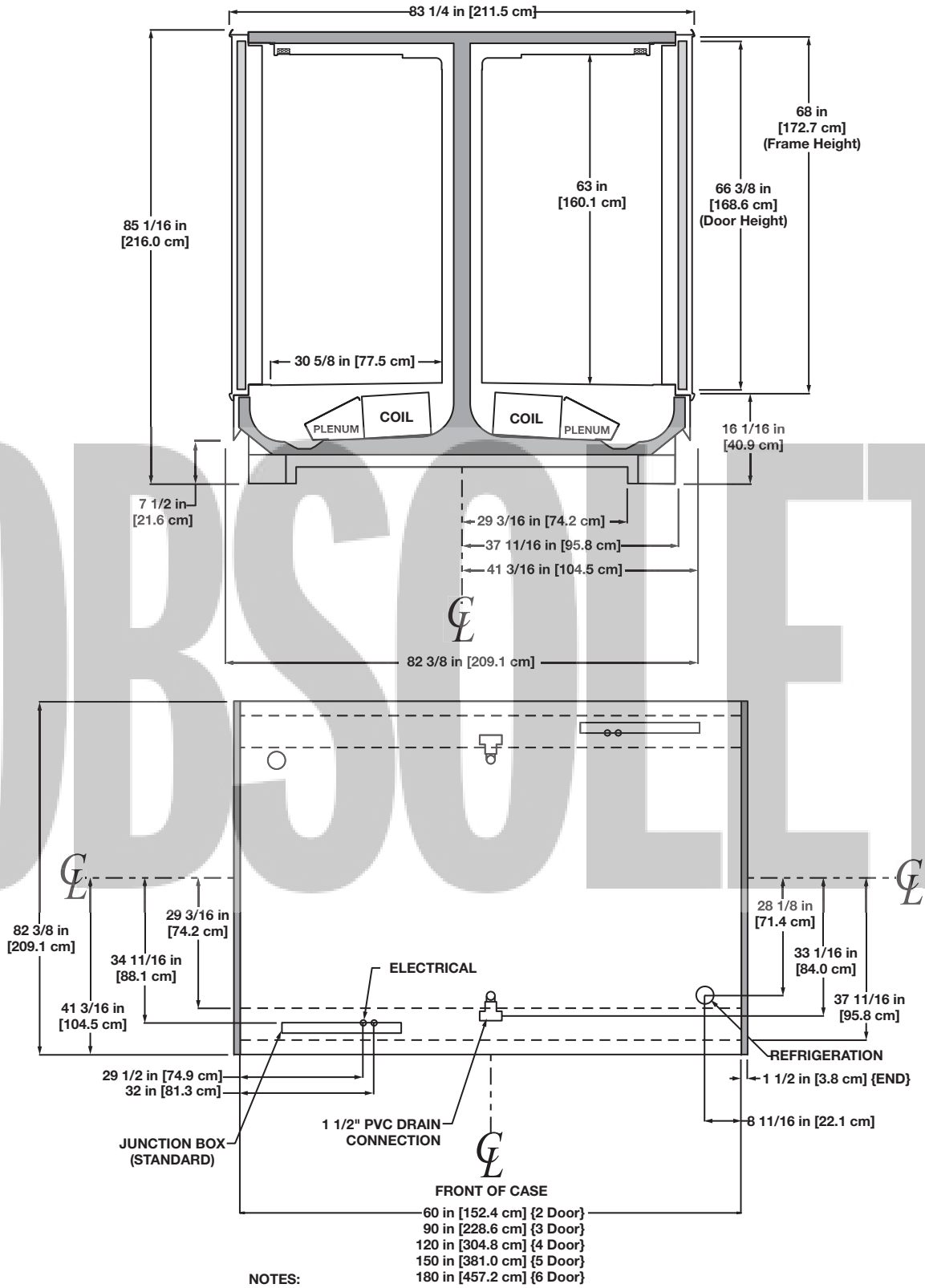
** Or immediately after store closing hour

04/09

NSF COMPONENT

c UL us

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
- 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
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OBSOLETE

Glass Door Reach-in Beverage Merchandiser

RBH - 8' & 12'

Electrical Data

Model		Fans per Case	Standard Fans[1] 120 Volts Amps	Standard Fans[1] 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
RBH	8'	2	---	---	0.31	18	3.85	800	4.44	1065
	12'	3	---	---	0.46	28	5.78	1200	6.67	1600

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

Lighting Data

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
RBH	8'	2.50	300	0.98	117	150	0.85	102	162	1.05	126	142
	12'	3.13	376	1.30	156	135	1.13	136	147	1.40	168	128

Guidelines & Control Settings

Model	BTUHs[3] per door	Coil Type	Evaporator (°F)	Superheat Set Point @bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (°F)
RBH[2]	1035[4]	Enh.	34	6-8	38	40	380

2 ORBR-8' has 3 doors, ORBR-12' has 4 doors.

3 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

Anti-Condensate Heater Data

Model		Anthony 101 120 Volts Amps	Anthony 101 120 Volts Watts
RBH	8'	1.62	194
	12'	2.26	272

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)
RBH	4[6]	6-8	30	47	30	40	24	47	---	---

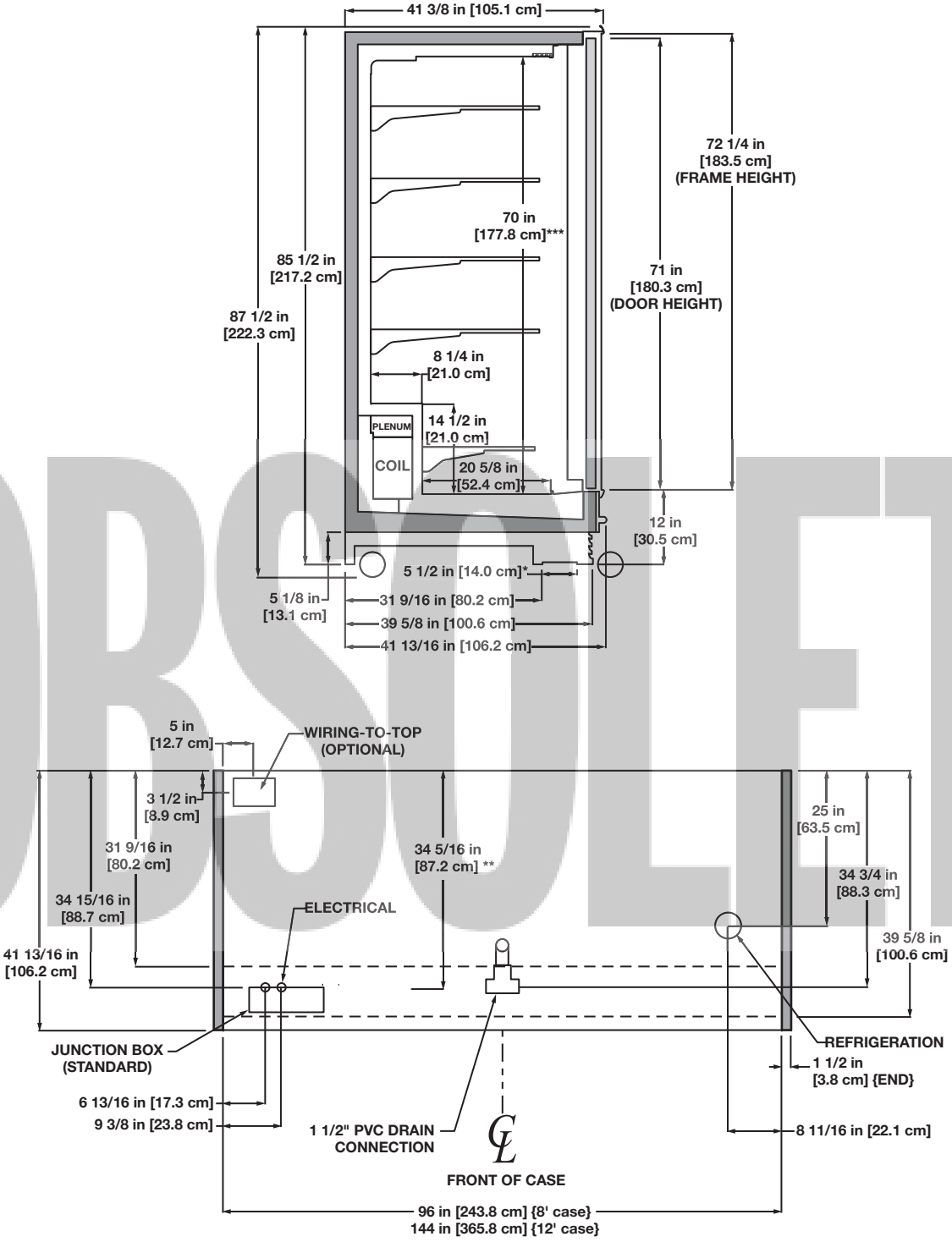
6 If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrot per day.

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 ARI 1200 - 2002 specifications.



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
*** CASE-TO-CASE PIPING REDUCES THE INTERIOR DIMENSION TO 68"

- 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
- SUCTION LINE (ALL LENGTHS) 1/2"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22" & 23 1/2"; SOLID SHELVES 18", 20", 22", 24" & 27"
- RECOMMENDED CONFIGURATION IS 4 - 27" SHELVES AND 1 - 18" SHELF AT THE BOTTOM OF THE CASE
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

Glass Door Reach-in Frozen Food/Ice Cream Merchandiser

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

Electrical Data

Model		Fans per Case	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Fluorescent Lighting 120 Volts Amps	Fluorescent Lighting 120 Volts Watts	Defrost Heaters (Hot Gas) 120 Volts Amps	Defrost Heaters (Hot Gas) 120 Volts Watts	Defrost Heaters (Electric) 208 Volts Amps[1]	Defrost Heaters (Electric) 208 Volts Watts	Defrost Heaters (Electric) 240 Volts Amps[1]	Defrost Heaters (Electric) 240 Volts Watts
RZH	2-door	2	0.63	54	1.88	226	5.44	653	14.41	2996	15.06	3616
	3-door	3	1.25	108	2.50	300	6.97	837	18.22	3791	18.54	4452
	4-door	4	1.90	161	3.13	376	9.17	1100	23.22	4829	23.44	5627
	5-door	5	2.50	215	3.75	450	10.84	1300	28.91	6014	29.02	6967

1 Figure given is maximum amps per phase.

Lighting Data

Model		Fluorescent 120 Volts Amps	Fluorescent 120 Volts Watts	Optimax 2 LED 120 Volts Amps	Optimax 2 LED 120 Volts Watts	Optimax 2 BTUH Credit (per door)	Gen 3 LED 120 Volts Amps	Gen 3 LED 120 Volts Watts	Gen 3 BTUH Credit (per door)	Crossfire LED 120 Volts Amps	Crossfire LED 120 Volts Watts	Crossfire BTUH Credit (per door)
RZH	2-door	1.88	226	0.65	78	182	0.57	68	194	0.70	84	174
	3-door	2.50	300	0.98	117	150	0.85	102	162	1.05	126	142
	4-door	3.13	376	1.30	156	135	1.13	136	147	1.40	168	128
	5-door	3.75	450	1.63	195	125	1.42	170	138	1.75	210	118

Anti-Condensate Heater Data

Model		Anthony 101 120 Volts Amps	Anthony 101 120 Volts Watts	Anthony[2] Eliminator 120 Volts Amps	Anthony[2] Eliminator 120 Volts Watts	Anthony[2] Eliminator 2 120 Volts Amps	Anthony[2] Eliminator 2 120 Volts Watts
RZH	2-door	4.40	528	1.86	223	1.28	153
	3-door	6.15	738	2.77	332	1.89	227
	4-door	7.99	958	3.63	435	2.46	295
	5-door	9.90	1188	4.57	548	3.11	373

2 Eliminator values given for doors with no heat on the glass.

All measurements are taken per ARI 1200 - 2002 specifications.

Glass Door Reach-in Frozen Food/Ice Cream Merchandiser

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

Guidelines & Control Settings

Model	BTUHs[5] per door	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[7] (ºF)
RZH: F[3] - Standard	1434[6]	Enh.	-11	3-5	-4	3	550
RZH: C[3] - Standard	1534[6]	Enh.	-17	3-5	-10	-3	550
RZH: F[3] - Eliminator/Polar LE[4]	1258[6]	Enh.	-11	3-5	-4	3	550
RZH: C[3] - Eliminator/Polar LE[4]	1358[5]	Enh.	-17	3-5	-10	-3	550

3 "F" = Frozen food, "C" = Ice cream.

4 Data given for cases with Eliminator and Polar LE Doors.

5 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

6 Standard fans increase refrigeration load by 96 BTUH/fan.

7 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
RZH	1	13-15	52	48[8]	---	---	24	73[9]	---	---

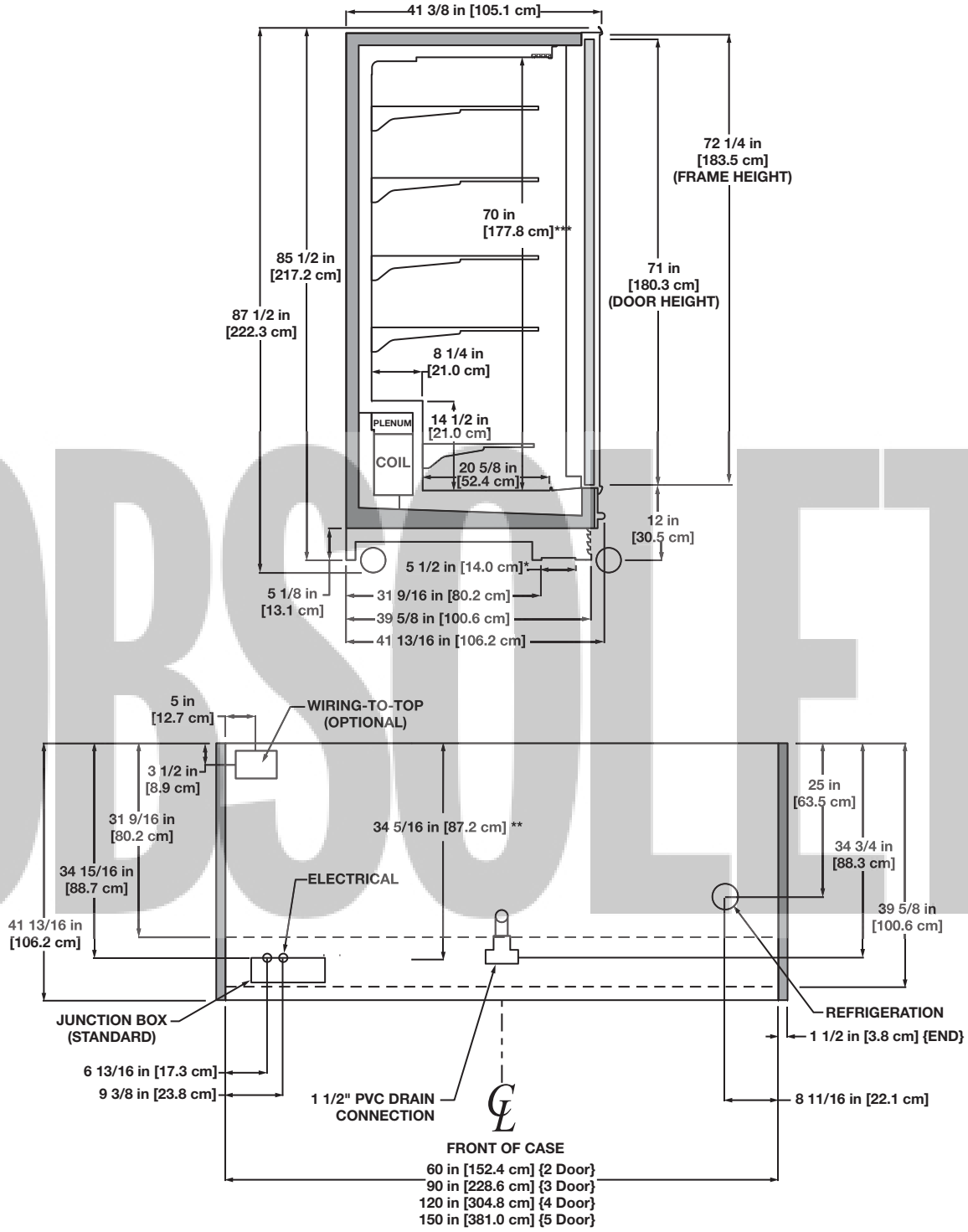
8 The recommended location is on the left end of the coil on the top crossover.

9 The recommended location is on the dump line.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
*** CASE-TO-CASE PIPING REDUCES THE INTERIOR DIMENSION TO 68"

- 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
- SUCTION LINE (2DR & 3DR) 5/8", SUCTION LINE (4DR & 5DR) 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22" & 23 1/2"; SOLID SHELVES 18", 20", 22", 24" & 27"
- RECOMMENDED CONFIGURATION IS 4 - 27" SHELVES AND 1 - 18" SHELF AT THE BOTTOM OF THE CASE
- DASHED LINES SIGNIFY THE AREA INSIDE THE BASE RAIL BEHIND THE KICK-PLATE

NSF COMPONENT

OBSOLETE

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

RIZH - 4, 6, 8 & 10-door

Electrical Data

BACK-TO-BACK CONFIGURATION[1]										
			High Efficiency Fans		Defrost Heaters (Hot Gas)		Defrost Heaters (Electric)			
			120 Volts		120 Volts		208 Volts		240 Volts	
Model		Fans per Case	Amps	Watts	Amps	Watts	Amps[2]	Watts	Amps[2]	Watts
RIZH	4-door	4	0.94	56	4.22	506	19.60	4076	22.58	5420
	6-door	6	1.40	84	7.28	874	23.60	4910	27.16	6520
	8-door	8	1.86	112	10.00	1200	31.22	6492	36.16	8680
	10-door	10	2.34	140	13.33	1600	38.70	8050	44.62	10708
SINGLE-SIDE DATA										
RIZH	2-door	2	0.47	28	2.11	253	9.80	2038	11.29	2710
	3-door	3	0.70	42	3.64	437	11.80	2455	13.58	3260
	4-door	4	0.93	56	5.00	600	15.61	3246	18.08	4340
	5-door	5	1.17	70	66.7	800	19.35	4025	22.31	5354

1 For back-to-back configurations, customers are required to install seperate current-limiting devices for each side of the case per the amperages listed. (Current-limiting devices are available for purchase through Hill PHOENIX)

2 Figure given is maximum amps per phase.

Lighting Data

BACK-TO-BACK CONFIGURATION												
		Fluorescent		Optimax 2 LED			Gen 3 LED			Crossfire LED		
		120 Volts		120 Volts		Optimax 2 BTUH Credit (per door)	120 Volts		Gen 3 BTUH Credit (per door)	120 Volts		Crossfire BTUH Credit (per door)
Model		Amps	Watts	Amps	Watts		Amps	Watts		Amps	Watts	
RIZH	4-door	3.76	452	1.30	156	182	1.13	136	194	1.40	168	174
	6-door	5.00	600	1.95	234	150	1.70	204	162	2.10	252	142
	8-door	6.26	752	2.60	312	135	2.27	272	147	2.80	336	128
	10-door	7.50	900	3.25	390	125	2.83	340	138	3.50	420	118
SINGLE-SIDE DATA												
RIZH	2-door	1.88	226	0.65	78	182	0.57	68	194	0.70	84	174
	3-door	2.50	300	0.98	117	150	0.85	102	162	1.05	126	142
	4-door	3.13	376	1.30	156	135	1.13	136	147	1.40	168	128
	5-door	3.75	450	1.63	195	125	1.42	170	138	1.75	210	118

All measurements are taken per ARI 1200 - 2002 specifications.

Anti-Condensate Heater Data

BACK-TO-BACK CONFIGURATION							
		Anthony 101		Anthony[3] Eliminator		Anthony[3] Eliminator 2	
		120 Volts		120 Volts		120 Volts	
Model		Amps	Watts	Amps	Watts	Amps	Watts
RIZH	4-door	8.80	1056	3.72	446	2.55	306
	6-door	12.30	1476	5.54	664	3.78	454
	8-door	15.97	1916	7.25	870	4.92	590
	10-door	19.80	2376	9.14	1097	6.22	747
SINGLE-SIDE DATA							
RIZH	2-door	4.40	528	1.86	223	1.28	153
	3-door	6.15	738	2.77	332	1.89	227
	4-door	7.99	958	3.63	435	2.46	295
	5-door	9.90	1188	4.57	548	3.11	373

3 Eliminator values given for doors with no heat on the glass.

Guidelines & Control Settings

Model	BTUHs[6] per door	Coil Type	Evaporator (°F)	Superheat Set Point @bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (°F)
RIZH: F[4] - Standard	1281[7]	Enh.	-11	3-5	-4	3	550
RIZH: C[4] - Standard	1371[7]	Enh.	-17	3-5	-10	-3	550
RIZH: F[4] - Eliminator/Polar LE[5]	1123[7]	Enh.	-11	3-5	-4	3	550
RIZH: C[4] - Eliminator/Polar LE[5]	1213[7]	Enh.	-17	3-5	-10	-3	550

4 "F" = Frozen food, "C" = Ice cream.

5 Data given for cases with Eliminator and Polar LE Doors.

6 BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
			Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
RIZH	1	13-15	60	73[9]	---	---	24	73[10]	---	---

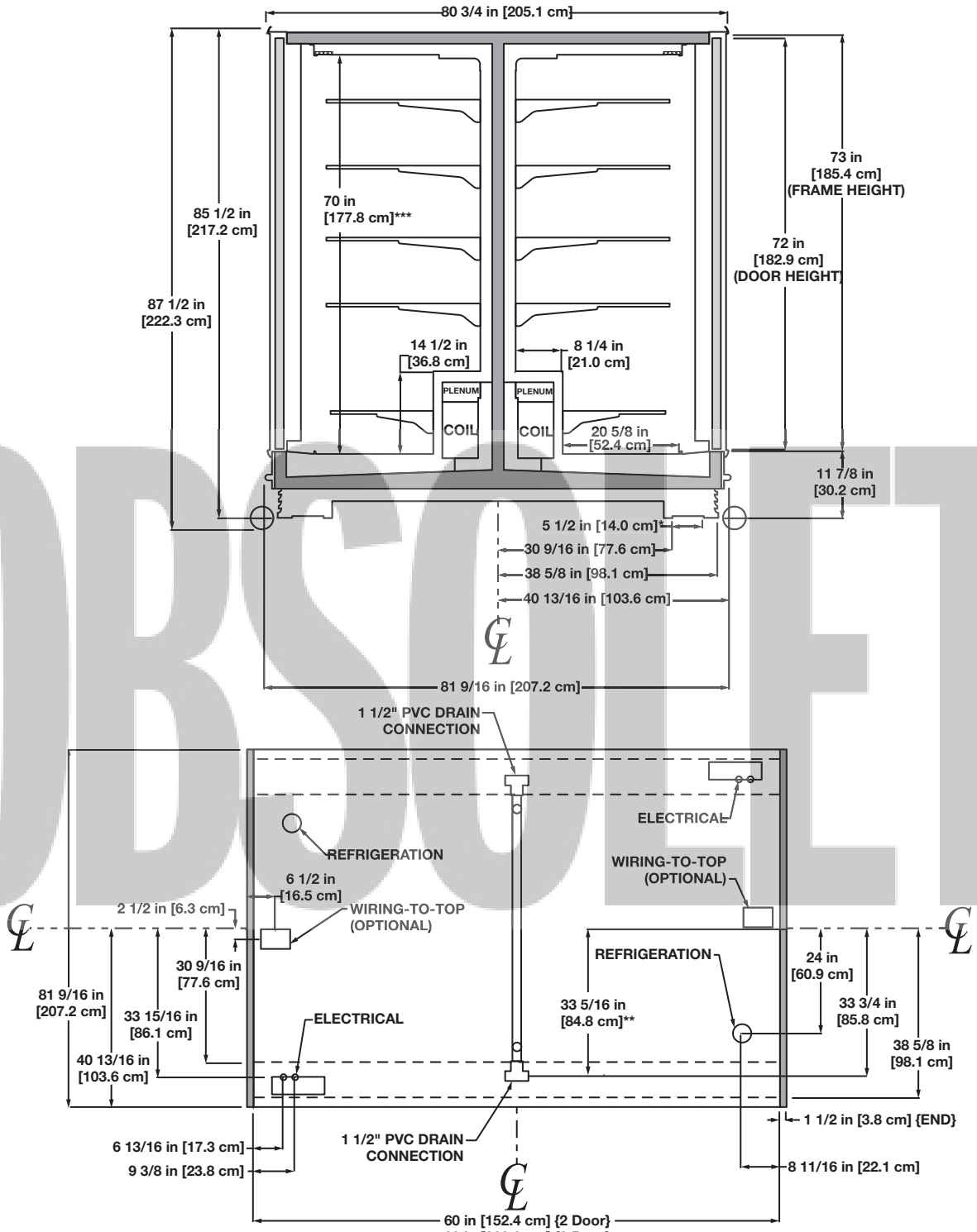
9 The recommended location is on the left end of the coil on the top crossover.

10 The recommended location is on the dump line.

Low Temperature Defrost Schedule

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

** Or immediately after store closing hour



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
*** CASE-TO-CASE PIPING REDUCES THE INTERIOR DIMENSION TO 68"

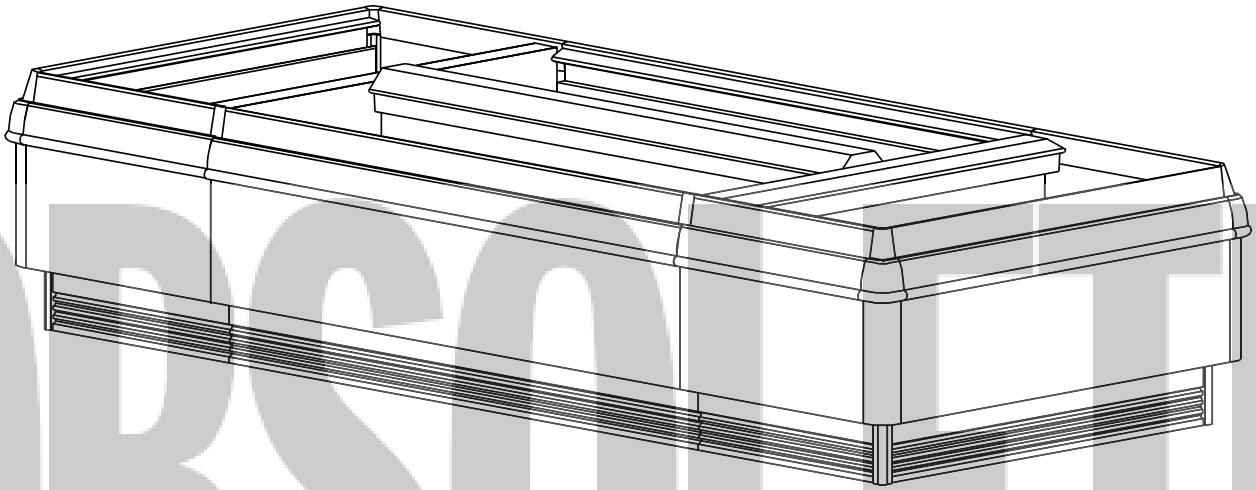
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (2DR & 3DR) 5/8", SUCTION LINE (4DR & 5DR) 7/8"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22" & 23 1/2"; SOLID SHELVES 18", 20", 22", 24" & 27"
- RECOMMENDED CONFIGURATION IS 4 - 27" SHELVES AND 1 - 18" SHELF AT THE BOTTOM OF THE CASE

NSF COMPONENT

OBSOLETE

OBSOLETE

SINGLE DECK ISLAND



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8” per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

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	[3,4]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ONIM/ONIMB[2] Meat	821[5]	12	6-8	25	34	180
ONIM/ONIMB[2] Deli	796[5]	17	6-8	28	37	180

2 For "Meat" application, add 400 BTUH for each wraparound end; for "Deli" application, add 250 BTUH for each wraparound end.

3 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
ONIM/ONIMB	3	6 - 8	35	47	45	47	26	45	- - -[7]	- - -

7 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 ARI 1200 - 2002 specifications.

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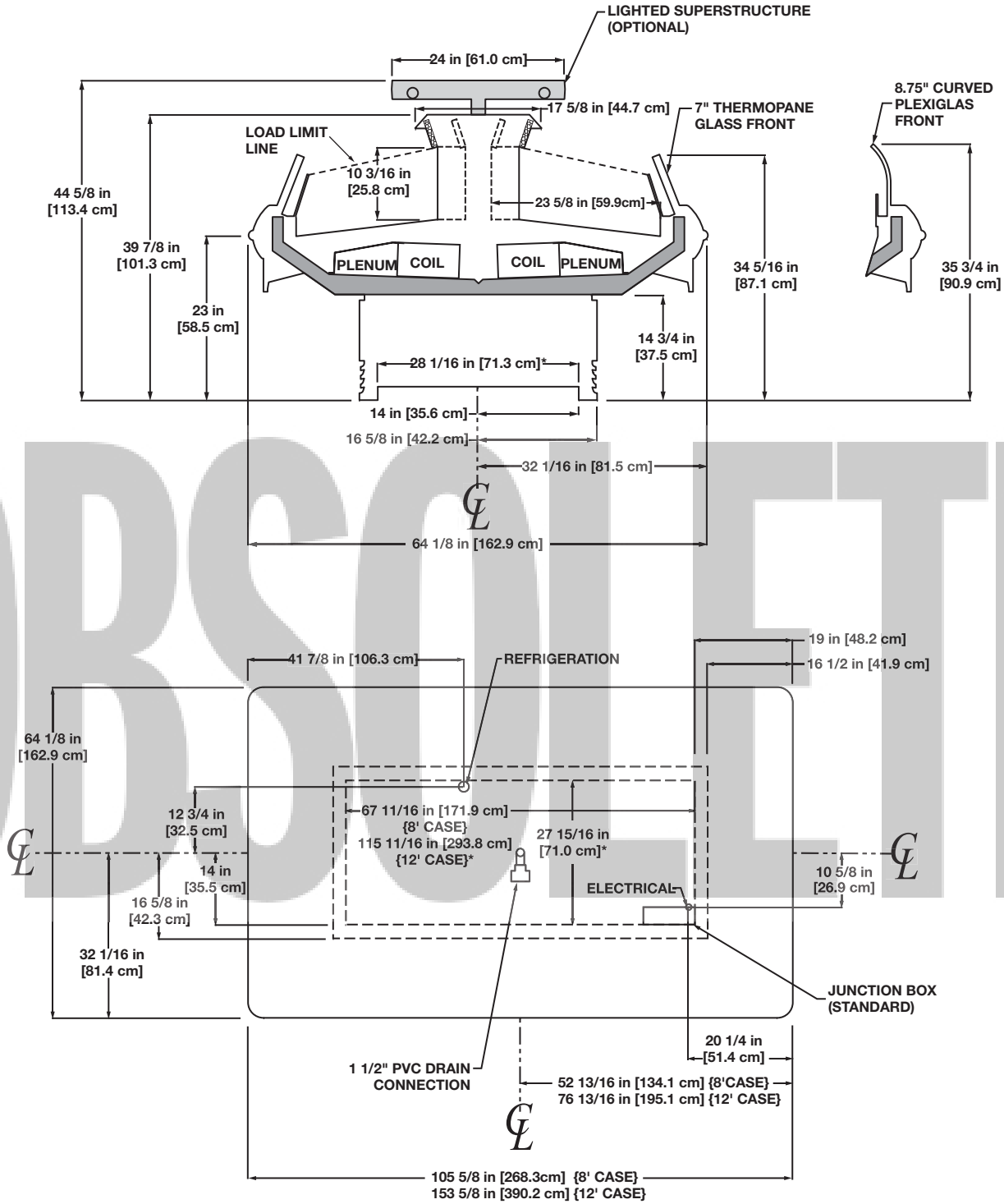
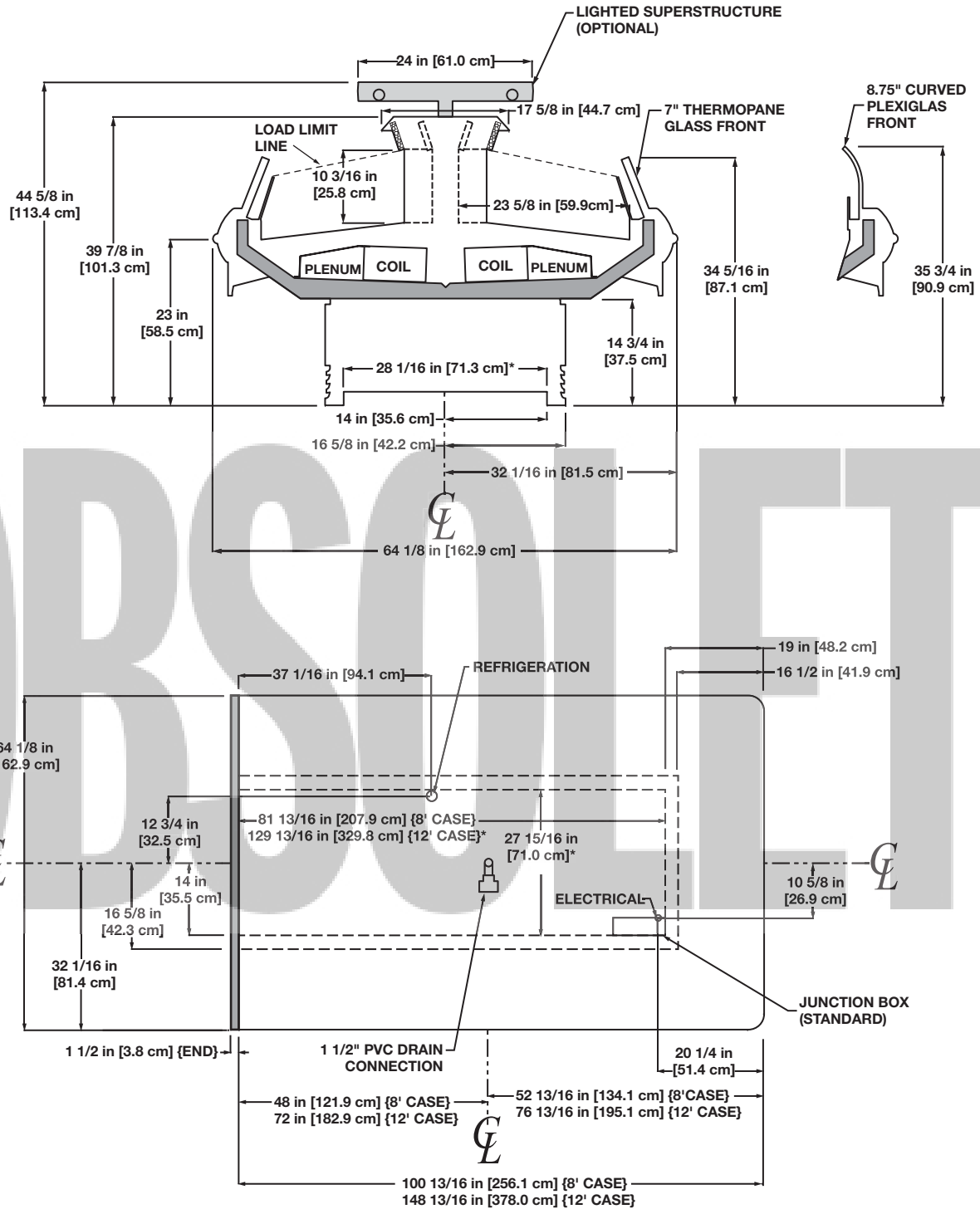


NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE



NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

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 Amps	Standard Fans 120 Volts Watts	Condenser Fans 208 Volts Amps	Condenser Fans 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
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

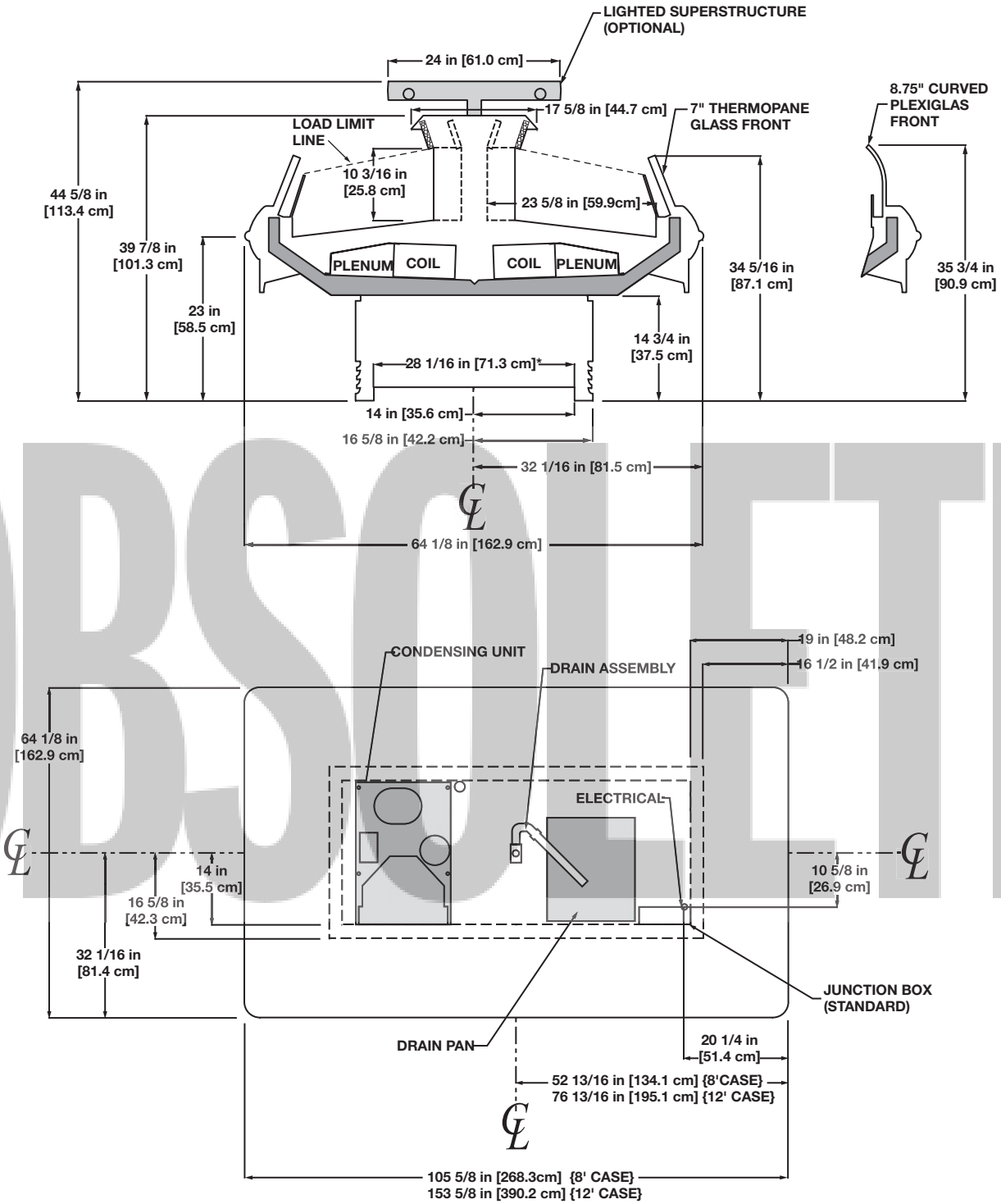
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination 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 ARI 1200 - 2002 specifications.



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

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
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

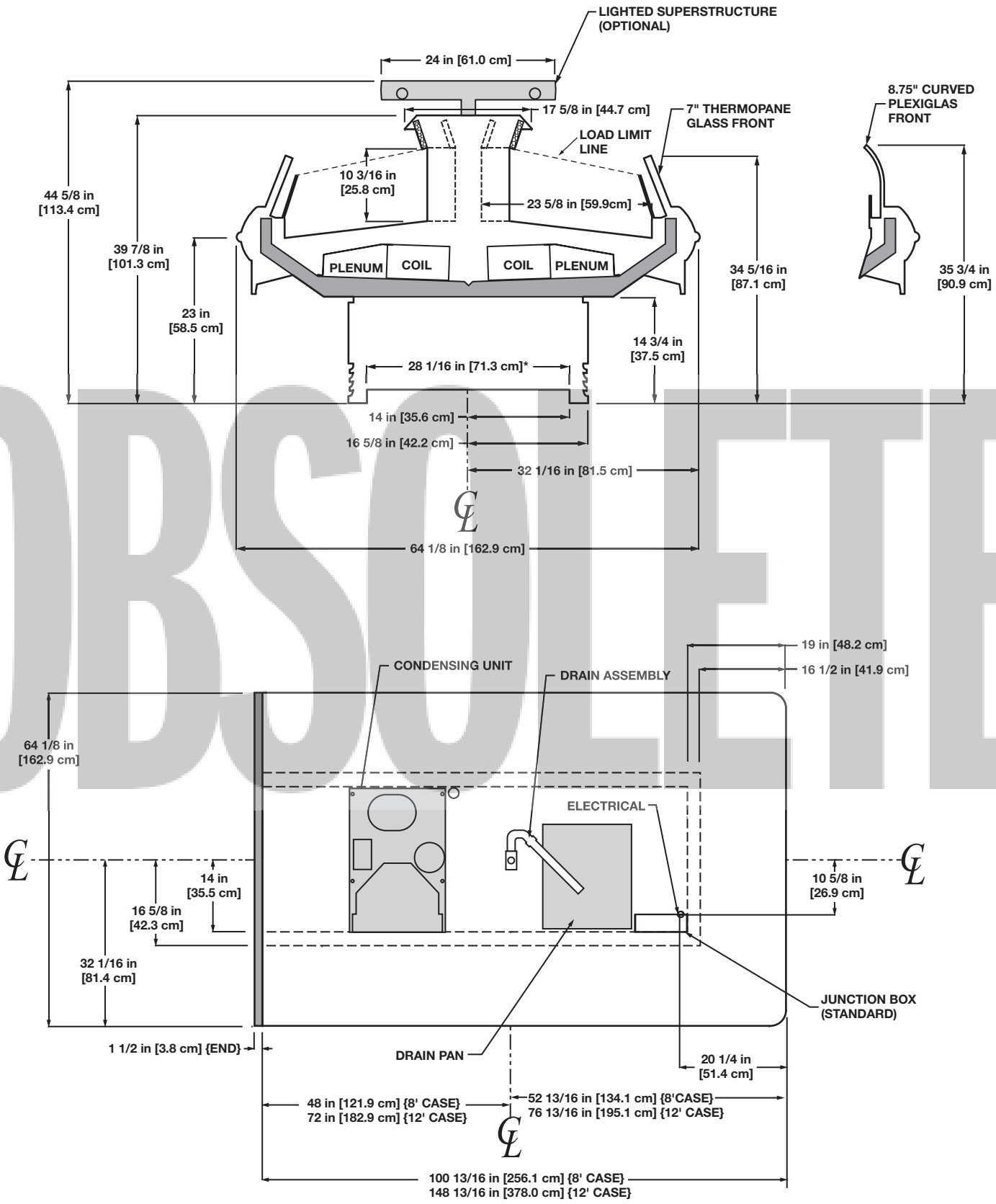
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.



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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.

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
OIM/OIMB/OIMBB[2] Meat	706[5]	12	6-8	26	31	140
OIM/OIMB/OIMBB[2] Deli	496[5]	17	6-8	28	33	140

2 For "Meat" application, add 400 BTUH for each wraparound end; for "Deli" application, add 250 BTUH for each wraparound end.

3 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
OIM/OIMB/OIMBB	3	6 - 8	40	47	45	47	26	45	- - -[7]	- - -

7 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 ARI 1200 - 2002 specifications.

NSF COMPONENT

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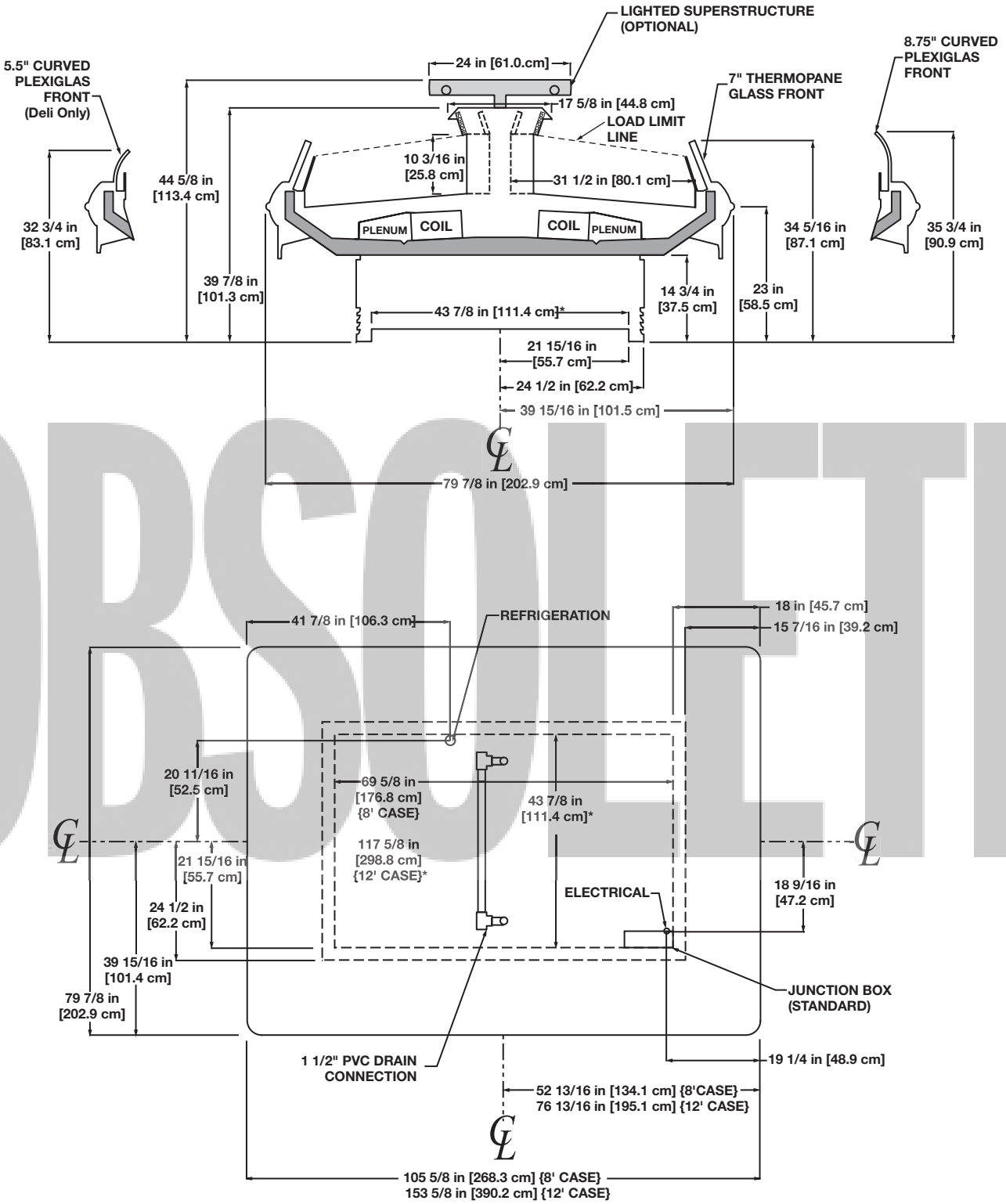
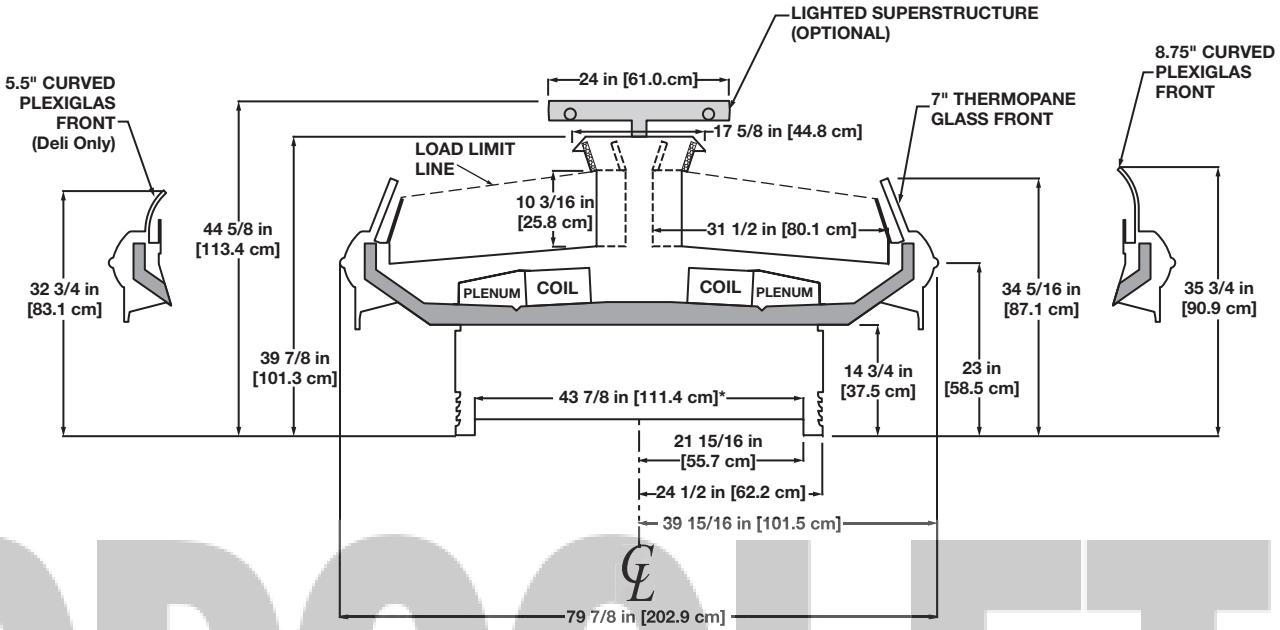
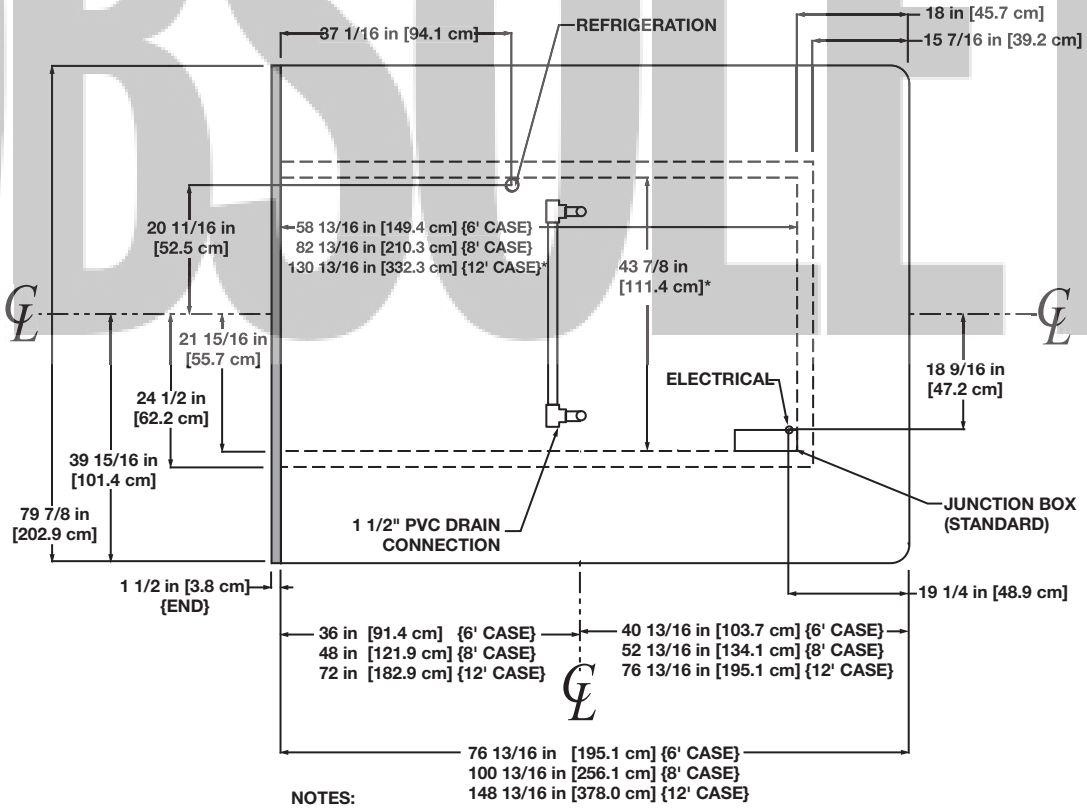


NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

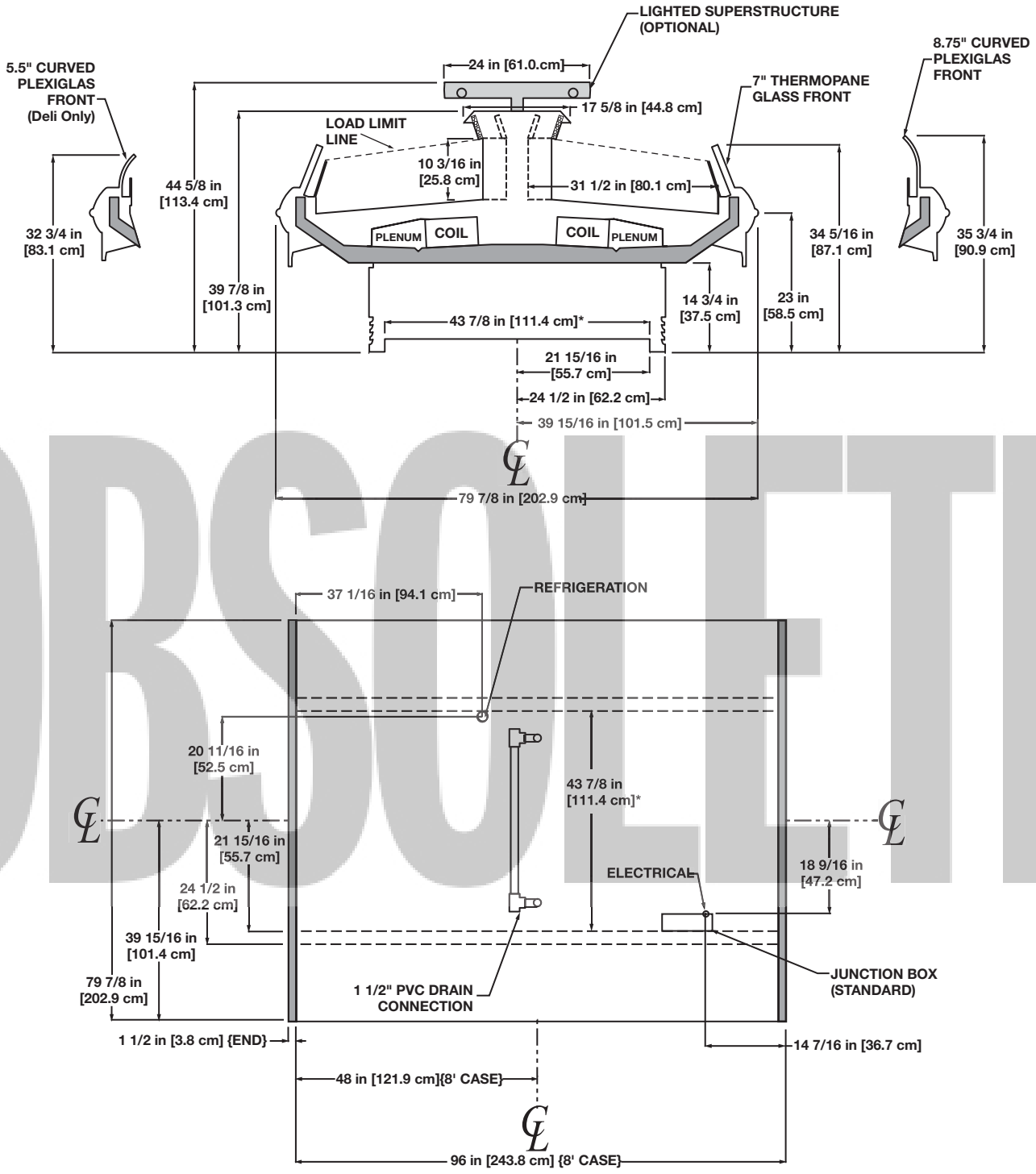




NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE



NOTES:

* **STUB-UP AREA**

- **SUCTION LINE - 7/8", LIQUID LINE - 3/8"**
- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

NSF COMPONENT

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

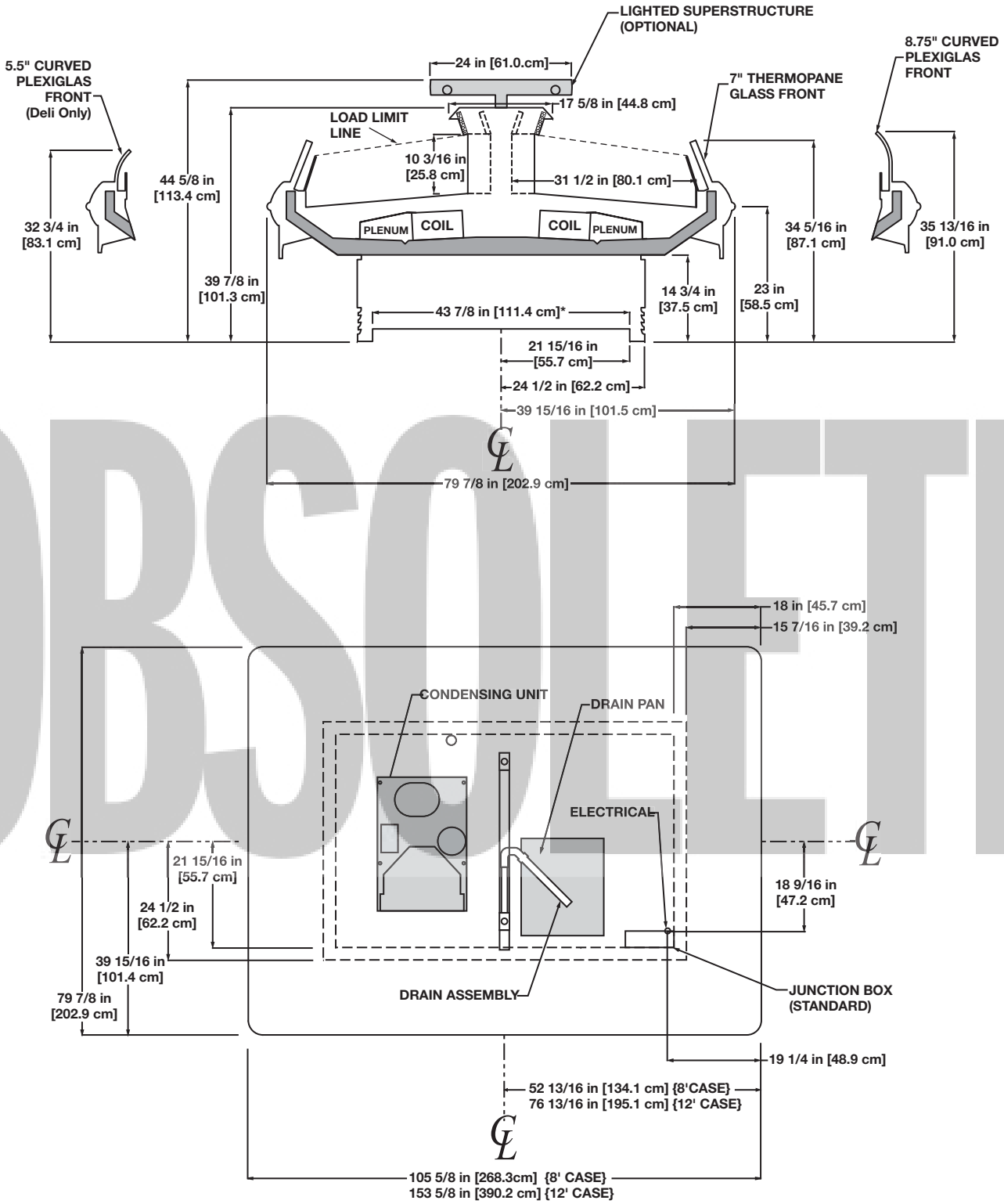
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination 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 ARI 1200 - 2002 specifications.



NOTES:

* STUB-UP AREA

• DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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

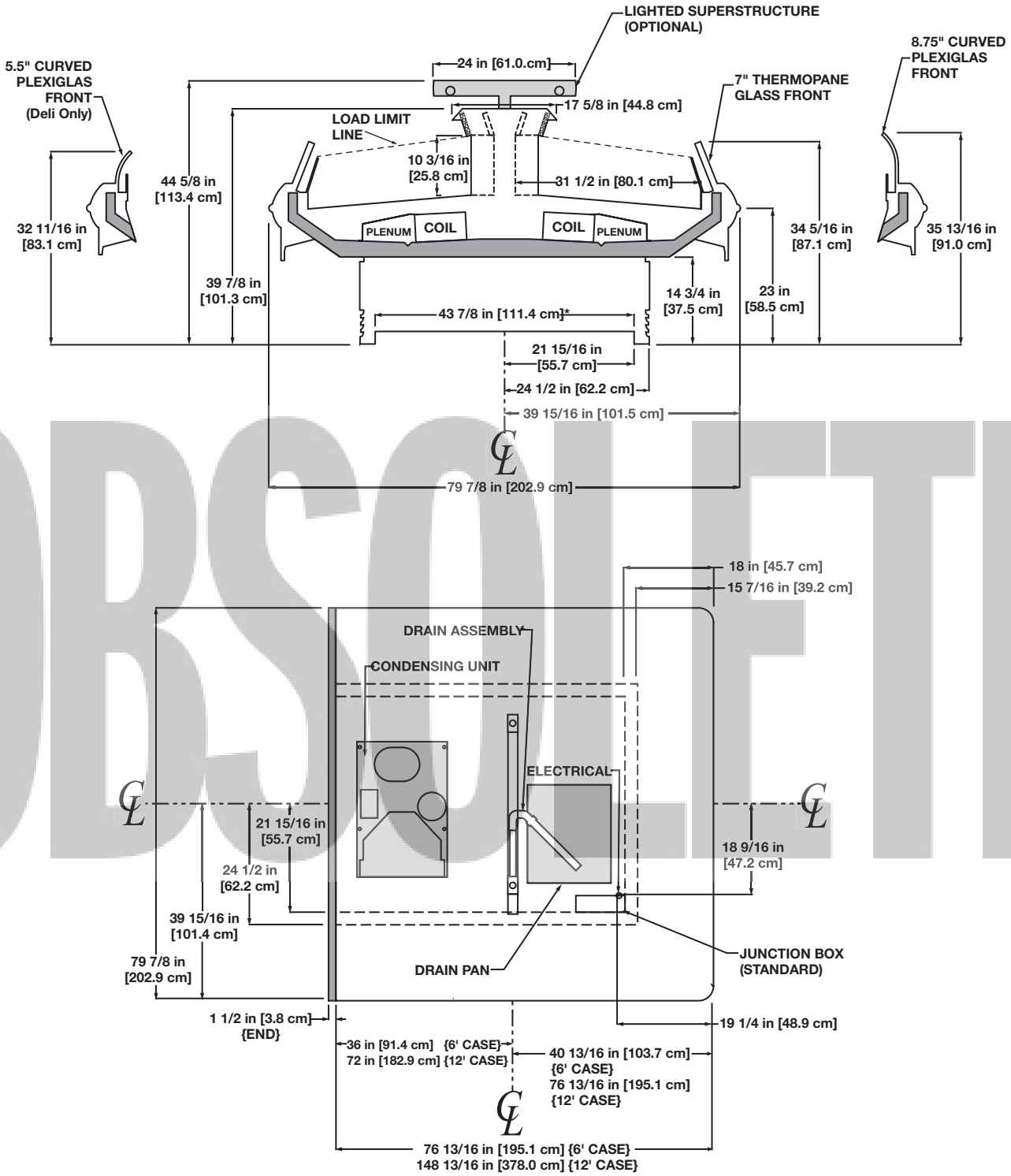
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OIMBA	3	40	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

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 ARI 1200 - 2002 specifications.



NOTES:

* STUB-UP AREA

• DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

Narrow Island Bulk Produce Merchandiser

ONIP - 8’ & 12’ narrow island double wraparound end
ONIPB - 6’, 8’, 10’ & 12’ narrow island single wraparound end
ONIPBB - 8’ & 12’ narrow 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
ONIP	8’	6	2.04	102	0.90	66	0.23	28	- - -[1]	- - -	- - -	- - -
	12’	8	2.72	136	1.20	88	0.55	66	- - -	- - -	- - -	- - -
ONIPB	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	- - -	- - -	- - -	- - -
ONIPBB	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
ONIP	8’	NA[2]	NA	NA	NA
	12’	NA	NA	NA	NA
ONIPB	6’	NA	NA	NA	NA
	8’	NA	NA	NA	NA
	10’	NA	NA	NA	NA
	12’	NA	NA	NA	NA
ONIPBB	8’	NA	NA	NA	NA
	12’	NA	NA	NA	NA

2 Not applicable.

Guidelines & Control Settings

Model	[4,5]BTUH/ft	Evaporator (ºF)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[7] (FPM)
ONIP[3]/B/BB	586[6]	22	6-8	34	48	140

3 For ONIP, add 600 BTUH for each wraparound end.

4 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

5 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

6 Standard fans increase refrigeration load by 96 BTUH/fan.

7 Average discharge air velocity at peak of defrost.

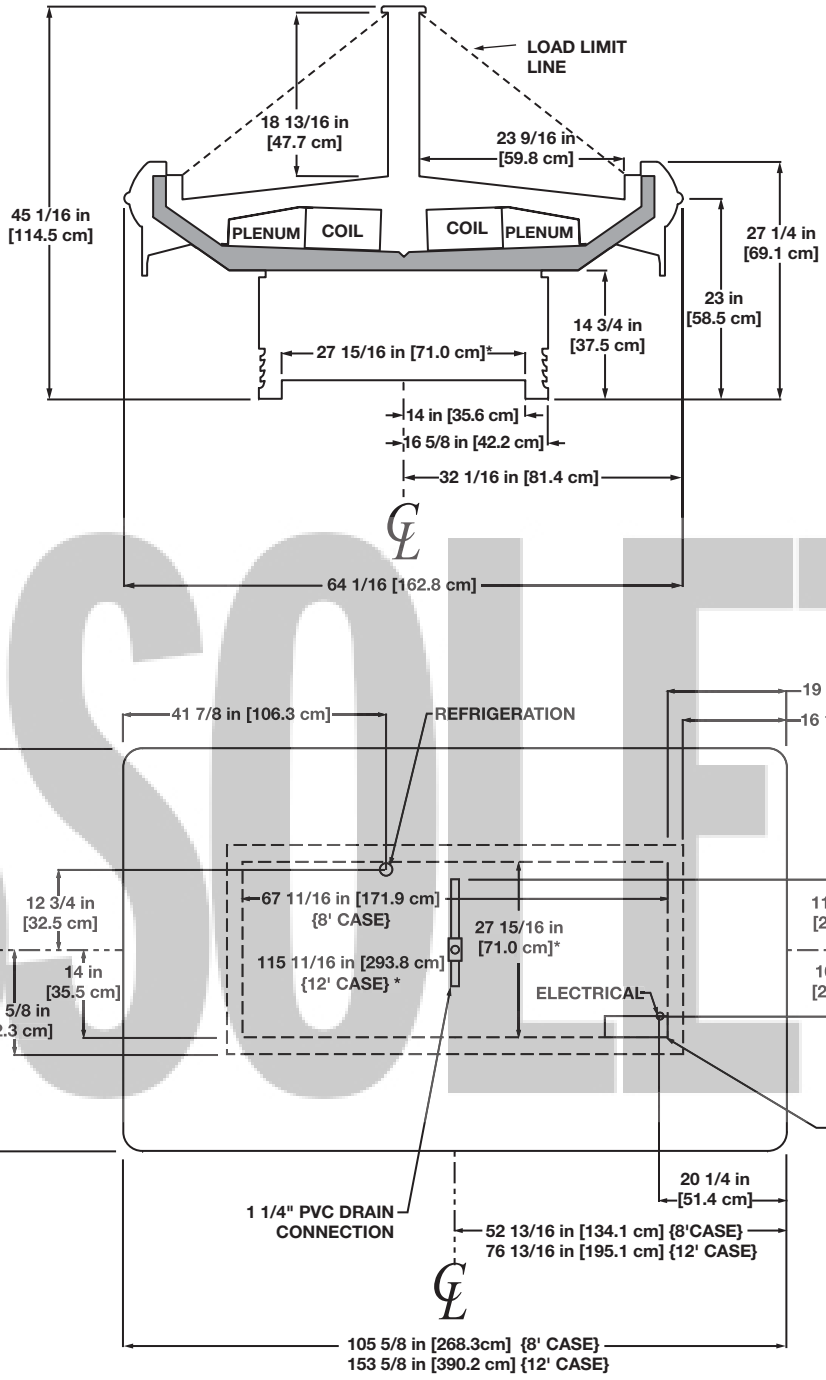
Defrost Controls

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)
ONIP/B/BB	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

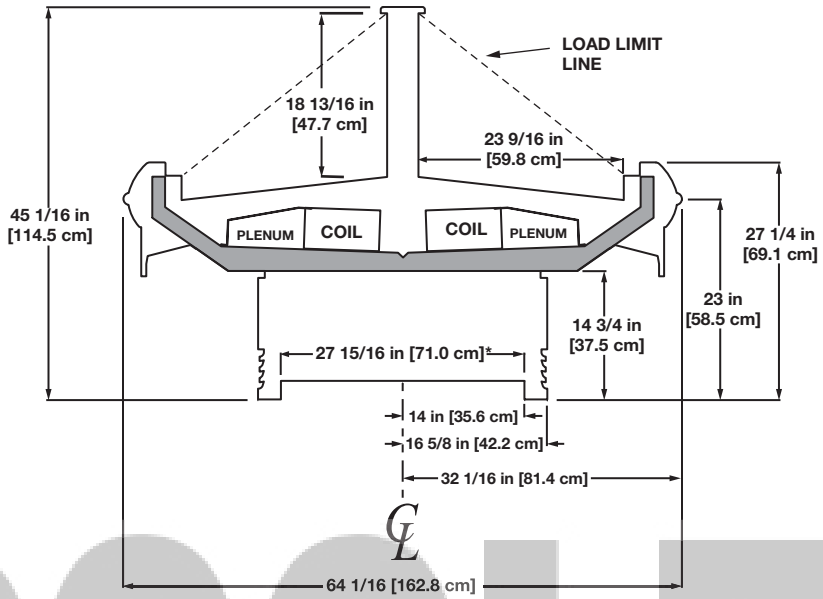
All measurements are taken per ARI 1200 - 2002 specifications.

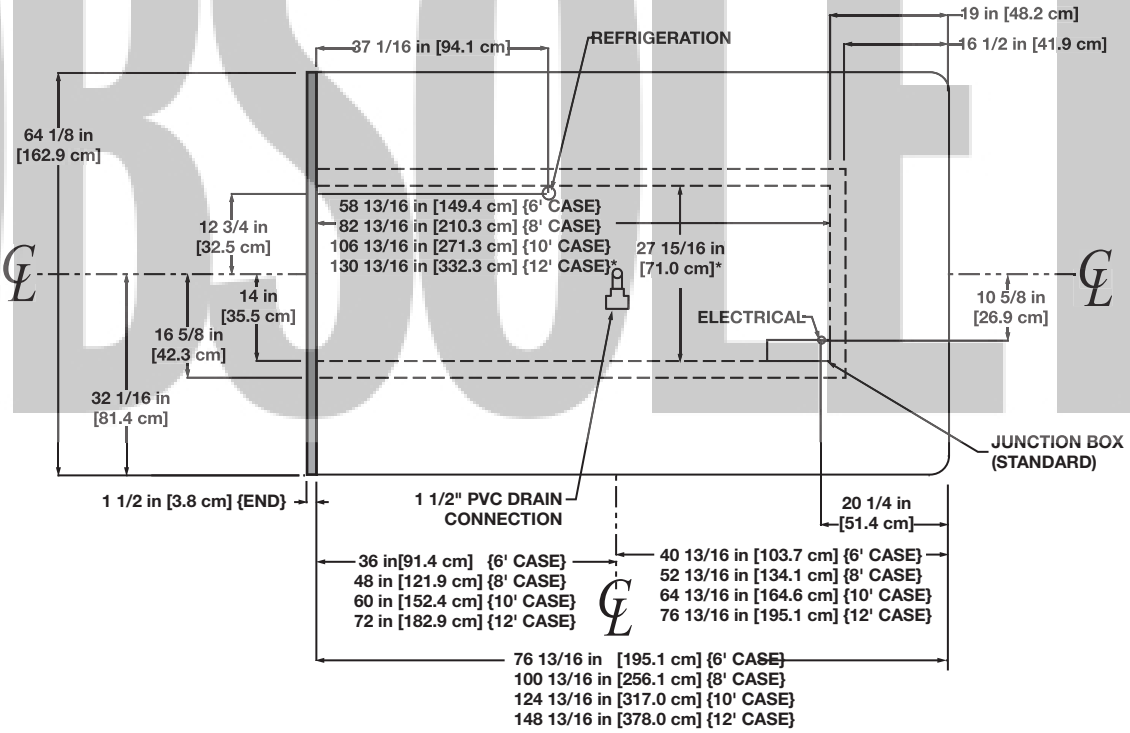


NOTES:

* **STUB-UP AREA**

- **SUCTION LINE - 7/8", LIQUID LINE - 1/2"**
- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

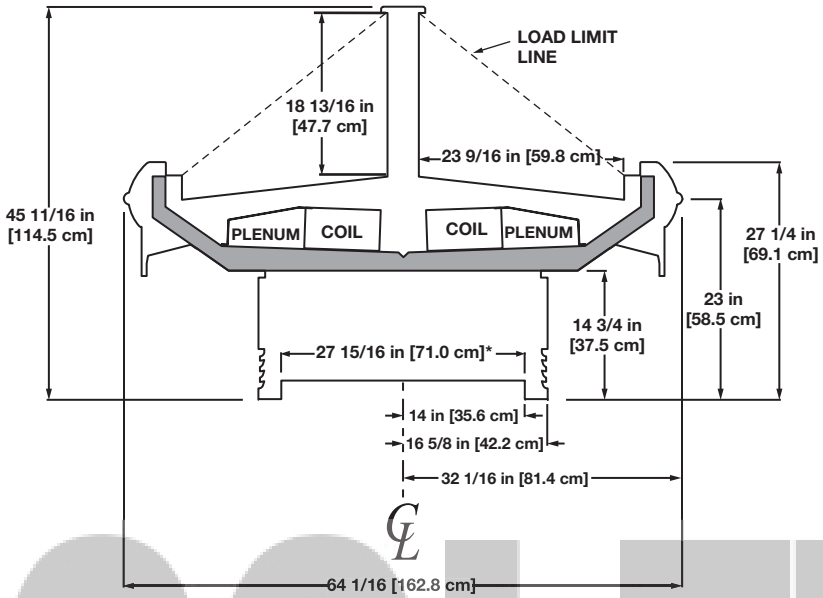


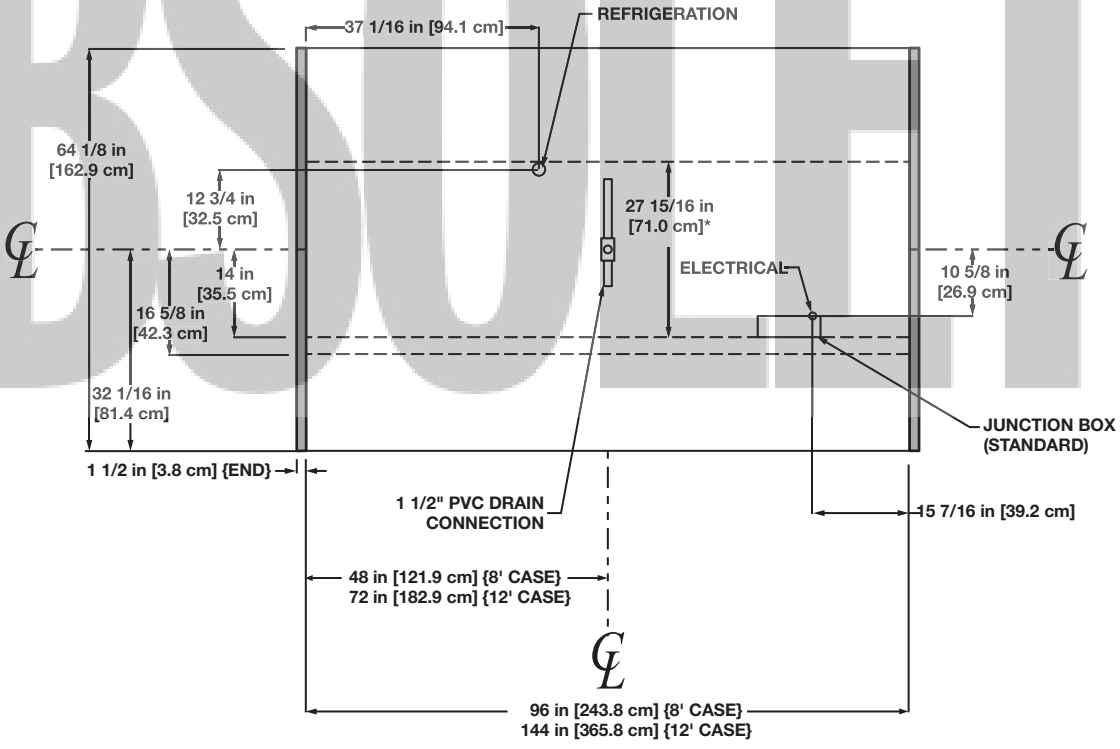


NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE





NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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

2 Not applicable.

Guidelines & Control Settings

Model	[4,5]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[7] (FPM)
OIP[3]/OIPB/OIPBB	586[6]	22	6-8	34	48	140

3 For OIP, add 600 BTUH for each wraparound end.

4 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

5 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

6 Standard fans increase refrigeration load by 96 BTUH/fan.

7 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)
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 ARI 1200 - 2002 specifications.

NSF COMPONENT

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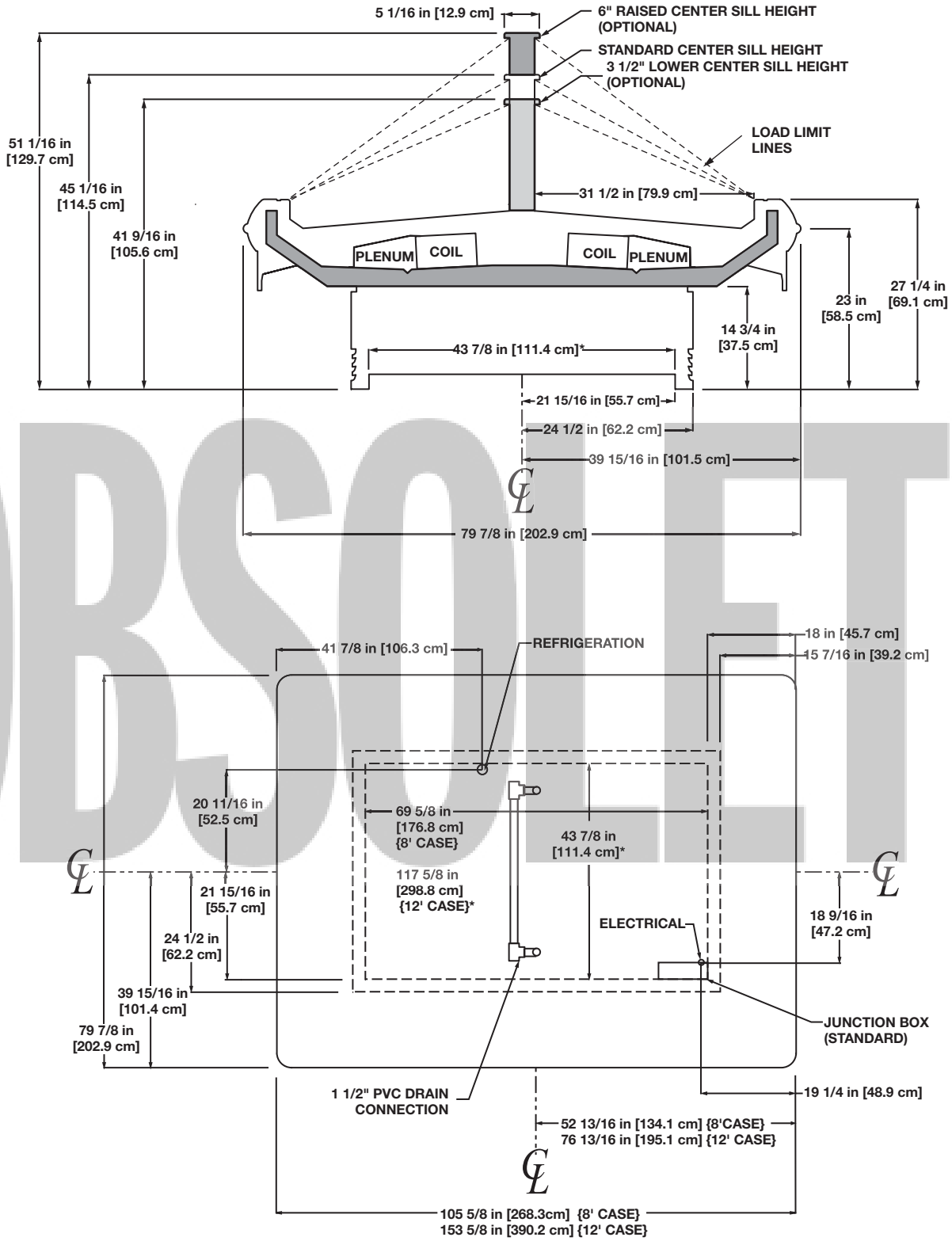
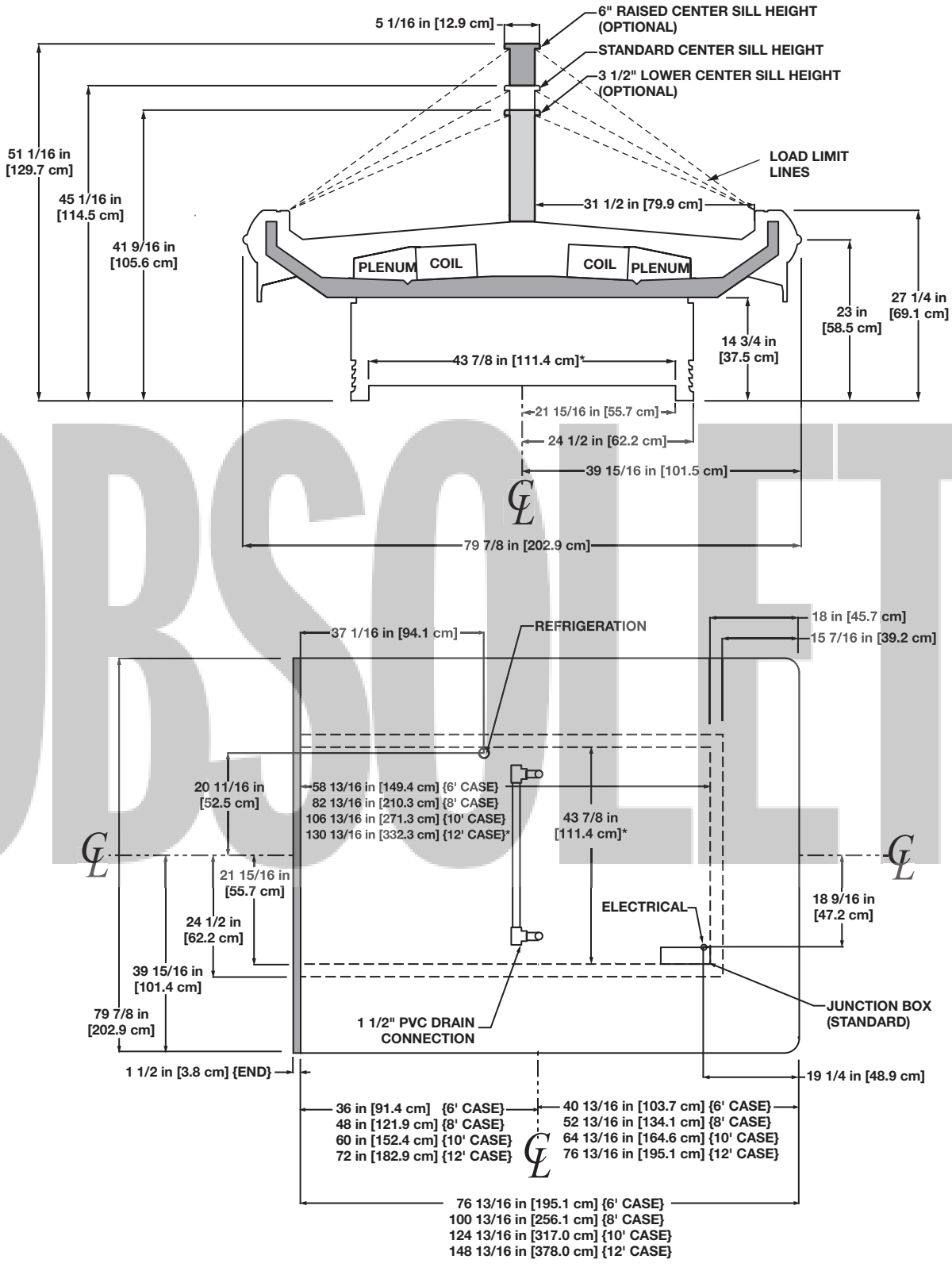
Hill PHOENIX EXCELLENCE A DOVER COMPANY



NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE



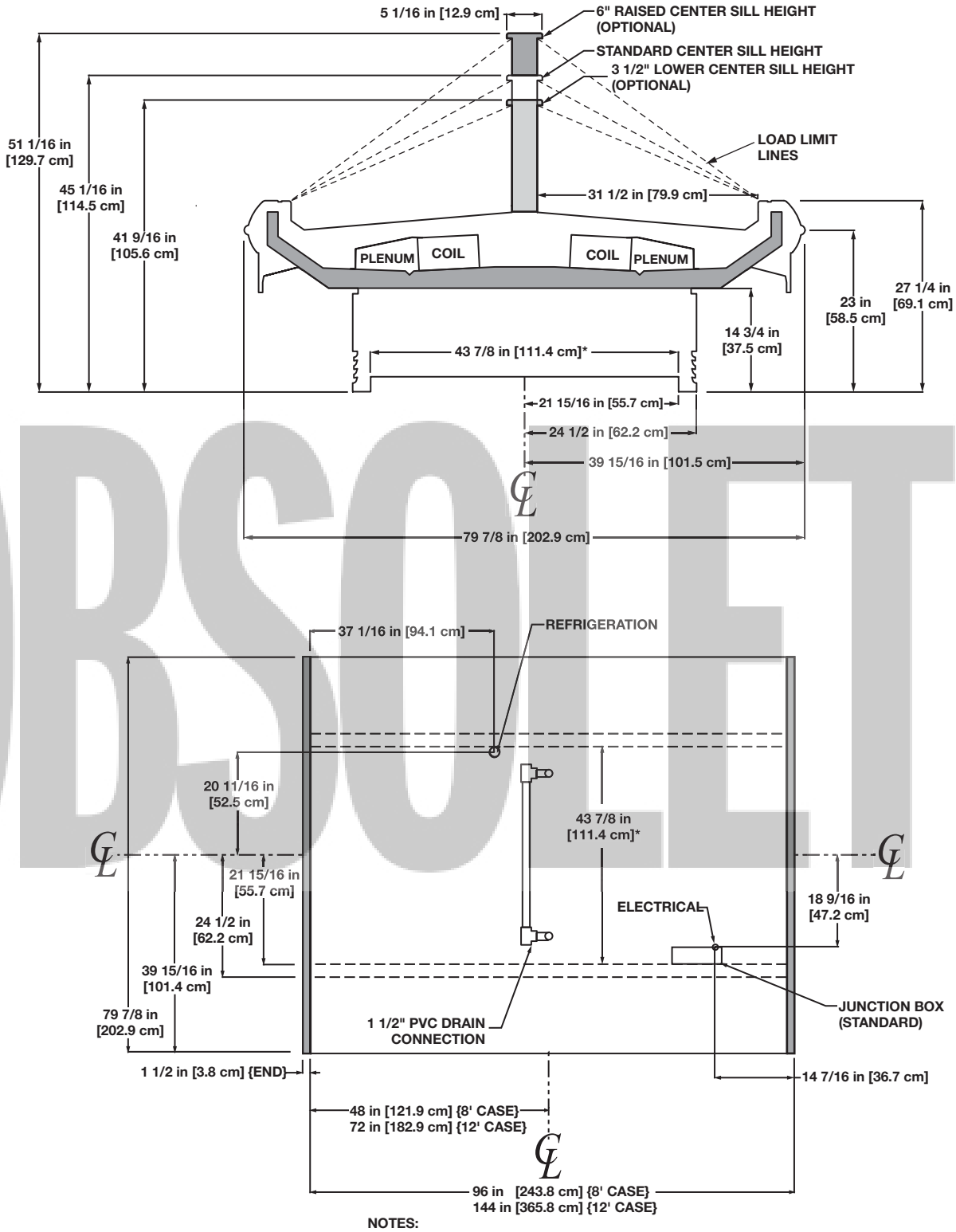
NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us



NOTES:

* STUB-UP AREA

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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.

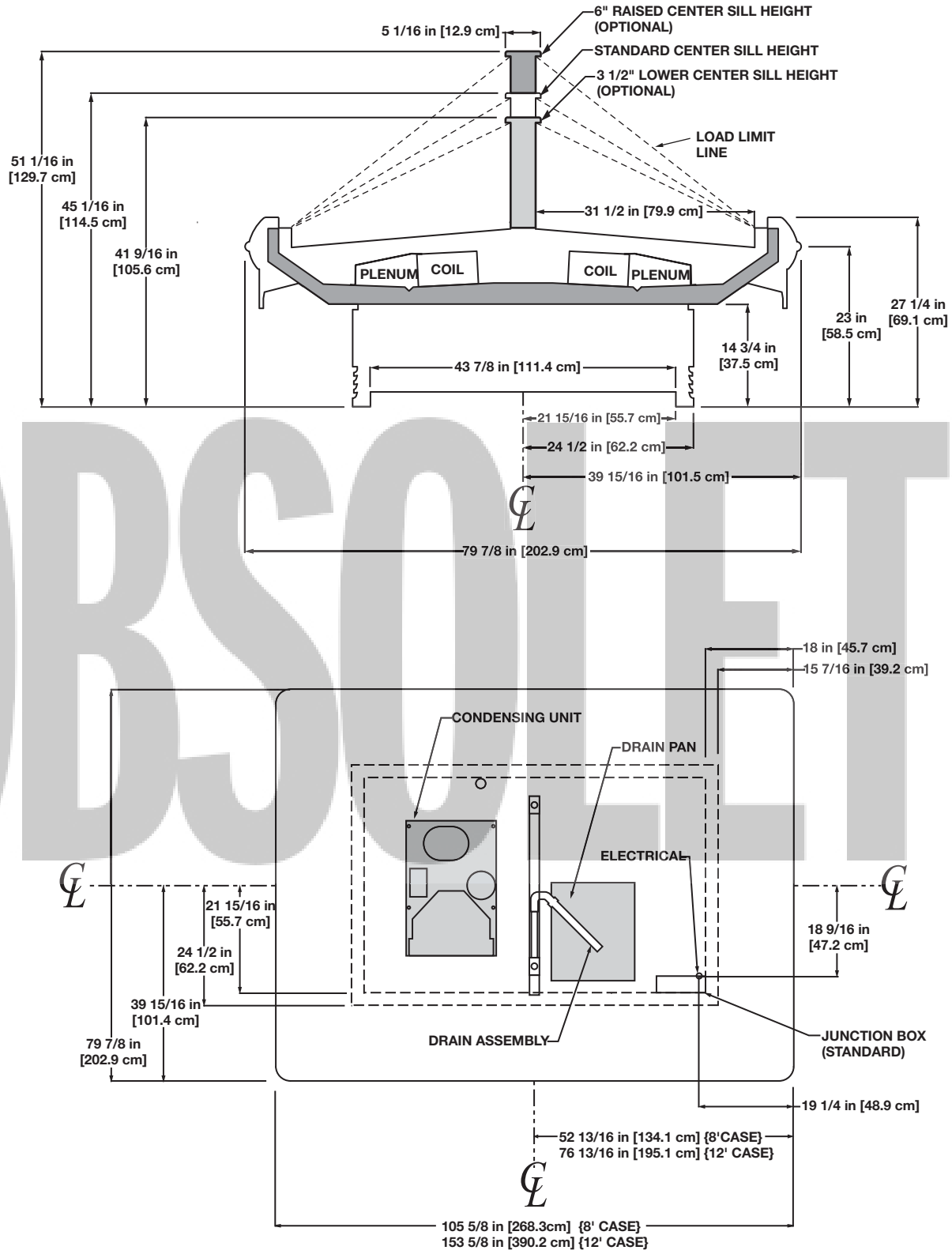
Defrost Controls

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 ARI 1200 - 2002 specifications.



NOTES:

• DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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	[3]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (°F)
ONZ - F	408[4]	Enh.	-12	3-5	-2	7	393
ONZ - C	468[4]	Enh	-22	3-5	-13	-3	400
ONZ - MT[6]	310[4]	Enh	17	6-8	27	35	400

3 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.05.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

6 Indicates medium temperature 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)
ONZ	2	13-15	35	47	- - -	- - -	20	60	- - -	- - -
ONZ - MT[7]	1	13-15	35	49	- - -	- - -	20	60	- - -	- - -

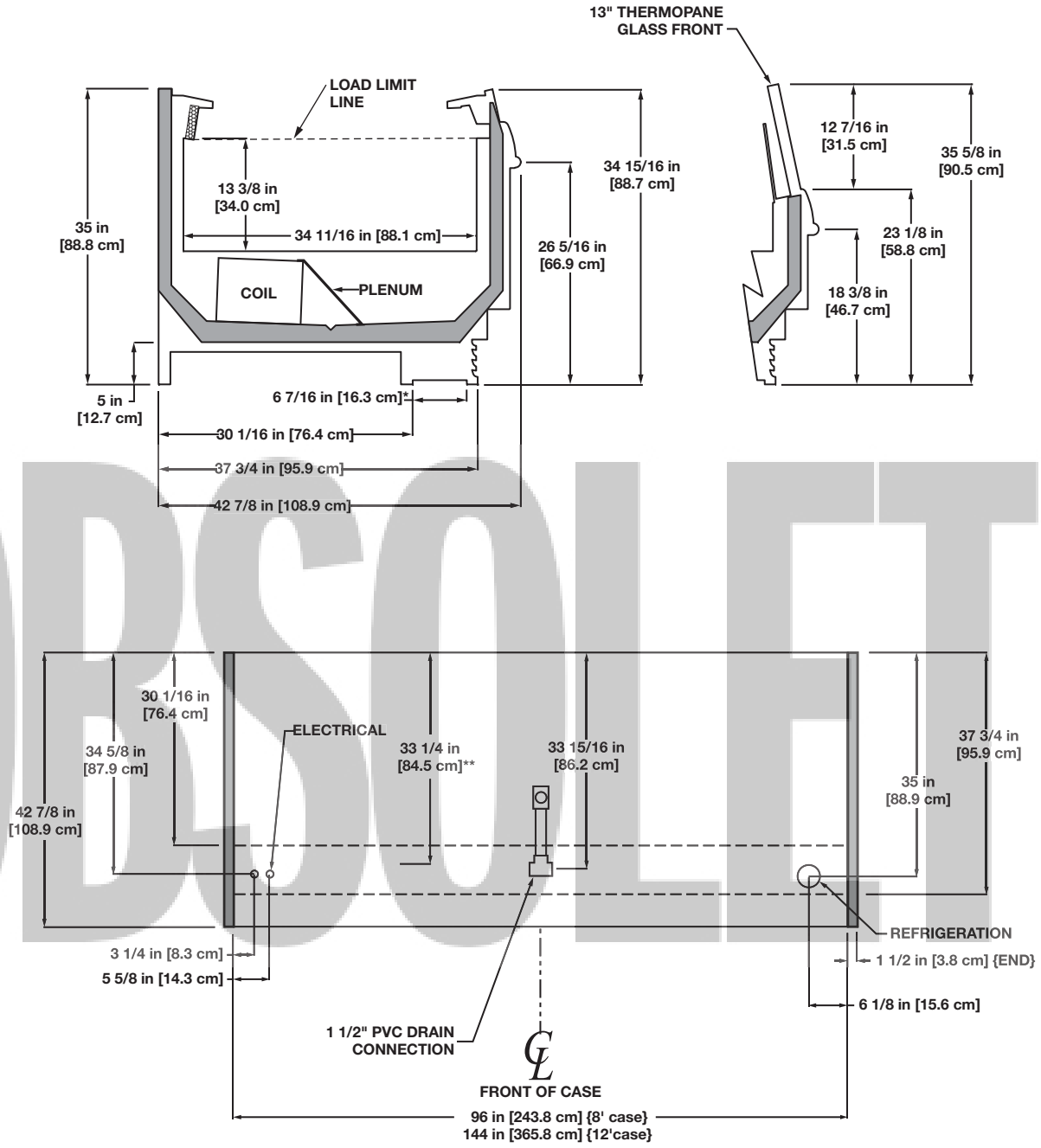
7 Indicates medium temperature application.

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 ARI 1200 - 2002 specifications.



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 - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

Narrow Island Frozen Food/Ice Cream Merchandiser

ONIZ - 6', 8', 10' & 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	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts	Drain Heaters 120 Volts Amps	Drain Heaters 120 Volts Watts
ONIZ	F-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	[6]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (°F)
ONIZ - F[5]	408[7]	Enh.	-12	3-5	-2	7	393
ONIZ - C[5]	468[7]	Enh	-22	3-5	-13	-3	400
ONIZ - MT[9]	310[7]	Enh	17	6-8	27	35	400

5 "F" = Frozen food, "C" = Ice cream.

6 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.05.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

9 Indicates medium temperature application.

Defrost Schedule

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

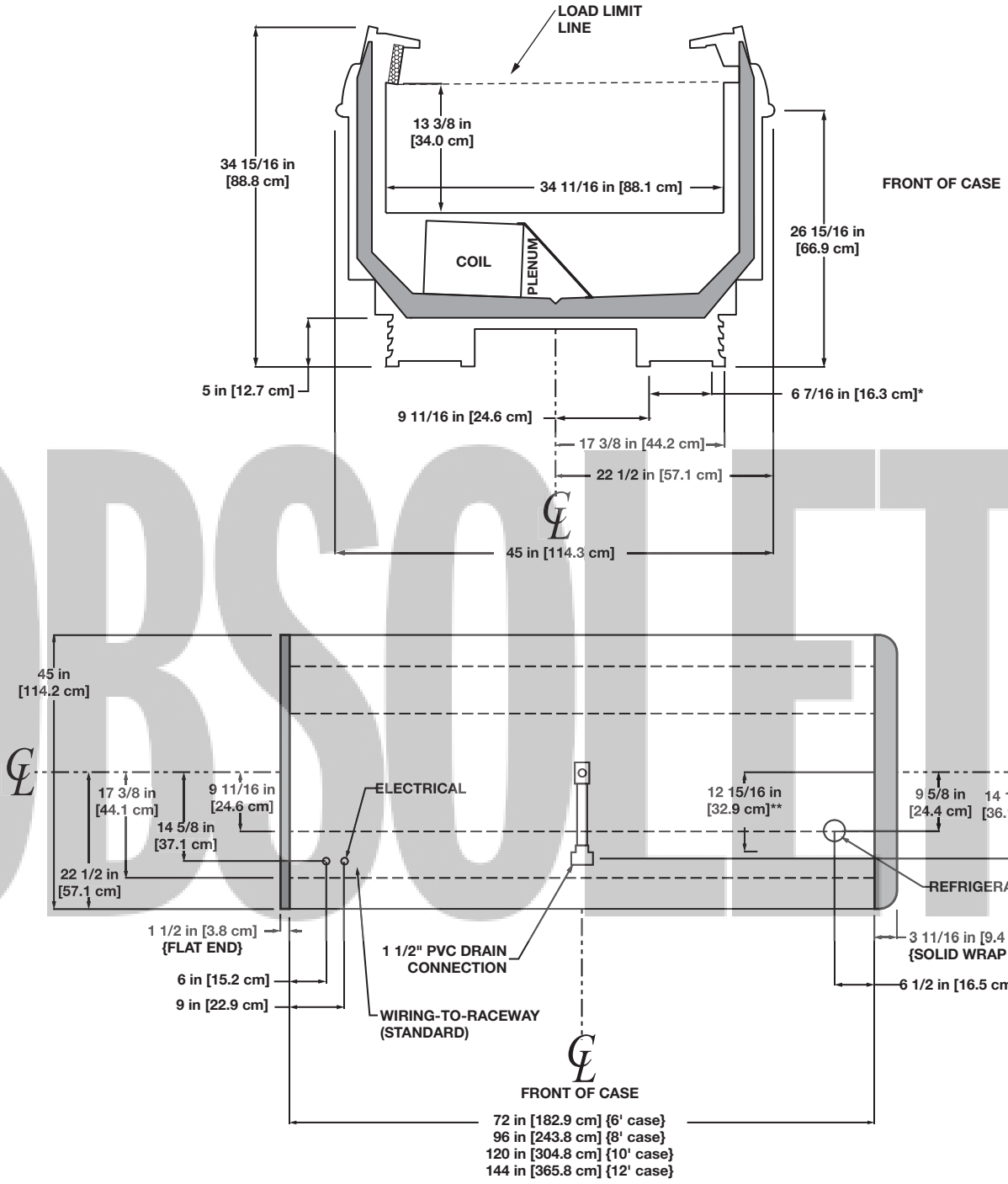
** Or immediately after store closing hour

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	- - -	- - -
ONIZ - MT[10]	1	13-15	35	49	- - -	- - -	20	60	- - -	- - -

10 Indicates medium temperature application.

All measurements are taken per ARI 1200 - 2002 specifications.



NOTES:

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

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
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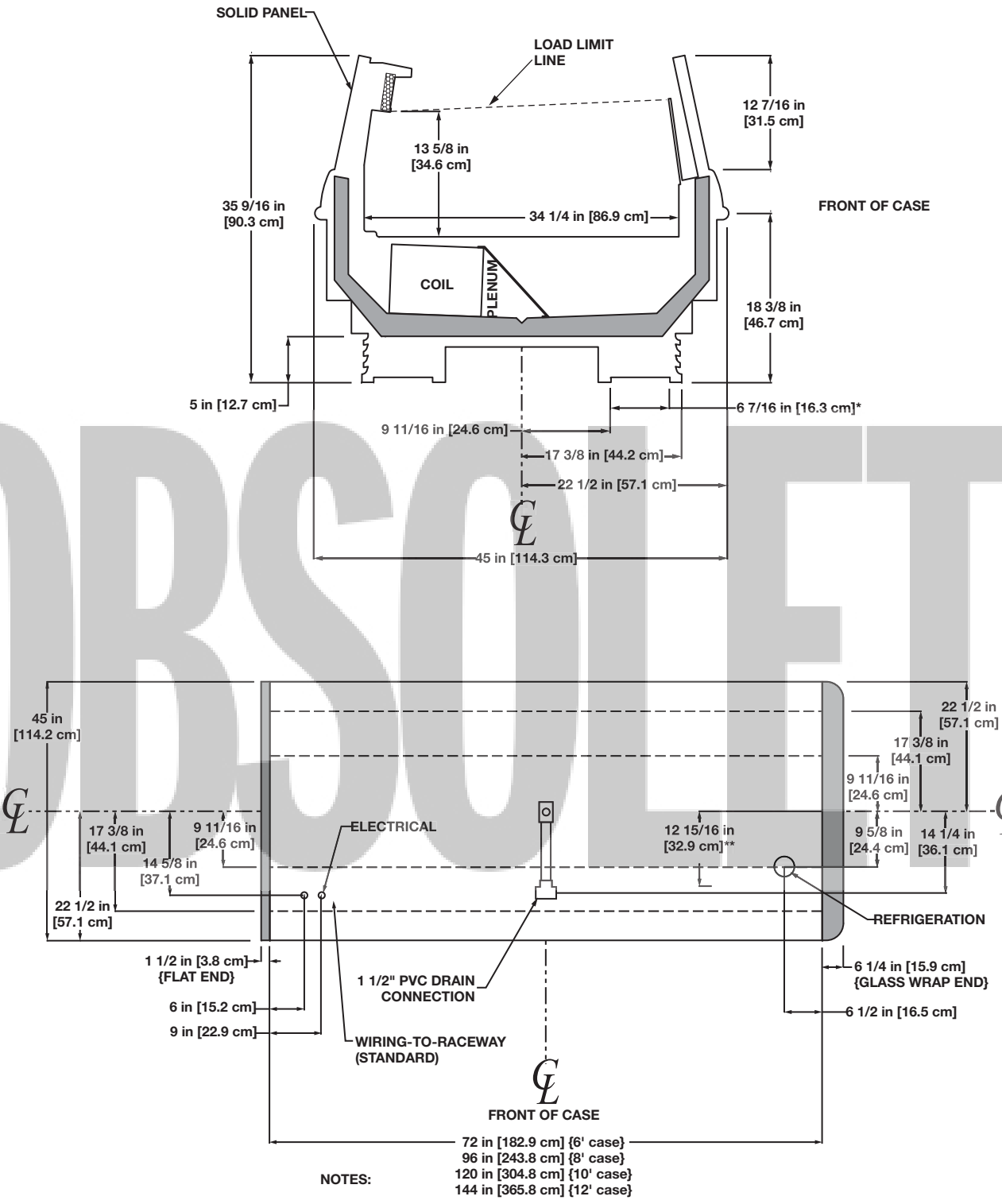


NOTES:

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

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

Narrow Island Frozen Food Merchandiser
ONIZGG - 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		Drain Heaters 120 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ONIZGG	F-8’[1]	3	1.02	51	0.45	33	2.54	305	7.69	1600	8.88	2130	0.13	15
	F-12’	4	1.36	68	0.60	44	1.87	224	11.54	2400	13.31	3195	0.13	15

1 "F" = Frozen food

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
ONIZGG	8’	- - -[2]	- - -	- - -	- - -
	12’	- - -	- - -	- - -	- - -

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

Guidelines & Control Settings

Model	[3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONIZGG-F	530[4]	-22	3-5	-10	2	255

3 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.05.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

Defrost Controls

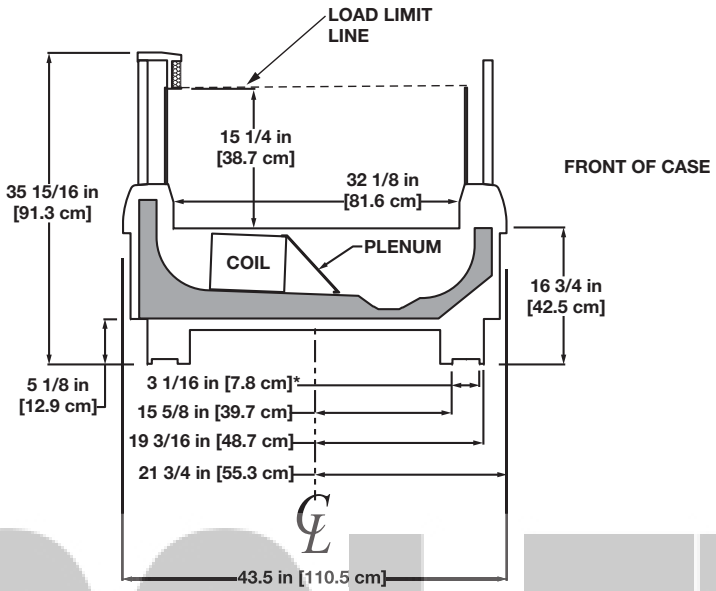
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONIZGG	2	13 - 15	35	47	- - -	- - -	20	60	- - -	- - -

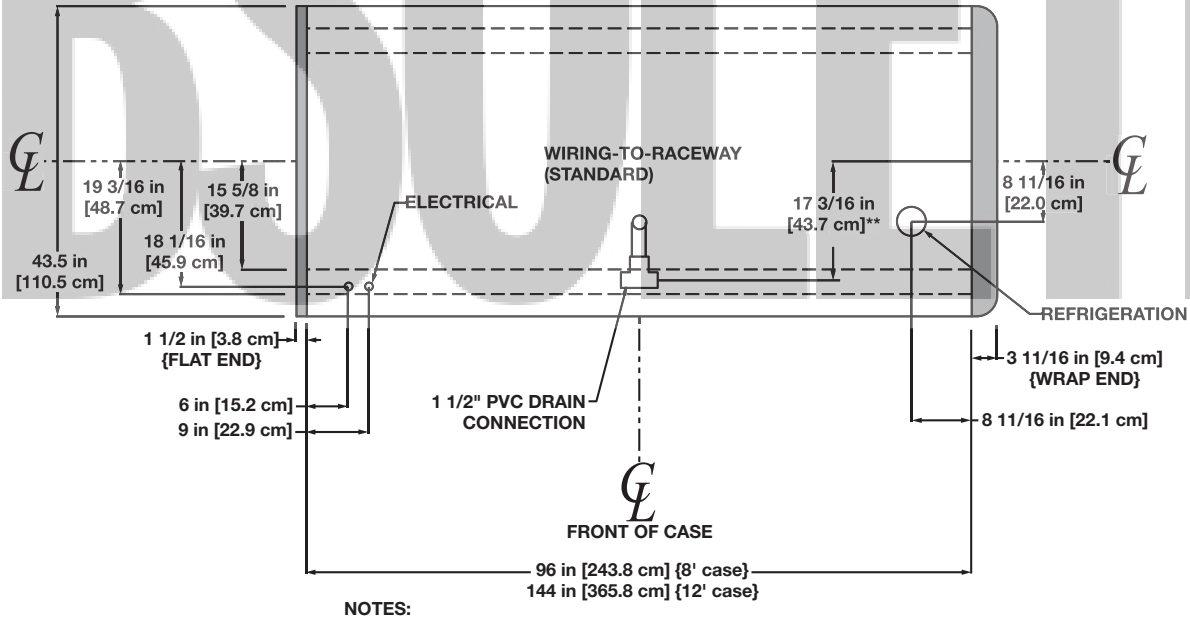
Low Temperature Defrost Schedule

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

** Or immediately after store closing hour

All measurements are taken per ARI 1200 - 2002 specifications.





NOTES:

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

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	[3]BTUH/ft	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[5] (ºF)
OIZ[2]	488[4]	Enh.	-22	3-5	-12	-4	200
OIZ - MT[6]	320[4]	Enh	17	6-8	27	35	200

2 Not intended for Frozen Juice application

3 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.03.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

6 Indicates medium temperature application.

Defrost Controls

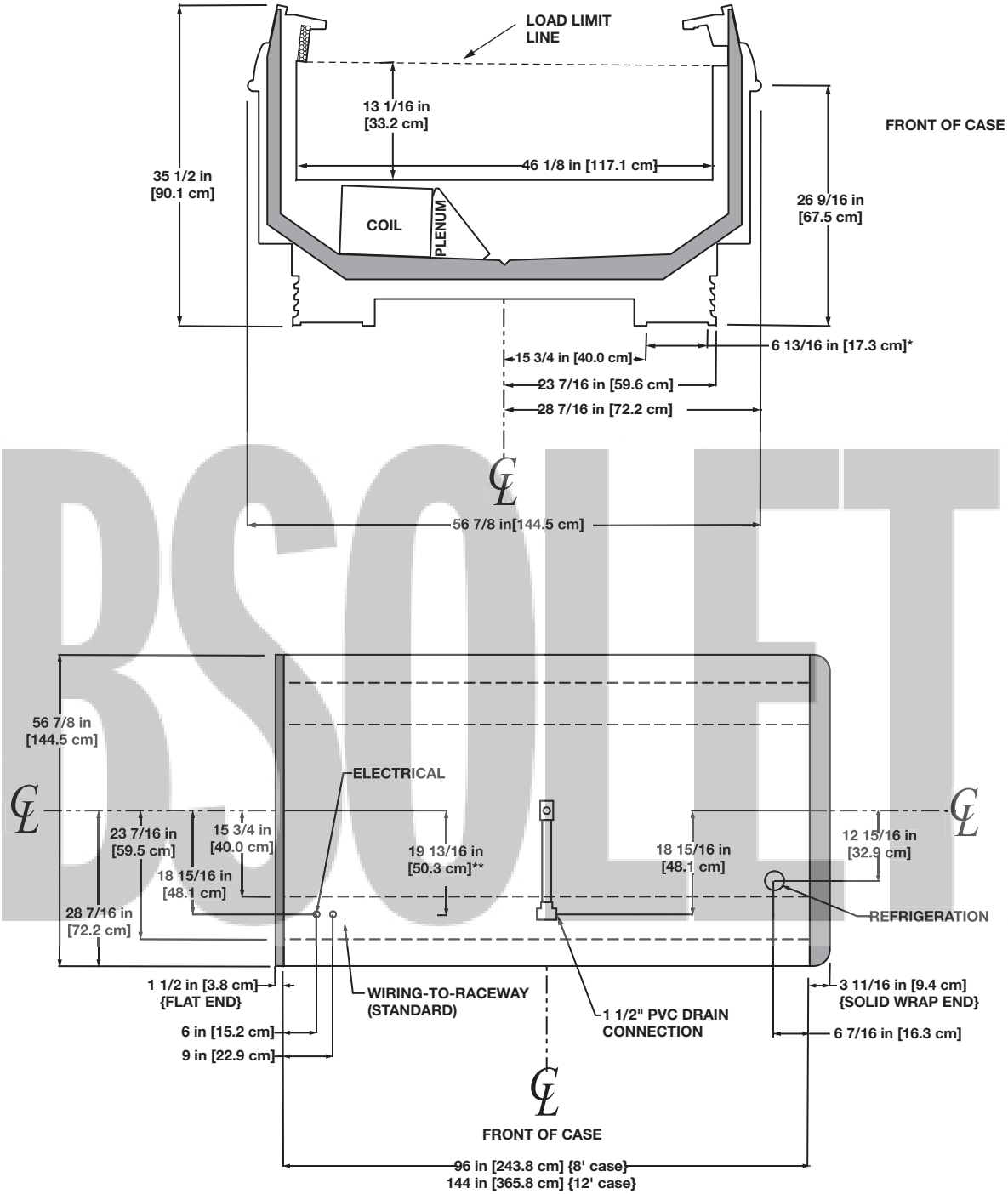
Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost Fail-Safe (min)	Electric Defrost Termination Temp (ºF)	Timed-Off Defrost Fail-Safe (min)	Timed-Off Defrost Termination Temp (ºF)	Hot Gas Defrost Fail-Safe (min)	Hot Gas Defrost Termination Temp (ºF)	Reverse Air Defrost Fail-Safe (min)	Reverse Air Defrost Termination Temp (ºF)
OIZ	1	13-15	45	47	- - -	- - -	20	60	- - -	- - -
OIZ - MT[7]	1	13-15	35	49	- - -	- - -	20	60	- - -	- - -

7 Indicates medium temperature application.

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 ARI 1200 - 2002 specifications.



NOTES:

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

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

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	[8, 9]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[11] (°F)
OWIZ - F	587[10]	Enh.	-12	3-5	-6	0	180
OWIZ - C	692[10]	Enh	-22	3-5	-16	-10	180
OWIZ - MT[10]	450[10]	Enh	17	6-8	27	35	180

8 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04 (BTUHs/ft listed are for both sides of the case.)

9 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

10 Standard fans increase refrigeration load by 96 BTUH/fan.

11 Average discharge air velocity at peak of defrost.

12 Indicates medium temperature 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)
OWIZ	1	13-15	60	49	- - -[13]	- - -	20	60	- - -	- - -
OWIZ - MT[14]	1	13-15	35	49	- - -	- - -	20	60	- - -	- - -

13 NOTE: "- - -" not an option on this case model.

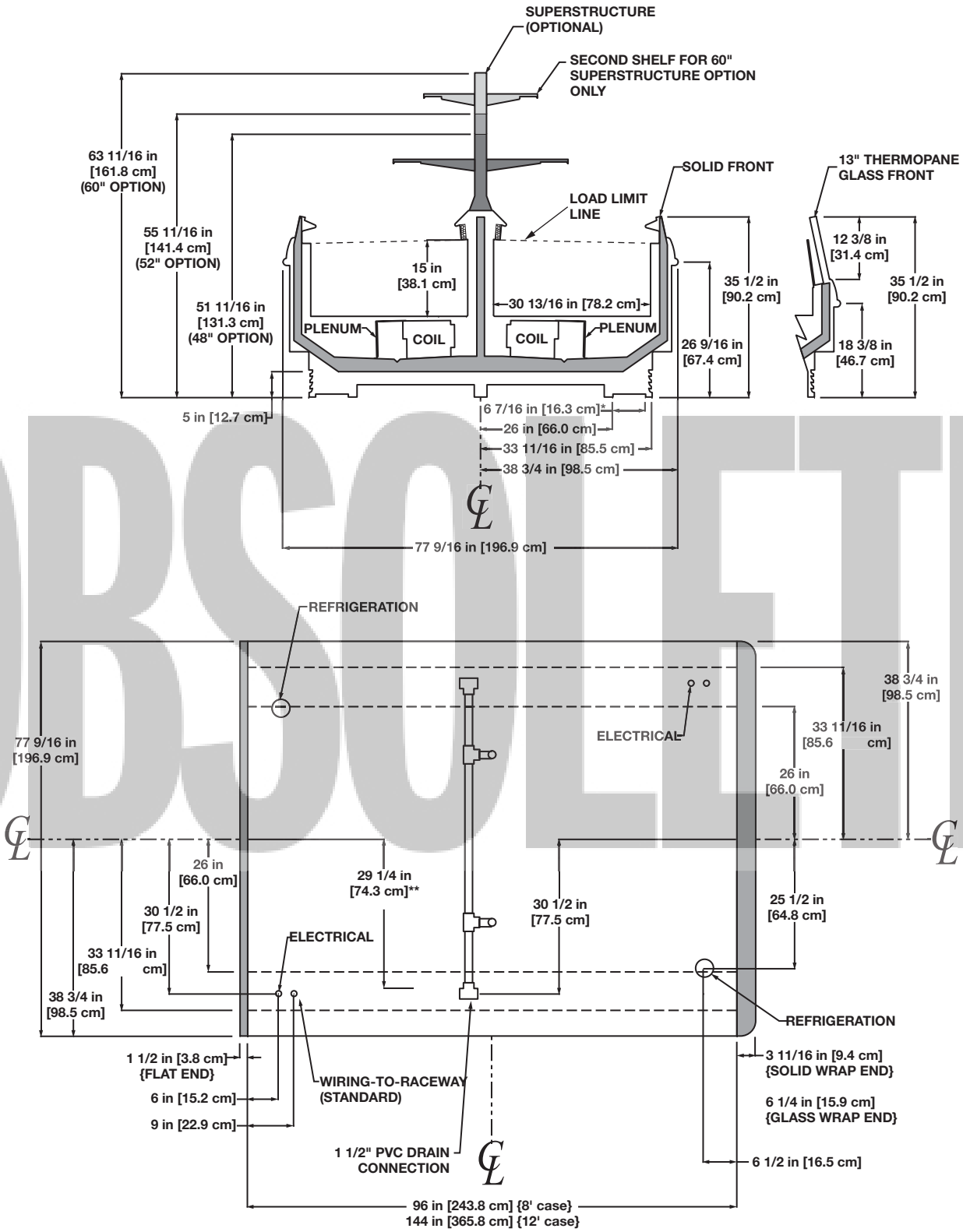
14 Indicates medium temperature application.

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 ARI 1200 - 2002 specifications.



NOTES:

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

- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14", & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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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[1]	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	[4]BTUH/cs	Coil Type	Evaporator (ºF)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[6] (ºF)
OWEZ - F	2663[5]	Enh.	-12	3-5	-6	0	200
OWEZ - C	3298[5]	Enh	-22	3-5	-16	-10	200
OWEZ - MT[7]	2150[5]	Enh	17	6-8	27	35	200

4 BTUHs/case listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

7 Indicates medium temperature application.

Defrost Controls

Model	Defrosts per Day	Run-Off Time (min)	Electric Defrost Fail-Safe (min)	Electric Defrost Termination Temp (ºF)	Timed-Off Defrost Fail-Safe (min)	Timed-Off Defrost Termination Temp (ºF)	Hot Gas Defrost Fail-Safe (min)	Hot Gas Defrost Termination Temp (ºF)	Reverse Air Defrost Fail-Safe (min)	Reverse Air Defrost Termination Temp (ºF)
OWEZ	1	13-15	60	49	- - -	- - -	20	60	- - -	- - -
OWEZ - MT[8]	1	13-15	35	49	- - -	- - -	20	60	- - -	- - -

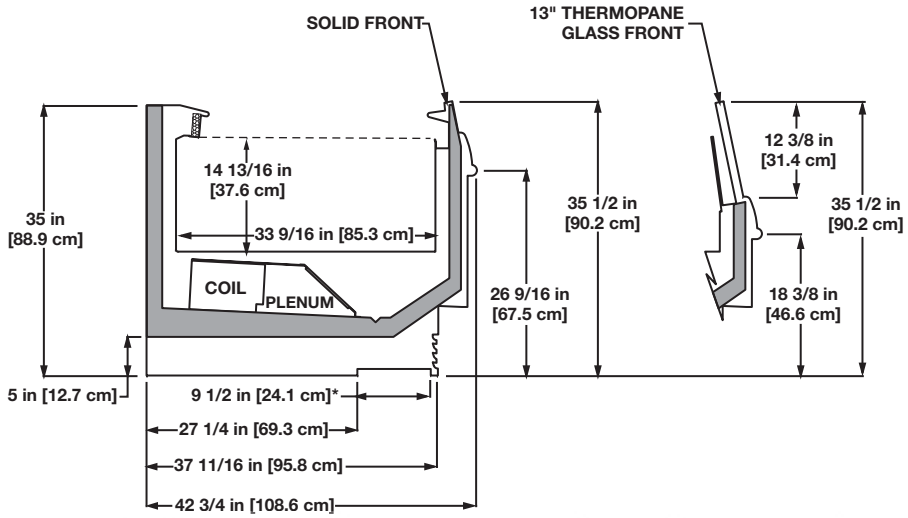
8 Indicates medium temperature application.

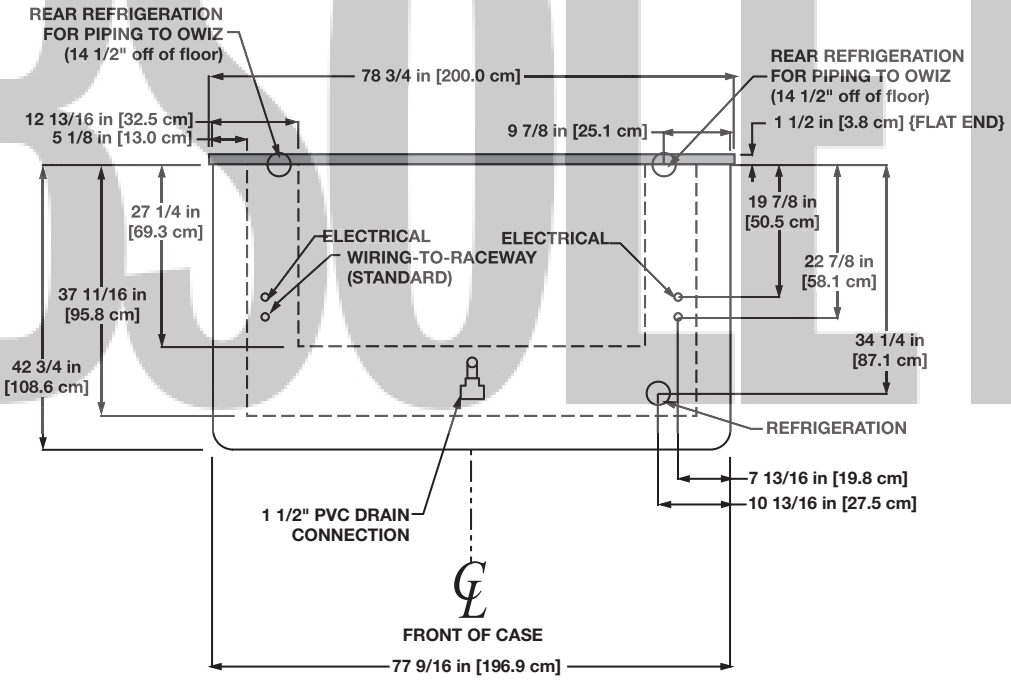
Low Temperature Defrost Schedule

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

** Or immediately after store closing hour

All measurements are taken per ARI 1200 - 2002 specifications.





NOTES:

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

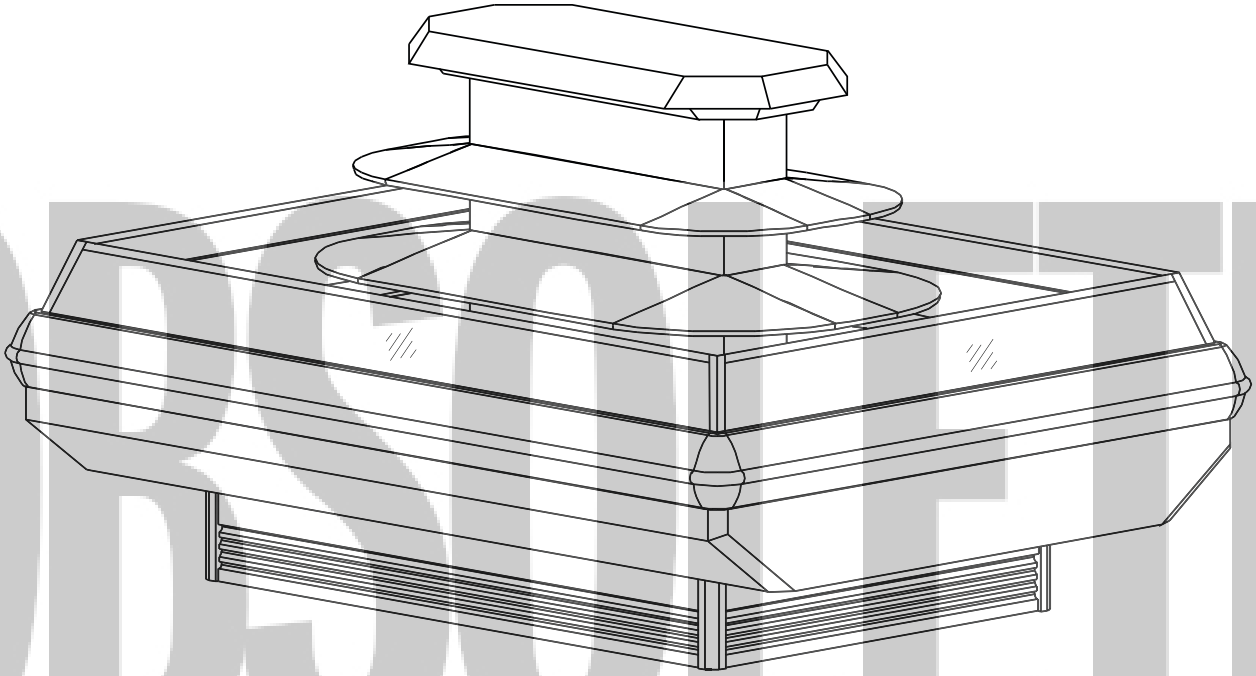
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OBSOLETE

MULTI-DECK ISLAND



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8” per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

Wide Island Multi-Deck Deli/Meat Merchandiser
O2IM - 8' (Double Wrap-Around 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
O2IM	8'	6	3.00	180	0.46	27.6	0.67	80	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
O2IM	8'	NA[1]	NA	0.95	114

[1] Not applicable.

Guidelines & Control Settings

Model	Application	[2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O2IM	Meat	1188[3]	Enh.	17	6-8	26	38	270
	Deli	1102[3]	Enh.	22	6-8	30	40	270

[2] BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

[3] Standard fans increase refrigeration load by 96 BTUHs/fan.

[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)
O2IM	4	6 - 8	30	47	45[5]	45[5]	26	45	- - -[6]	- - -

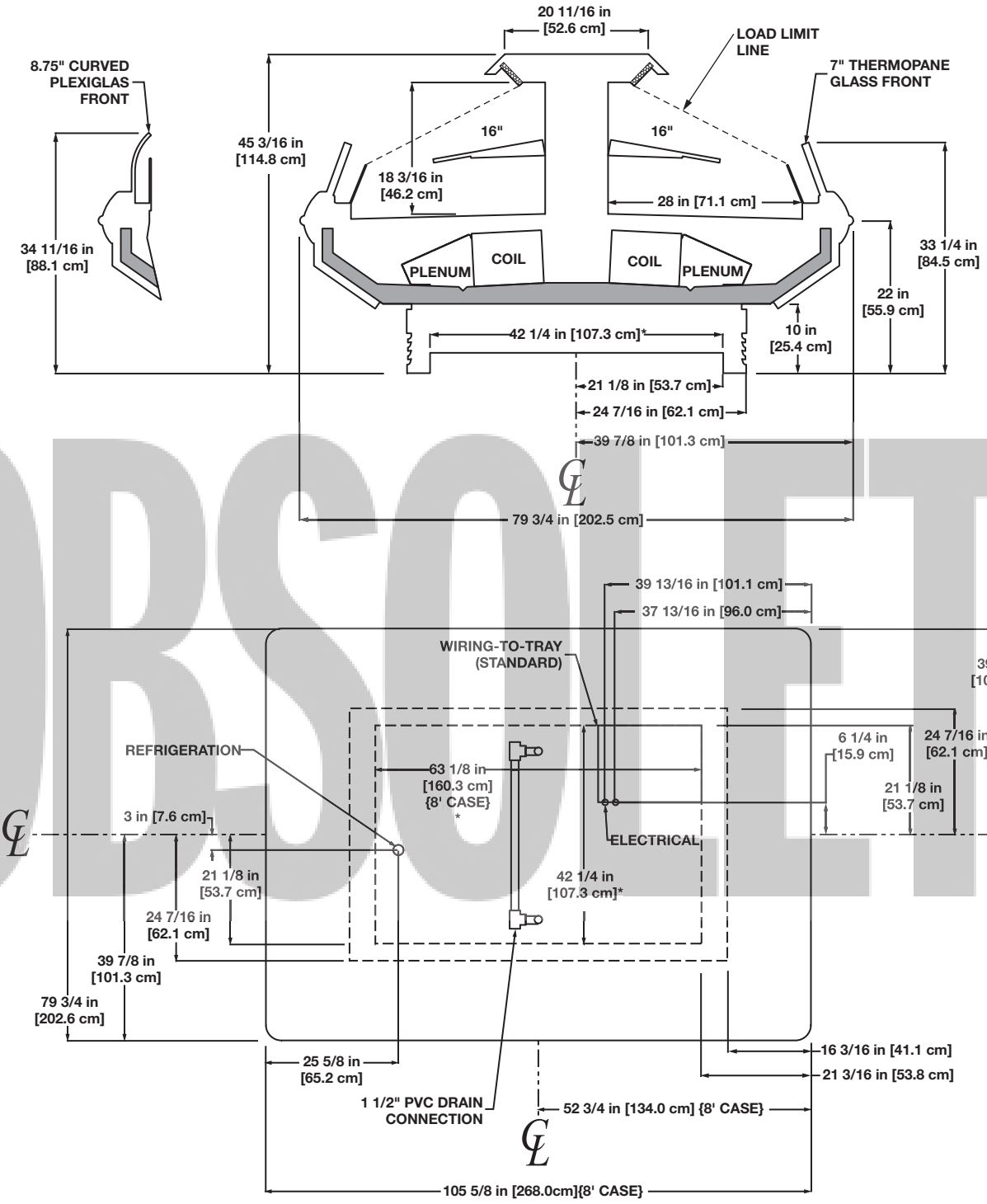
[5] Only recommended with the high efficiency coil at a 22°F evaporator.

[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 ARI 1200 - 2002 specifications.



NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

Narrow Island Multi-Deck Deli/Meat Merchandiser
ON3IM - 8' & 12' (Double Wrap-Around 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
ON3IM	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

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
ON3IM	8'	NA[1]	NA	1.88	226
	12'	NA	NA	5.69	683

[1] Not applicable.

Guidelines & Control Settings

Model	Application	[2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ON3IM	Meat	1139[3]	Enh.	17	6-8	26	38	270
	Deli	1035[3]	Enh.	22	6-8	30	40	270

[2] BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

[3] Standard fans increase refrigeration load by 96 BTUHs/fan.

[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)
ON3IM	4	6 - 8	30	47	45[5]	45[5]	26	45	- - -[6]	- - -

[5] Only recommended with the high efficiency coil at a 22°F evaporator.

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

Medium Temperature Defrost Schedule

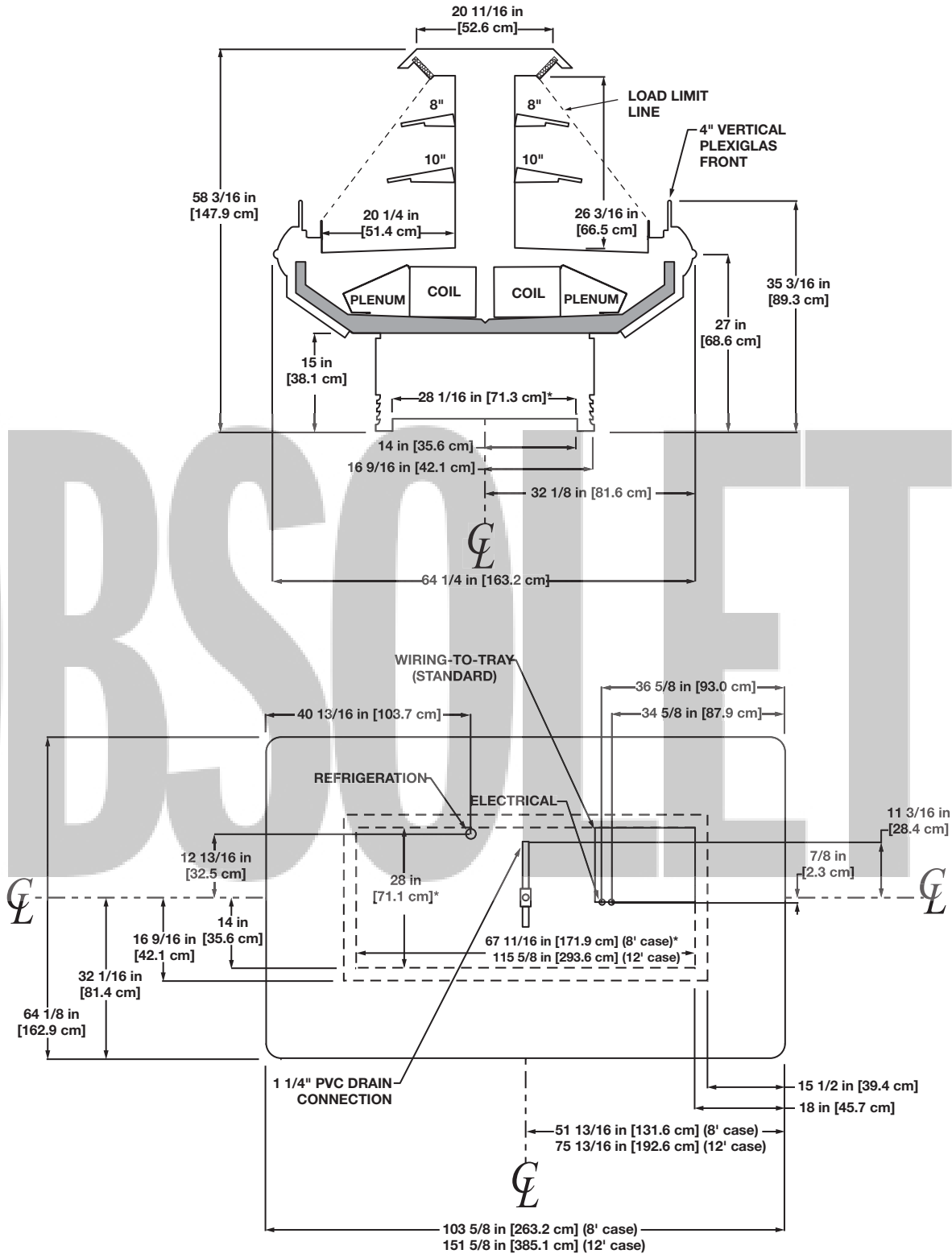
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 8", 10" & 12"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

Wide Island Multi-Deck Deli/Meat Merchandiser

O3IM - 8' & 12' (Double Wrap-Around End)
O3IMB - 6', 8' & 12' (Single Wrap-Around 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	[2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3IM	Meat	1456[3]	Enh.	17	6-8	26	38	270
	Deli	1326[3]	Enh.	22	6-8	30	40	270
O3IMB	Meat	1456[3]	Enh.	17	6-8	26	38	270
	Deli	1326[3]	Enh.	22	6-8	30	40	270
O3IMBB	Meat	1226[3]	Enh.	17	6-8	26	38	270
	Deli	1138[3]	Enh.	22	6-8	30	40	270

[2] BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

[3] Standard fans increase refrigeration load by 96 BTUHs/fan.

[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]	- - -

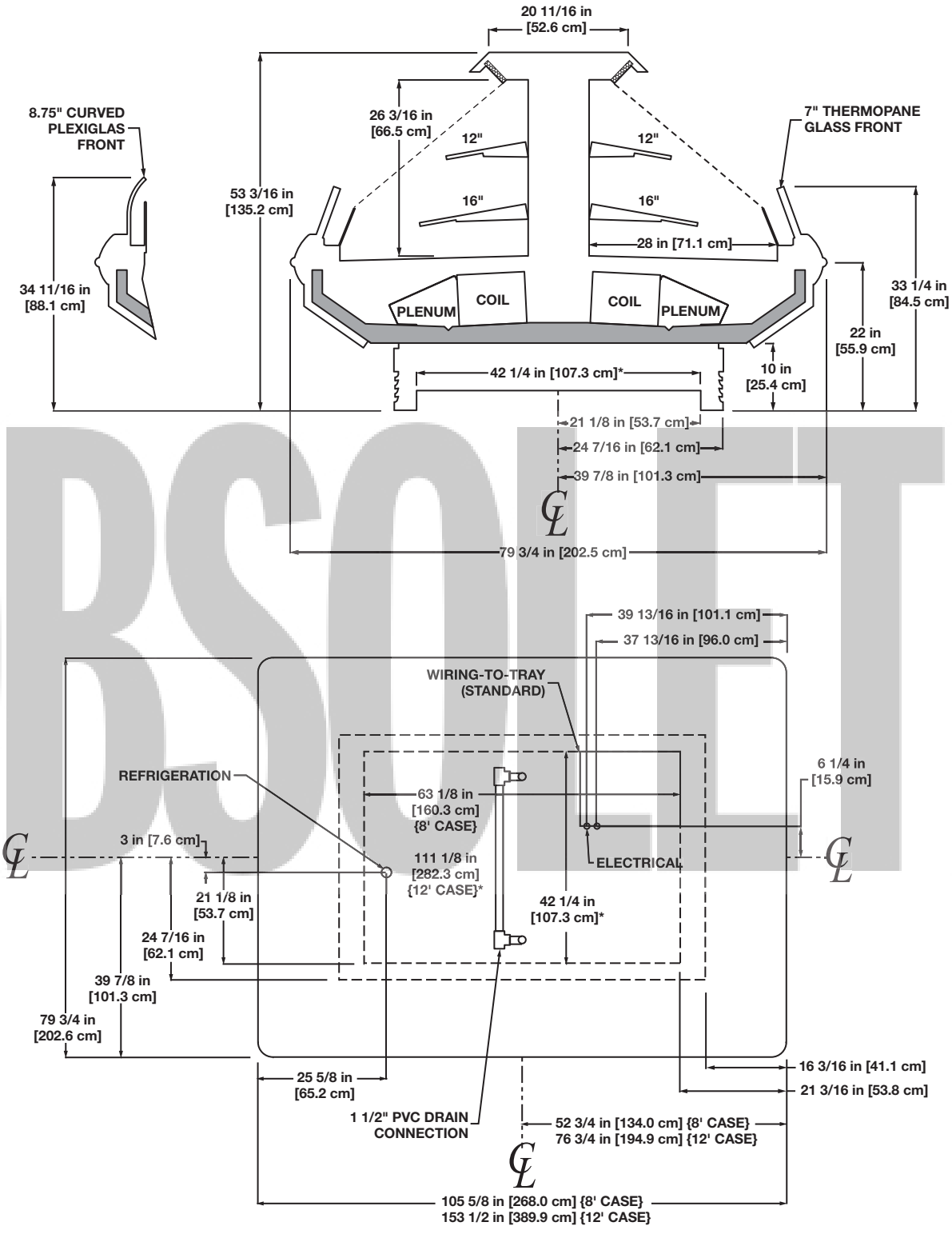
[5] Only recommended with the high efficiency coil at a 22°F evaporator.

[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 ARI 1200 - 2002 specifications.



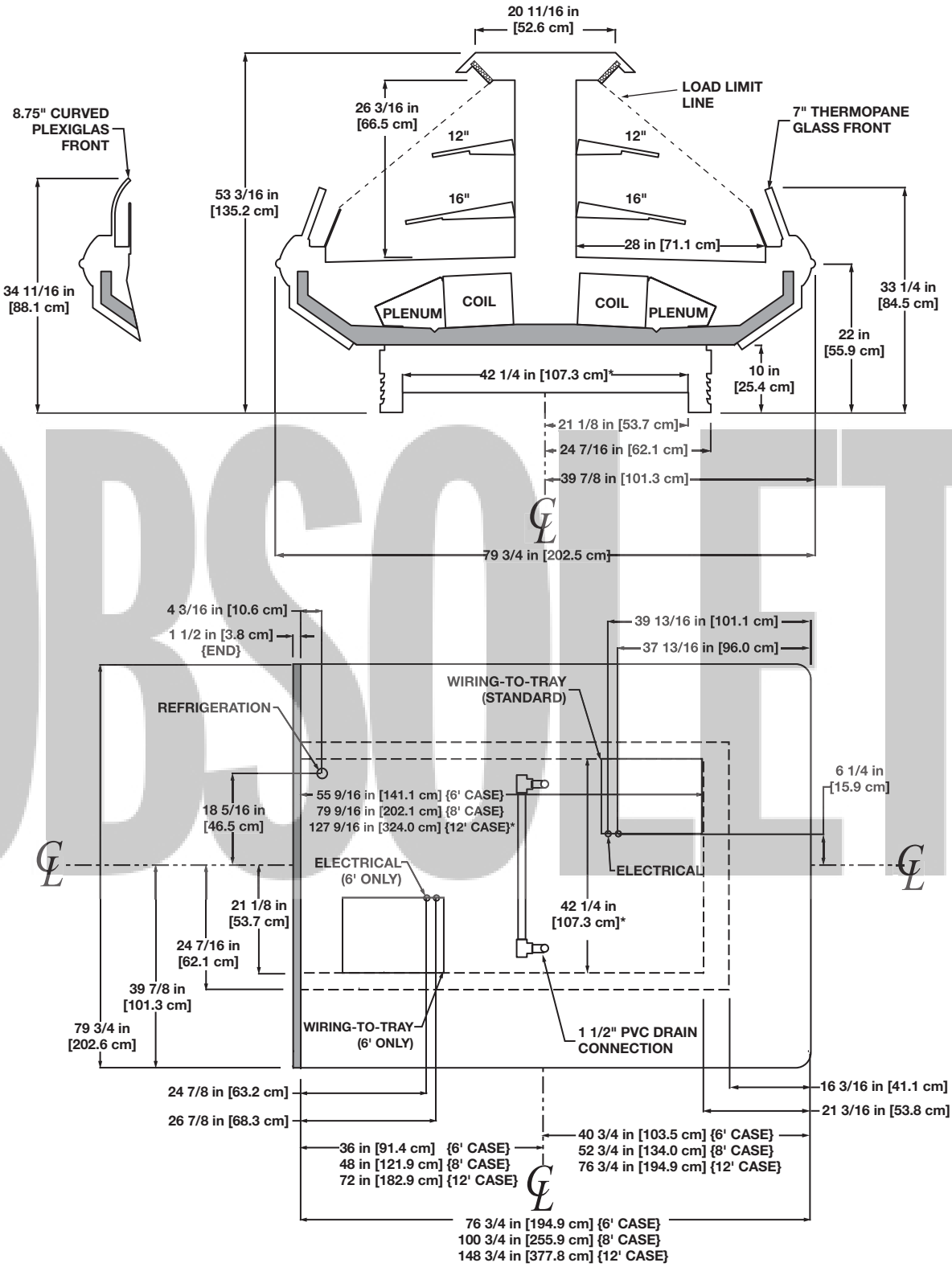
NOTES:

*** STUB-UP AREA**

- **FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT**
- **SUCTION LINE - 7/8", LIQUID LINE - 3/8"**
- **AVAILABLE SHELF SIZES: 10", 12", 14" & 16"**
- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

NSF COMPONENT

c UL us



NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
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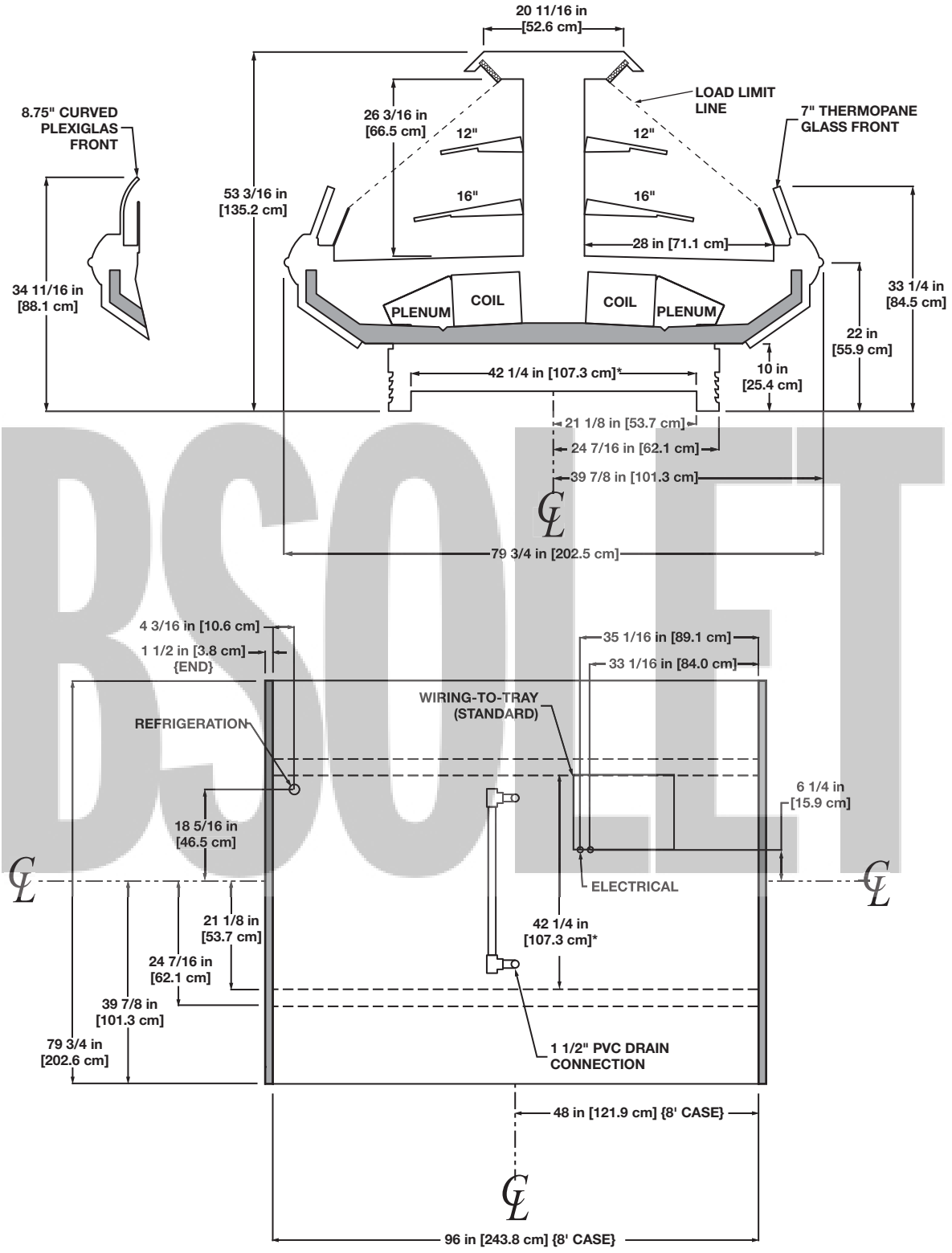


NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

Wide Island Multi-Deck Produce Merchandiser

O3IP - 8' & 12' Wide Island (Double Wrap-Around End)
O3IPB - 8' & 12' Wide Island (Single Wrap-Around 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	[2]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O3IP/O3IPB	906[3,4]	22	6-8	34	48	160

[2] BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

[3] Standard fans increase refrigeration load by 96 BTUHs/fan.

[4] Add 650 BTUH per wrap-around end.

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

Defrost Controls

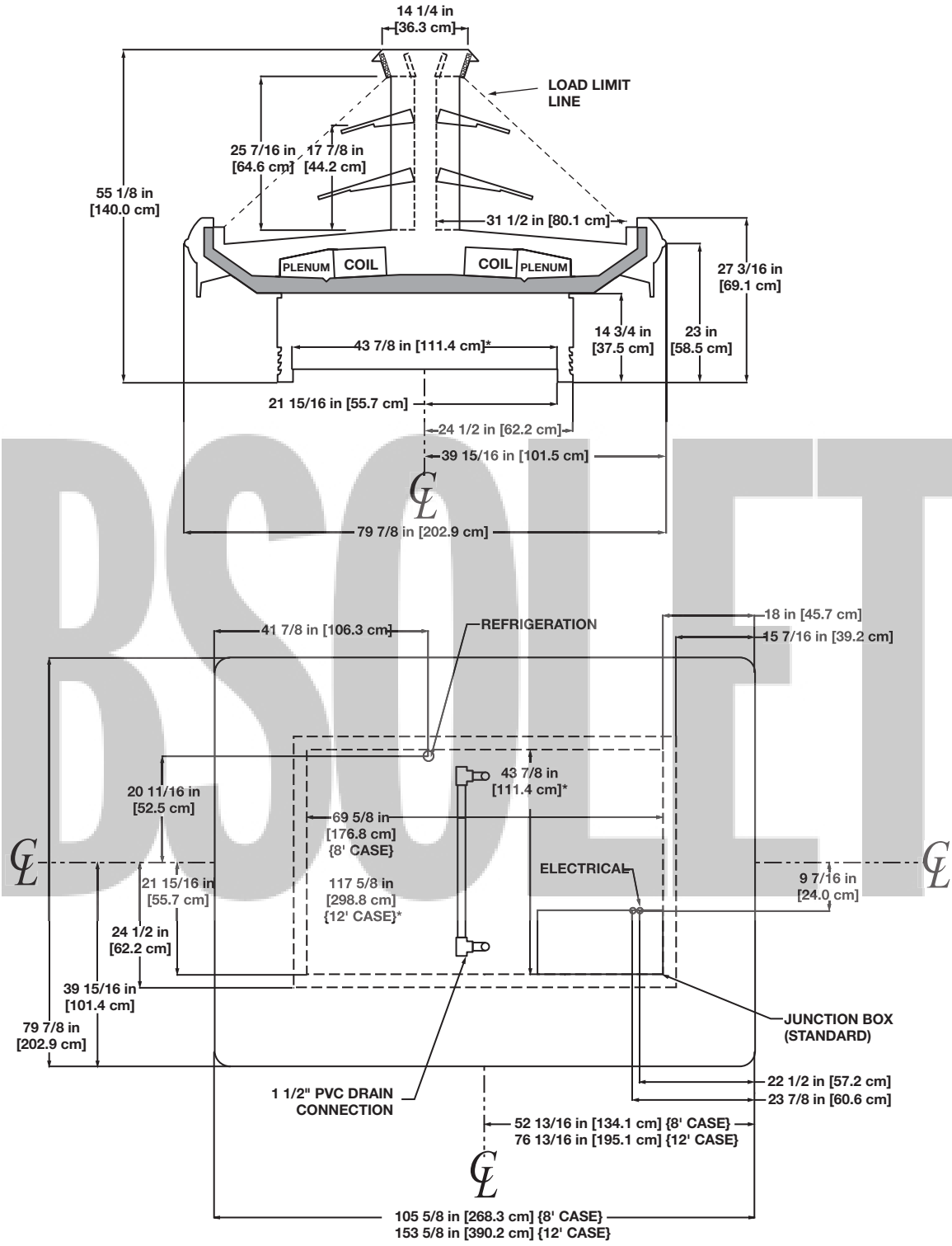
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.



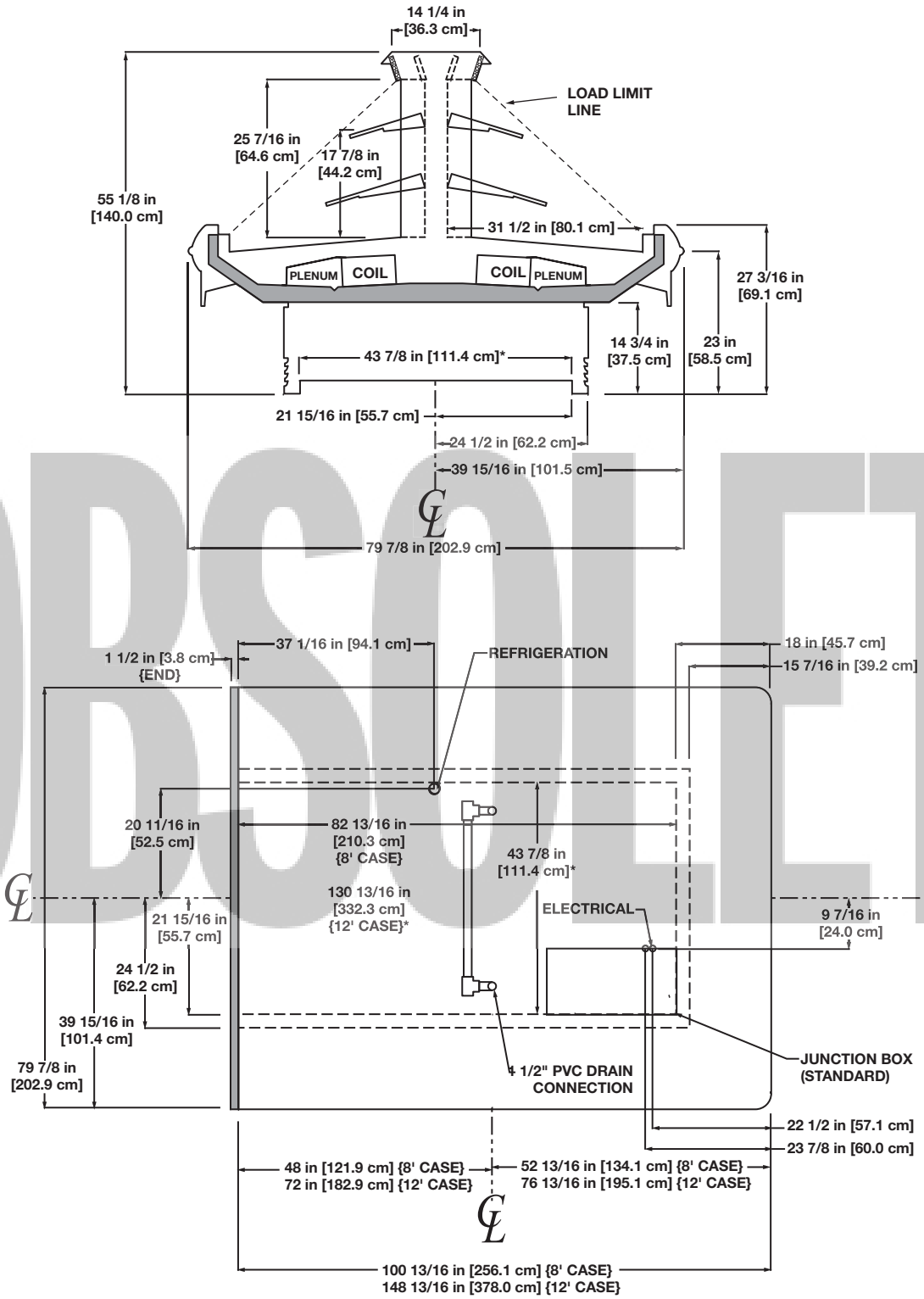
NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 12" & 16"

NSF COMPONENT

c UL us



NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 12" & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OBSOLETE

Multi-Deck Produce/Dairy/Deli/Meat Merchandiser

O3EIF - Island End Cap

Electrical Data

		High Efficiency Fans		Anti-Condensate Heaters		Defrost Heaters			
		120 Volts		120 Volts		120 Volts		240 Volts	
MODEL	Fans per Case	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O3EIF	2	0.3	21	---	---	--	--	--	--

Lighting Data

			Typical per Two 12" Lamp		Maximum Lighting	
			120 Volts		120 Volts	
MODEL	Bulbs per Shelf	Bulb Length	Amps	Watts	Amps	Watts
O3EIF	3	12"	0.15	16	0.71	72

Guidelines & Control Settings

Model	BTUH/case[1]	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity (FPM)[2] †
O3EIF	2600	Enh.	22°	6-8°	30°	40°	235

1 BTUH/case listed is for parallel operation. Conventional rational ratings may approximated by multiplying listed rating by 1.04.

2 Average discharge air velocity at peak defrost

Defrost Controls

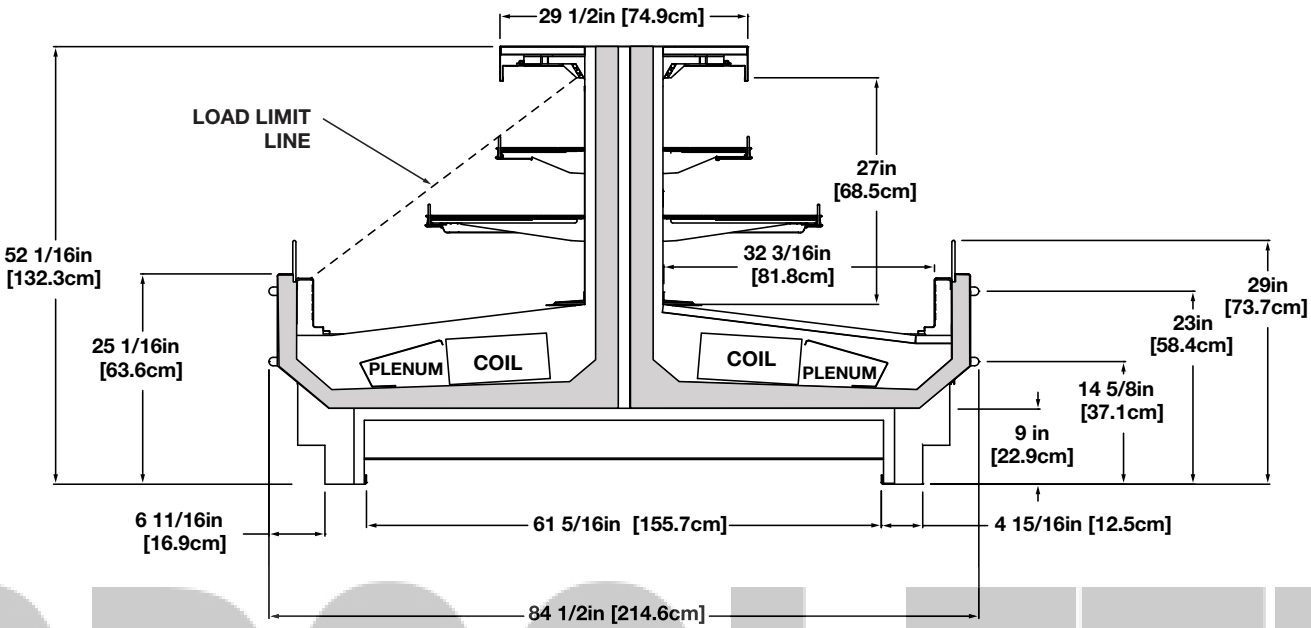
			Electric Defrost		Time Off Defrost		Reverse Air Defrost	
Model	Defrosts per Day	Run-Off Time (min)	Fail-safe (min.)	Termination Temp.(°F)	Fail-safe (min.)	Termination Temp.(°F)	Fail-safe (min.)	Termination Temp. (°F)
O3EIF	4	0	--	--	40	47	- - -	- - -

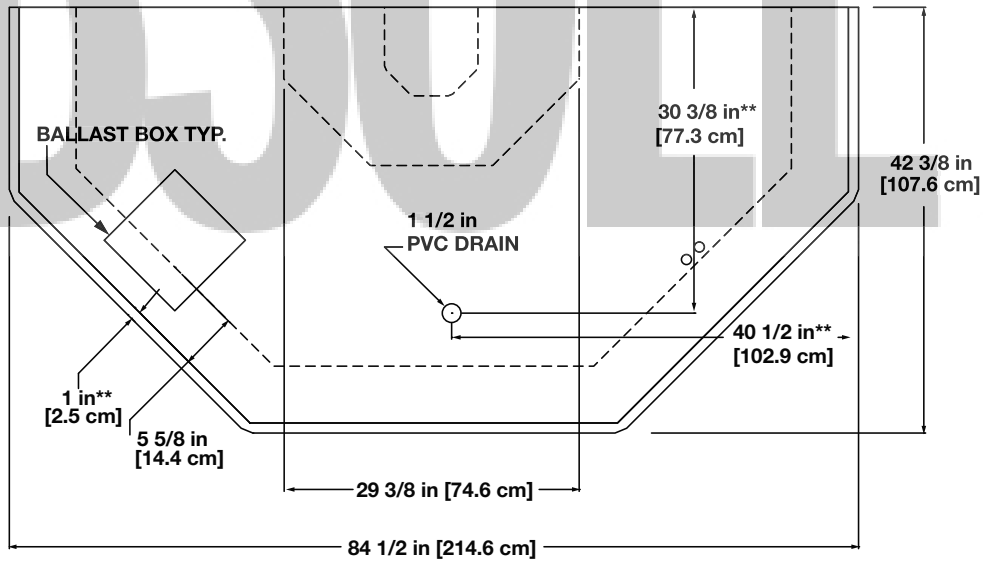
[5] NOTE: --- not an option on this case model.

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 ARI 1200 - 2002 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
- REFER TO O3UM FOR SUCTION AND LIQUID LINE SIZES
- SHELF SIZES BASED ON O3UM SHELF SLECTION
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

Wide Island Multi-Deck Deli/Meat Merchandiser

O4ID - 8' & 12' (Double Wrap-Around End)
O4IDB - 6', 8' & 12' (Single Wrap-Around End)
O4IDBB - 8' (Double Joint End)

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
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	[2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
O4ID	Meat	1956[3]	Enh.	17	6-8	25	40	130
	Deli	1806[3]	Enh.	22	6-8	28	43	130
O4IDB	Meat	1956[3]	Enh.	17	6-8	25	40	130
	Deli	1806[3]	Enh.	22	6-8	28	43	130
O4IDBB	Meat	1657[3]	Enh.	17	6-8	25	40	130
	Deli	1551[3]	Enh.	22	6-8	28	43	130

[2] BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

[3] Standard fans increase refrigeration load by 96 BTUHs/fan.

[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]	- - -

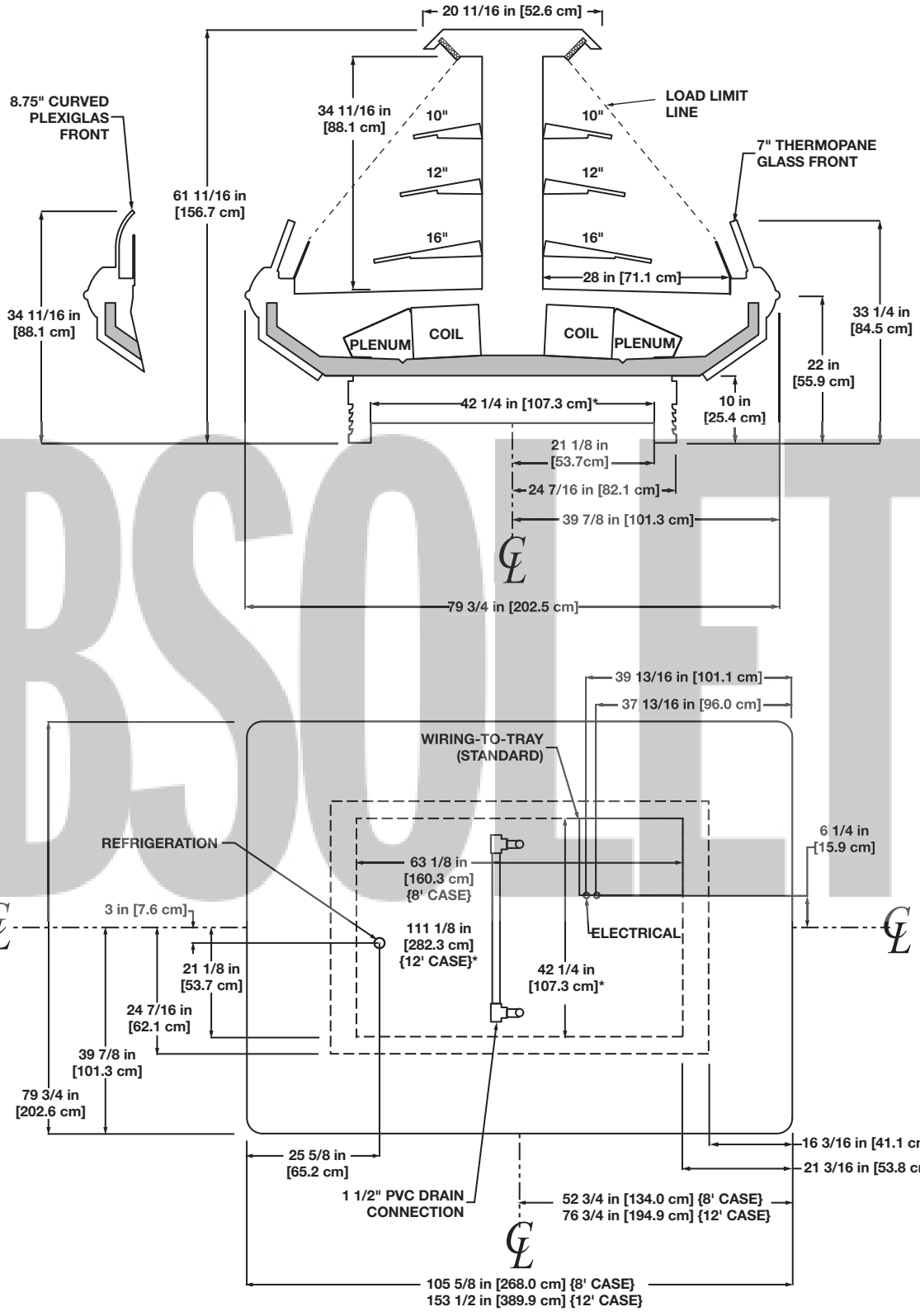
[5] Only recommended with the enhanced efficiency coil at a 22°F evaporator.

[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 ARI 1200 - 2002 specifications.



NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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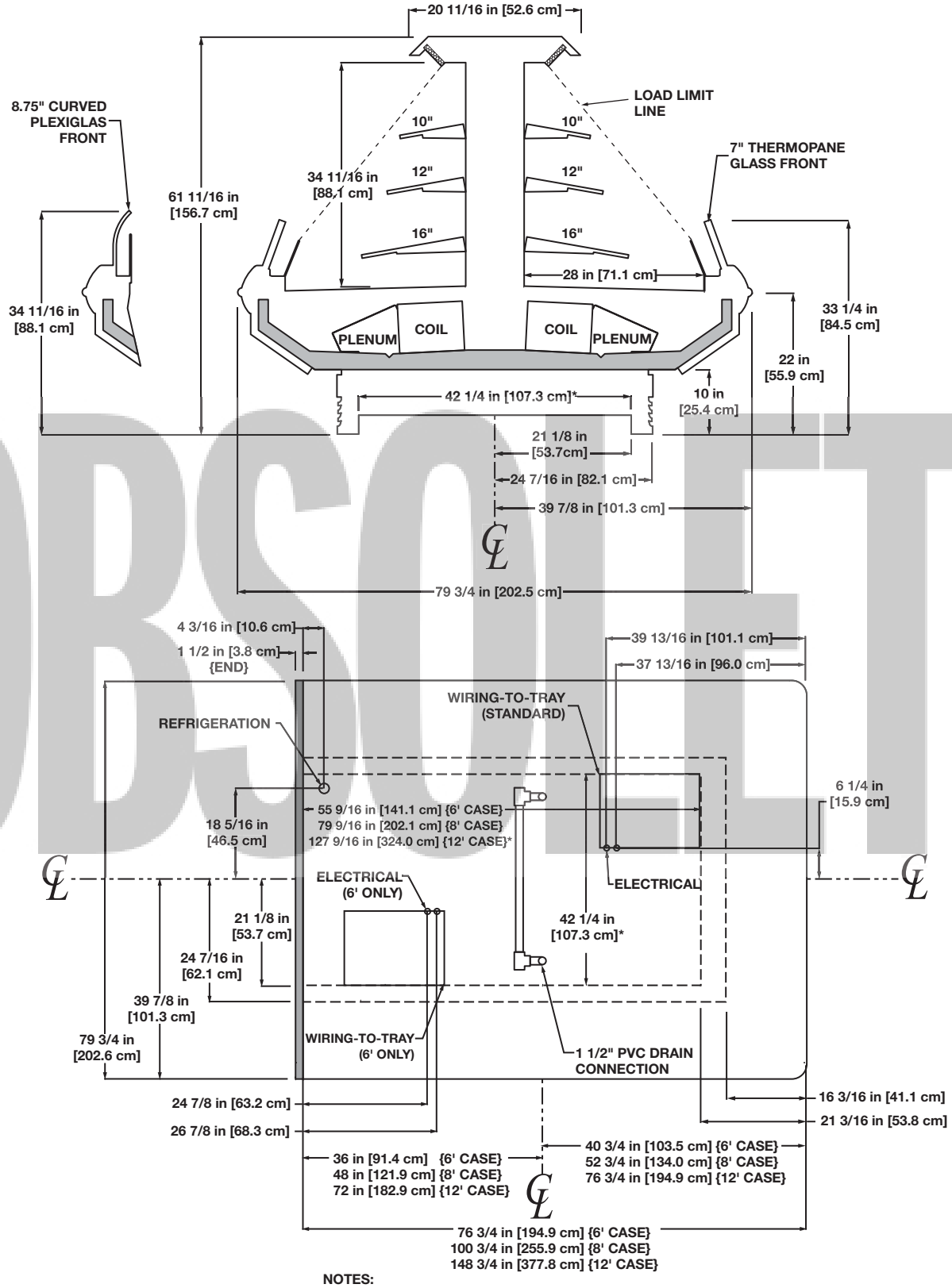

NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
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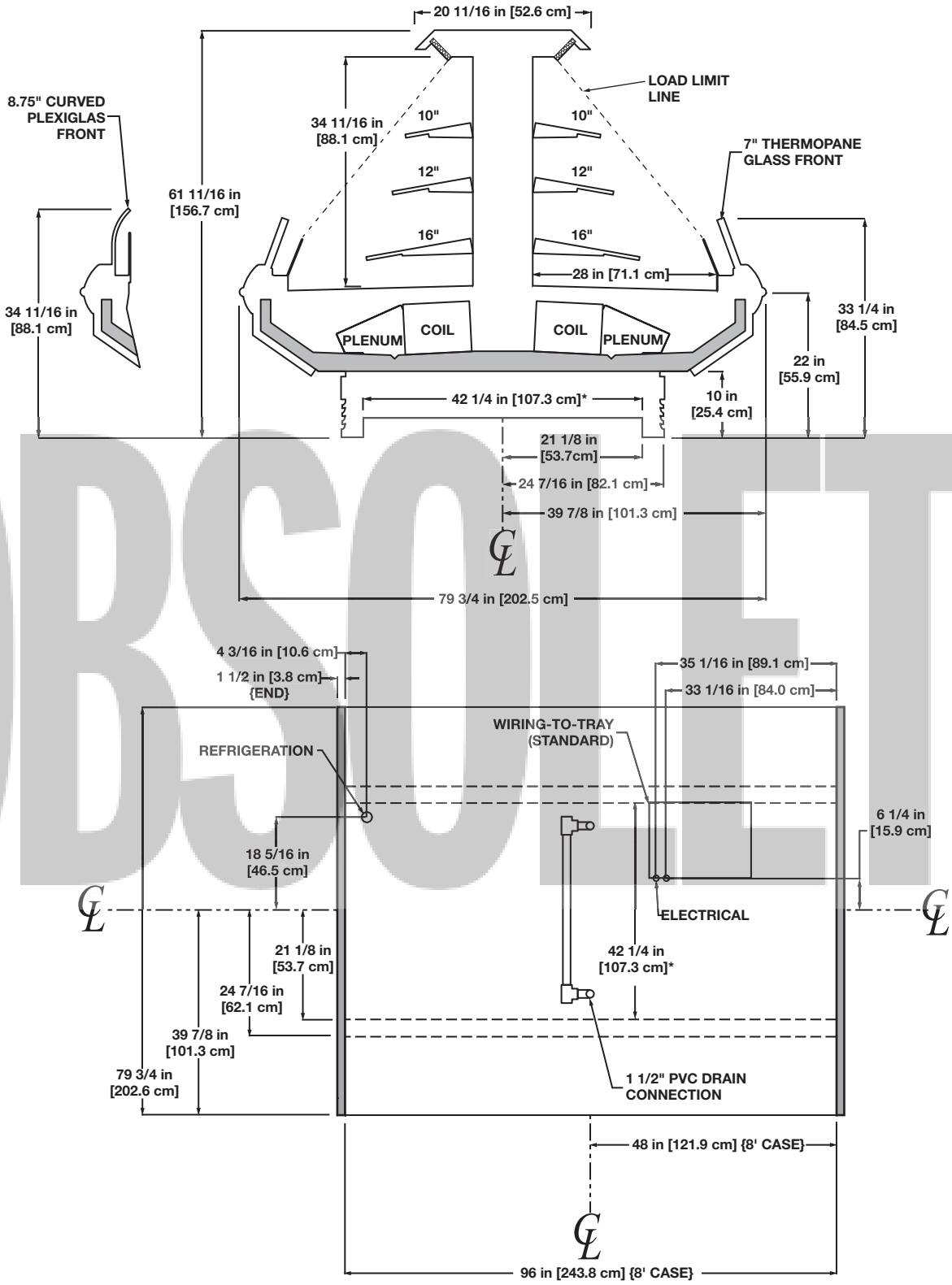

NOTES:

* STUB-UP AREA

- FRONT AND CENTER SILL HEIGHTS VARY WITH BASEFRAME HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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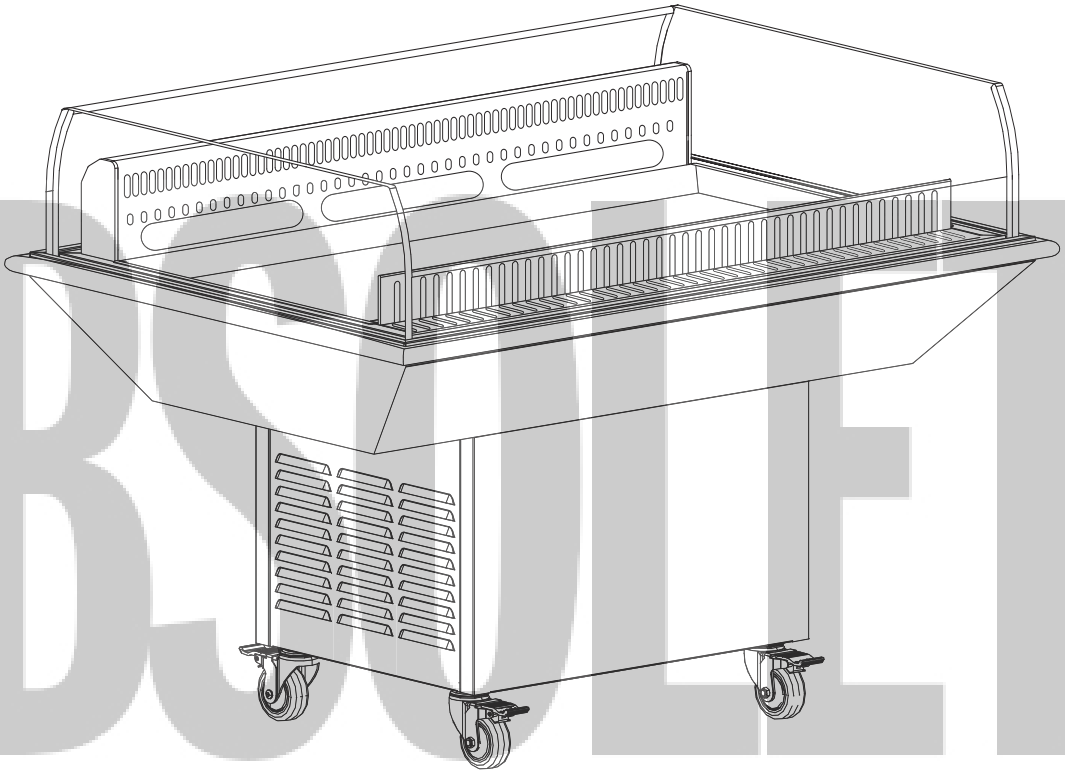
OBSOLETE

MOBILE SELF-CONTAINED



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8” per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

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 L5-30	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)
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.

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

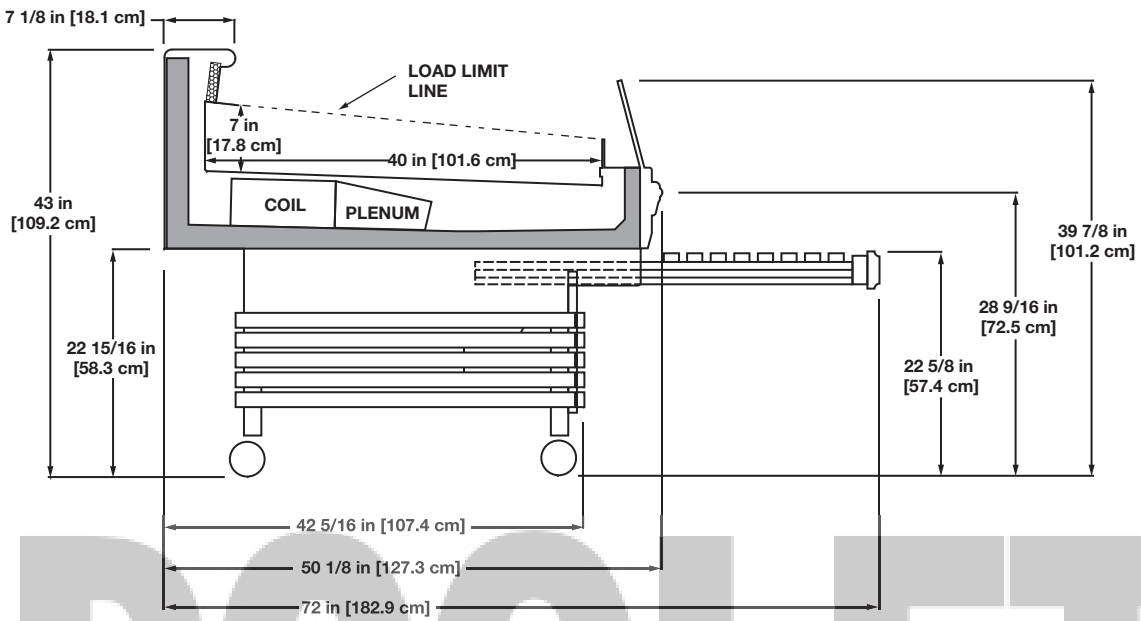
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
MDCA	4	35	47	- - -[4]	- - -	- - -	- - -	- - -	-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

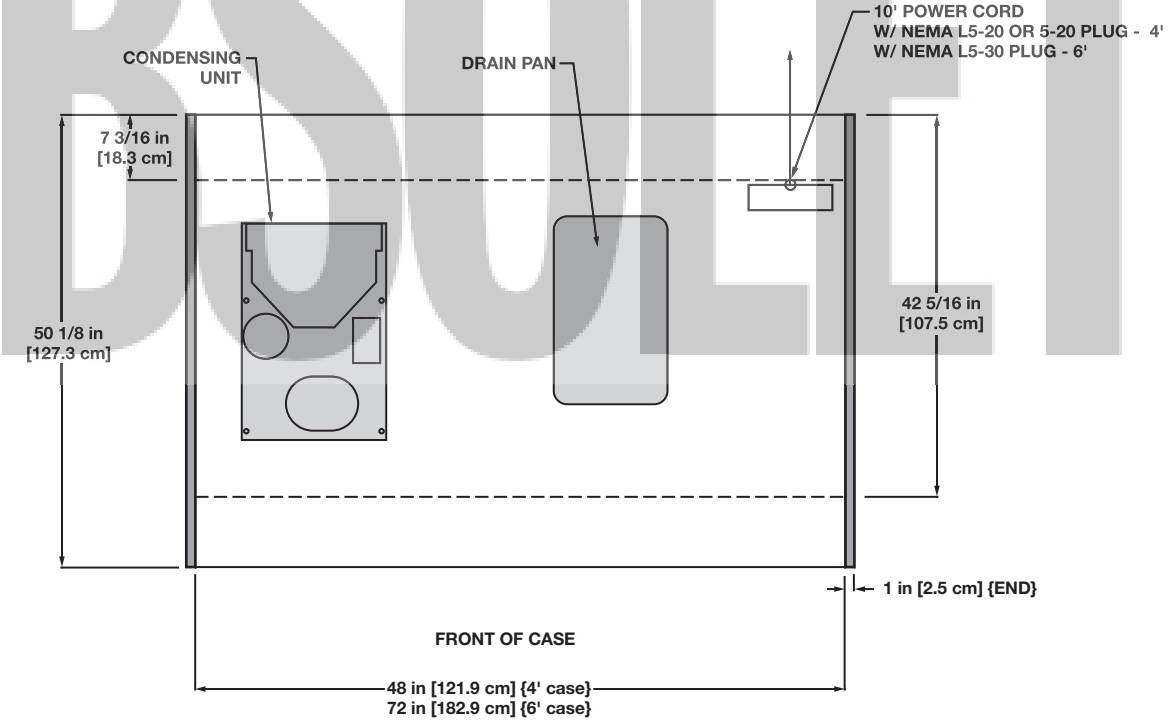
4 NOTE: " - - - " not an option on this case model.

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 ARI 1200 - 2002 specifications.





NOTES:

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

Single Deck Self-Contained Mobile Deli Merchandiser

MIDA - 4'

System Requirements

Model	Volts	Phase	Hz	Plug Style	Cord Length
MIDA - 4'	120	1	60	NEMA L5-20 NEMA 5-20	10 ft.

Guidelines & Control Settings

Model	24hr Energy Usage (Kw/h)	Suction Pressure @ Case Outle (psig)	Superheat Set Point @bulb (ºF)	Discharge Air (ºF)	Return Air (ºF)	Discharge Air Velocity[5] (ºF)
MIDA - 4'	7.85	60.5	6 - 8	23	36	70

1 Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[2] (amps)	Refrig.	Lbs. of Refrig.
MIDA - 4'	1115	1	60	1/444	8.0	34.6	R404A	2.1

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 (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)	Fail-Safe (min)	Termination Temp (ºF)
MIDA - 4'	4	6-8	---	---	45	47	---	---	---	---

Medium Temperature Defrost Schedule

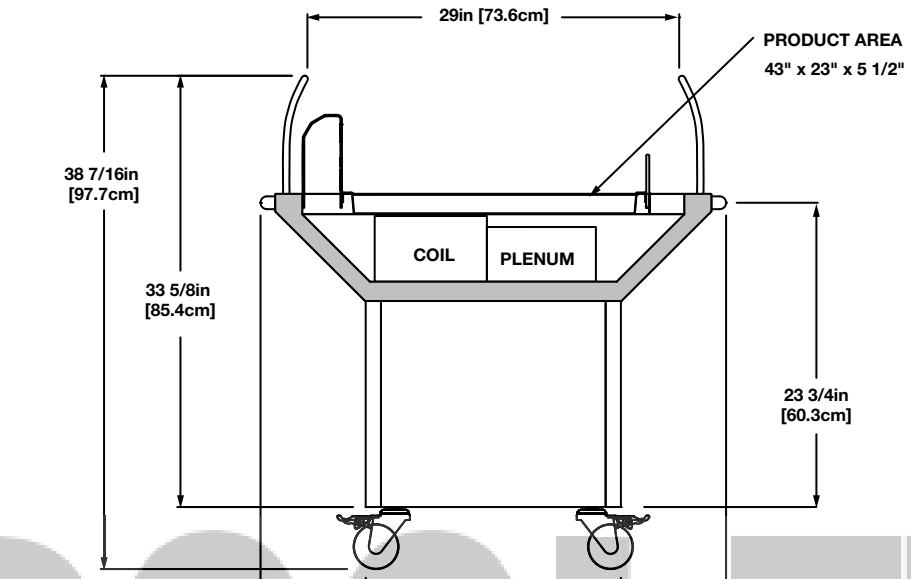
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

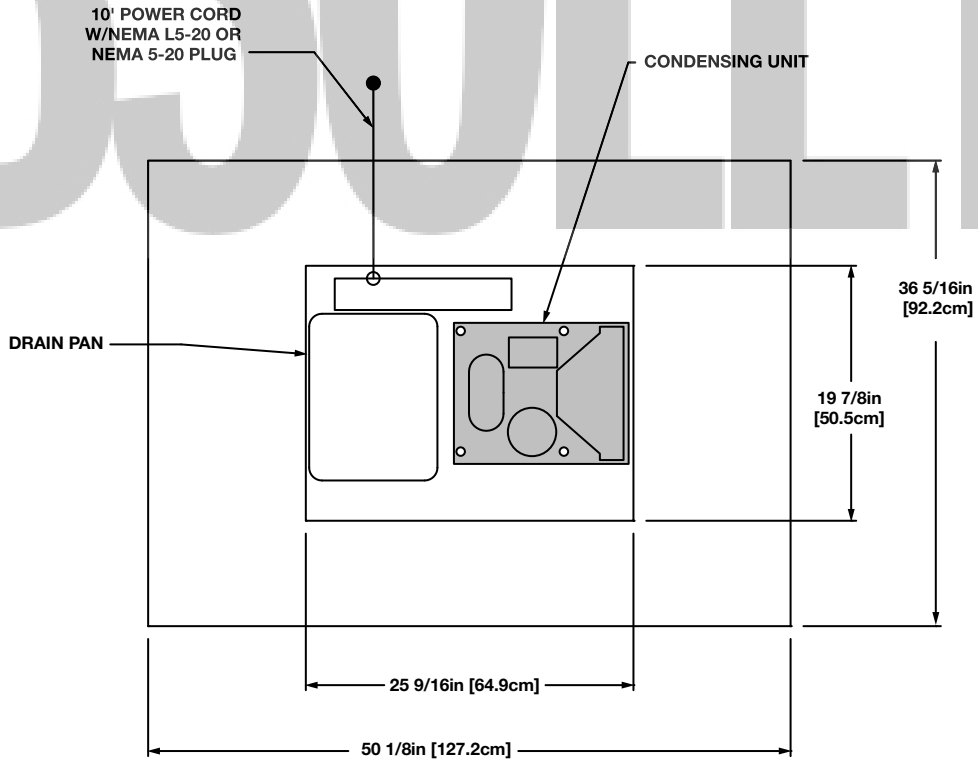
All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY


29in [73.6cm]
PRODUCT AREA
43" x 23" x 5 1/2"
38 7/16in
[97.7cm]
33 5/8in
[85.4cm]
COIL
PLENUM
23 3/4in
[60.3cm]
8 3/16in
[20.8cm]
28 1/8in [71.4cm]
36 5/16in [92.2cm]


10' POWER CORD
W/NEMA L5-20 OR
NEMA 5-20 PLUG
CONDENSING UNIT
DRAIN PAN
36 5/16in
[92.2cm]
19 7/8in
[50.5cm]
25 9/16in [64.9cm]
50 1/8in [127.2cm]

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 L5-30	10 ft
MMCA-8'	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)
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

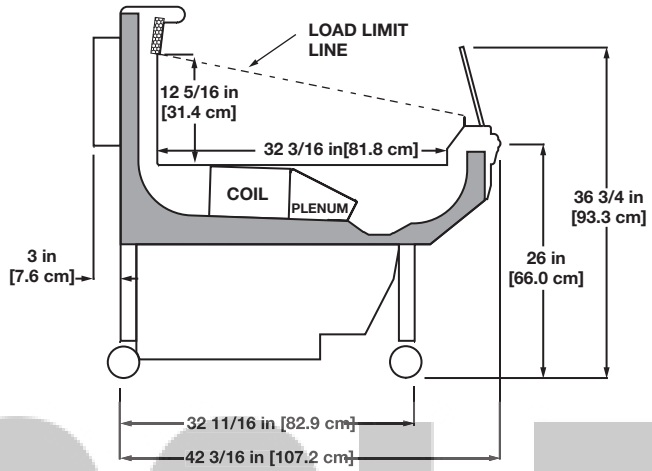
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
MMCA	3	35	47	- - -[4]	- - -	- - -	- - -	- - -	-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

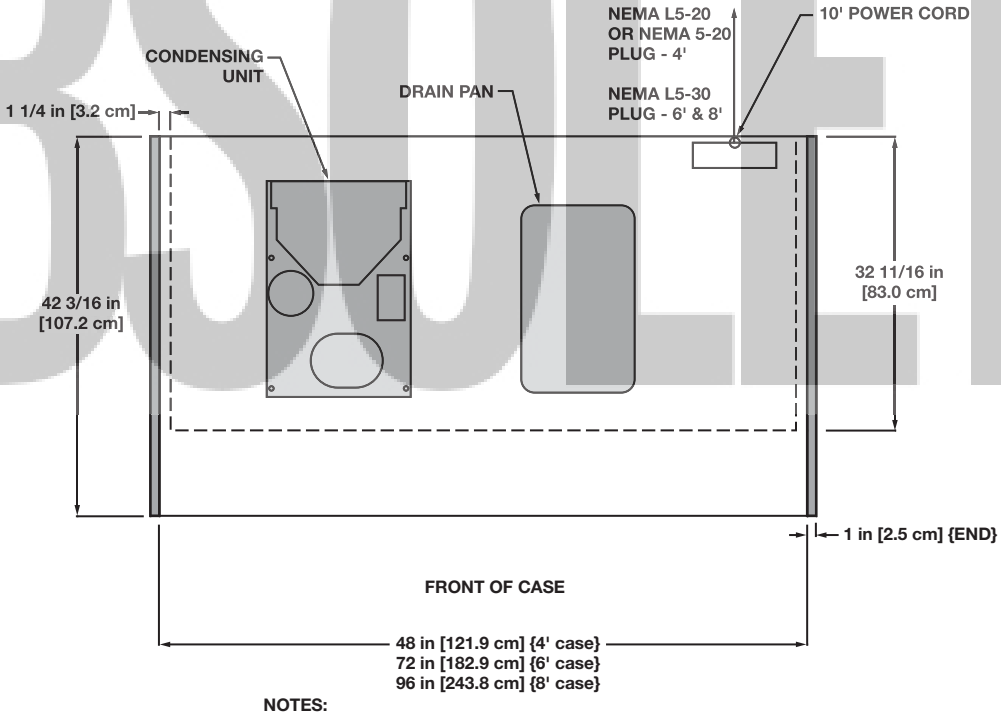
4 NOTE: " - - - " not an option on this case model.

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 ARI 1200 - 2002 specifications.





NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

Single Deck Self-Contained Mobile Deli/Meat Merchandiser

MMRA - 2', 3', 4' & 6'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
MMRA	120	1	60	NEMA 5-20	6 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)
MMRA		15	6-8	29	39	180

1 Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
MMRA - 2'	115	1	60	1/4	4.94	25	134A	1.75
MMRA - 3'	115	1	60	1/4	7.20	29	134A	1.94
MMRA - 4'	115	1	60	1/3	9.30	36	134A	3.00
MMRA - 6'	115	1	60	1/2	9.00	51	134A	3.38

2 RLA - Running Load Amps.
3 LRA - Locked Rotor Amps.

Defrost Controls

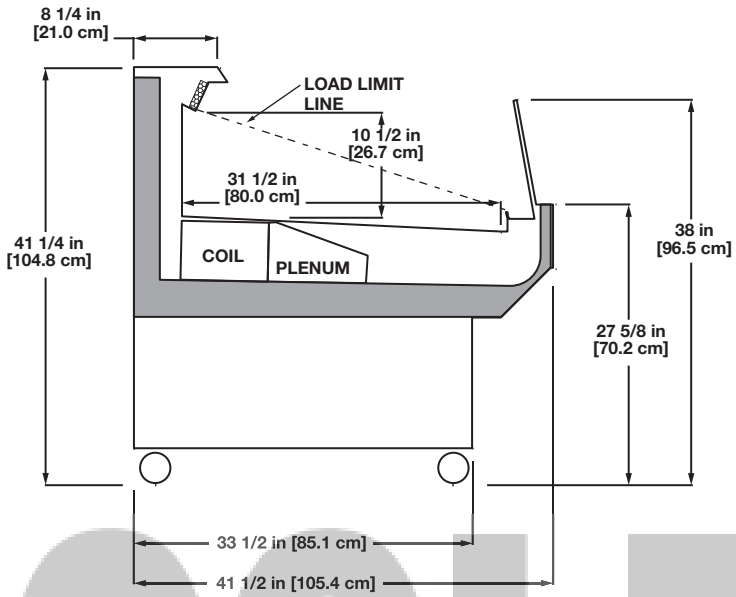
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
MMRA	4	- - -[4]	- - -	30	47	- - -	- - -	- - -	-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

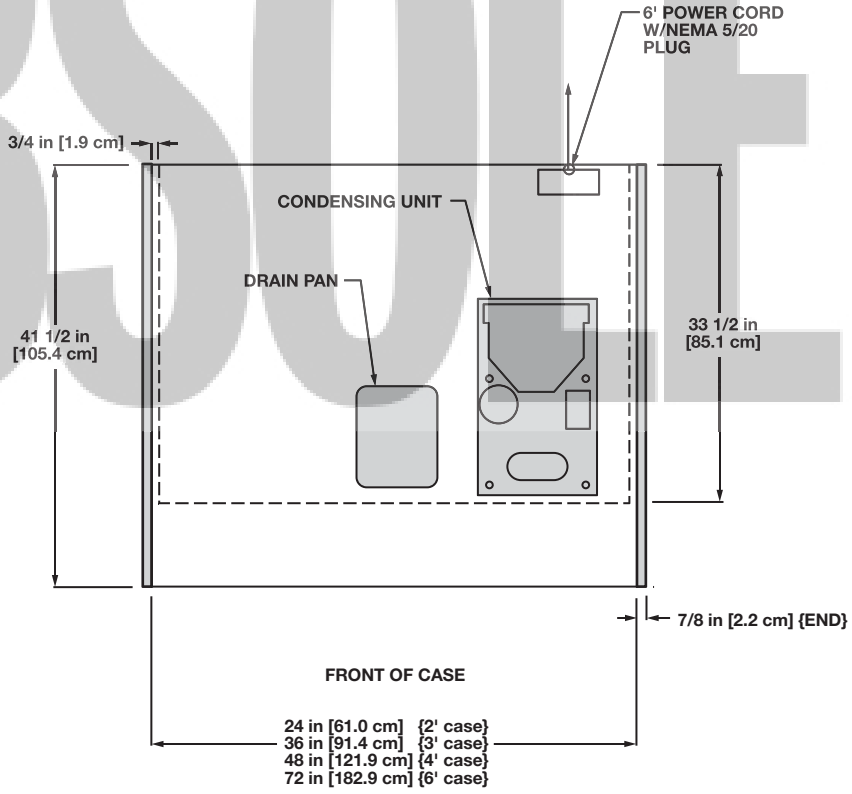
4 NOTE: " - - - " not an option on this case model.

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.





NOTE:
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[1] (FPM)
MPCA		19.9	6-8	30	42	163

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.
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

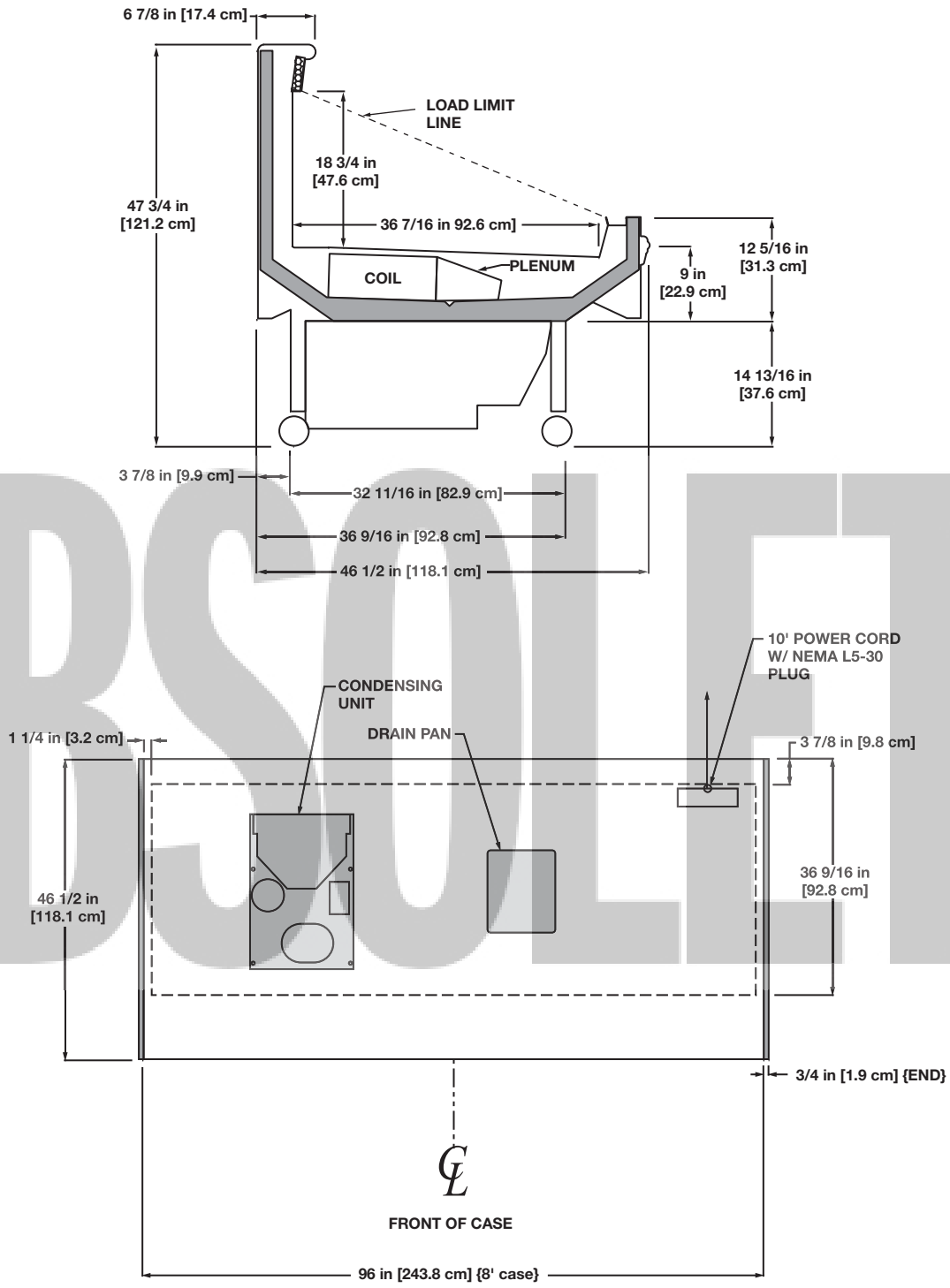
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY


6 7/8 in [17.4 cm]
LOAD LIMIT LINE
18 3/4 in [47.6 cm]
47 3/4 in [121.2 cm]
36 7/16 in 92.6 cm]
12 5/16 in [31.3 cm]
PLENUM
COIL
9 in [22.9 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 L5-30 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}

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.

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

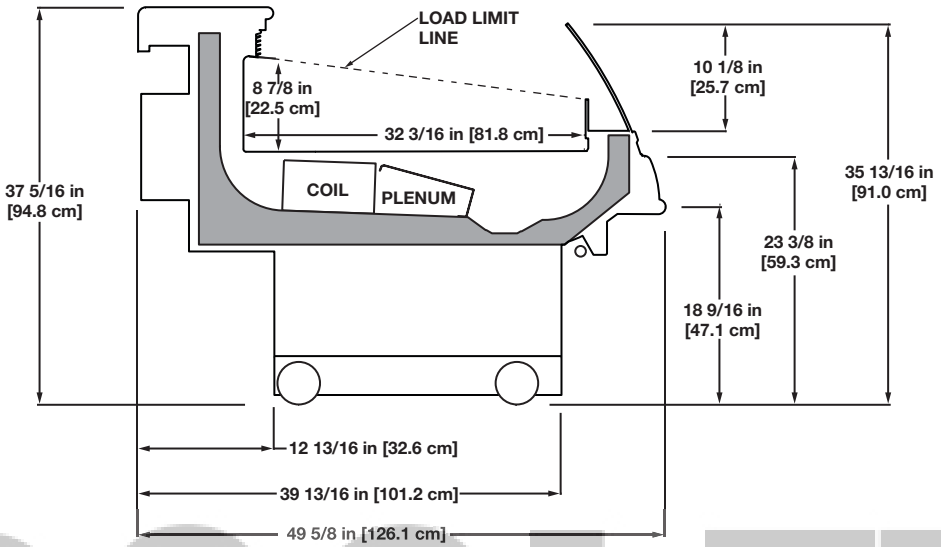
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOA	4	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

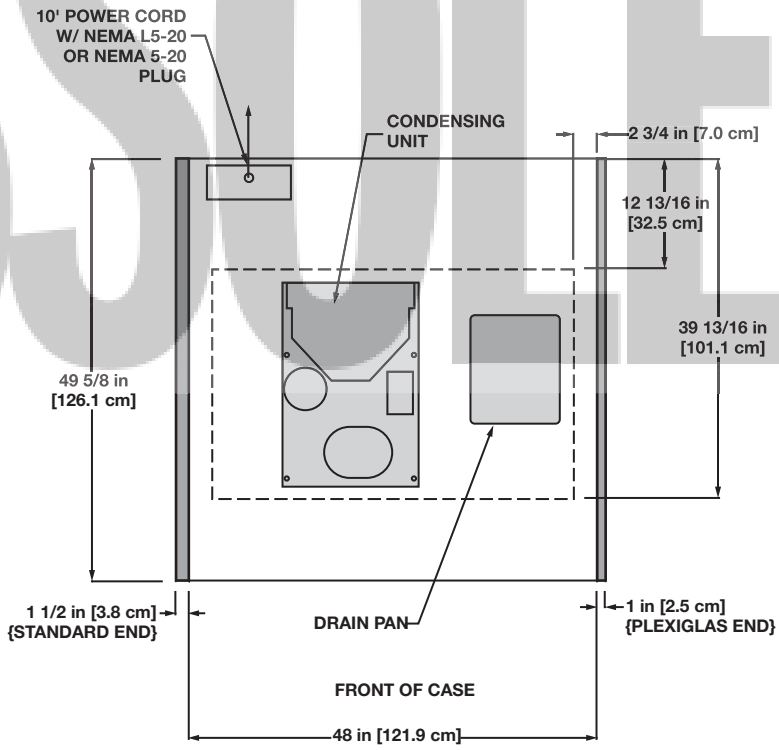
4 NOTE: " - - - " not an option on this case model.

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 ARI 1200 - 2002 specifications.





NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

International Style Self-Contained Mobile Deli/Meat/Seafood Prep Merchandiser

OSIOPA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOPA	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.

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

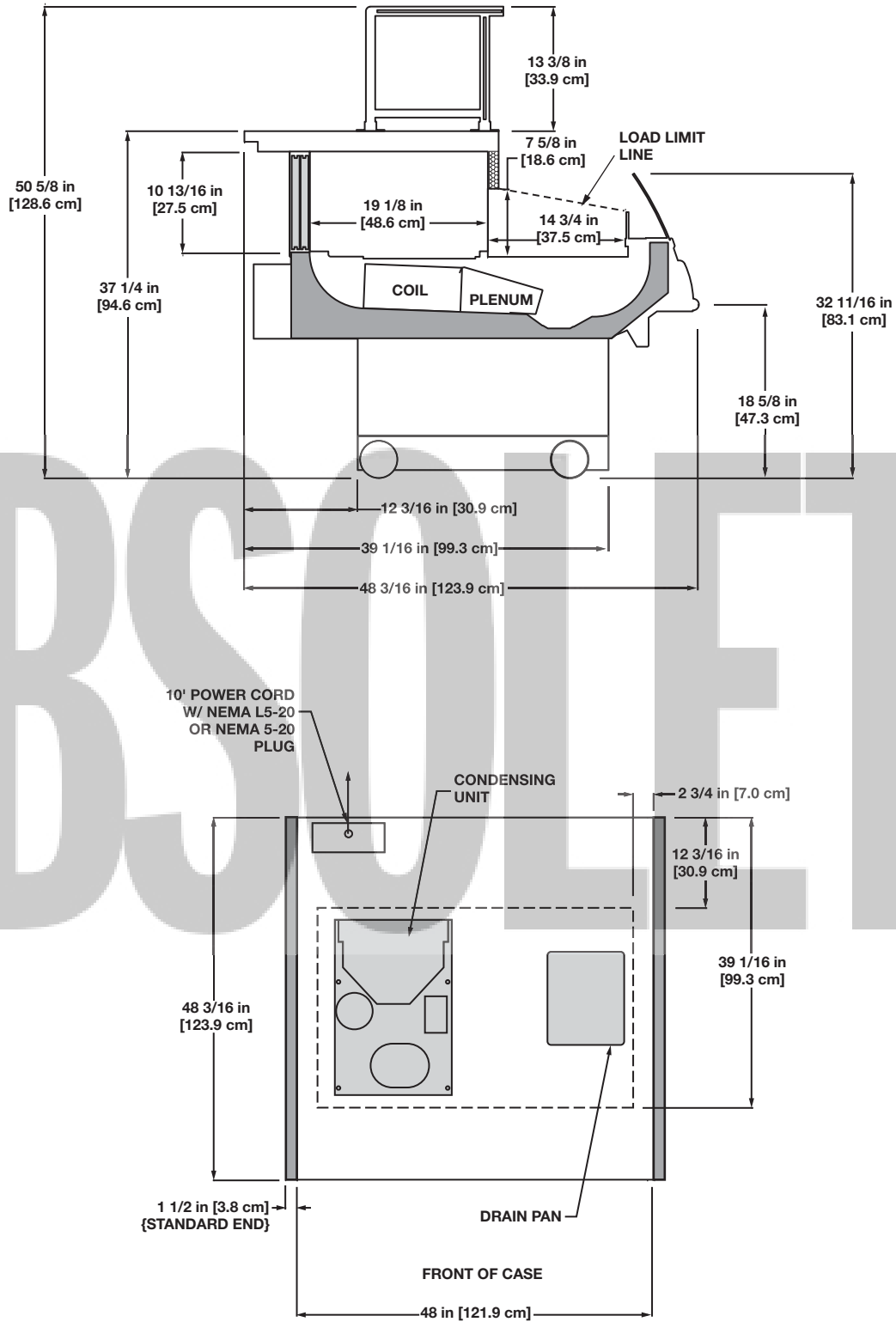
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOPA	2	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

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 ARI 1200 - 2002 specifications.



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.

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

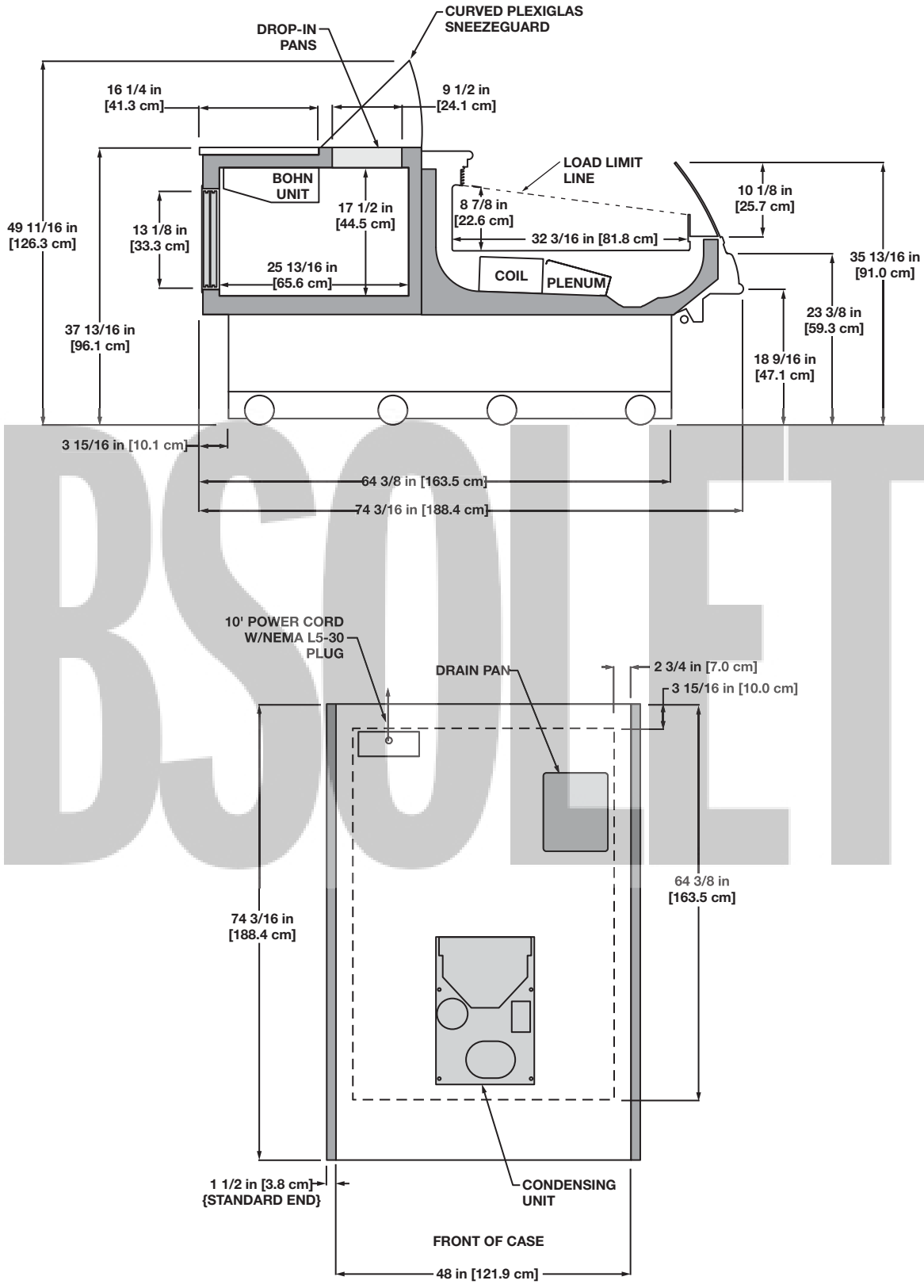
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIOA-P	2	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

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 ARI 1200 - 2002 specifications.


CURVED PLEXIGLAS SNEEZEGUARD
DROP-IN PANS
16 1/4 in [41.3 cm]
9 1/2 in [24.1 cm]
LOAD LIMIT LINE
BOHN UNIT
17 1/2 in [44.5 cm]
8 7/8 in [22.6 cm]
10 1/8 in [25.7 cm]
49 11/16 in [126.3 cm]
13 1/8 in [33.3 cm]
32 3/16 in [81.8 cm]
35 13/16 in [91.0 cm]
25 13/16 in [65.6 cm]
COIL
PLENUM
23 3/8 in [59.3 cm]
37 13/16 in [96.1 cm]
18 9/16 in [47.1 cm]
3 15/16 in [10.1 cm]
64 3/8 in [163.5 cm]
74 3/16 in [188.4 cm]
10' POWER CORD W/NEMA L5-30 PLUG
DRAIN PAN
2 3/4 in [7.0 cm]
3 15/16 in [10.0 cm]
64 3/8 in [163.5 cm]
74 3/16 in [188.4 cm]
1 1/2 in [3.8 cm] {STANDARD END}
CONDENSING UNIT
FRONT OF CASE
48 in [121.9 cm]

International Style Self-Contained Mobile Dual Temp. Merchandiser
OSIOZA-4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
OSIOZA	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.

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]	- - -	- - -	- - -	- - -	- - -

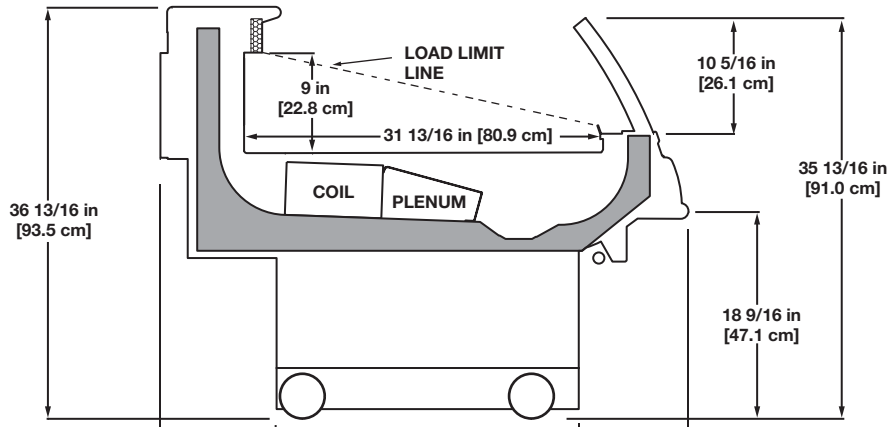
4 NOTE: " - - - " not an option on this case model.

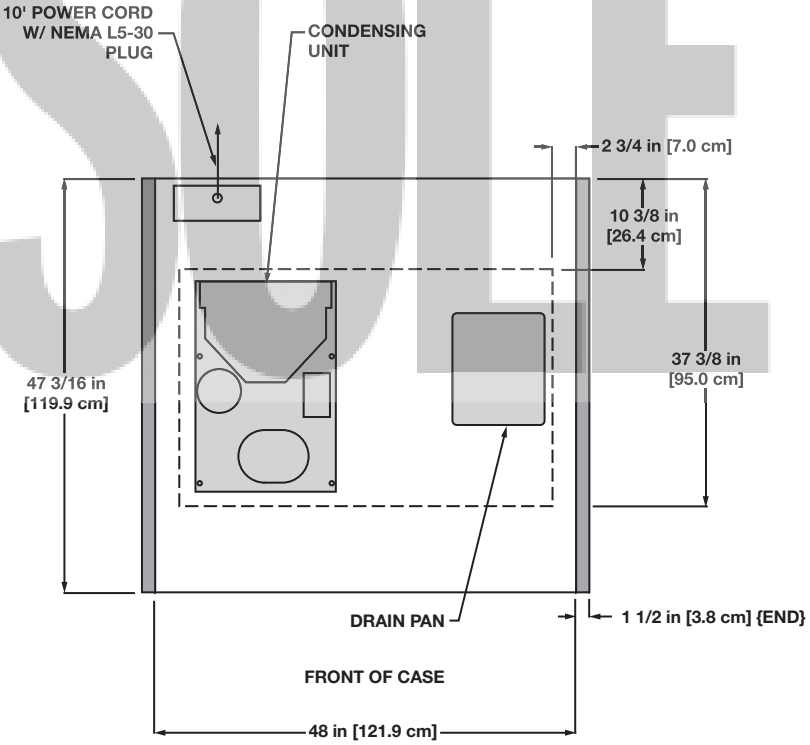
Low Temperature Defrost Schedule

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

** Or immediately after store closing hour

All measurements are taken per ARI 1200 - 2002 specifications.





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[1] (FPM)
UPA	37	20	6-8	32	42	200

1 Average discharge air velocity at peak of defrost.

Condensing Unit Data

Model	Volts	Phase	Frequency (Hz)	HP	RLA[2] (amps)	LRA[3] (amps)	Refrig.	lbs of Refrig.
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

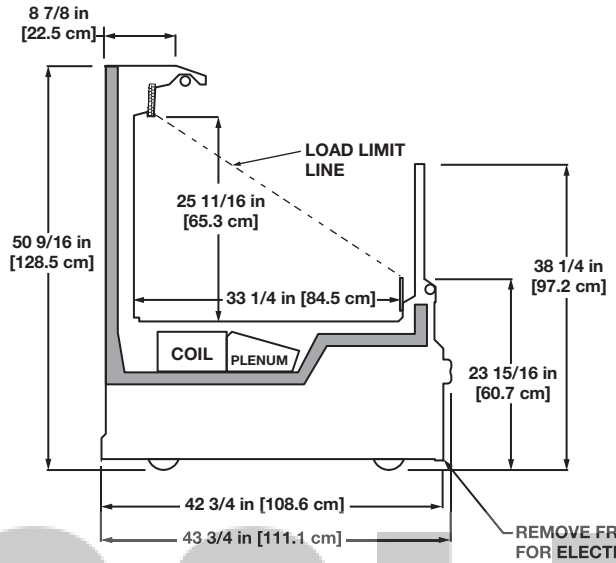
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
UPA	4	- - -[4]	- - -	45	47	- - -	- - -	- - -	-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

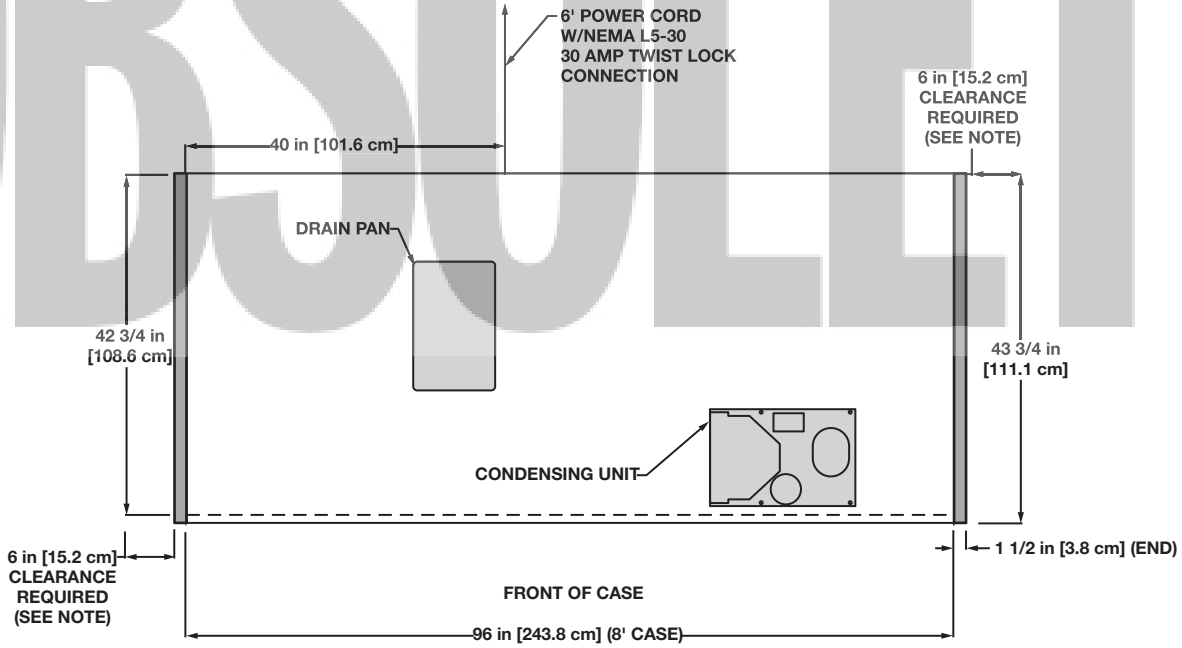
4 NOTE: " - - - " not an option on this case model.

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 ARI 1200 - 2002 specifications.





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.

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

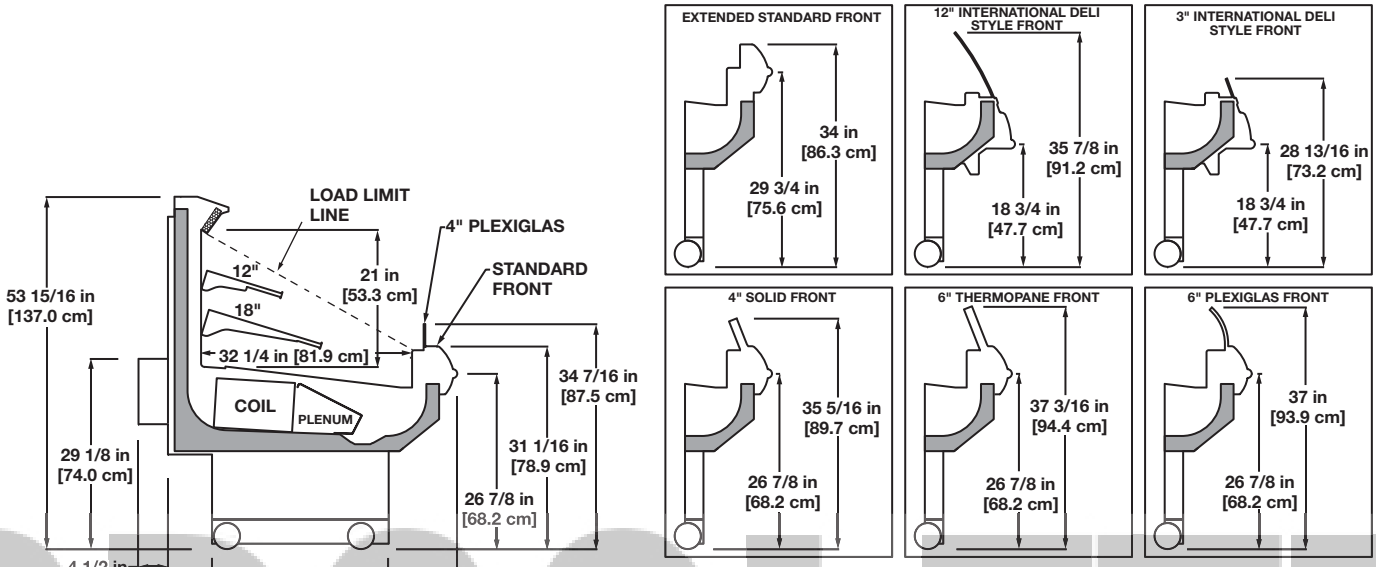
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O2.5UMA	3	40	47	- - -[5]	- - -	- - -	- - -	- - -	- - -

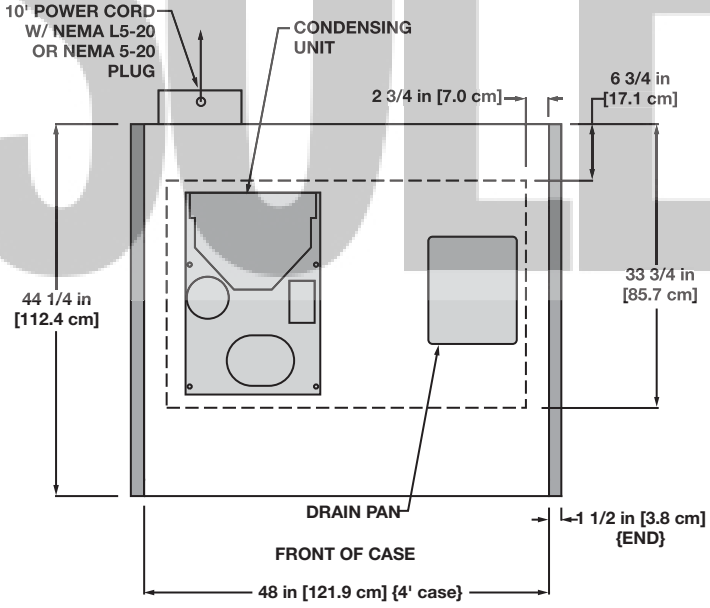
5 NOTE: " - - - " not an option on this case model.

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 ARI 1200 - 2002 specifications.





NOTES:
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12" & 1-18"

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.

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

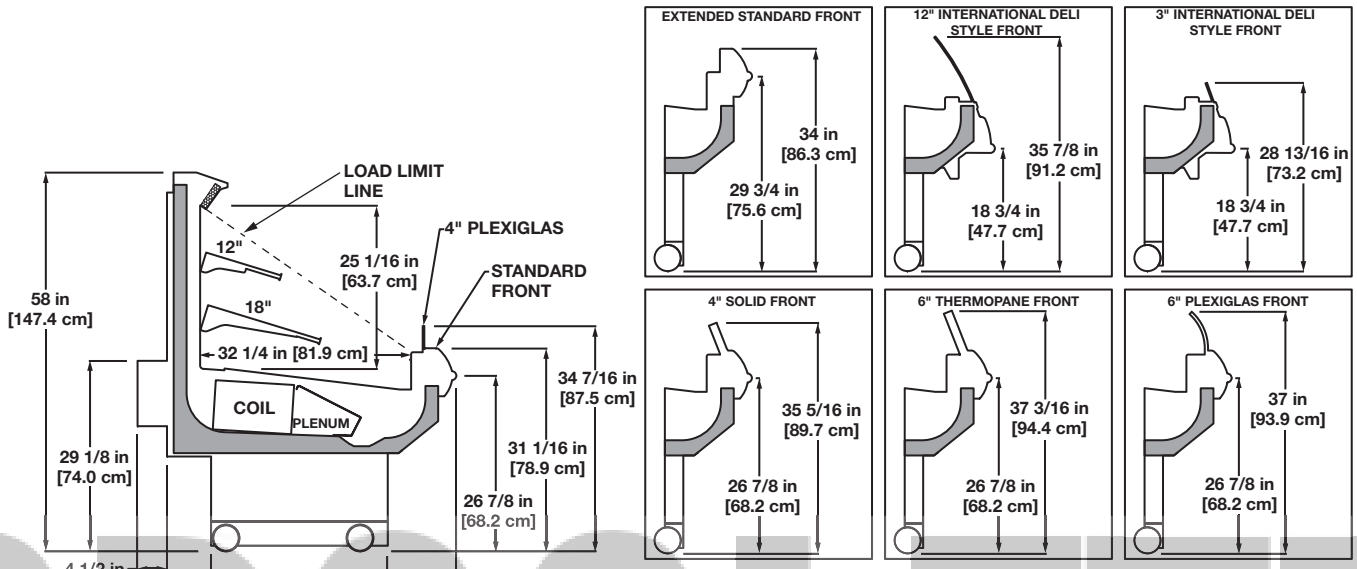
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O3UMA	3	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

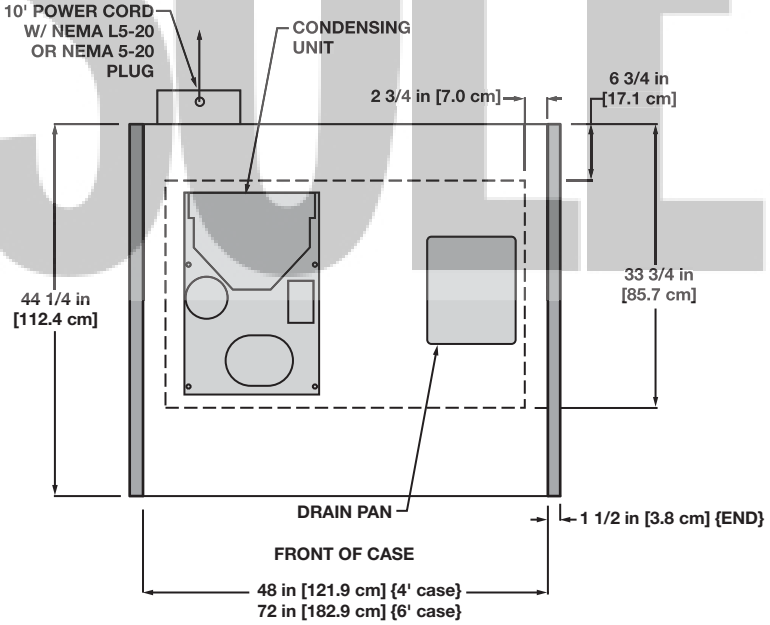
4 NOTE: " - - - " not an option on this case model.

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 ARI 1200 - 2002 specifications.





NOTES:
- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10", 12", 14", 16" & 18"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1-12" & 1-18"

Multi-Deck Self-Contained Mobile Produce/Dairy/Deli/Meat Merchandiser
O3UMA-56" - 4'

System Data

Model	Volts	Phase	Hz	Plug Style	Cord Length
O3UMA-56	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)
O3UMA-56	24.1	18-20	6-8	31	41	230

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.
O3UMA-56	115	1	60	1/2	10.2	51.0	R134A	2.84

2 RLA - Running Load Amps.
3 LRA - Locked Rotor Amps.

Defrost Controls

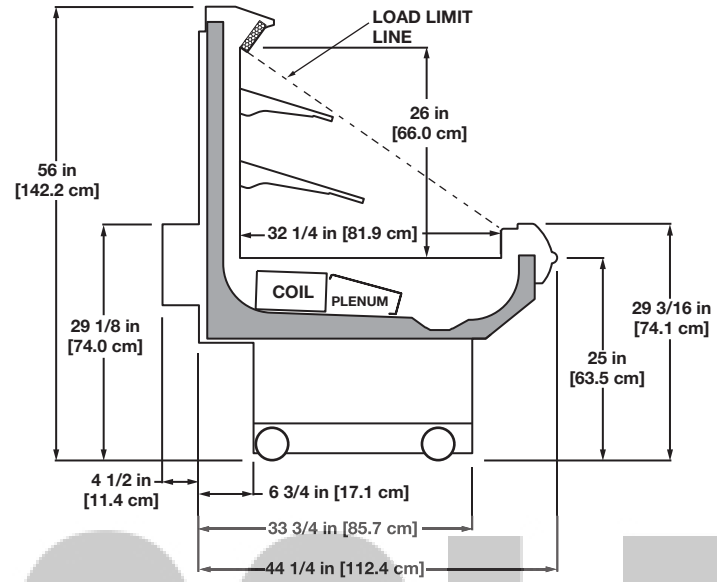
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O3UMA-56	6	40	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

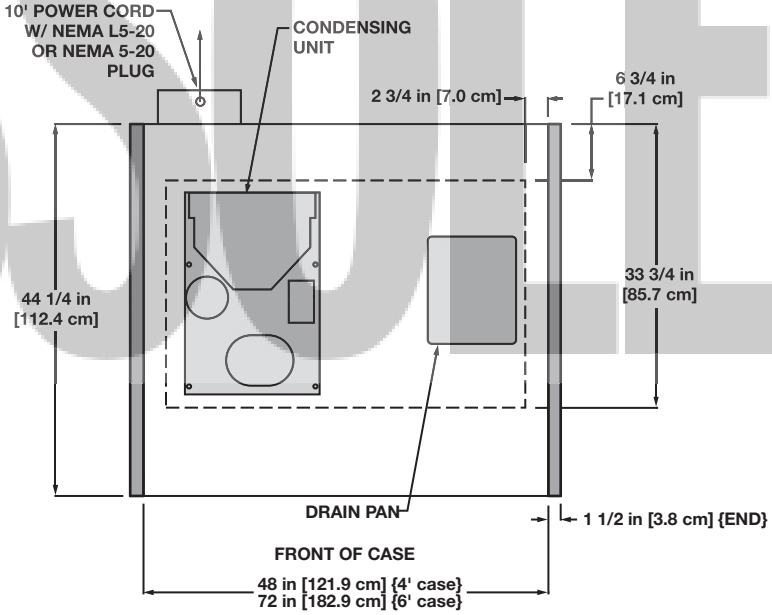
4 NOTE: " - - - " not an option on this case model.

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 ARI 1200 - 2002 specifications.





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.

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

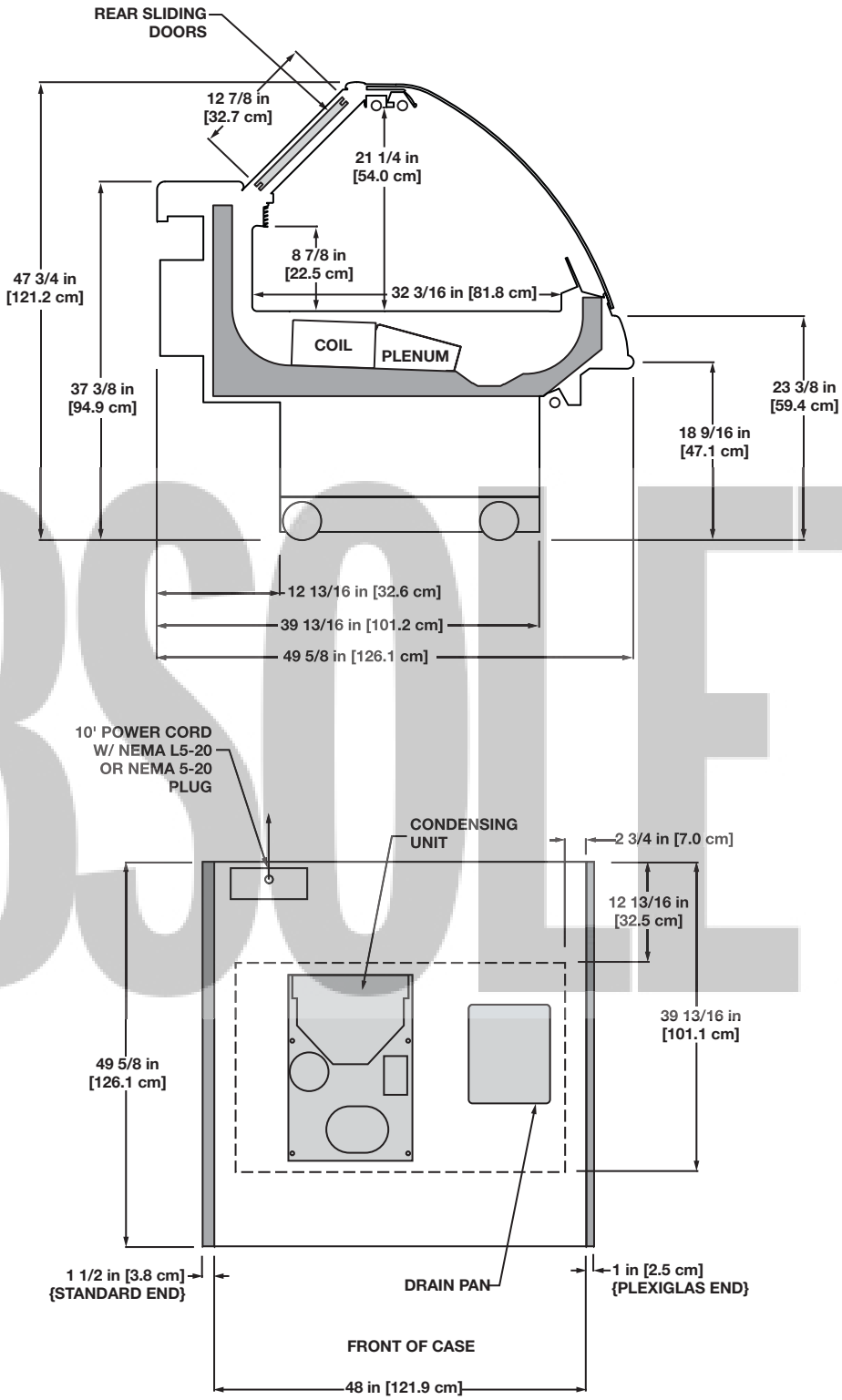
Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OSIA	2	45	47	- - -[4]	- - -	- - -	- - -	- - -	- - -

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 ARI 1200 - 2002 specifications.



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.

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

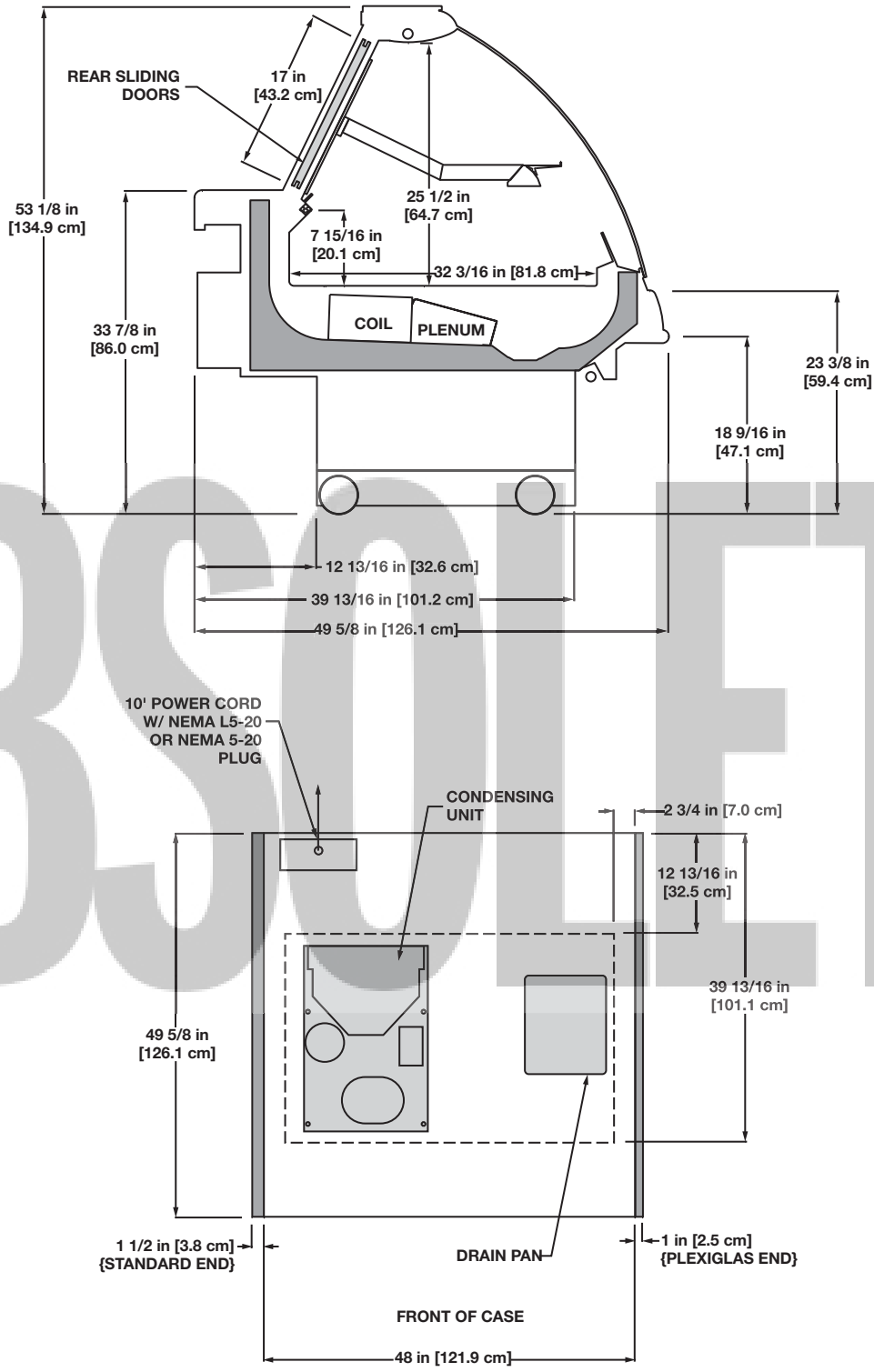
		Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
Model	Defrosts Per Day	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
O2SIA	3	45	50	- - -[4]	- - -	- - -	- - -	- - -	- - -

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 ARI 1200 - 2002 specifications.

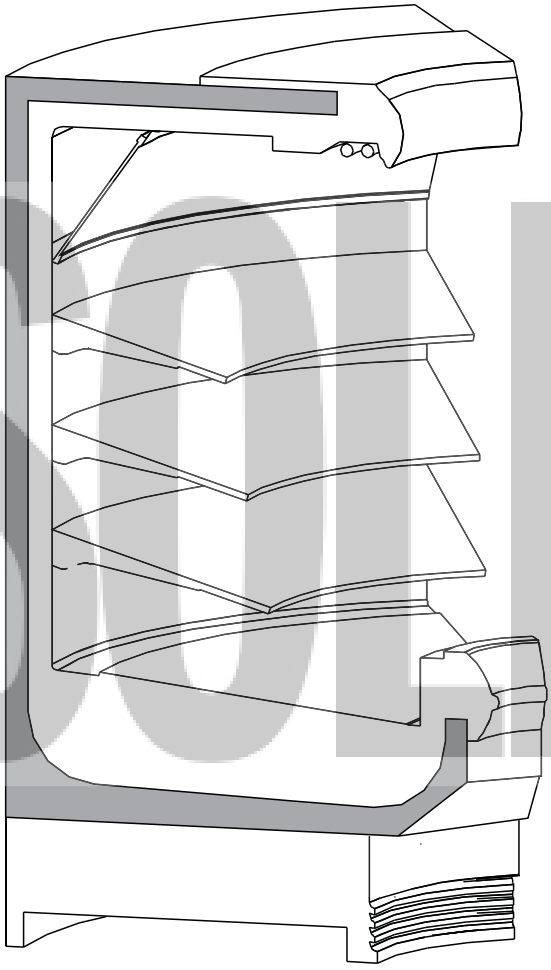


NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT

OBSOLETE

CURVED CASES



NOTES

- ***Allow for an extra 1/8” per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

Curved Case Merchandisers

30°, 45°, 60°, & 90° Inside and Outside

Case Model	Wedge Model	Volume (ft^3)	[1]BTUH	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	22	1	0.80	53	0.36	36	0.15[4]	18	- - -	- - -
	45° I/S	11.3	820	22	1	0.80	53	0.36	36	0.21[4]	25	- - -	- - -
	60° I/S	15.1	1090	22	1	0.80	53	0.36	36	0.26[4]	31	- - -	- - -
	90° I/S	22.6	1630	22	2	1.60	107	0.72	71	0.39[4]	47	- - -	- - -
	30° O/S	6.5	480	22	1	0.80	53	0.36	36	0.04[4]	5	- - -	- - -
	45° O/S	9.8	710	22	1	0.80	53	0.36	36	0.05[4]	6	- - -	- - -
	60° O/S	13.1	950	22	1	0.80	53	0.36	36	0.08[4]	10	- - -	- - -
	90° O/S	19.6	1420	22	2	1.60	107	0.72	71	0.10[4]	12	- - -	- - -

Case Model	Wedge Model	Volume (ft^3)	[1,3]BTUH	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	22	1	0.80	53	0.36	36	0.15[4]	18	0.75	90
	45° I/S	9.9	850	22	1	0.80	53	0.36	36	0.21[4]	25	0.75	90
	60° I/S	13.3	1140	22	1	0.80	53	0.36	36	0.26[4]	31	1.50	180
	90° I/S	19.9	1700	22	2	1.60	107	0.72	71	0.39[4]	47	1.50	180
	30° O/S	6.1	530	22	1	0.80	53	0.36	36	0.04[4]	5	0.75	90
	45° O/S	9.2	790	22	1	0.80	53	0.36	36	0.05[4]	6	0.75	90
	60° O/S	12.2	1050	22	1	0.80	53	0.36	36	0.08[4]	10	1.50	180
	90° O/S	18.3	1570	22	2	1.60	107	0.72	71	0.10[4]	12	1.50	180

Case Model	Wedge Model	Volume (ft^3)	[2]BTUH	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	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	45° I/S	6.2	620	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	60° I/S	12.2	820	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	90° I/S	18.4	1230	29	2	1.60	107	0.72	71	- - -	- - -	- - -	- - -
	30° O/S	5.4	360	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	45° O/S	8.1	540	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	60° O/S	10.8	720	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	90° O/S	16.1	1080	29	2	1.60	107	0.72	71	- - -	- - -	- - -	- - -

Case Model	Wedge Model	Volume (ft^3)	[2]BTUH	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	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	45° I/S	10.5	860	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	60° I/S	14.0	1150	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	90° I/S	21.0	1720	29	2	1.60	107	0.72	71	- - -	- - -	- - -	- - -
	30° O/S	5.8	480	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	45° O/S	8.7	720	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	60° O/S	11.6	950	29	1	0.80	53	0.36	36	- - -	- - -	- - -	- - -
	90° O/S	17.4	1430	29	2	1.60	107	0.72	71	- - -	- - -	- - -	- - -

1 BTUHs listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

2 BTUHs listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.06.

3 Listed case BTUH indicates lighted shelves/cornice.

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

Case Model	Wedge Model	Volume (ft^3)	[1,2]BTUH	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O2UM	30° I/S	7.8	1350	22	1	0.80	53	0.36	36	0.15[3]	18	1.55	186
	45° I/S	11.7	2030	22	1	0.80	53	0.36	36	0.21[3]	25	1.55	186
	60° I/S	15.6	2700	22	1	0.80	53	0.36	36	0.26[3]	31	1.90	288
	90° I/S	23.4	4050	22	2	1.60	107	0.72	71	0.39[3]	47	2.85	342
	30° O/S	6.5	1130	22	1	0.80	53	0.36	36	0.04[3]	5	1.55	186
	45° O/S	9.8	1690	22	1	0.80	53	0.36	36	0.05[3]	6	1.55	186
	60° O/S	13.0	2260	22	1	0.80	53	0.36	36	0.08[3]	10	1.90	288
	90° O/S	19.5	3380	22	2	1.60	107	0.72	71	0.10[3]	12	2.85	342

Case Model	Wedge Model	Volume (ft^3)	[1,2]BTUH	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O2.5UM	30° I/S	8.4	1450	22	1	0.80	53	0.36	36	0.15[3]	18	2.35	282
	45° I/S	12.7	2170	22	1	0.80	53	0.36	36	0.21[3]	25	2.35	282
	60° I/S	16.9	2890	22	1	0.80	53	0.36	36	0.26[3]	31	2.55	306
	90° I/S	25.3	4340	22	2	1.60	107	0.72	71	0.39[3]	47	4.45	534
	30° O/S	6.9	1190	22	1	0.80	53	0.36	36	0.04[3]	5	2.35	282
	45° O/S	10.4	1780	22	1	0.80	53	0.36	36	0.05[3]	6	2.35	282
	60° O/S	13.8	2370	22	1	0.80	53	0.36	36	0.08[3]	10	2.55	306
	90° O/S	20.7	3550	22	2	1.60	107	0.72	71	0.10[3]	12	4.45	534

Case Model	Wedge Model	Volume (ft^3)	[1,2]BTUH	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O3UM	30° I/S	9.3	1510	22	1	0.80	53	0.36	36	0.15[3]	18	2.35	282
	45° I/S	14.0	2260	22	1	0.80	53	0.36	36	0.21[3]	25	2.35	282
	60° I/S	18.7	3020	22	1	0.80	53	0.36	36	0.26[3]	31	2.55	306
	90° I/S	28.0	4520	22	2	1.60	107	0.72	71	0.39[3]	47	4.45	534
	30° O/S	7.5	1220	22	1	0.80	53	0.36	36	0.04[3]	5	2.35	282
	45° O/S	11.3	1830	22	1	0.80	53	0.36	36	0.05[3]	6	2.35	282
	60° O/S	15.1	2440	22	1	0.80	53	0.36	36	0.08[3]	10	2.55	306
	90° O/S	22.6	3650	22	2	1.60	107	0.72	71	0.10[3]	12	4.45	534

Case Model	Wedge Model	Volume (ft^3)	[1,2]BTUH	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Maximum Lighting 120 Volts	
						Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
O3.5UM	30° I/S	10.4	1880	22	1	0.80	53	0.36	36	0.15[3]	18	3.15	378
	45° I/S	15.7	2820	22	1	0.80	53	0.36	36	0.21[3]	25	3.15	378
	60° I/S	20.9	3760	22	1	0.80	53	0.36	36	0.26[3]	31	3.20	384
	90° I/S	31.3	5640	22	2	1.60	107	0.72	71	0.39[3]	47	6.05	726
	30° O/S	8.2	1480	22	1	0.80	53	0.36	36	0.04[3]	5	3.15	378
	45° O/S	12.3	2210	22	1	0.80	53	0.36	36	0.05[3]	6	3.15	378
	60° O/S	16.4	2950	22	1	0.80	53	0.36	36	0.08[3]	10	3.20	384
	90° O/S	24.6	4420	22	2	1.60	107	0.72	71	0.10[3]	12	6.05	726

1 BTUHs listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

2 Listed case BTUH indicates lighted shelves/cornice.

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

Curved Case Merchandisers

30°, 45°, 60°, & 90° Inside and Outside

Case Model	Wedge Model	Volume (ft³)	[1,3]BTUH	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	22	1	0.80	53	0.36	36	0.15[4]	18	3.15	378
	45° I/S	18.2	3060	22	1	0.80	53	0.36	36	0.21[4]	25	3.15	378
	60° I/S	24.3	4080	22	1	0.80	53	0.36	36	0.26[4]	31	3.20	384
	90° I/S	36.4	6120	22	2	1.60	107	0.72	71	0.39[4]	47	6.05	726
	30° O/S	9.4	1580	22	1	0.80	53	0.36	36	0.04[4]	5	3.15	378
	45° O/S	14.0	2360	22	1	0.80	53	0.36	36	0.05[4]	6	3.15	378
	60° O/S	18.7	3150	22	1	0.80	53	0.36	36	0.08[4]	10	3.20	384
	90° O/S	28.1	4720	22	2	1.60	107	0.72	71	0.10[4]	12	6.05	726

Case Model	Wedge Model	Volume (ft³)	[1,3]BTUH	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	22	1	0.80	53	0.36	36	0.15[4]	18	3.95	474
	45° I/S	19.8	3130	22	1	0.80	53	0.36	36	0.21[4]	25	3.95	474
	60° I/S	26.3	4170	22	1	0.80	53	0.36	36	0.26[4]	31	3.85	462
	90° I/S	39.5	6260	22	2	1.60	107	0.72	71	0.39[4]	47	7.65	918
	30° O/S	10.1	1600	22	1	0.80	53	0.36	36	0.04[4]	5	3.95	474
	45° O/S	15.1	2390	22	1	0.80	53	0.36	36	0.05[4]	6	3.95	474
	60° O/S	20.1	3190	22	1	0.80	53	0.36	36	0.08[v]	10	3.85	462
	90° O/S	30.2	4780	22	2	1.60	107	0.72	71	0.10[4]	12	7.65	918

Case Model	Wedge Model	Volume (ft³)	[2,3]BTUH	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	22	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	45° I/S	32.0	3030	22	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	60° I/S	42.6	4030	22	1	0.80	53	0.36	36	- - -	- - -	5.25	630
	90° I/S	64.0	6050	22	2	1.60	107	0.72	71	- - -	- - -	10.00	1200
	30° O/S	20.5	1940	22	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	45° O/S	30.8	2910	22	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	60° O/S	41.0	3880	22	1	0.80	53	0.36	36	- - -	- - -	5.25	630
	90° O/S	61.5	5820	22	2	1.60	107	0.72	71	- - -	- - -	10.00	1200

Case Model	Wedge Model	Volume (ft³)	[2,3]BTUH	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	26	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	45° I/S	32.0	2840	26	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	60° I/S	42.6	3780	26	1	0.80	53	0.36	36	- - -	- - -	5.25	630
	90° I/S	64.0	5670	26	2	1.60	107	0.72	71	- - -	- - -	10.00	1200
	30° O/S	20.5	1820	26	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	45° O/S	30.8	2730	26	1	0.80	53	0.36	36	- - -	- - -	5.00	600
	60° O/S	41.0	3640	26	1	0.80	53	0.36	36	- - -	- - -	5.25	630
	90° O/S	61.5	5460	26	2	1.60	107	0.72	71	- - -	- - -	10.00	1200

1 BTUHs listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

2 BTUHs listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

3 Listed case BTUH indicates lighted shelves/cornice.

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

Case Model	Wedge Model	Volume (ft^3)	[1,3]BTUH	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHM	30° I/S	17.3	1780	22	1	0.80	53	0.36	36	0.04[4]	5	3.95	474
	45° I/S	26.0	2660	22	1	0.80	53	0.36	36	0.10[4]	12	3.95	474
	60° I/S	34.6	3550	22	1	0.80	53	0.36	36	0.34[4]	41	4.10	492
	90° I/S	52.0	5320	22	2	1.60	107	0.72	71	0.32[4]	38	7.90	948
	30° O/S	16.2	1660	22	1	0.80	53	0.36	36	0.10[4]	12	3.95	474
	45° O/S	24.2	2480	22	1	0.80	53	0.36	36	0.14[4]	17	3.95	474
	60° O/S	32.3	3310	22	1	0.80	53	0.36	36	0.18[4]	22	4.10	492
	90° O/S	48.5	4960	22	2	1.60	107	0.72	71	0.28[4]	34	7.90	948

Case Model	Wedge Model	Volume (ft^3)	[1,3]BTUH	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHMH	30° I/S	18.3	1980	22	1	0.80	53	0.36	36	0.08[4]	10	4.75	570
	45° I/S	27.4	2970	22	1	0.80	53	0.36	36	0.20[4]	24	4.75	570
	60° I/S	36.6	3960	22	1	0.80	53	0.36	36	0.68[4]	82	4.75	570
	90° I/S	54.9	5940	22	2	1.60	107	0.72	71	0.64[4]	77	9.50	1140
	30° O/S	15.9	1730	22	1	0.80	53	0.36	36	0.20[4]	24	4.75	570
	45° O/S	23.9	2590	22	1	0.80	53	0.36	36	0.28[4]	34	4.75	570
	60° O/S	31.8	3450	22	1	0.80	53	0.36	36	0.36[4]	44	4.75	570
	90° O/S	47.8	5170	22	2	1.60	107	0.72	71	0.56[4]	68	9.50	1140

Case Model	Wedge Model	Volume (ft^3)	[2,3]BTUH	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHP	30° I/S	17.2	1650	26	1	0.80	53	0.36	36	- - -	- - -	3.95	474
	45° I/S	25.8	2470	26	1	0.80	53	0.36	36	- - -	- - -	3.95	474
	60° I/S	34.4	3300	26	1	0.80	53	0.36	36	- - -	- - -	4.10	492
	90° I/S	51.6	4940	26	2	1.60	107	0.72	71	- - -	- - -	7.90	948
	30° O/S	16.1	1550	26	1	0.80	53	0.36	36	- - -	- - -	3.95	474
	45° O/S	24.2	2320	26	1	0.80	53	0.36	36	- - -	- - -	3.95	474
	60° O/S	32.3	3090	26	1	0.80	53	0.36	36	- - -	- - -	4.10	492
	90° O/S	48.4	4640	26	2	1.60	107	0.72	71	- - -	- - -	7.90	948

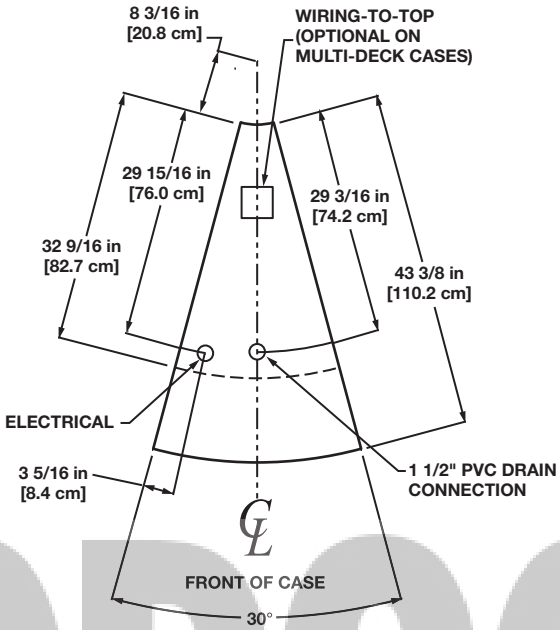
Case Model	Wedge Model	Volume (ft^3)	[2,3]BTUH	Suction Temp. (°F)	Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
OHPH	30° I/S	18.3	1860	26	1	0.80	53	0.36	36	0.04[4]	5	4.75	570
	45° I/S	27.5	2790	26	1	0.80	53	0.36	36	0.10[4]	12	4.75	570
	60° I/S	36.7	3720	26	1	0.80	53	0.36	36	0.34[4]	41	4.75	570
	90° I/S	55.0	5580	26	2	1.60	107	0.72	71	0.32[4]	38	9.50	1140
	30° O/S	15.8	1610	26	1	0.80	53	0.36	36	0.10[4]	12	4.75	570
	45° O/S	23.7	2410	26	1	0.80	53	0.36	36	0.14[4]	17	4.75	570
	60° O/S	31.6	3210	26	1	0.80	53	0.36	36	0.18[4]	22	4.75	570
	90° O/S	47.4	4810	26	2	1.60	107	0.72	71	0.28[4]	34	9.50	1140

1 BTUHs listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

2 BTUHs listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

3 Listed case BTUH indicates lighted shelves/cornice.

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



30° OUTSIDE
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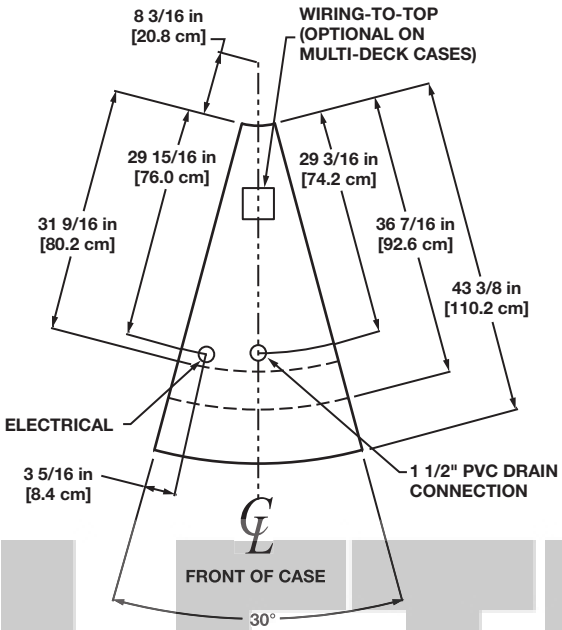
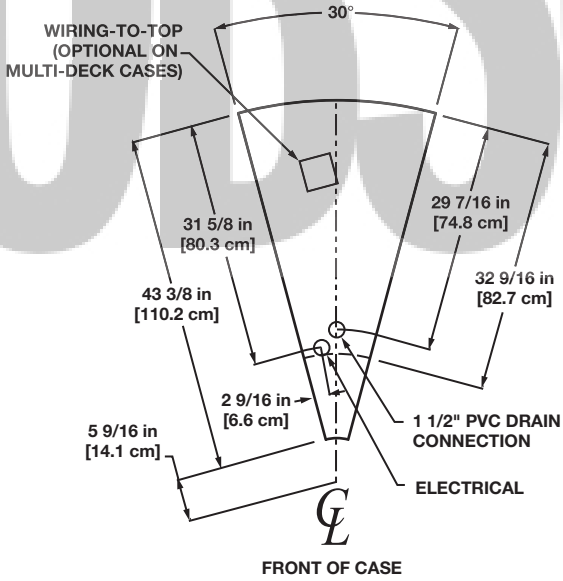


30° OUTSIDE
(5" BASEFRAME)



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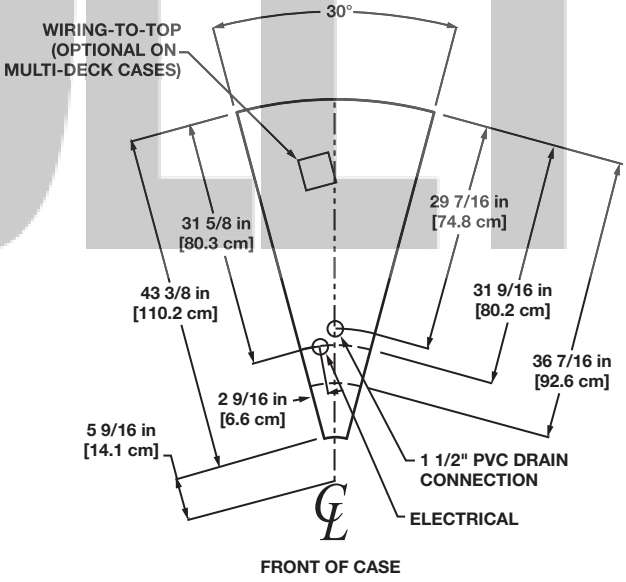
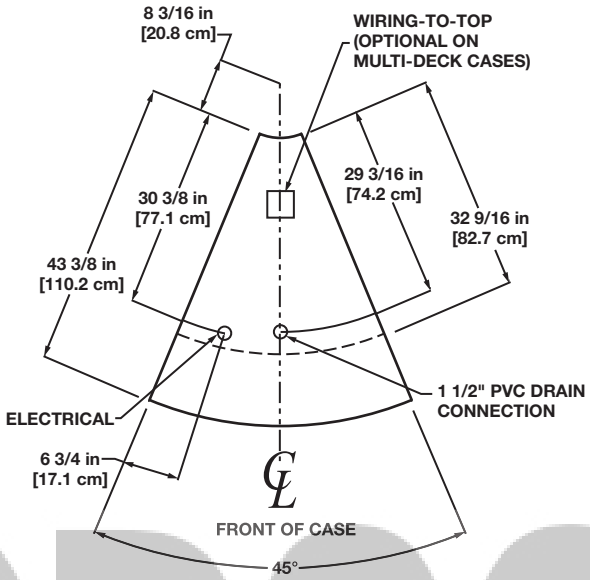


30° INSIDE
(5" BASEFRAME)

NOTE: Curved case cross-sections are the same as the standard model.



45° OUTSIDE
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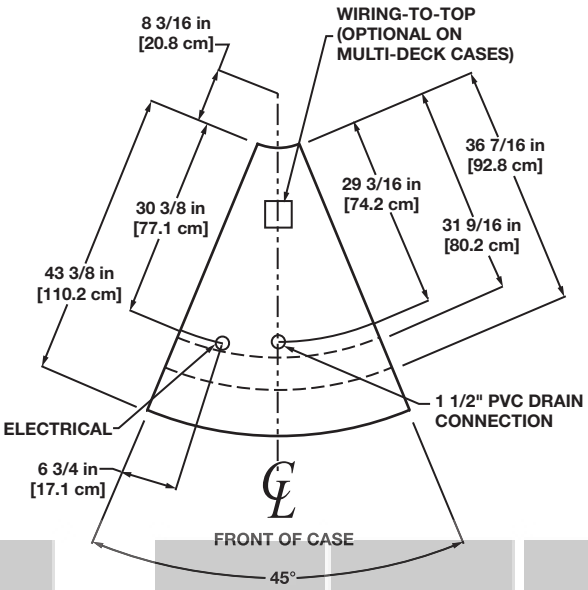

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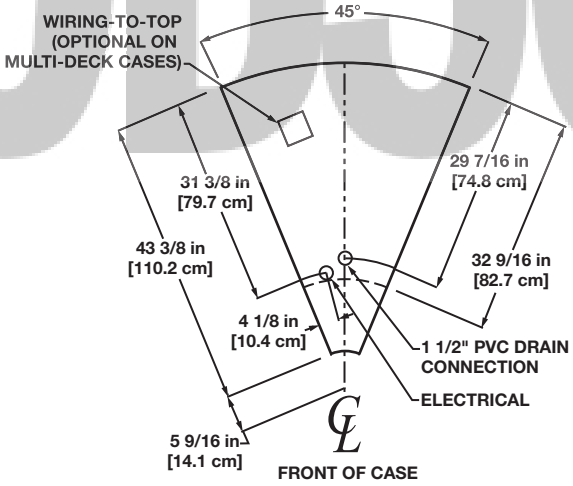
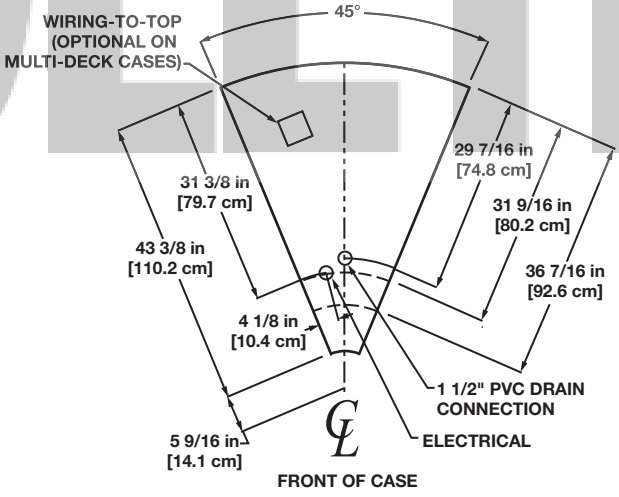
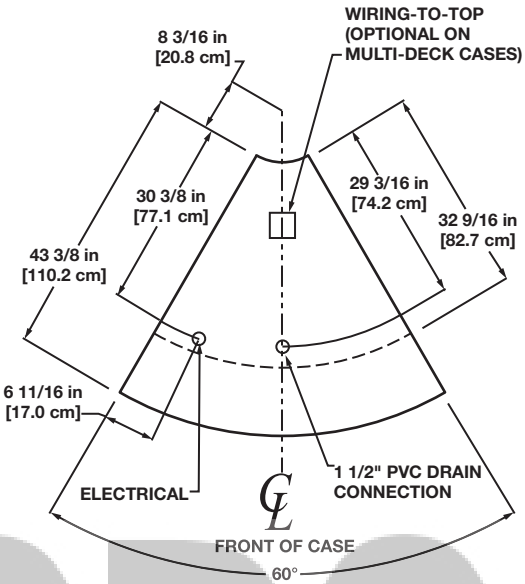


45° INSIDE
(11" BASEFRAME)



45° INSIDE
(5" BASEFRAME)

NOTE: Curved case cross-sections are the same as the standard model.



60° OUTSIDE
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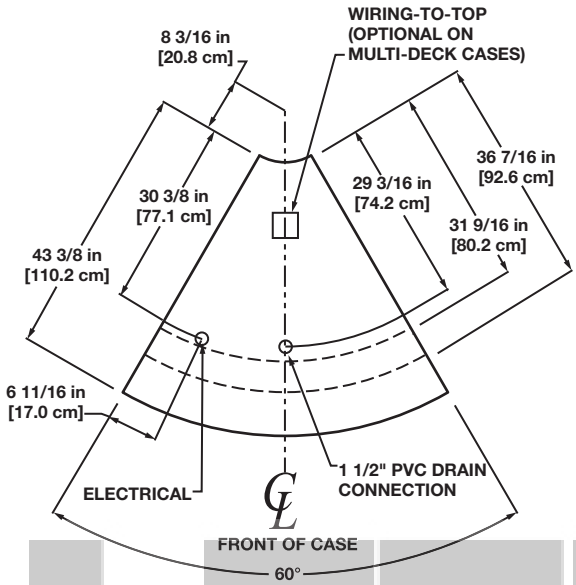

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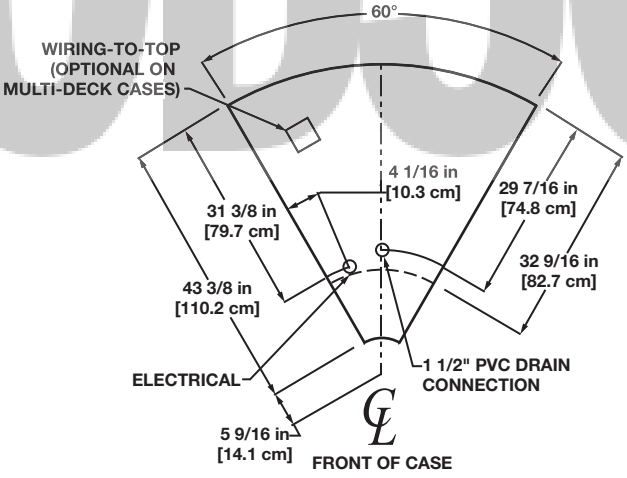
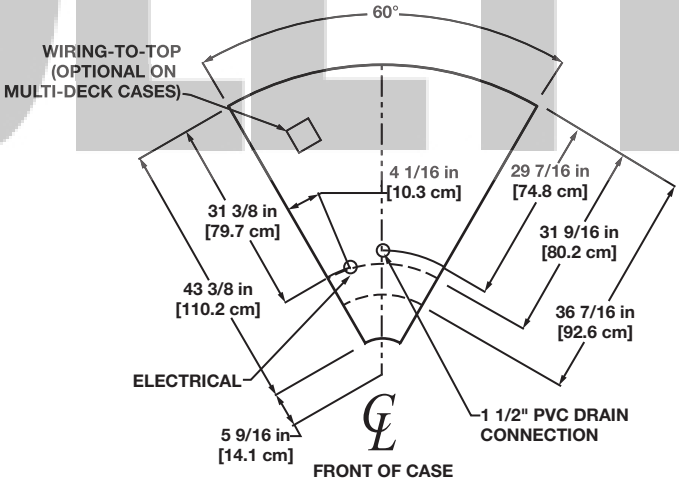
(5" BASEFRAME)

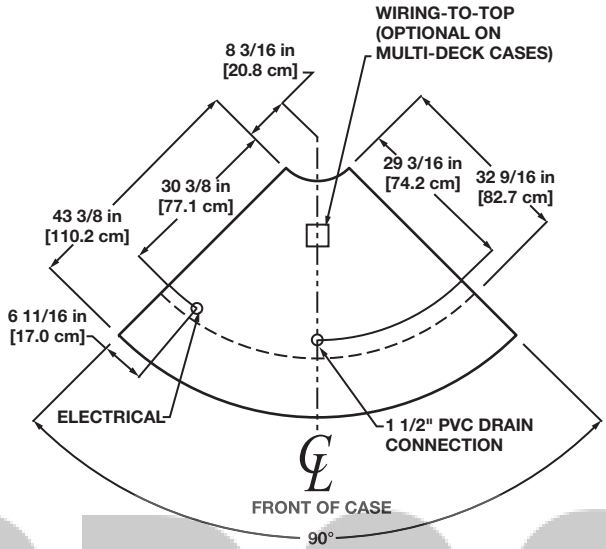


60° INSIDE
(11" BASEFRAME)

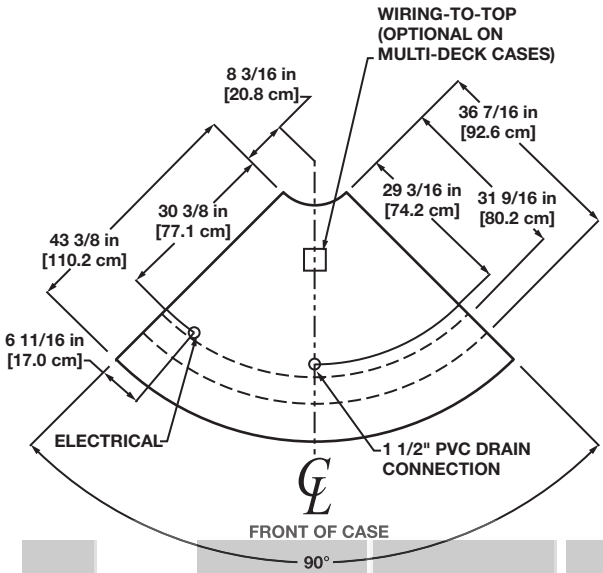


60° INSIDE
(5" BASEFRAME)

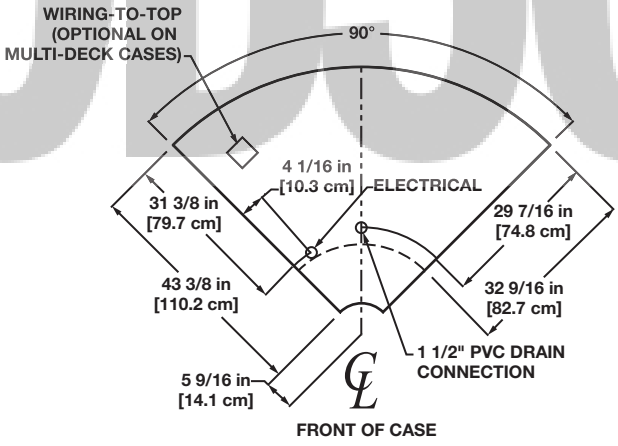
NOTE: Curved case cross-sections are the same as the standard model.



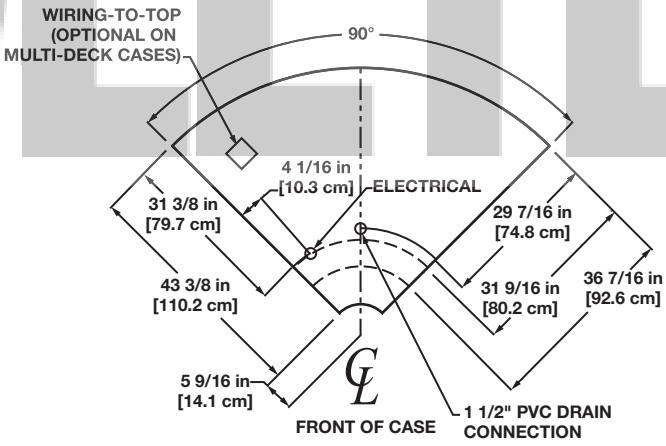
90° OUTSIDE
(11" BASEFRAME)



90° OUTSIDE
(5" BASEFRAME)



90° INSIDE
(11" BASEFRAME)



90° INSIDE
(5" BASEFRAME)

NOTE: Curved case cross-sections are the same as the standard model.

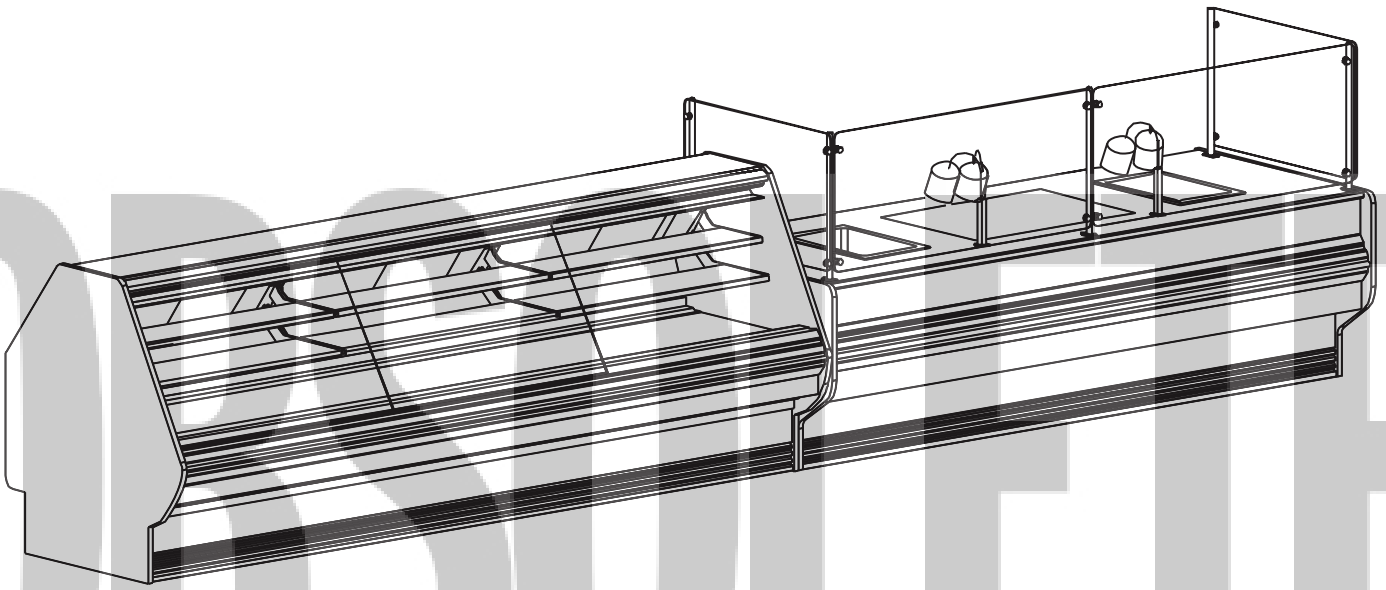
OBSOLETE

Hill PHOENIX
SPECIALTY PRODUCTS DIVISION

OBSOLETE

OBSOLETE

SERVICE



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8” per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

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]	- - -	- - -	- - -	1.93	232	- - -	- - -	- - -	- - -
	8'	NA	- - -	- - -	- - -	- - -	2.91	349	- - -	- - -	- - -	- - -
	12'	NA	- - -	- - -	- - -	- - -	4.13	496	- - -	- - -	- - -	- - -

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	1.48	178
	8'	2	4'	0.47	56	1.88	226
	12'	3	4'	0.70	84	2.80	336

Guidelines & Control Settings

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

3 If the OGM is piped to a suction header lower than 15oF 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 17oF and the cut in point should be set so that refrigeration starts as soon as the top coil ice starts to drip.

4 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

5 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

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)
OGM	2	6 - 8	- - -	- - -	65	46	20	45	- - -	- - -

Medium Temperature Defrost Schedule

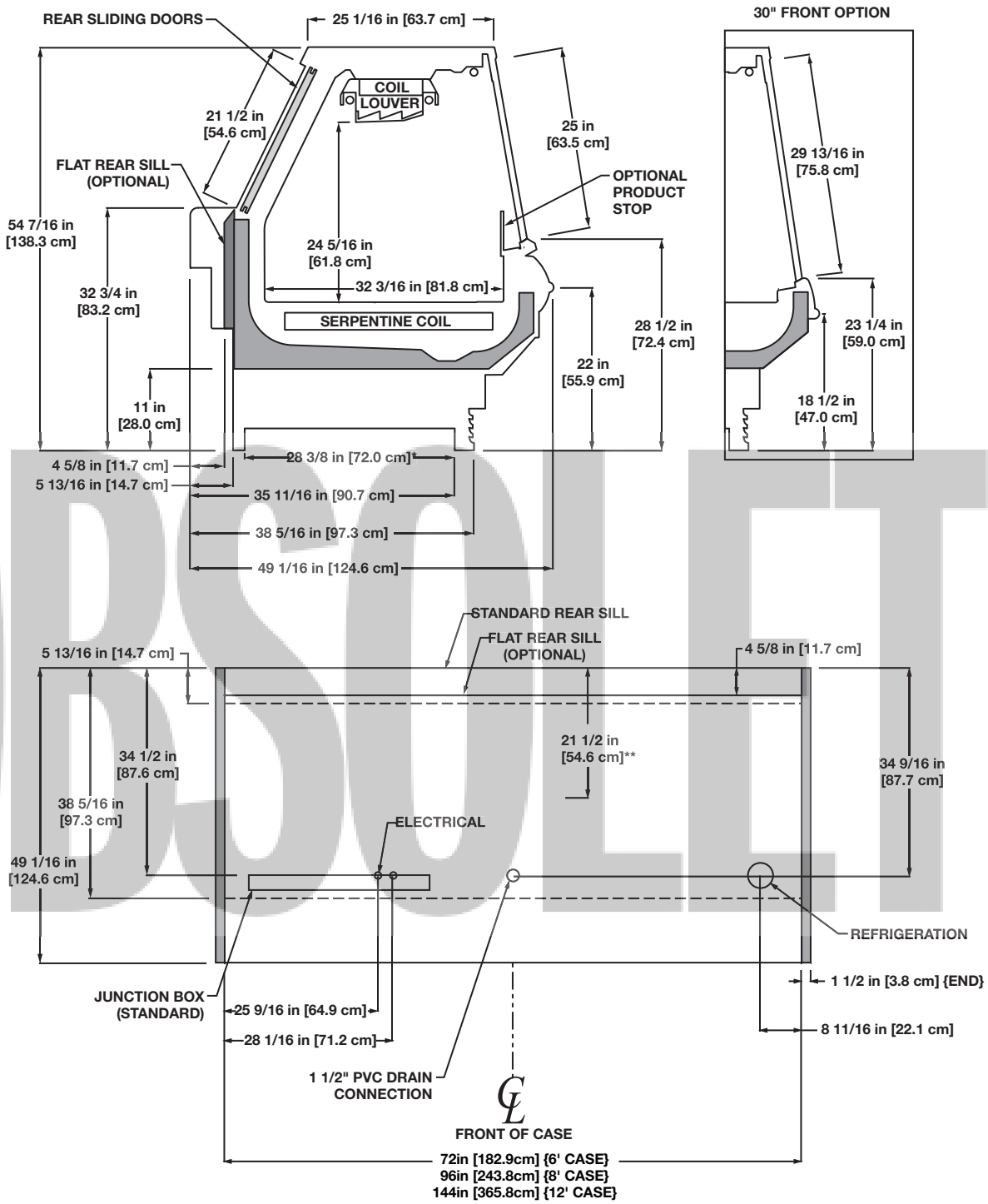
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

cULus

Hill PHOENIX EXCELLENCE A DOVER COMPANY



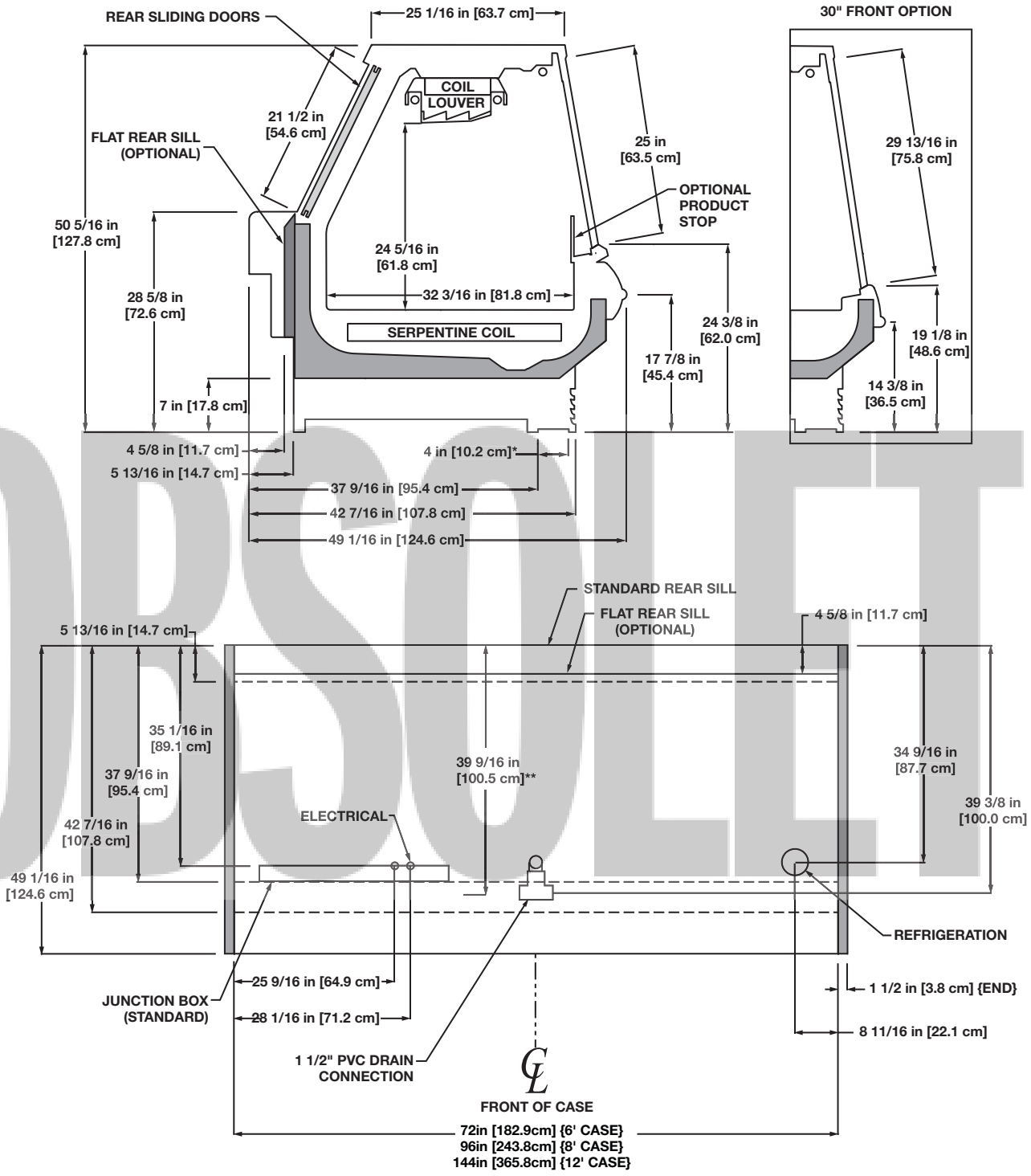
NOTES:

* 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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

OGM
(7” 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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

International Style Service Deli/Meat/Seafood Merchandiser

O2SI - 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
O2SI	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
O2SI	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	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O2SI[1]	396[4]	17	6-8	24	35	540

1 Humidification system required on this case when used for Fresh Meat application

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.07.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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[6] Fail-safe (min)	Timed Off Defrost[6] 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	47	26	45	- - -[7]	- - -

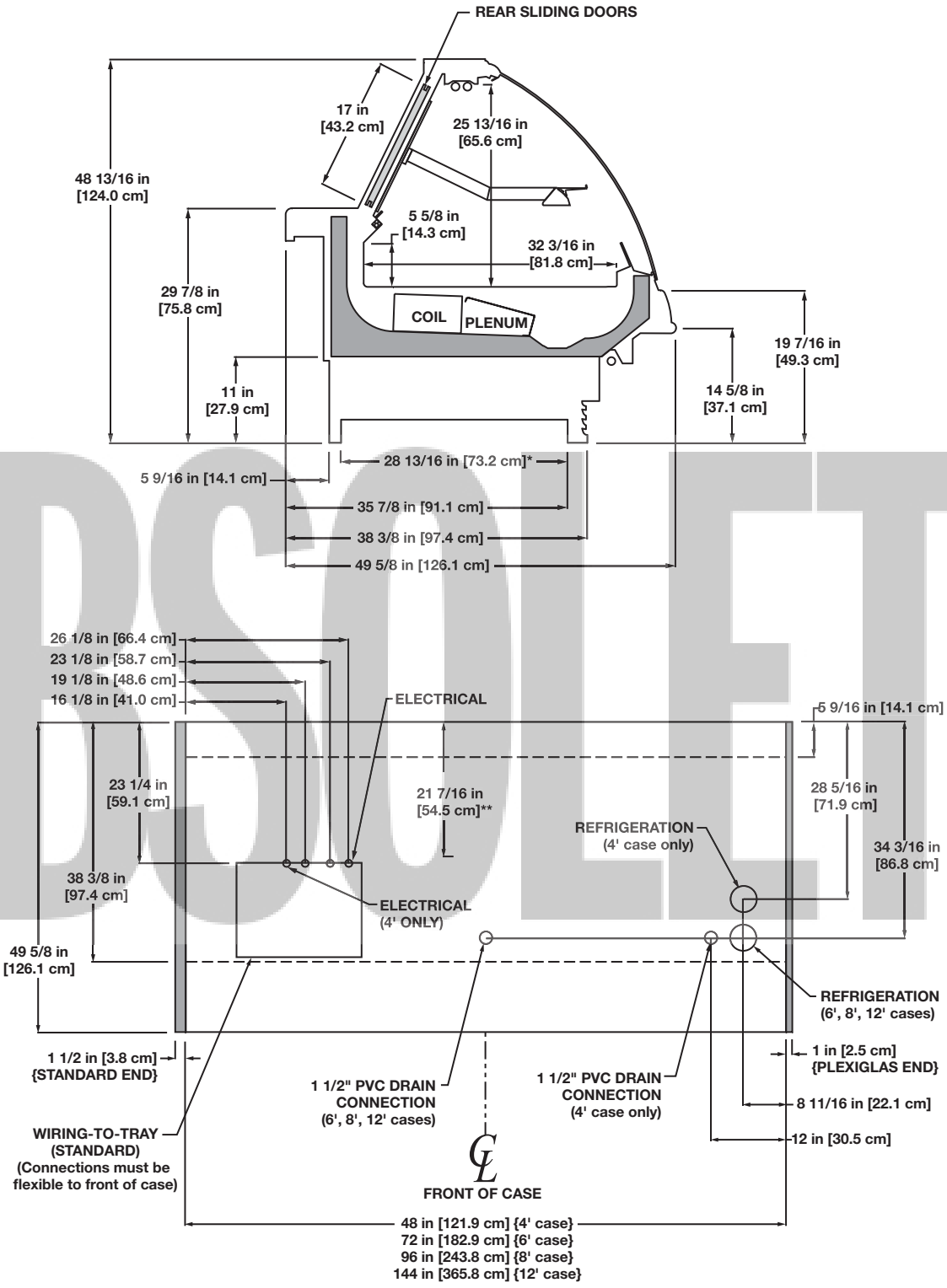
6 Not recommended on this model due to long defrost time.

7 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 ARI 1200 - 2002 specifications.



• DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
O2SIF[1]	396[4]	17	6-8	24	35	540

1 Humidification system required on this case if customer decides to use for Fresh Meat application.

2 BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.07.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
O2SIF	3	6 - 8	30	47	60[6]	47[6]	26	45	- - -[7]	- - -

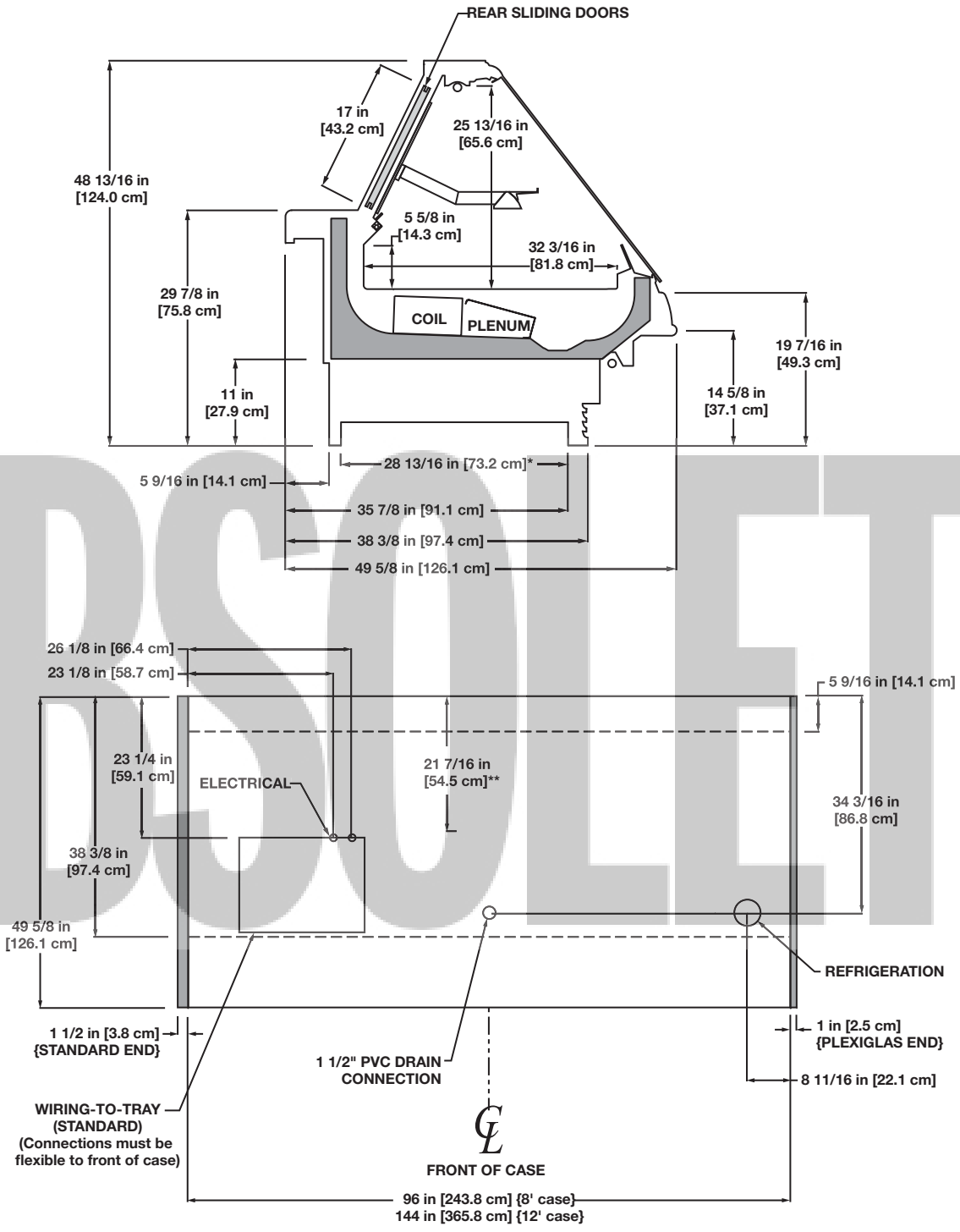
6 Not recommended on this model due to long defrost time.

7 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 ARI 1200 - 2002 specifications.



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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

c UL us

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	[1,2]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OLF	319[3]	17	6-8	27	34	235

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.05.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

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[5] Fail-safe (min)	Timed Off Defrost[5] 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	47	20	45	- - -[6]	- - -

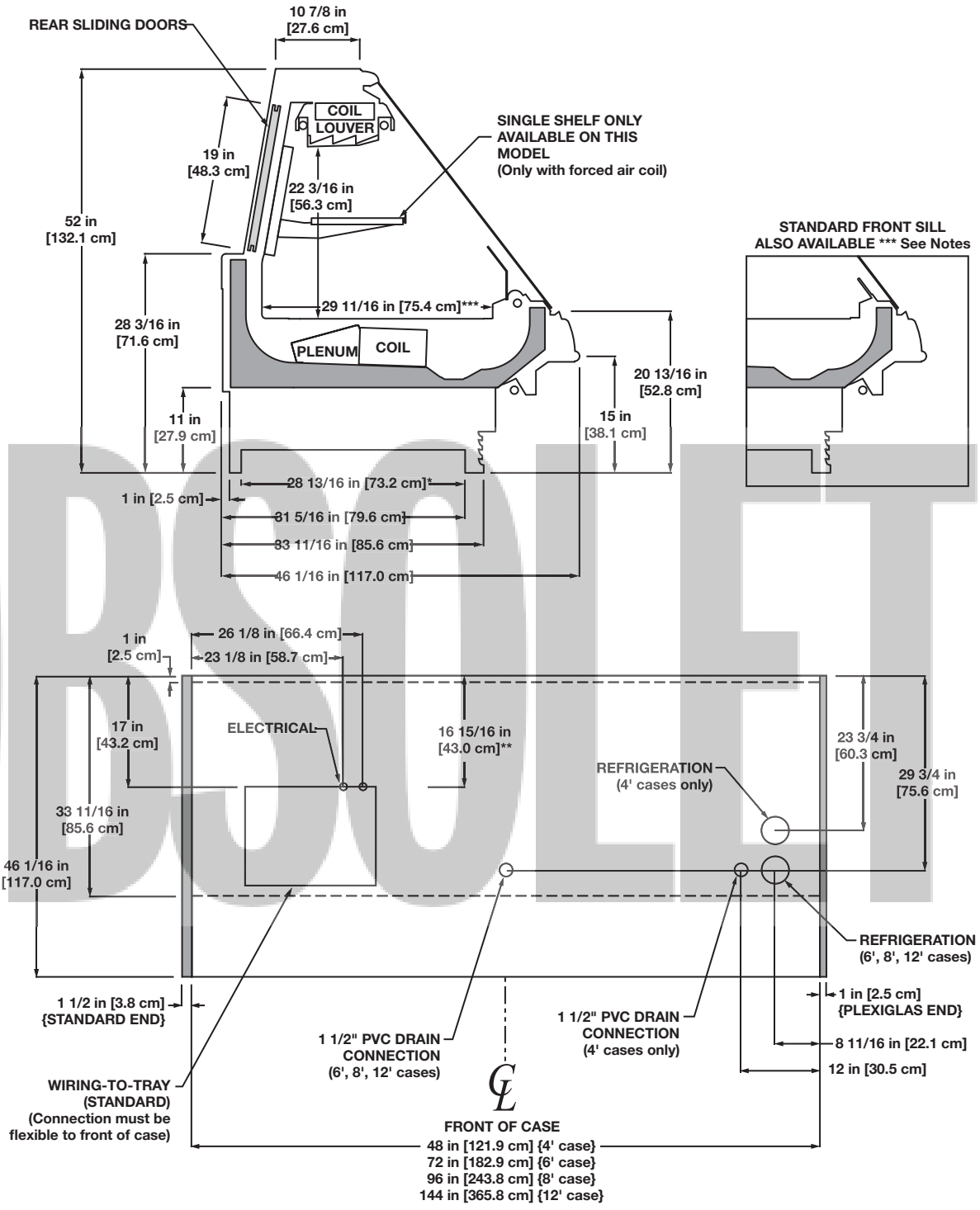
5 Not recommended on this model due to long defrost time.

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 ARI 1200 - 2002 specifications.



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
*** WHEN CASE IS EQUIPPED WITH A NOSE LIGHT THE INTERIOR WIDTH IS 29 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)
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

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	[3,4]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
OLFG[2]	163[5]	15	6-8	31	38	125

2 If the OLFG is piped to a suction header lower than 10oF 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 15oF and the cut in point should be set so that refrigeration starts as soon as the top coil ice starts to drip.

3 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.05.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
OLFG	2	6 - 8	35	47	65	47	20	45	- - -[7]	- - -

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

Medium Temperature Defrost Schedule

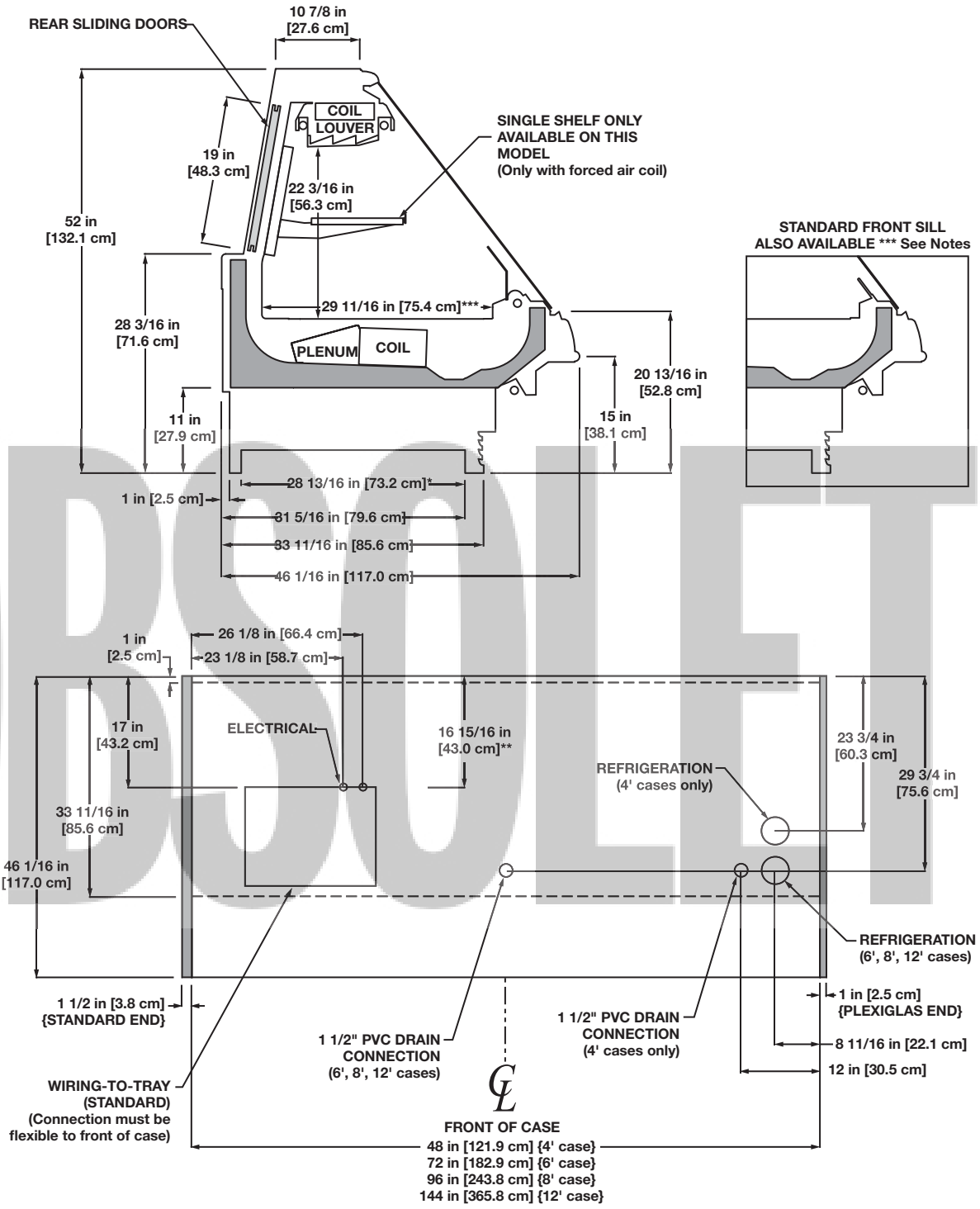
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

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" (SINGLE ROW OF SHELVES PER CASE)
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

Multi-Deck Self Service Hot Foods Merchandiser

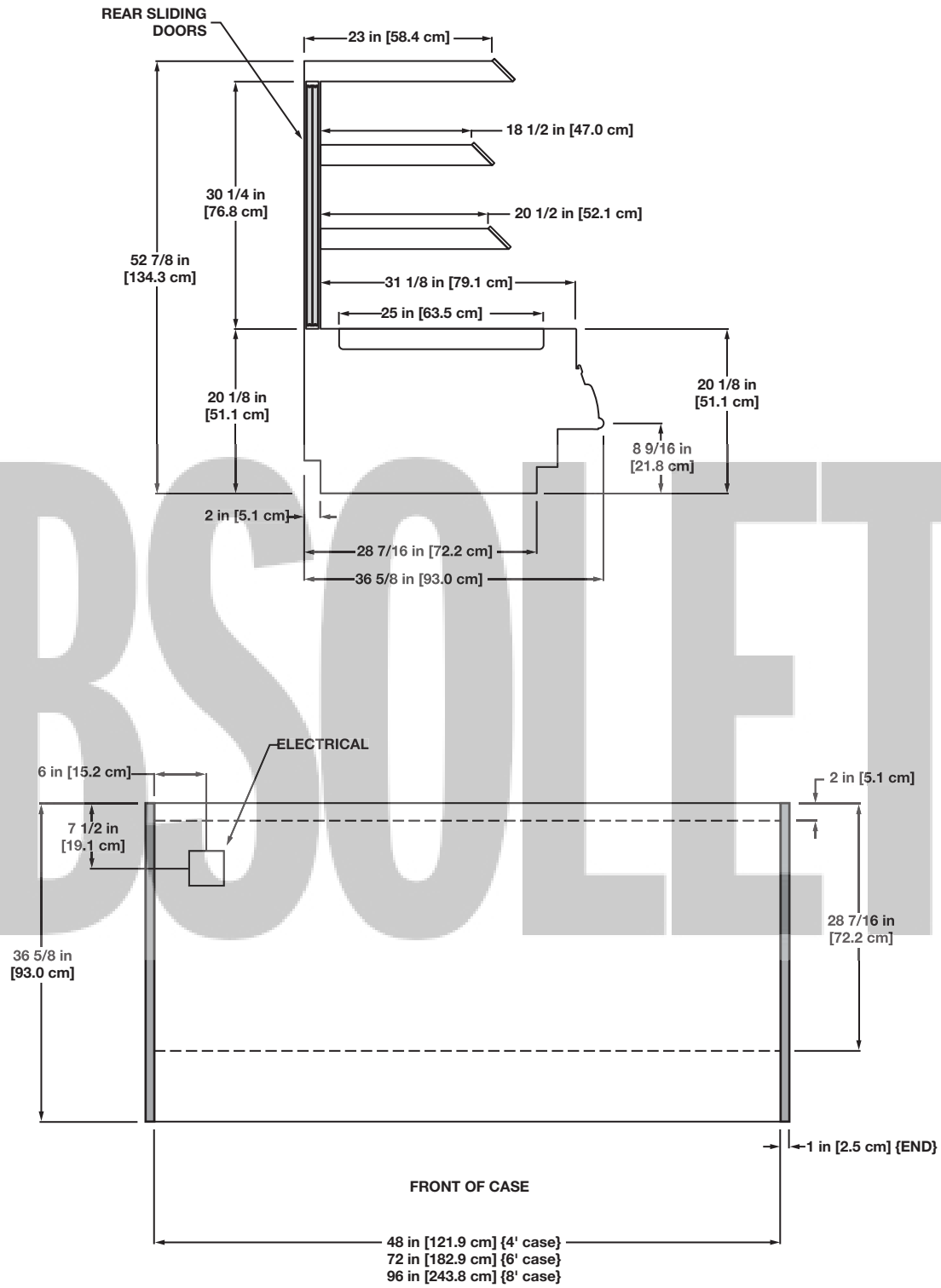
ON3W - 4', 6' & 8'

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.


REAR SLIDING DOORS
23 in [58.4 cm]
18 1/2 in [47.0 cm]
20 1/2 in [52.1 cm]
31 1/8 in [79.1 cm]
25 in [63.5 cm]
30 1/4 in [76.8 cm]
52 7/8 in [134.3 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]
7 1/2 in [19.1 cm]
2 in [5.1 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}

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

Guidelines & Control Settings

Model	[1]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[2] (FPM)
OSA w/ Shelf Lights	208	22	6-8	30	39	235

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

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[3] Fail-safe (min)	Timed Off Defrost[3] 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	50	20	45	- - -[4]	- - -

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

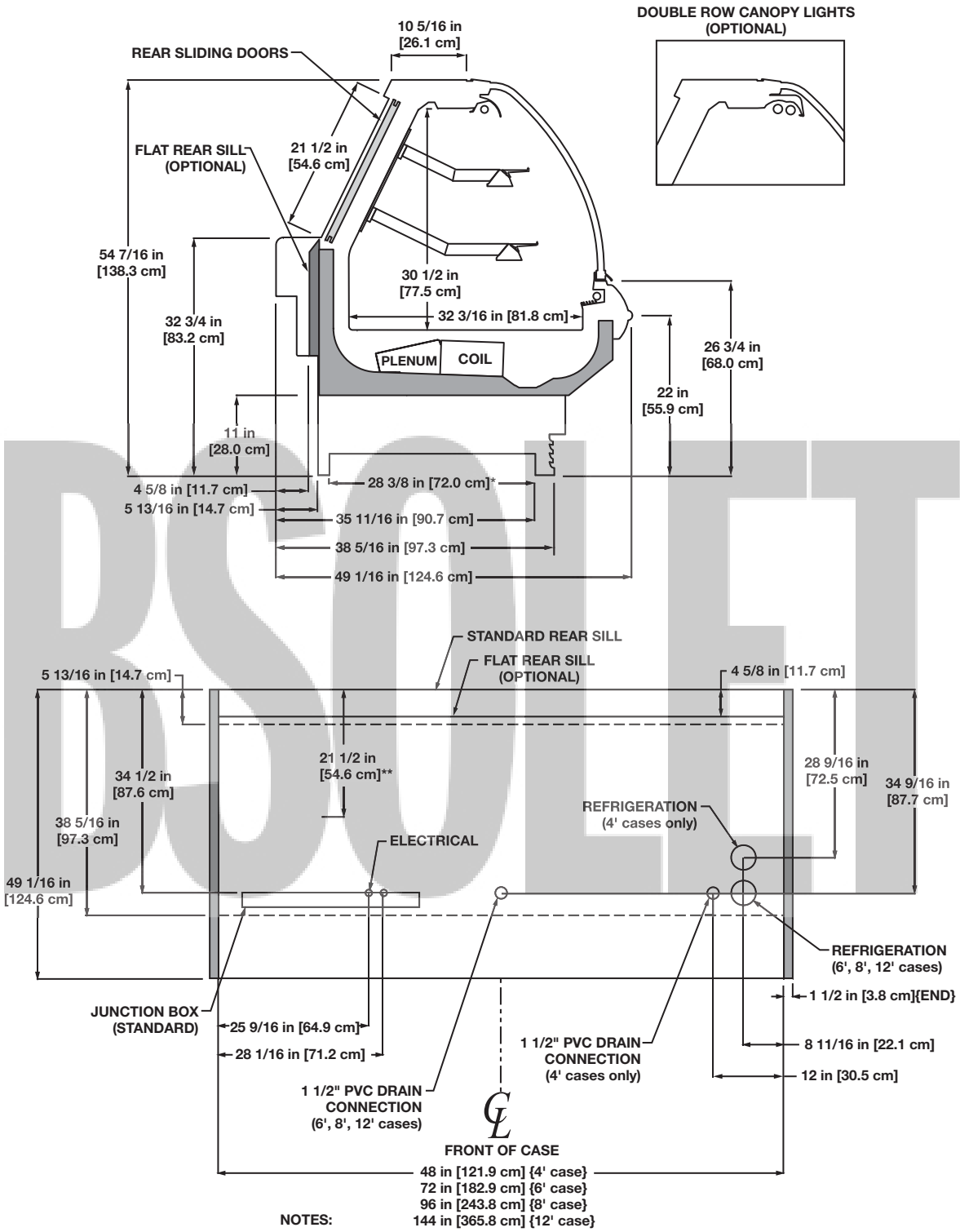
4 NOTE: " - - - " not an option on this case model.

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 ARI 1200 - 2002 specifications.

OSA
(11" BASEFRAME)



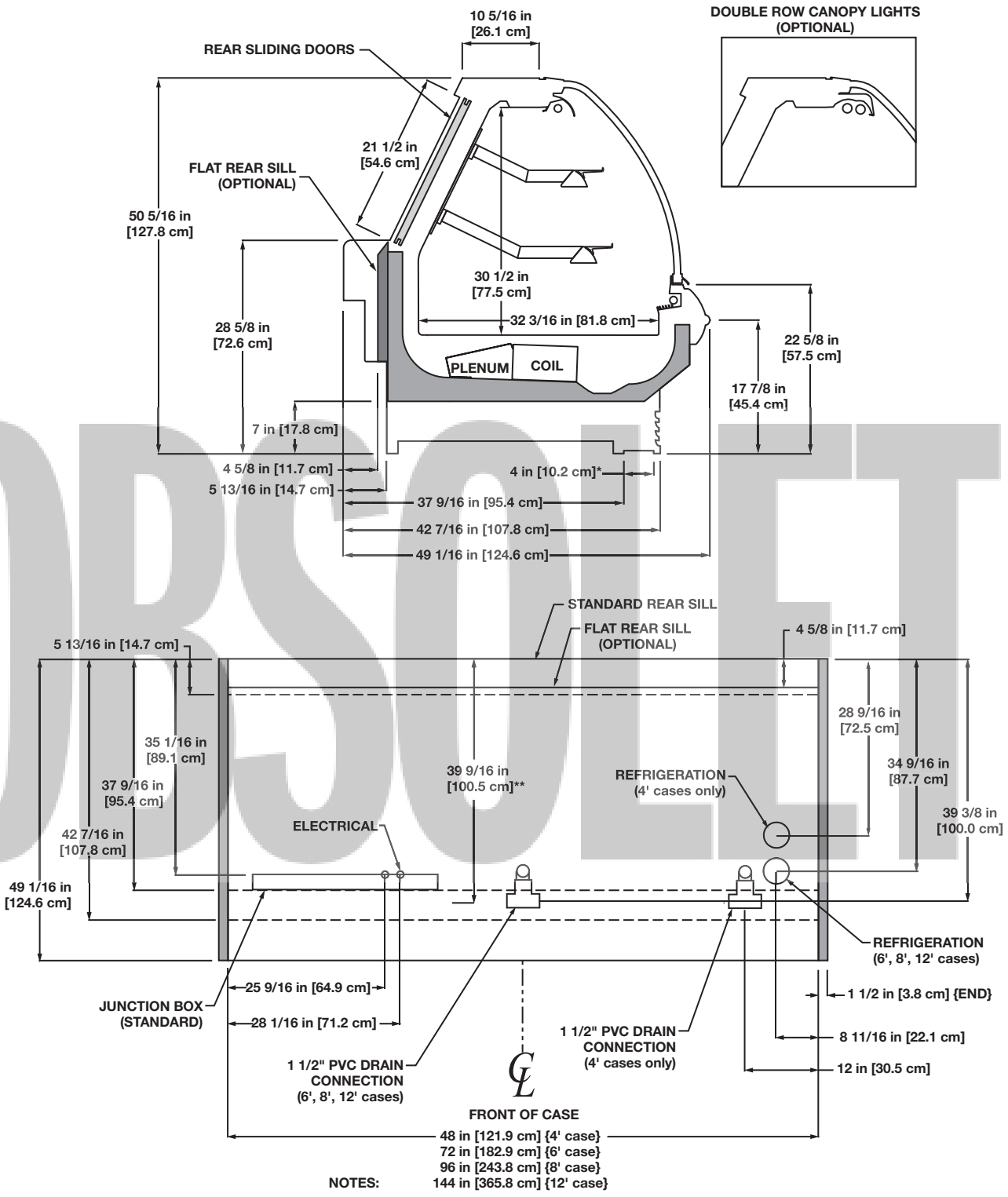
NOTES:

* 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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

OSA
(7” 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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OBSOLETE

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	1.48	178	- - -[1]	- - -	- - -	- - -
	6'	2	0.68	34	0.30	22	1.93	232	- - -	- - -	- - -	- - -
	8'	3	1.02	51	0.45	33	2.91	349	- - -	- - -	- - -	- - -
	12'	4	1.36	68	0.60	44	4.13	496	- - -	- - -	- - -	- - -

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	[3,4]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
OSAG[2]	158[5]	15	6-8	21-31	38	125

2 A suction stop solenoid installed in the top coil's suction line is required for this case. Control of the solenoid can be achieved with a thermostat at the case or an external controller. 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 temperature should be set to 30oF and the cut in temperature should be set to 35oF. These are recommended starting values and may need to be adjusted based on store conditions.

3 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

Defrost Controls

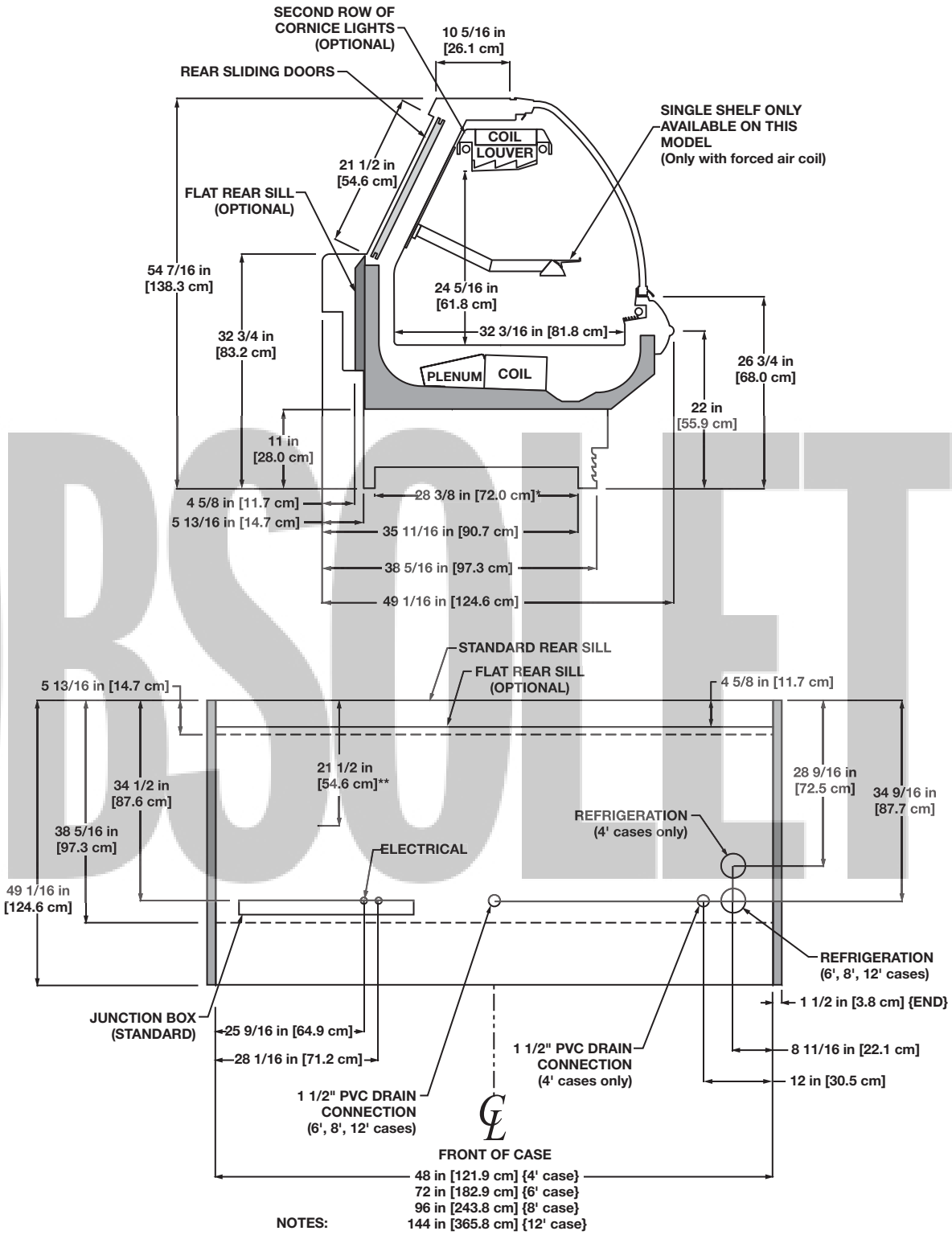
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.

OSAG
(11" BASEFRAME)



NOTES:

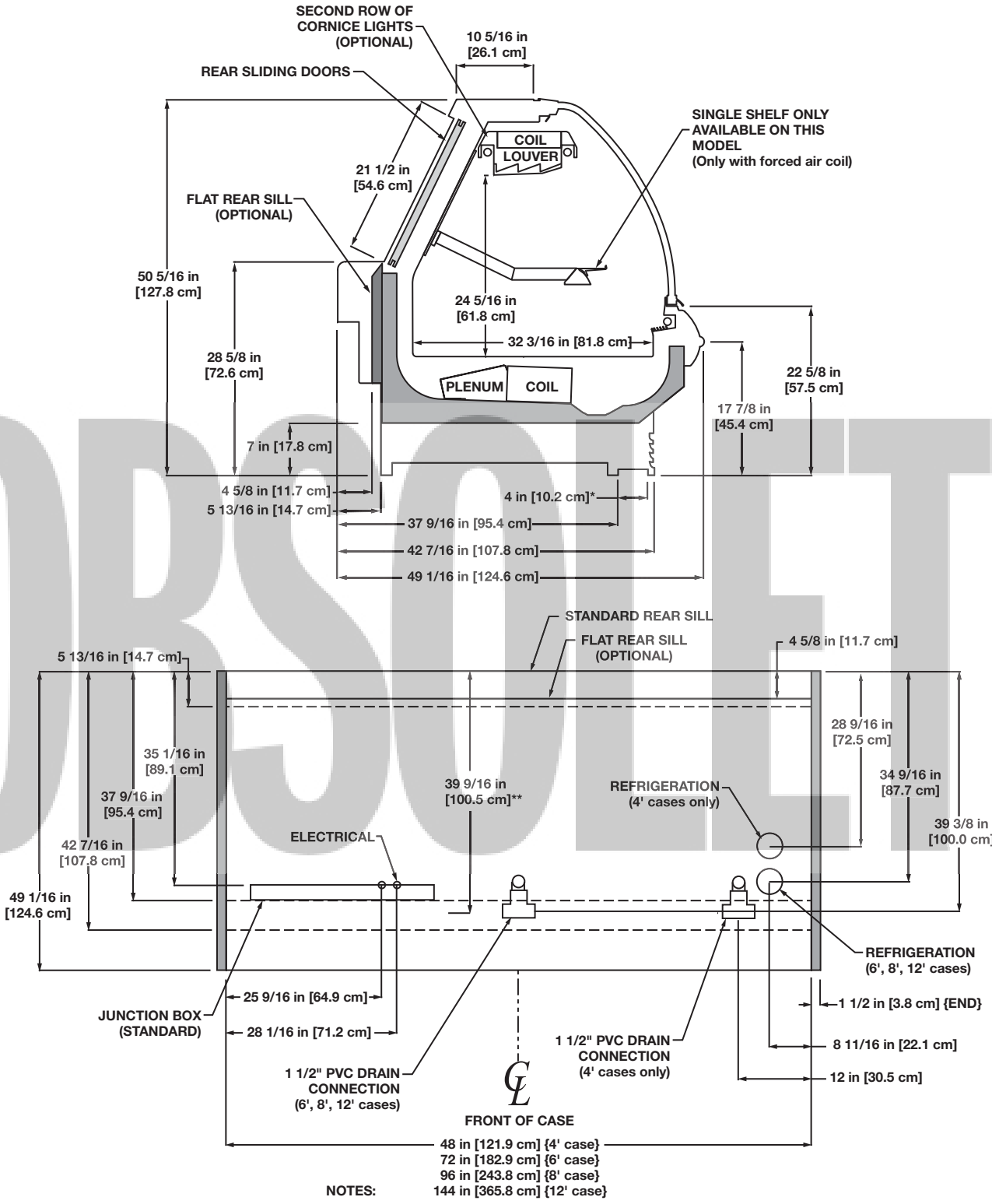
* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- 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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OSAG
(7" 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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OBSOLETE

American Style Glass Service Deli Merchandiser

OSF - 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	Single-Pane Glass Ambient Fans 120 Volts Fans per Case	Single-Pane Glass Ambient Fans 120 Volts Amps	Single-Pane Glass Ambient Fans 120 Volts Watts
OSF	4'	2	0.68	34	0.30	22	0.17	20	2	0.30	22
	6'	2	0.68	34	0.30	22	0.70	84	3	0.50	33
	8'	3	1.02	51	0.45	33	0.74	89	4	0.60	44
	12'	4	1.36	68	0.60	44	1.10	132	6	0.90	66

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
OSF	4'	1	4'	0.23	28	1.15	140
	6'	2	3'	0.37	44	1.85	220
	8'	2	4'	0.47	56	2.35	280
	12'	3	4'	0.70	84	3.50	420

Guidelines & Control Settings

Model	[1,2]BTUH/ft	Evaporator (F°)	Superheat Set Point @ bulb (F°)	Discharge Air (F°)	Return Air (F°)	Discharge Air Velocity[4] (F°)
OSF (Single Pane)	420[3]	20	6-8	30	39	235
OSF (Thermal Pane)	360[3]	22	6-8	30	39	235

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.??.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

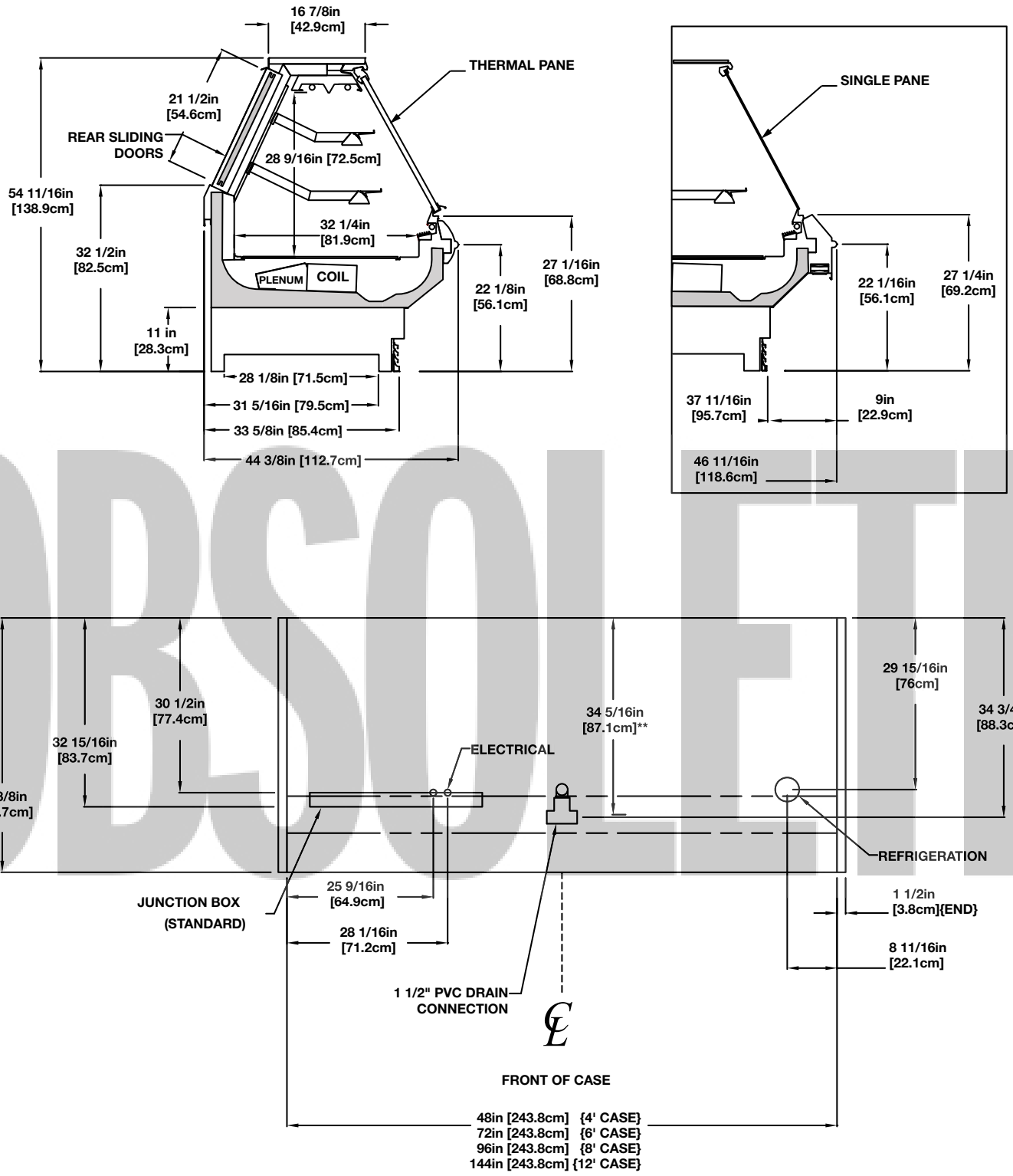
Model	Defrosts Per Day	Run-Off Time (min)	Timed Off Defrost Fail-Safe (min)	Timed Off Defrost Termination Temp (°F)	Hot Gas Defrost Fail-Safe (min)	Hot Gas Defrost Termination Temp (°F)	Reverse Air Defrost Fail-Safe (min)	Reverse Air Defrost Termination Temp (°F)
OSF (Single Pane)	2	6-8	75	50	20	45	- - -[5]	- - -
OSF (Thermal Pane)	2	6-8	75	50	20	45	- - -	- - -

5 NOTE: "- - -" indicates that this is not an option on this case model.

Medium Temperature Defrost Schedule

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

OSF
(11" BASEFRAME)

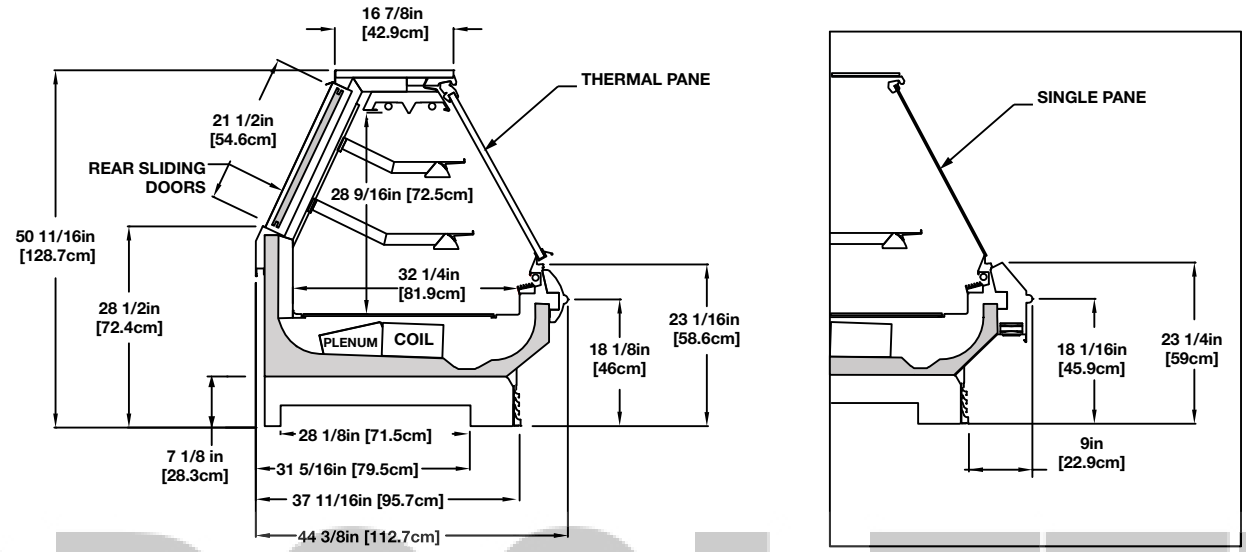


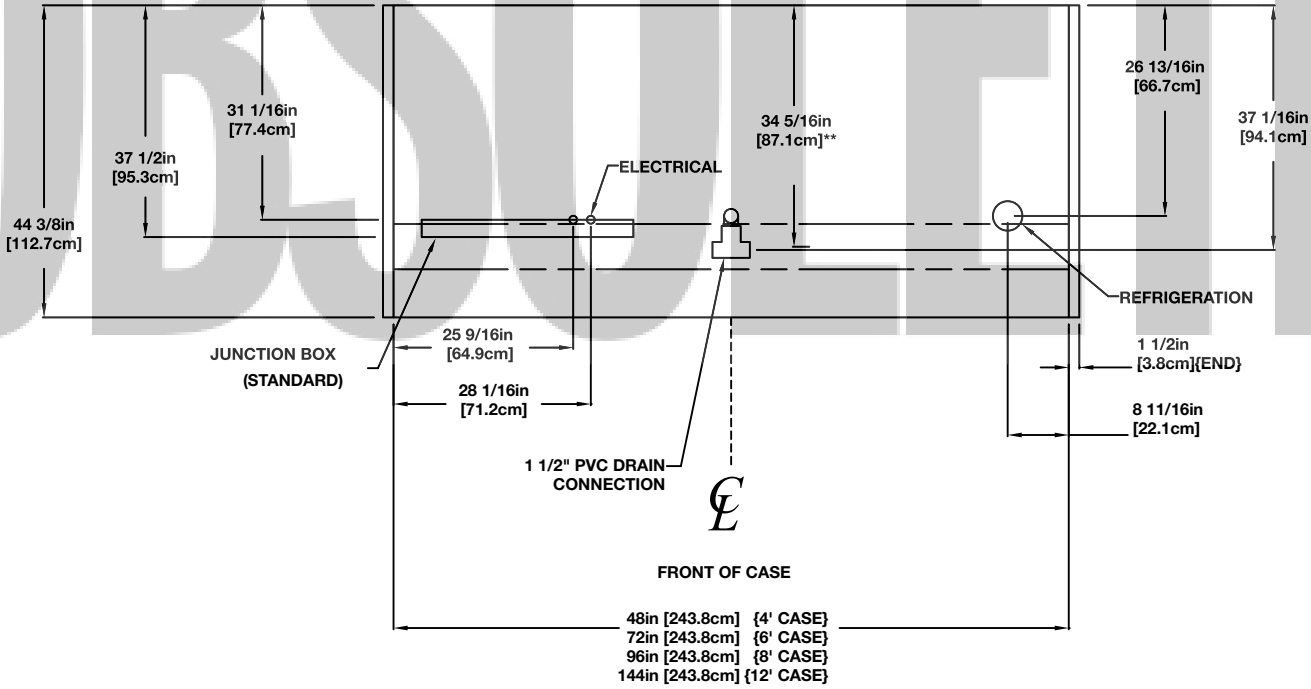
NOTES:
*** : STUB-UP AREA**
**** : RECOMMENDED STUP-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS**

- **DASHED LINES SIGNIFY INSIDE AREA OF BASE RAIL BEHIND KICK_PLATE**
- **ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT**
- **SUCTION LINE - 7/8", LIQUID LINE - 1/2"**
- **AVAILABLE SHELF SIZES: 10" & 12"**

NSF COMPONENT

OSF
(7" BASEFRAME)





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- **DASHED LINES SIGNIFY INSIDE AREA OF BASE RAIL BEHIND KICK_PLATE**
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- **SUCTION LINE - 7/8", LIQUID LINE - 1/2"**
- **AVAILABLE SHELF SIZES: 10" & 12"**

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE — A DOVER COMPANY

OBSOLETE

American Style Flat Glass Service Deli/Meat/Seafood Gravity Coil

Merchandiser

OSGF - 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
OSGF	4'	2	0.68	34	0.30	22	1.48	178	- - -[1]	- - -	- - -	- - -
	6'	2	0.68	34	0.30	22	1.93	232	- - -	- - -	- - -	- - -
	8'	3	1.02	51	0.45	33	2.91	349	- - -	- - -	- - -	- - -
	12'	4	1.36	68	0.60	44	4.13	496	- - -	- - -	- - -	- - -

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
OSGF	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	[3,4]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
OSGF[2]	278[5]	17	6-8	21	30	125

2 A suction stop solenoid installed in the top coil's suction line is required for this case. Control of the solenoid can be achieved with a thermostat at the case or an external controller. 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 temperature should be set to 30oF and the cut in temperature should be set to 35oF. These are recommended starting values and may need to be adjusted based on store conditions.

3 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

Defrost Controls

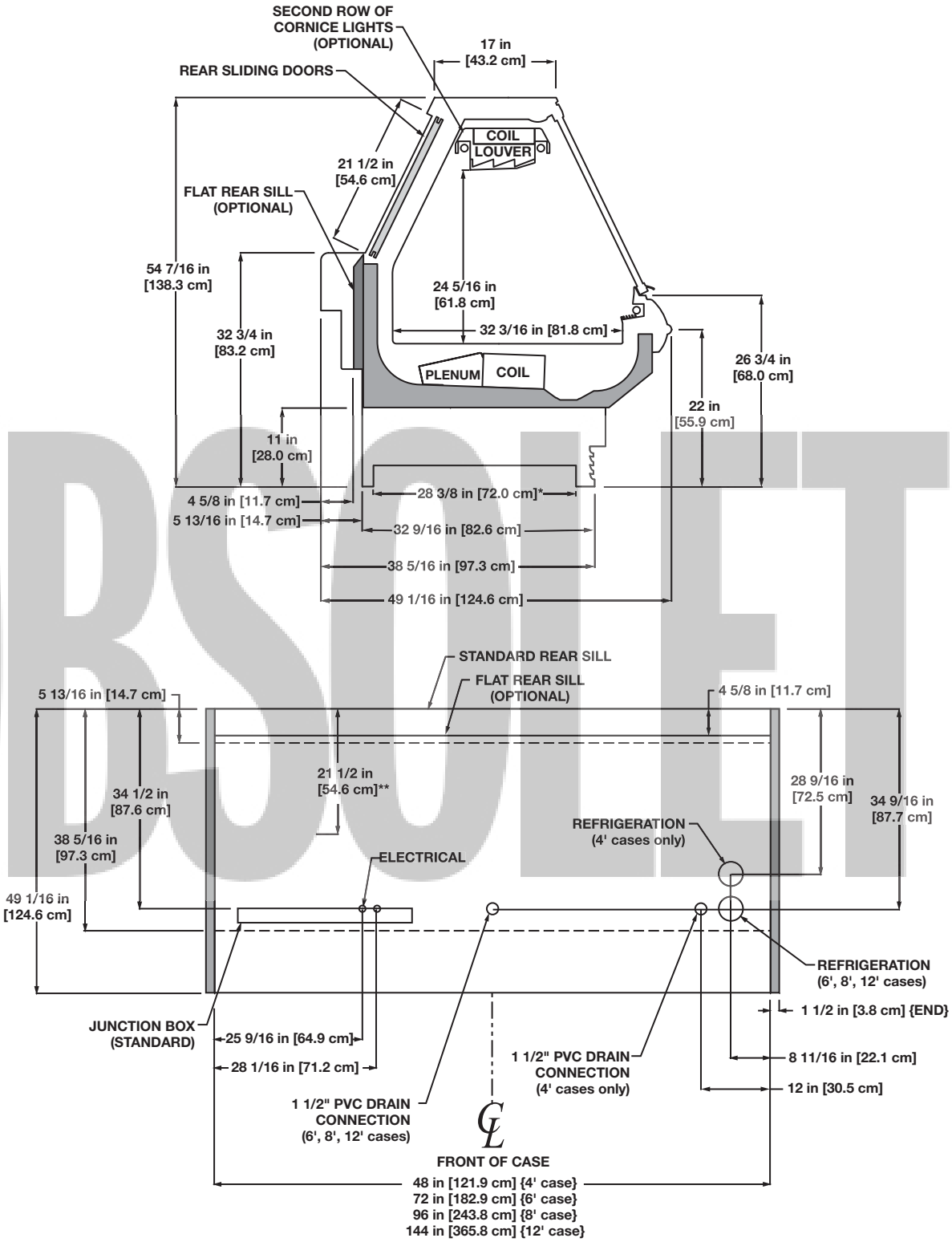
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OSGF	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 ARI 1200 - 2002 specifications.

OSGF
(11" BASEFRAME)

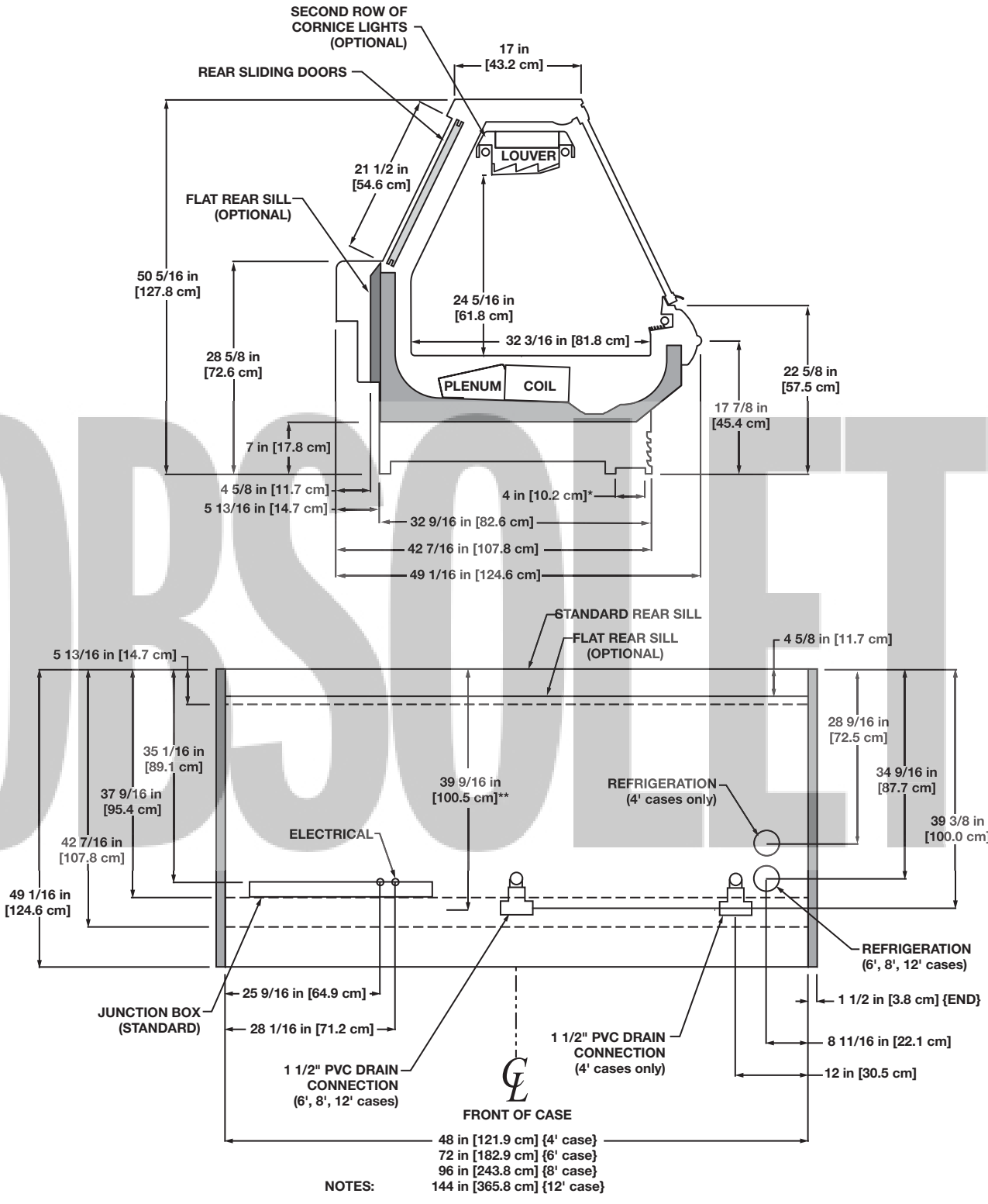


NOTES:

* 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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us



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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

OBSOLETE

International Style Service Deli/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	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OSI[1]	318[4]	22	6-8	31	38	175

1 Humidification system required on this case if customer decides to use for Fresh Meat application.

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.07.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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[6] Fail-safe (min)	Timed Off Defrost[6] 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	47	26	45	- - -[7]	- - -

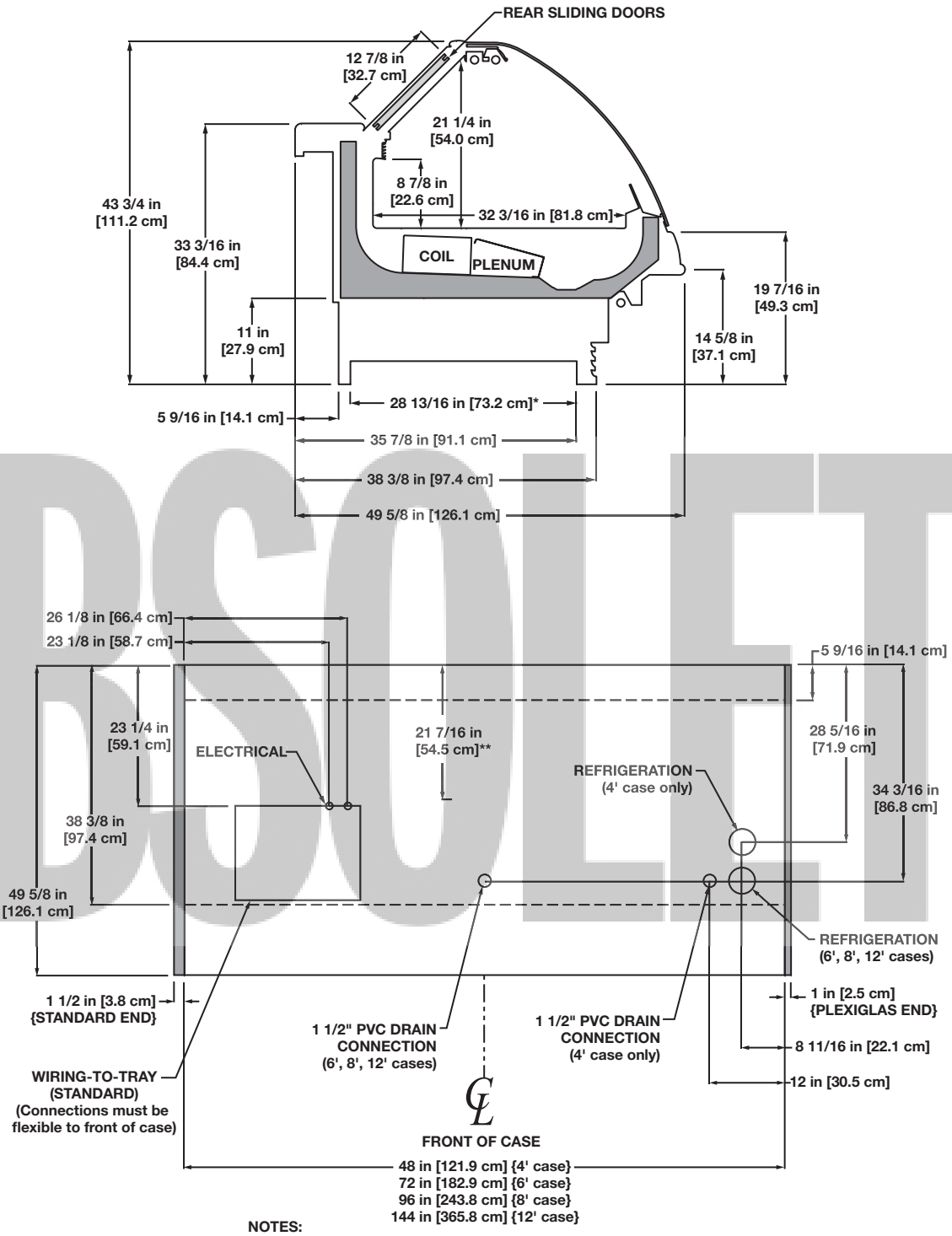
6 Not recommended on this model due to long defrost time.

7 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 ARI 1200 - 2002 specifications.



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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

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	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OSIF[1]	318[4]	22	6-8	31	38	175

1 Humidification system required on this case when used for Fresh Meat application

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.07.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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[6] Fail-safe (min)	Timed Off Defrost[6] 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	47	26	45	- - -[7]	- - -

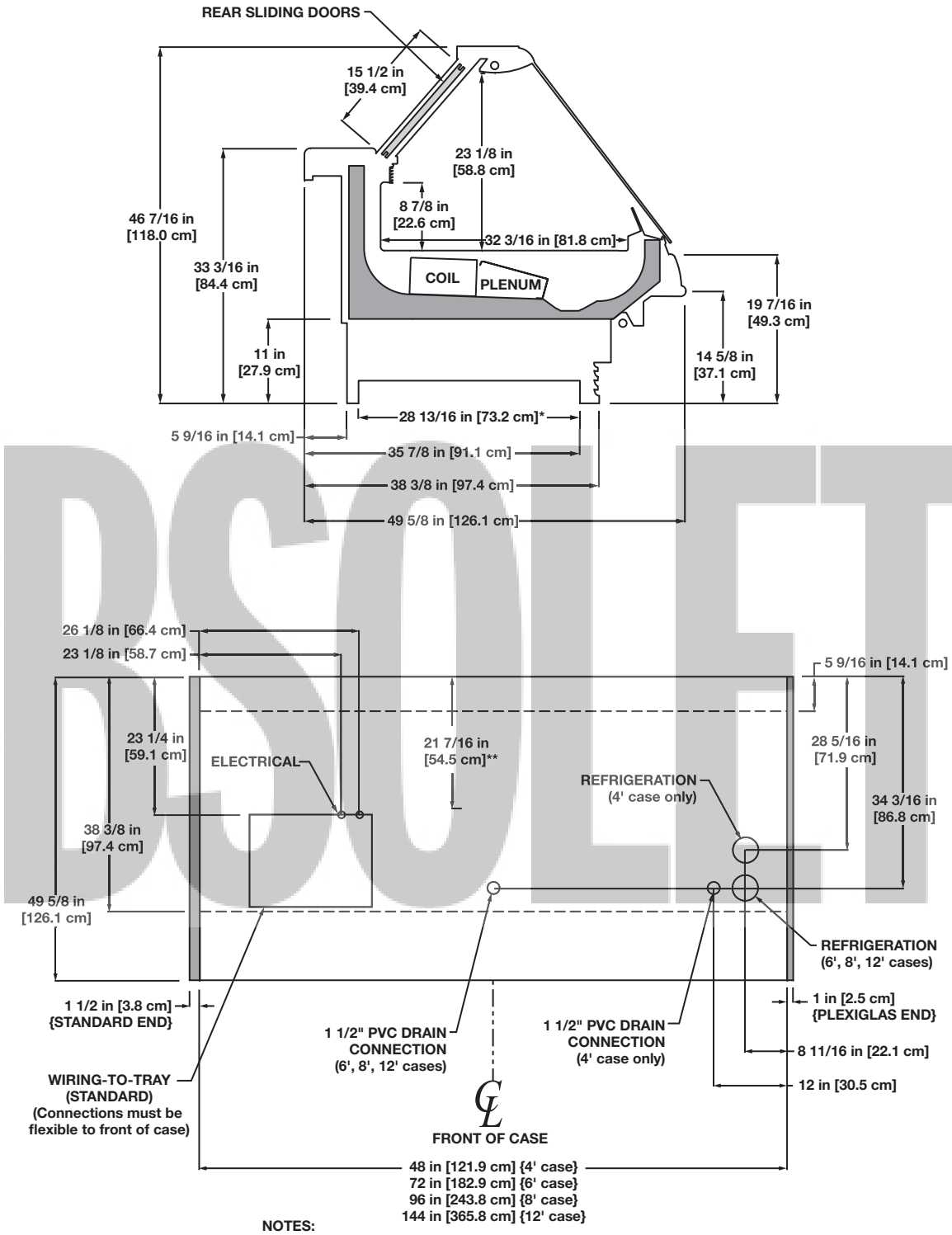
6 Not recommended on this model due to long defrost time.

7 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 ARI 1200 - 2002 specifications.



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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

International Style Single Deck Deli/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	0.77	92	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	1.39	167	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	1.50	180	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	2.22	266	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

Guidelines & Control Settings

Model	[1,2]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OSIO	663[3]	17	6-8	24	33	180

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.08.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

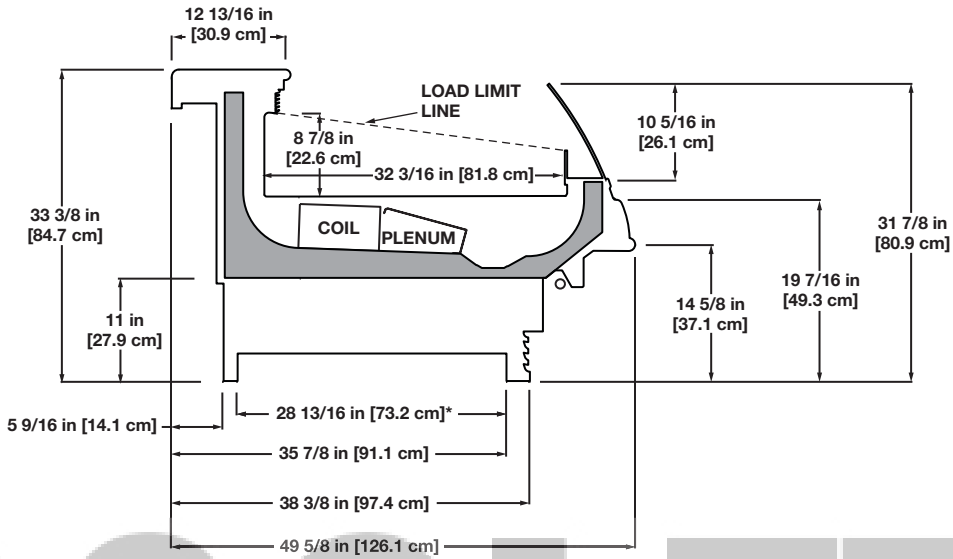
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OSIO	3	6 - 8	35	47	55	47	26	45	- - -[5]	- - -

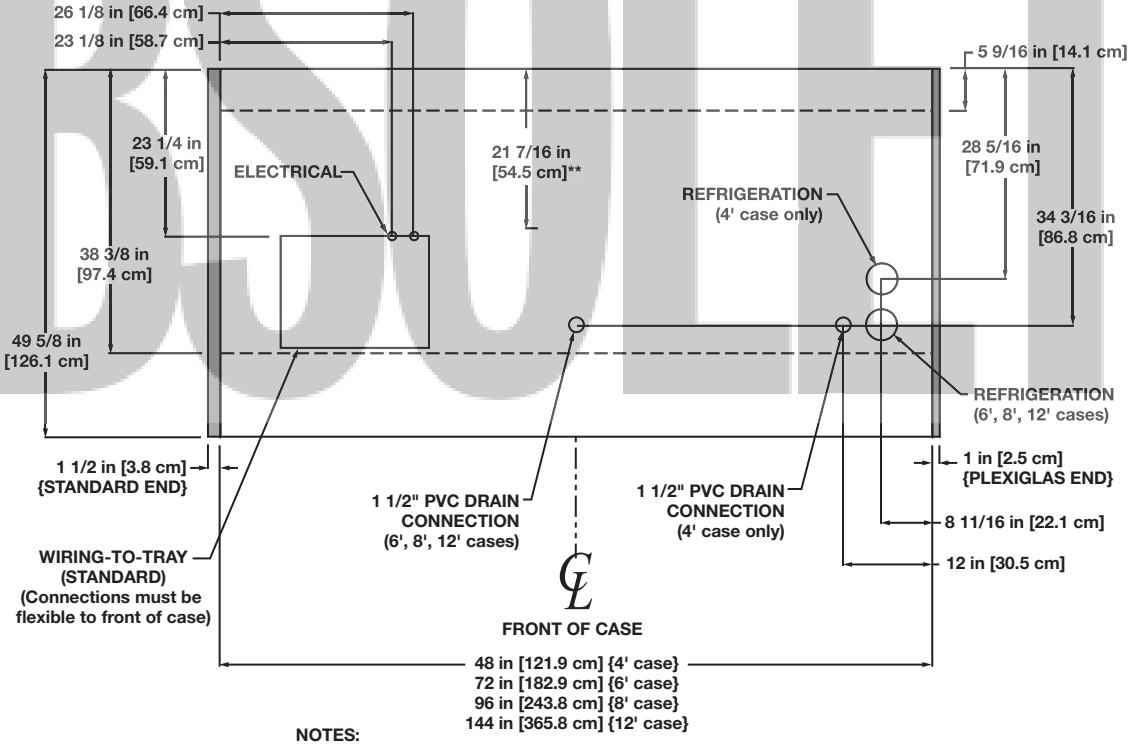
5 NOTE: " - - - " not an option on this case model.

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 ARI 1200 - 2002 specifications.





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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

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	1.48	178
	8'	2	4'	0.47	56	1.88	226
	12'	3	4'	0.70	84	2.80	336

Guidelines & Control Settings

Model	[1,2]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OSM	208[3]	22	6-8	30	39	235

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.05.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

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[5] Fail-safe (min)	Timed Off Defrost[5] 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	50	20	45	- - -[6]	- - -

5 Not recommended on this model due to long defrost time.

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

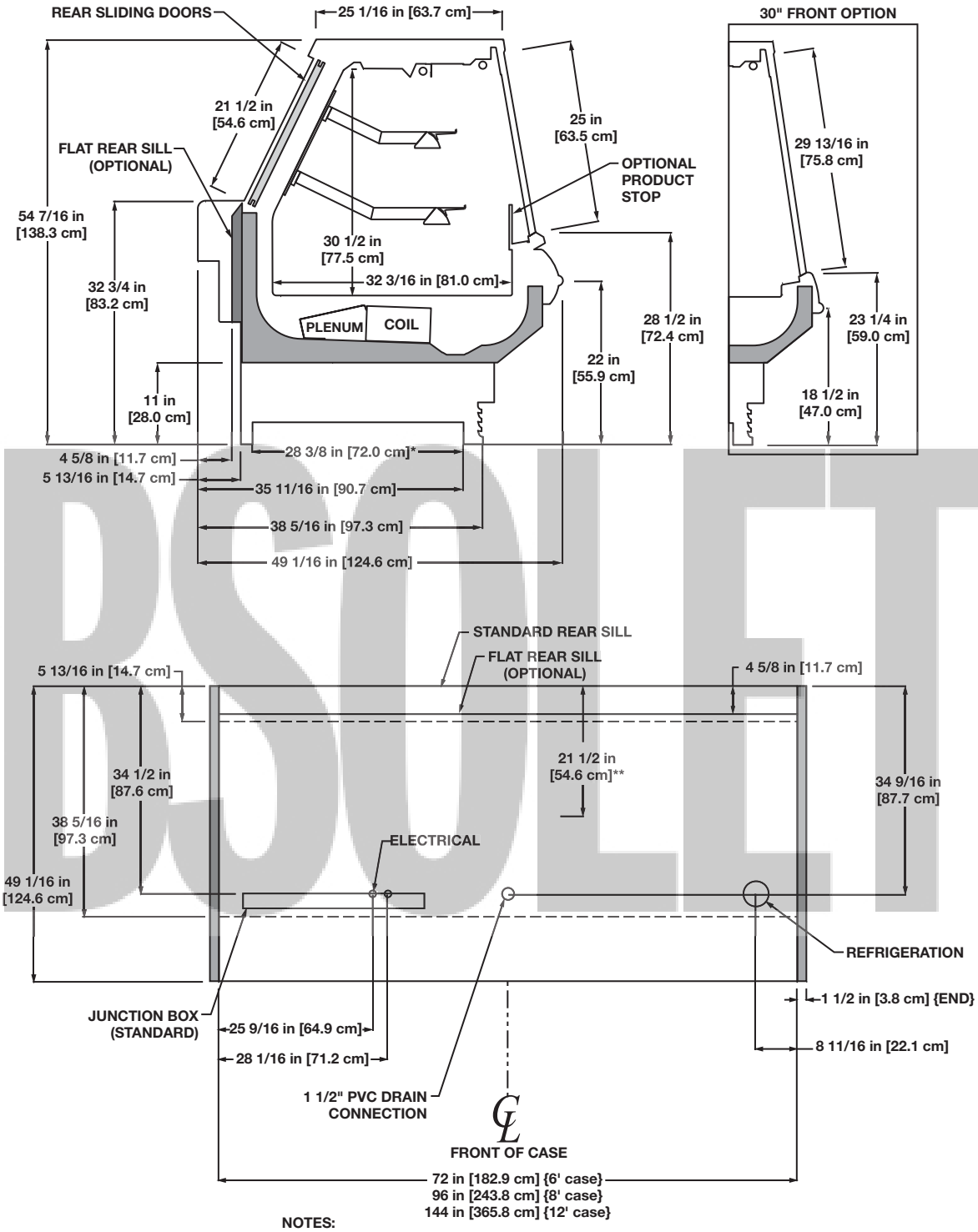
All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY

OSM
(11" BASEFRAME)



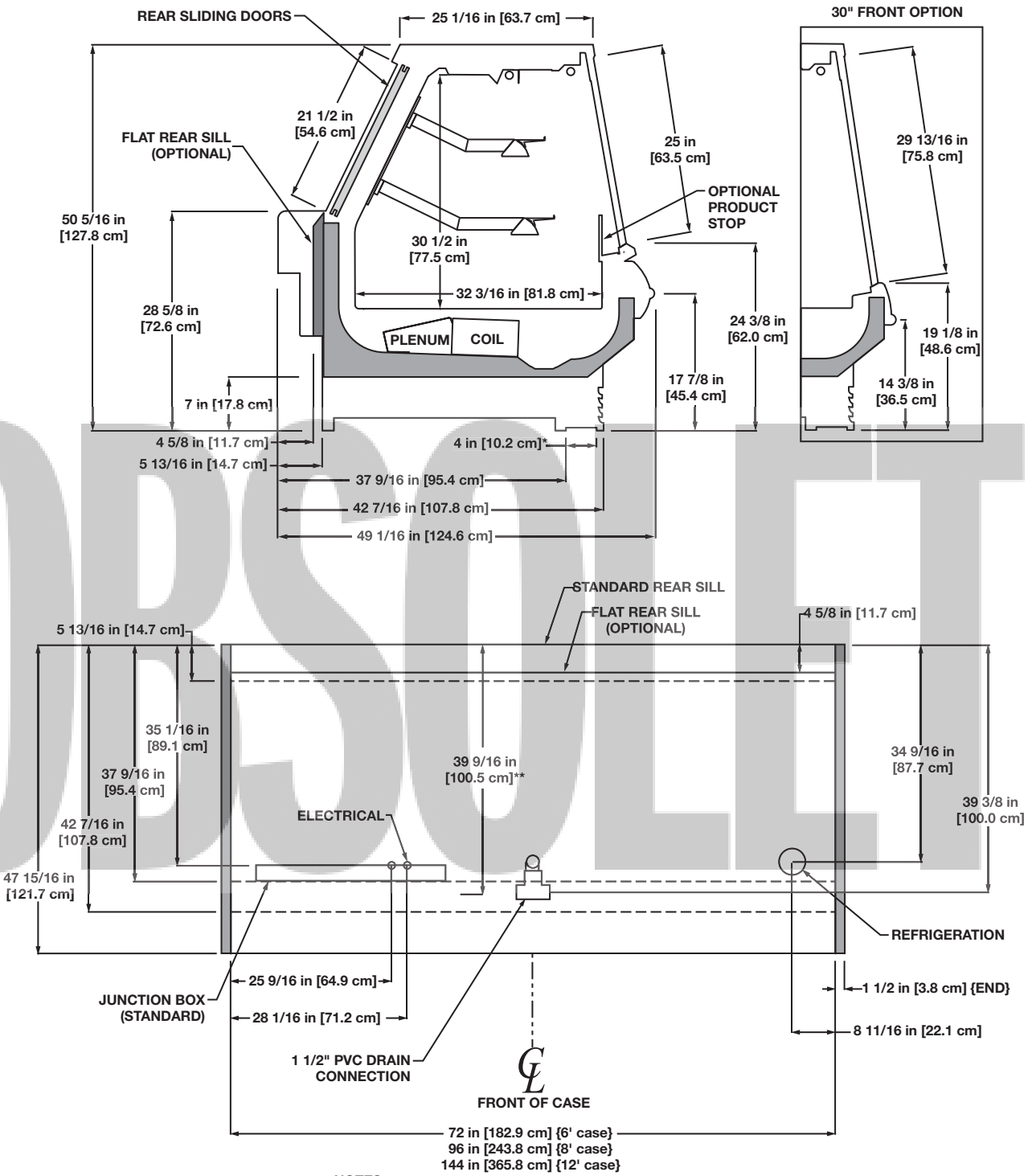
NOTES:

* 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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

OSM
(7" 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" \
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT c UL us

NSF COMPONENT c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY

SPECIALTY PRODUCTS

SERVICE

OBSOLETE

American Style Flat Glass Service Frozen Food Merchandiser
OSMLZ - 4' & 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
OSMLZ	4'	2	0.68	34	0.30	22	1.09	131	3.85	800	4.43	1064
	6'	2	0.68	34	0.30	22	1.53	184	5.77	1200	6.65	1596

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
OSMLZ	4'	1	3'	0.19	23	0.38	46
	6'	1	5'	0.28	34	0.56	67

Guidelines & Control Settings

Model	[1,2]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OSMLZ	198[3]	Enh.	-10	3-5	5	15	120

1 BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.07.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
OSMLZ	2	13 - 15	45	48	- - -[5]	- - -	20	60	- - -	- - -

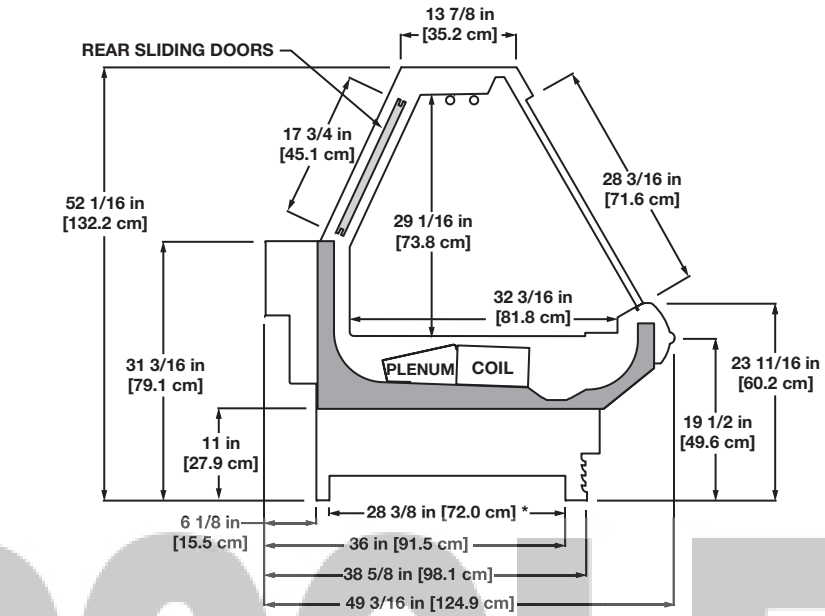
5 NOTE: "- - -" not an option on this case model.

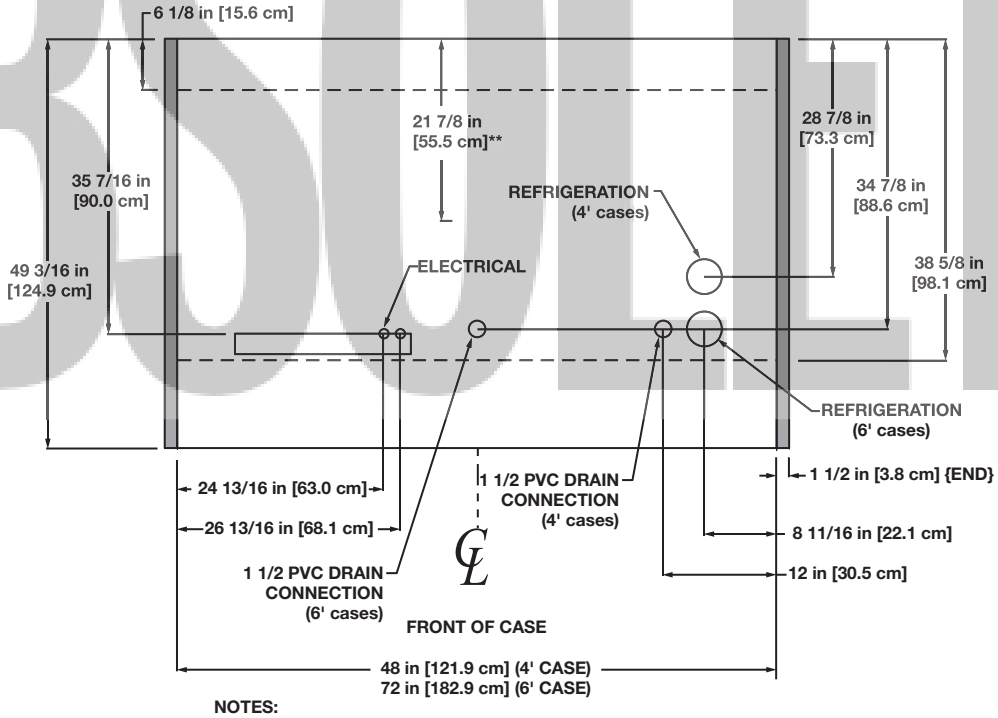
Low Temperature Defrost Schedule

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

** Or immediately after store closing hour

All measurements are taken per ARI 1200 - 2002 specifications.





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 - 3/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

Wide International Style Service Deli/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
OWSI	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	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OWSI[1]	418[4]	22	6-8	31	38	175

1 Humidification system required on this case if customer decides to use for Fresh Meat application.

2 BTUH's/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.07.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
OWSI	3	6 - 8	30	47	60[6]	47[6]	26	45	- - -[7]	- - -

6 Not recommended on this model due to long defrost time.

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

Medium Temperature Defrost Schedule

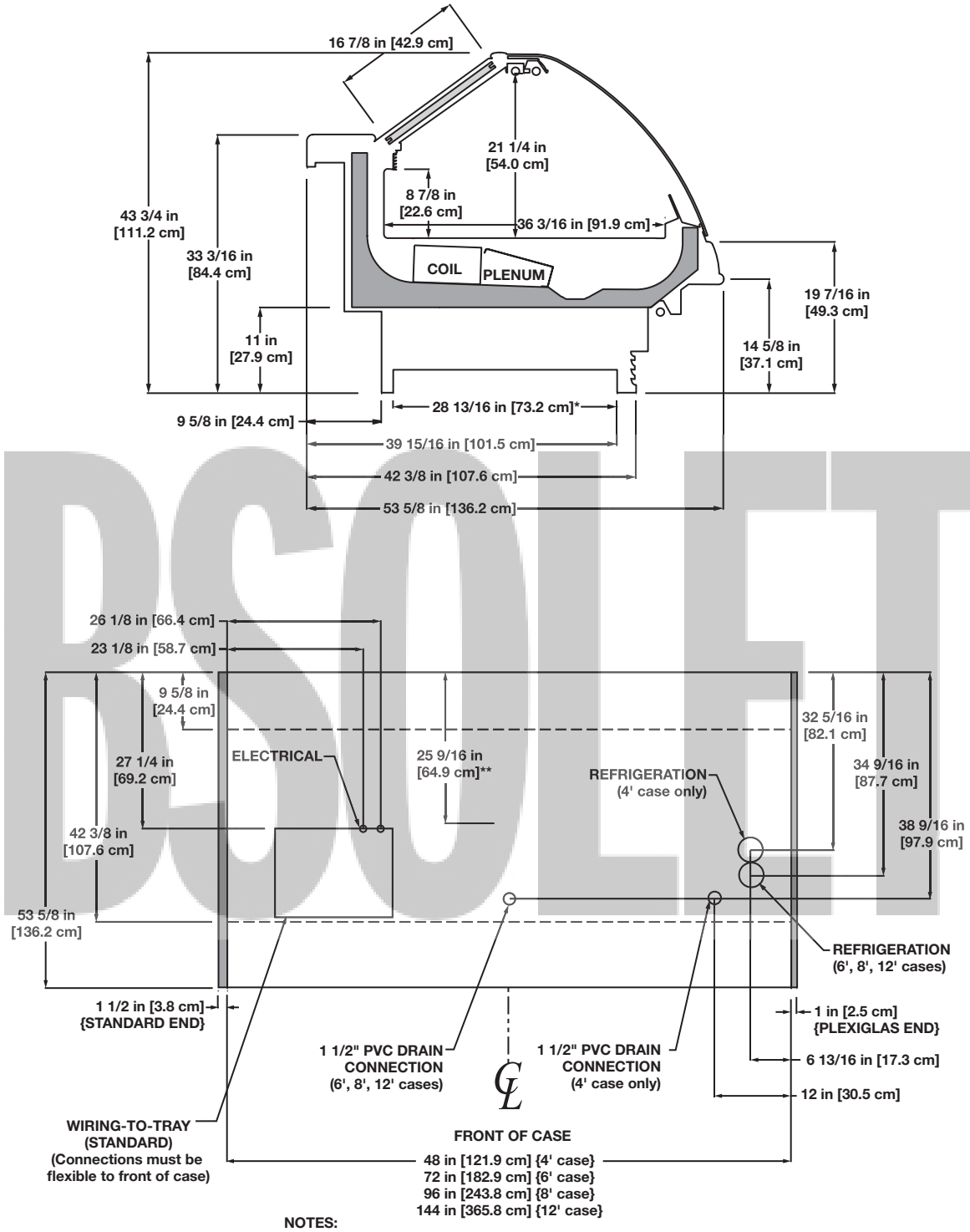
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

cULus

Hill PHOENIX EXCELLENCE A DOVER COMPANY



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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

Wide International Style Single Deck Deli/Seafood Merchandiser

OWSIO - 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
OWSIO	4'	2	0.68	34	0.30	22	0.77	92	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	1.39	167	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	1.50	180	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	2.22	266	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

Guidelines & Control Settings

Model	[1,2]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
OWSIO	763[3]	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 1.08.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

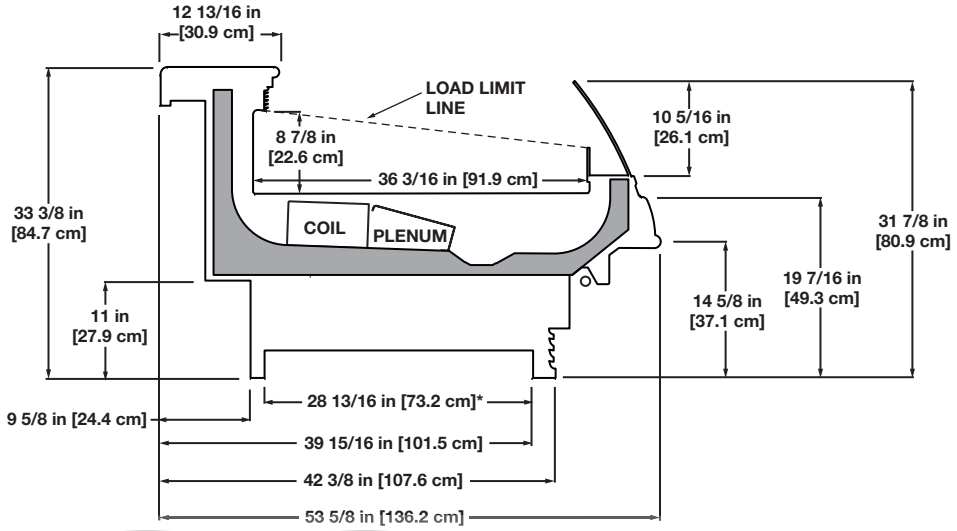
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
OWSIO	3	6 - 8	35	47	55	47	26	45	- - -[5]	- - -

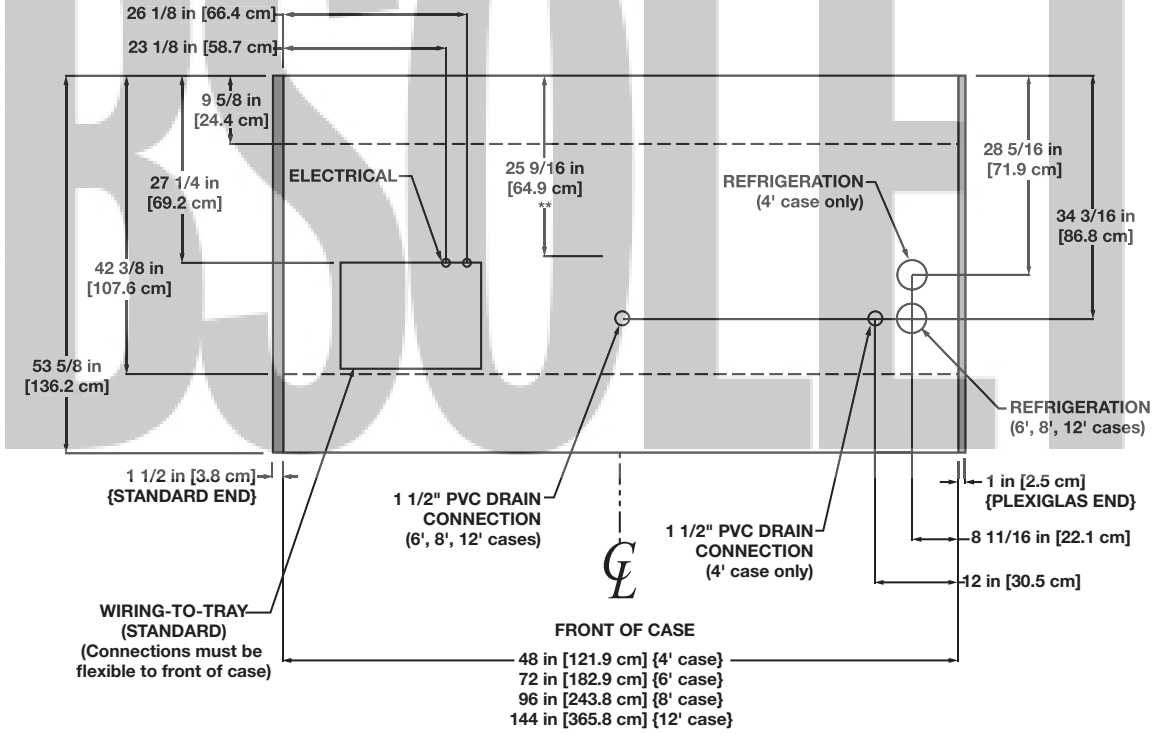
5 NOTE: "- - -" not an option on this case model.

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 ARI 1200 - 2002 specifications.





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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
c UL us

Flat Glass Gravity Coil Meat Merchandiser with CoolGenix™ Technology

P2SGF - 4', 6', 8', 12'

Electrical Data

Model		Secondary[1] Coolant Pump 120 Volts Amps	Secondary[1] Coolant Pump 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts
P2SGF	4'	2.00	240	0.55	66
	6'	2.00	240	1.03	124
	8'	2.00	240	1.03	124
	12'	2.00	240	1.60	192

1 Secondary coolant pump is only applicable for the semi-self-contained version.

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
P2SGF	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

Cut in / Cut Out

	Cut Out Temp. (°F)	Cut in Temp. (°F)
Pans	29	33
Top Coil	31	36

Guidelines & Control Settings - Semi-Self-Contained

Model	[3,4]BTUH/ft	Supply Temp. (°F)	Chiller Temp. (°F)	Flow Rate[6] GPM/ft	Charge[7] GAL/ft	Max. Working Pressure (PSIG)	Max. Static Pressure (PSIG)
P2SGF[2]	350[5]	26	20	0.45	0.27	50	70

Guidelines & Control Settings - Remote Secondary

Model	[3,4]BTUH/ft	Supply Temp. (°F)	Flow Rate GPM/ft[6]	Charge GAL/ft
P2SGF[2]	300[5]	26	0.45	0.27

2 When calculating charge l45 wedges are equivalent to an 8' case and E90 wedges are equivalent to an 12' case.

3 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Minimum flow rate.

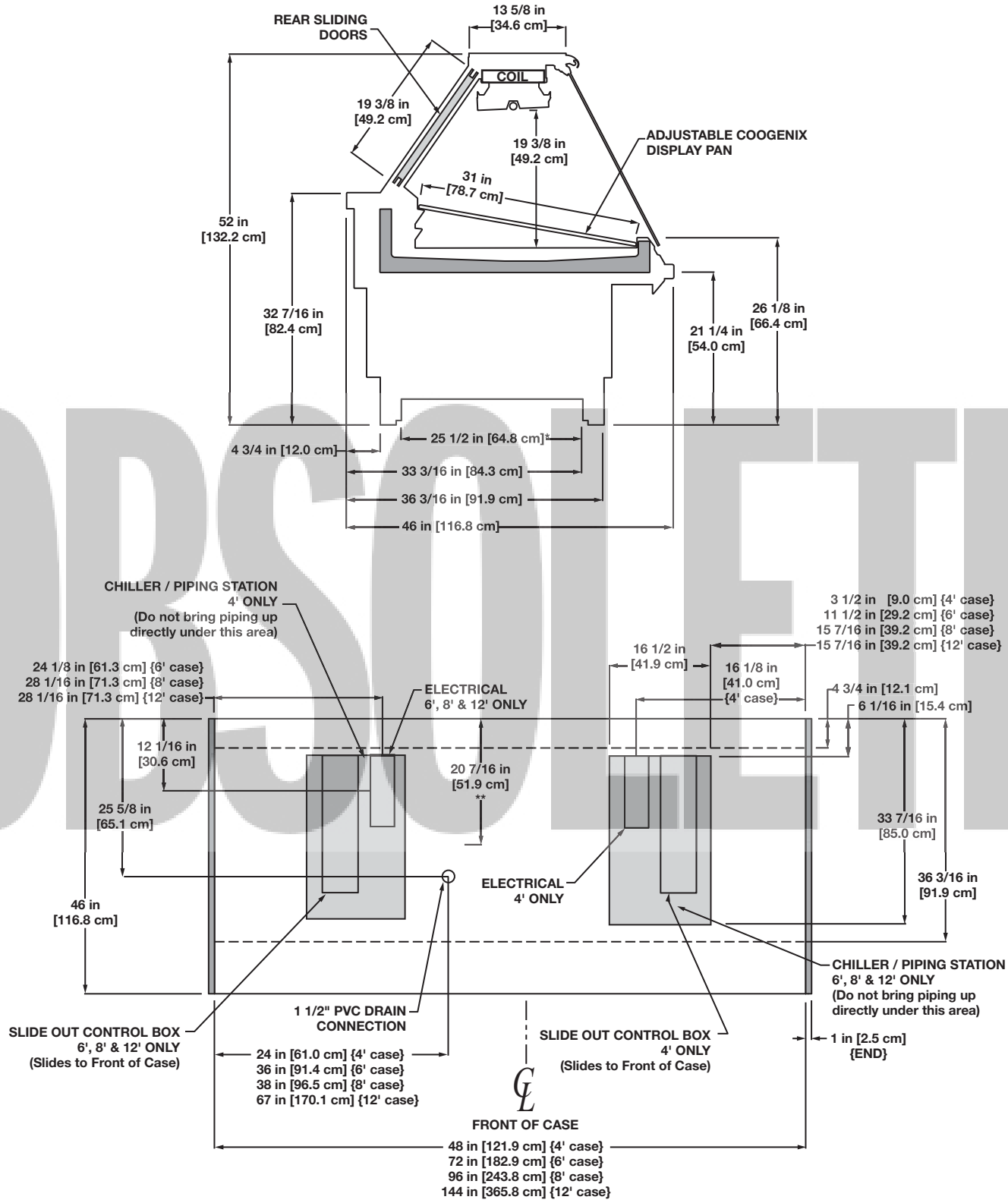
7 For semi-self-contained cases, add 2.75 gallon of fluid for the chiller to the total charge.

Defrost Controls

Model	Top Coil 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 Defrost Fail-safe (min)	Warm Fluid Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
P2SGF	1	5	- - -[8]	- - -	50	45	- - -	- - -	- - -	- - -

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

All measurements are taken per ARI 1200 - 2002 specifications.



NOTES:

* STUB-UP AREA

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

• DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

c UL us

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

Guidelines & Control Settings

Model	[1,2]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
PDIF	361[3]	17	6-8	28	39	100

1 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.05.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
PDIF	4	6 - 8	30	47	40	47	26	45	- - -[5]	- - -

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

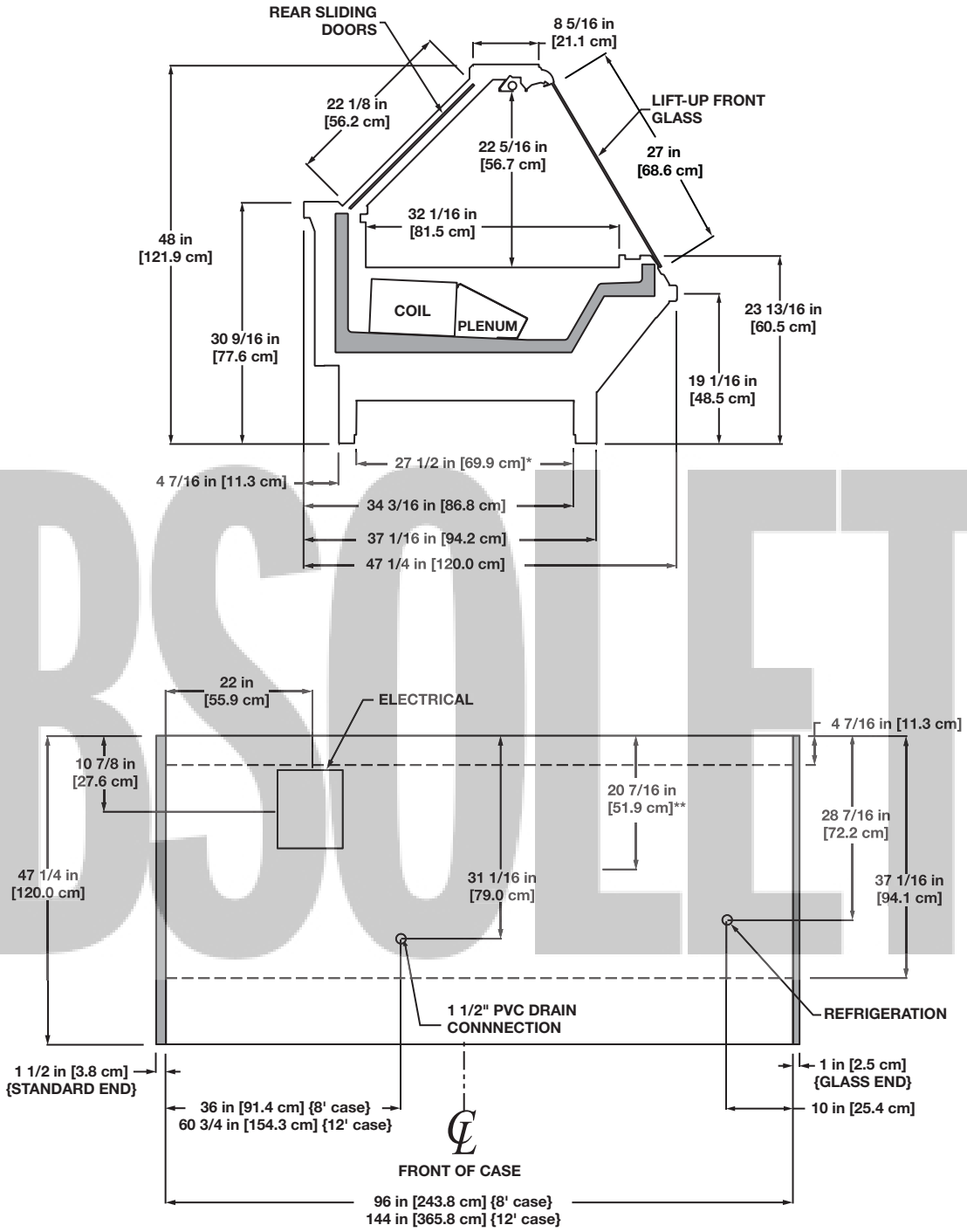
Medium Temperature Defrost Schedule

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 ARI 1200 - 2002 specifications.

NSF c UL us COMPONENT

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
- DX: SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- SC: SUPPLY LINE - 7/8", RETURN LINE - 7/8"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF c UL us
COMPONENT
04/09

Gravity Coil Meat Merchandiser with CoolGenix™ Technology

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

Electrical Data

Model		Secondary[1] Coolant Pump		Anti-Condensate Heaters	
		120 Volts		120 Volts	
		Amps	Watts	Amps	Watts
PSG	4'	2.00	240	0.55	66
	6'	2.00	240	1.03	124
	8'	2.00	240	1.03	124
	12'	2.00	240	1.60	192
	E30	2.00	240	1.03	124
	E45	2.00	240	1.03	124

1 Secondary coolant pump is only applicable for the semi-self-contained version.

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

Cut in / Cut Out

	Cut Out Temp. (°F)	Cut in Temp. (°F)
Pans	29	33
Top Coil	31	36

Guidelines & Control Settings - Semi-Self-Contained

Model	[3,4]BTUH/ft	Supply Temp. (°F)	Chiller Temp. (°F)	Flow Rate[3] GPM/ft	Charge[4] GAL/ft	Max. Working Pressure (PSIG)	Max. Static Pressure (PSIG)
PSG[2]	350[5]	26	20	0.45	0.27	50	70

Guidelines & Control Settings - Remote Secondary

Model	[3,4]BTUH/ft	Supply Temp. (°F)	Flow Rate GPM/ft[6]	Charge GAL/ft[7]
PSG[2]	300[5]	26	0.45	0.27

2 When calculating charge, E30 and E45 wedges are equivalent to an 8' case.

3 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Minimum flow rate.

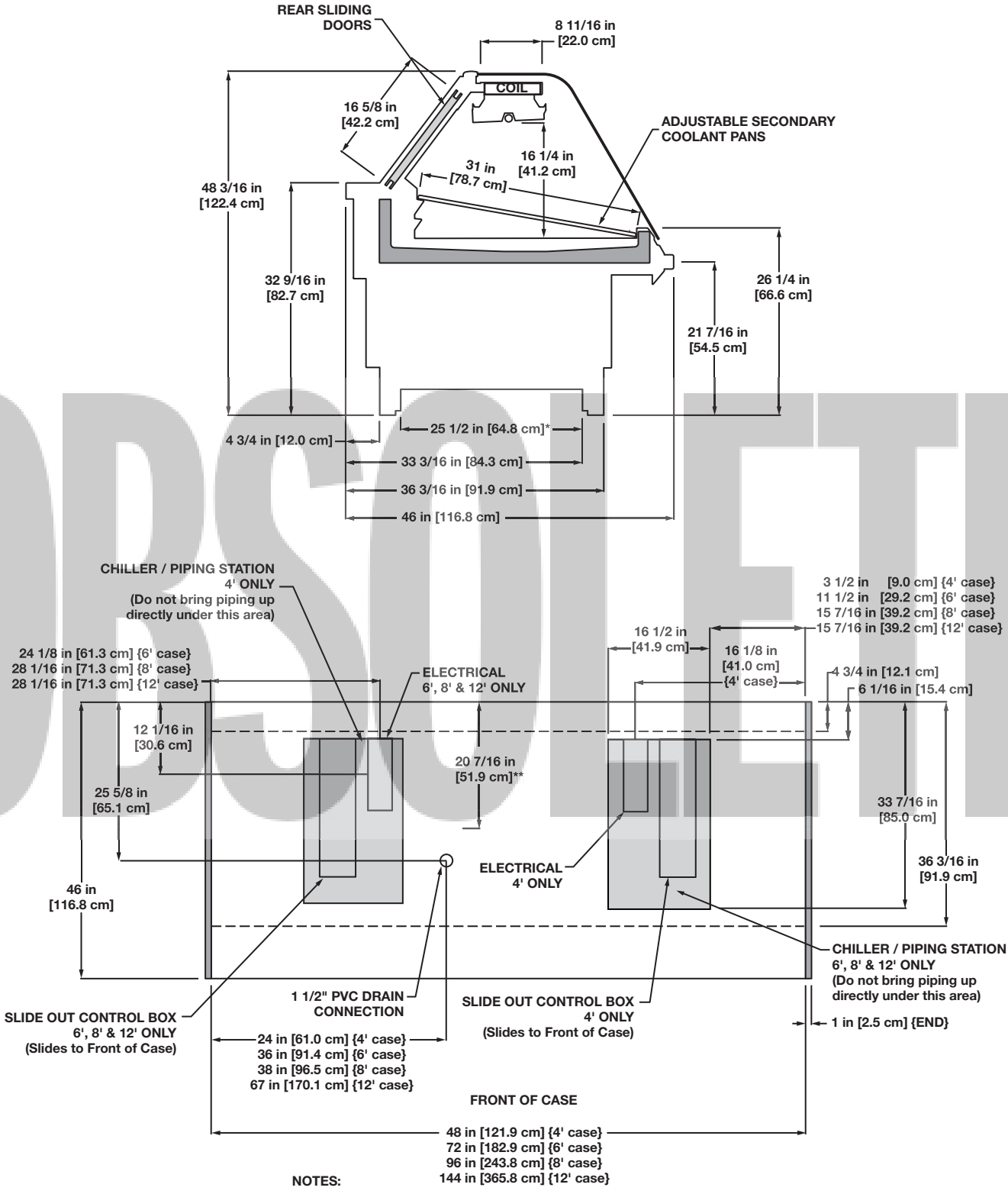
7 For semi-self-contained cases, add 2.75 gallon of fluid for the chiller to the total charge.

Defrost Controls

Model	Top Coil 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 Defrost Fail-safe (min)	Warm Fluid Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
PSG	1	5	- - -[8]	- - -	50	45	- - -	- - -	- - -	- - -

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

All measurements are taken per ARI 1200 - 2002 specifications.

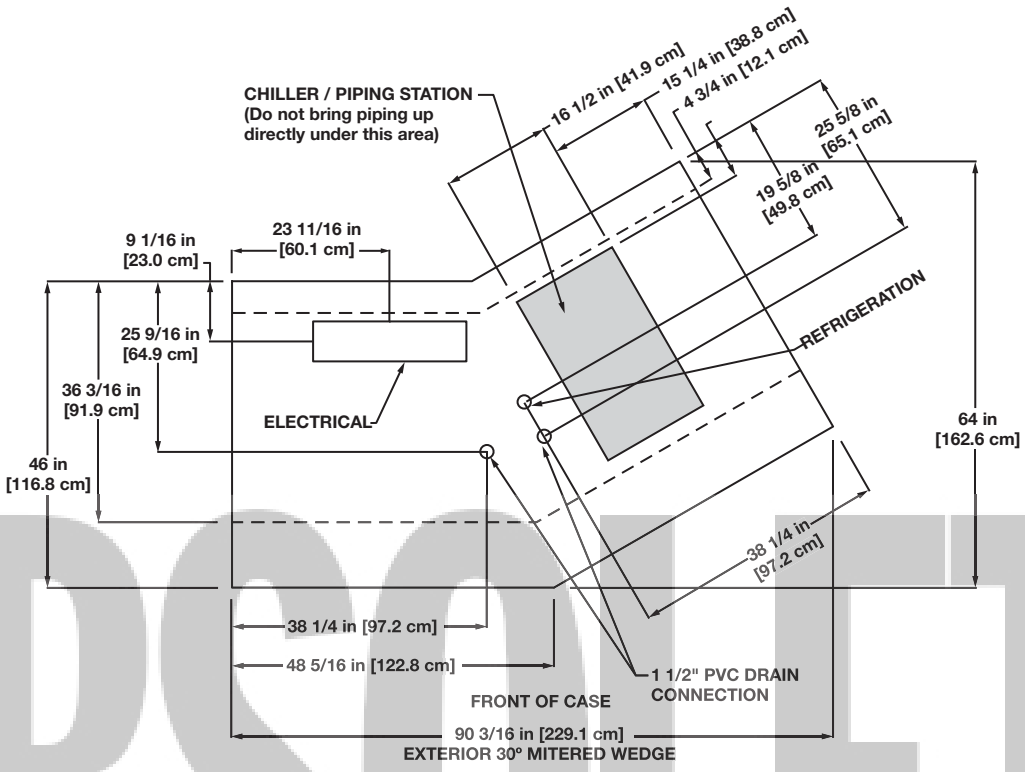


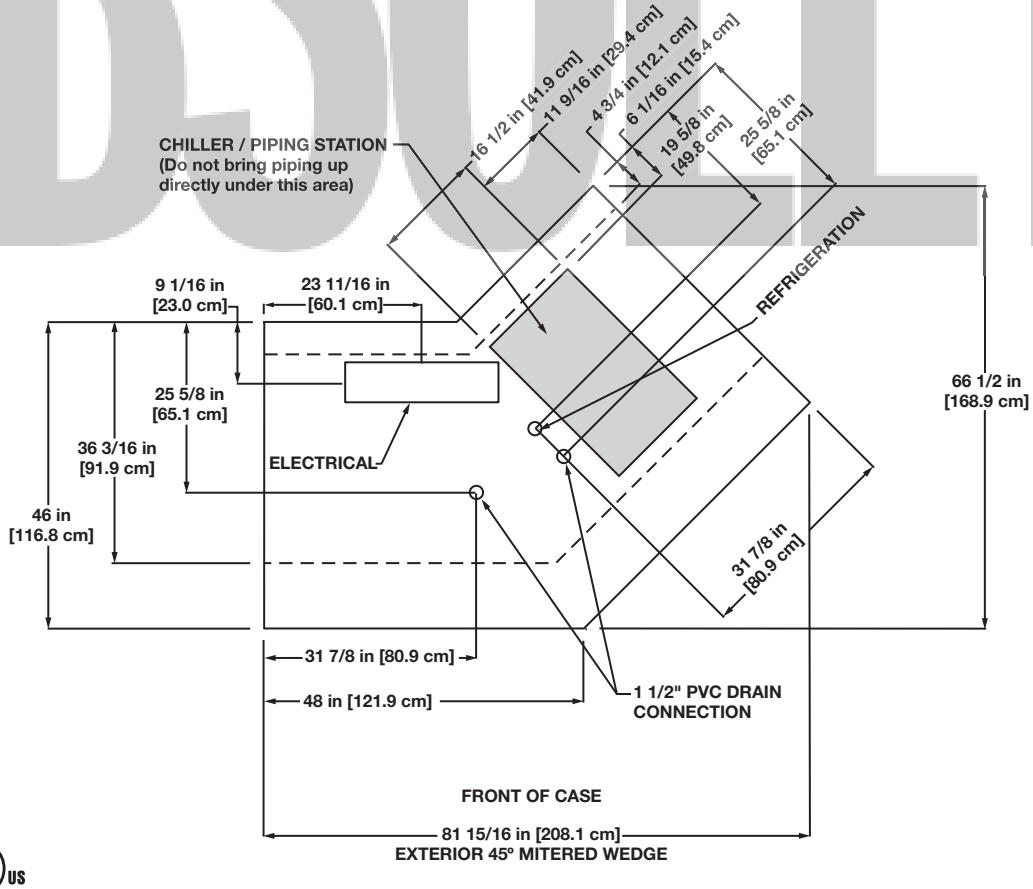
NOTES:

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

• DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT





NSF COMPONENT

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OBSOLETE

Flat Glass Gravity Coil Meat Merchandiser with CoolGenix™ Technology

PSGF - 4', 6', 8', 12' & E90

Electrical Data

Model		Secondary[1] Coolant Pump 120 Volts Amps	Secondary[1] Coolant Pump 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts
PSGF	4'	2.00	240	0.55	66
	6'	2.00	240	1.03	124
	8'	2.00	240	1.03	124
	12'	2.00	240	1.60	192
	E90	2.00	240	1.60	192

1 Secondary coolant pump is only applicable for the semi-self-contained version.

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
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
	E90	3	3'	0.55	66	0.55	66

Cut in / Cut Out

	Cut Out Temp. (°F)	Cut in Temp. (°F)
Pans	29	33
Top Coil	31	36

Guidelines & Control Settings - Semi-Self-Contained

Model	[3,4]BTUH/ft	Supply Temp. (°F)	Chiller Temp. (°F)	Flow Rate GPM/ft[6]	Charge GAL/ft[7]	Max. Working Pressure (PSIG)	Max. Static Pressure (PSIG)
PSGF[2]	350[5]	26	20	0.45	0.27	50	70

Guidelines & Control Settings - Remote Secondary

Model	[3,4]BTUH/ft	Supply Temp. (°F)	Flow Rate GPM/ft[6]	Charge GAL/ft
PSGF[2]	300[5]	26	0.45	0.27

2 When calculating charge, I45 wedges are equivalent to an 8' case and E90 wedges are equivalent to an 12' case.

3 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Minimum flow rate.

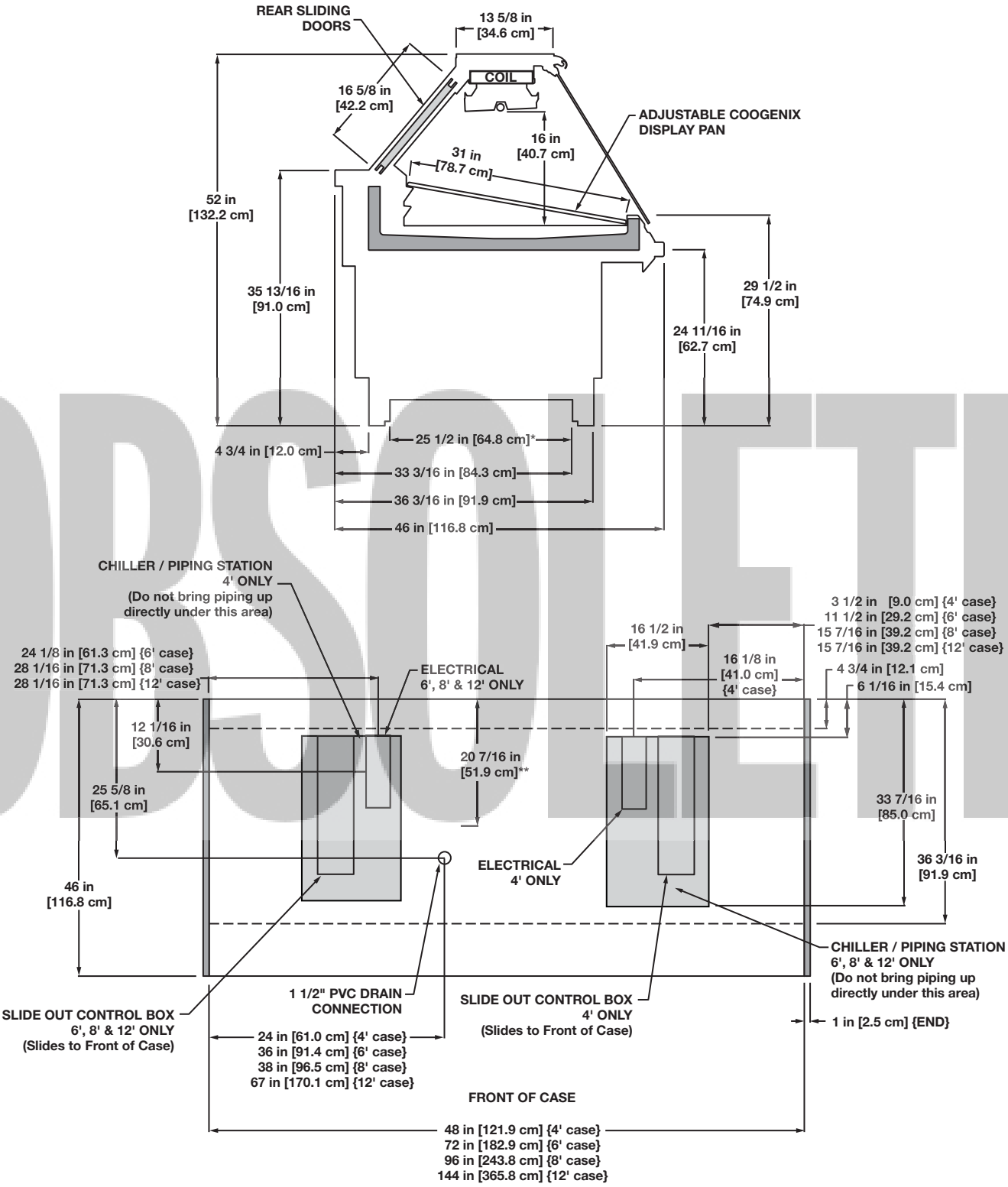
7 For semi-self-contained cases, add 2.75 gallon of fluid for the chiller to the total charge.

Defrost Controls

Model	Top Coil 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 Defrost Fail-safe (min)	Warm Fluid Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
PSGF	1	5	- - -[8]	- - -	50	45	- - -	- - -	- - -	- - -

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

All measurements are taken per ARI 1200 - 2002 specifications.



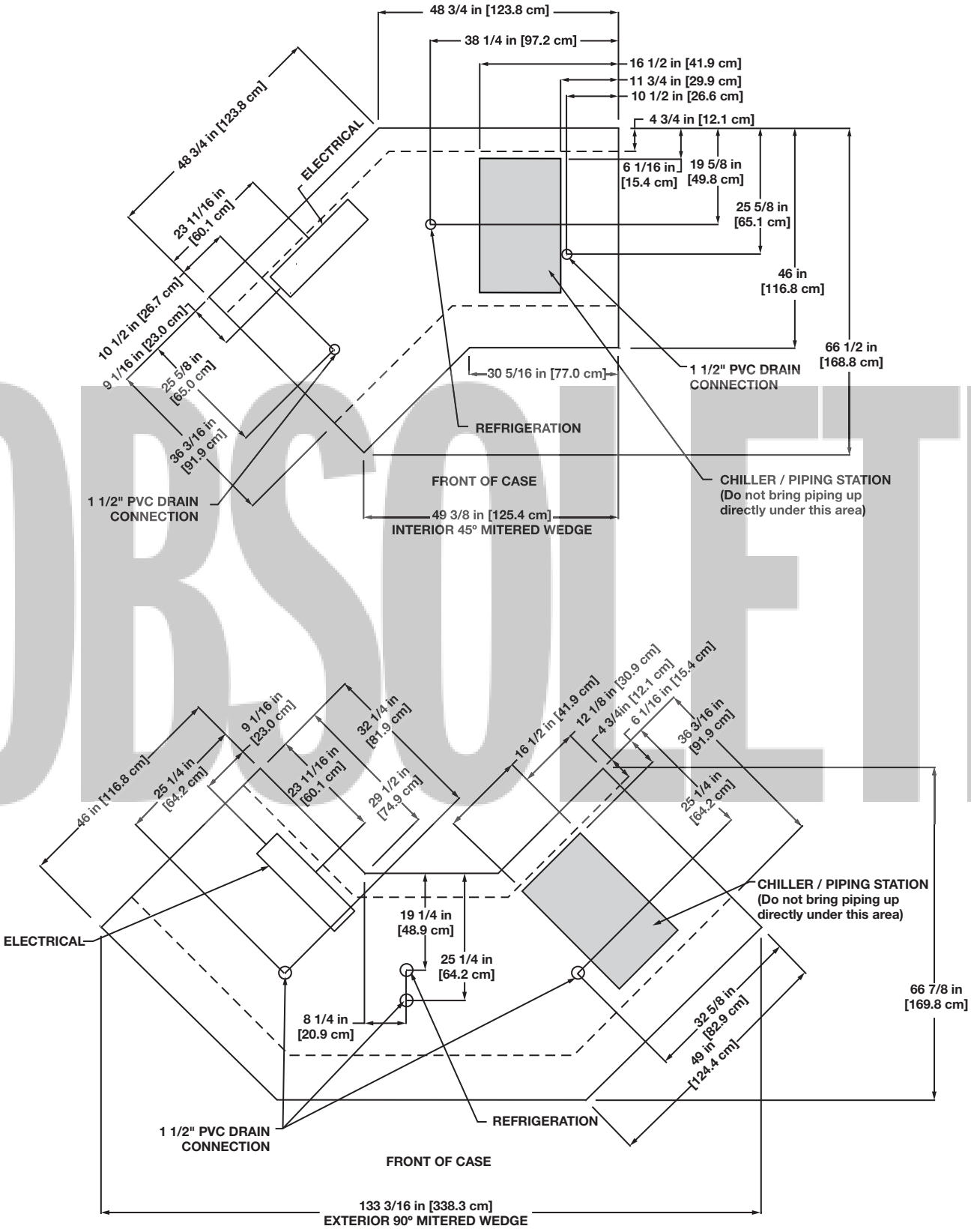
NOTES:

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

• DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us



NSF COMPONENT

c UL us

SPECIALTY PRODUCTS

SERVICE

OBSOLETE

2-Tier Service Deli Merchandiser
S2SB

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	Fans per Case	Ambient Fans 120 Volts Amps	Ambient Fans 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
S2SB	4'	2	0.68	34	0.30	22	3	33	54	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	5	55	90	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	6	66	108	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	9	99	162	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
S2SB	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	[1,2]BTUH/ft	Evaporator (F°)	Superheat Set Point @ bulb (F°)	Discharge Air (F°)	Return Air (F°)	Discharge Air Velocity[4] (F°)
S2SB	435[3]	22	6-8	30	38	235

1 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.15.

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

3 Standard fans increase refrigeration load by 96 BTUH/fan.

4 Average discharge air velocity at peak of defrost.

Defrost Controls

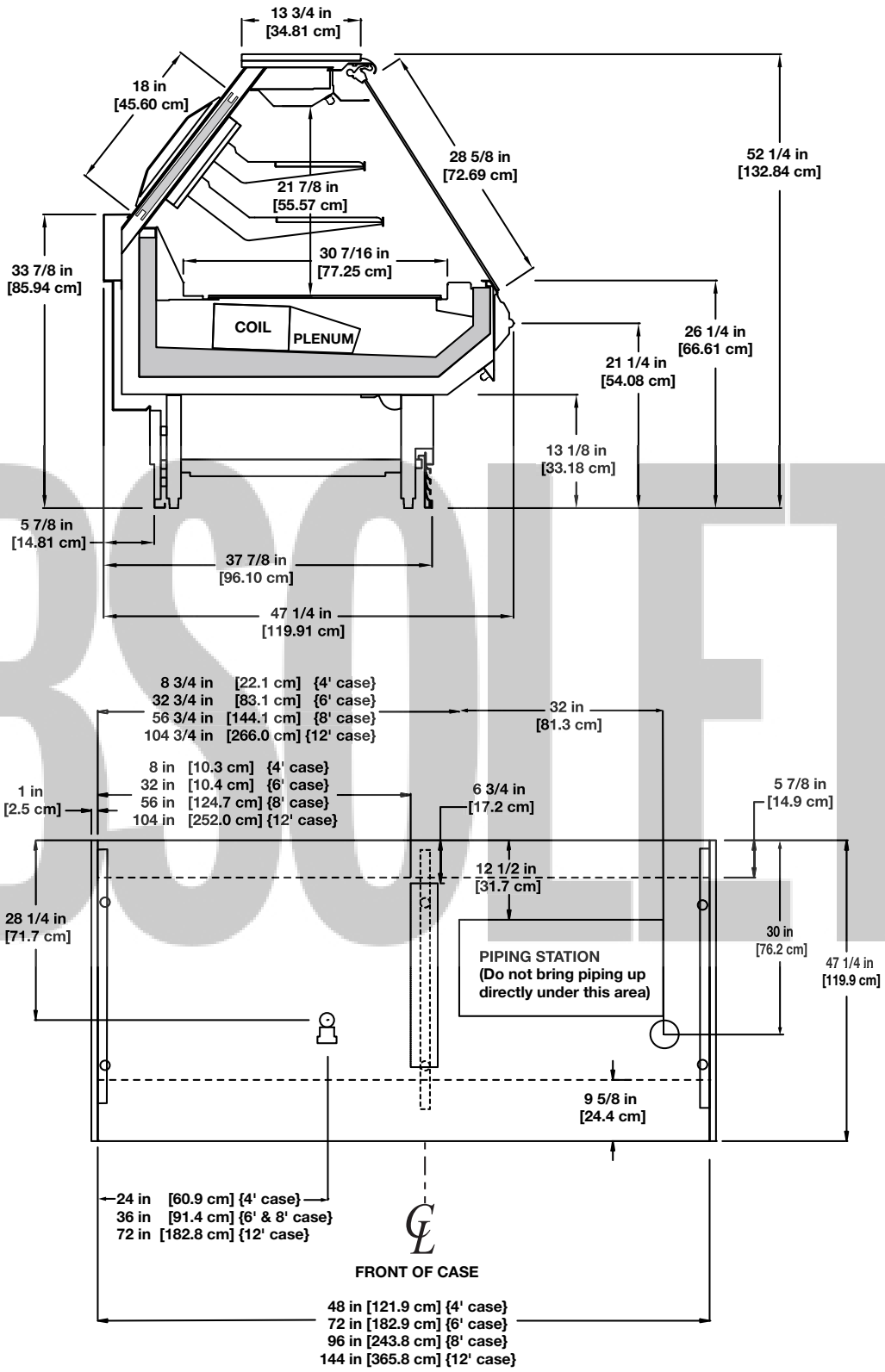
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-Safe (min)	Electric Defrost Termination Temp (°F)	Timed Off Defrost Fail-Safe (min)	Timed Off Defrost Termination Temp (°F)	Hot Gas Defrost Fail-Safe (min)	Hot Gas Defrost Termination Temp (°F)	Reverse Air Defrost Fail-Safe (min)	Reverse Air Defrost Termination Temp (°F)
S2SB	4	6-8	35	50	75	50	20	45	- - -[5]	- - -

5 NOTE: "- - -" indicates that this is 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 ARI 1200 - 2002 specifications.



NOTES:

- SUCTION LINE 5/8"
- LIQUID LINE (ALL LENGTHS) - 3/8"
- DASHED LINES SIGNIFY THE AREA BEHIND THE KICK-PLATE

NSF COMPONENT

c UL us

3-Tier Service Deli/Bakery Merchandiser
S3SBV

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	Fans per Case	Ambient Fans 120 Volts Amps	Ambient Fans 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
S3SBV	4'	2	0.68	34	0.30	22	3	33	54	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	5	55	90	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	6	66	108	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	9	99	162	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
S3SBV	4'	1	4'	0.23	28	1.38	168
	6'	2	3'	0.37	44	2.22	264
	8'	2	4'	0.47	56	2.82	336
	12'	3	4'	0.70	84	4.20	504

Guidelines & Control Settings

Model	[2,3] BTUH/ft	Evaporator (F°)	Superheat Set Point @ bulb (F°)	Discharge Air (F°)	Return Air (F°)	Discharge Air Velocity [5] (F°)
S3SBV [1]	435[4]	22	6-8	30	38	235

1 All settings apply for both deli and bakery application.

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.15.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
S3SBV	4	6-8	35	50	60	47	20	45

Medium Temperature Defrost Schedule

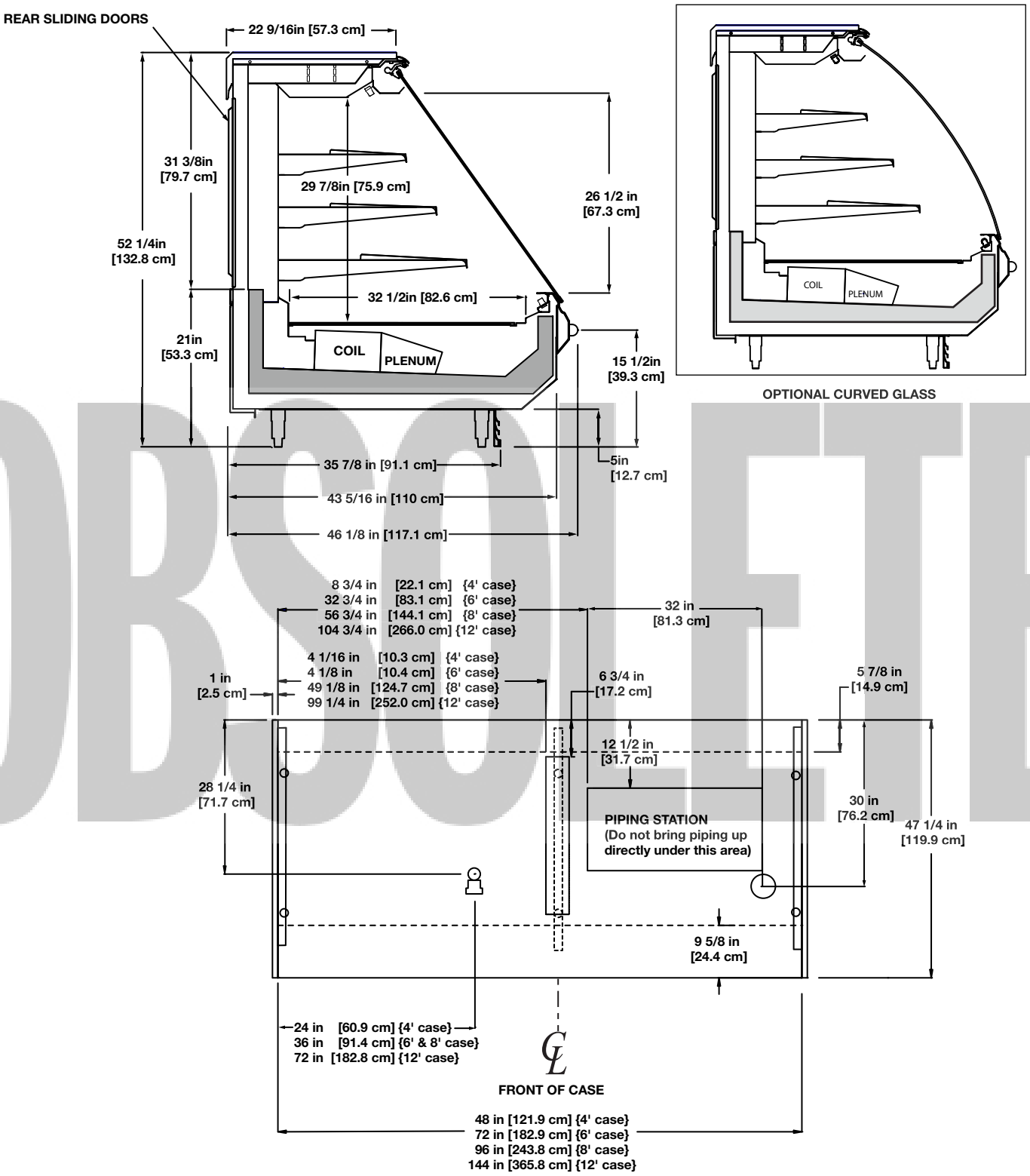
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



NOTES:

- SUCTION LINE 5/8"
- LIQUID LINE (ALL LENGTHS) - 3/8"
- DASHED LINES SIGNIFY THE AREA BEHIND THE KICK-PLATE

NSF COMPONENT

c UL us

2-Tier Gravity Coil Meat Merchandiser with CoolGenix™ Technology
S2SGC - 4', 6', 8', 12'

Electrical Data

Model		Secondary Coolant Pump [1] 120 Volts Amps	Watts
S2SGC	4'	2.00	240
	6'	2.00	240
	8'	2.00	240
	12'	2.00	240

1 NOTE: Secondary coolant pump is only available for the semi-self contained version.

Cut-In/Cut-Out

	Cut-Out Temp (F°)	Cut-In Temp (F°)
Pans	29	33
Top Coil	31	36
Shelves	29	33

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Watts	Maximum Lighting 120 Volts Amps	Watts
S2SGC	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 (Remote Secondary)

Model	[2,3] BTUH/ft	Supply Temp. (F°)	Flow Rate GPM/ft	Charge GAL/ft
S2SGC	315[4]	26	0.45	0.30

Guidelines & Control Settings (Semi-Self Contained)

Model	[2,3] BTUH/ft	Supply Temp. (F°)	Chiller Temp. (F°)	Flow Rate GPM/ft [4]	Charge GAL/ft [5]	Max. Working Pressure (PSIG)	Max. Static Pressure (PSIG)
S2SGC	365	26	20	0.45	0.30	50	70

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

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Minimum flow rate.

5 For semi-self contained cases, add 2.75 gallons of fluid to ensure that the chiller reaches full charge.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Timed Off Defrost Fail-Safe (min)	Termination Temp (°F)
S2SGC	1	5	50	45

Medium Temperature Defrost Schedule

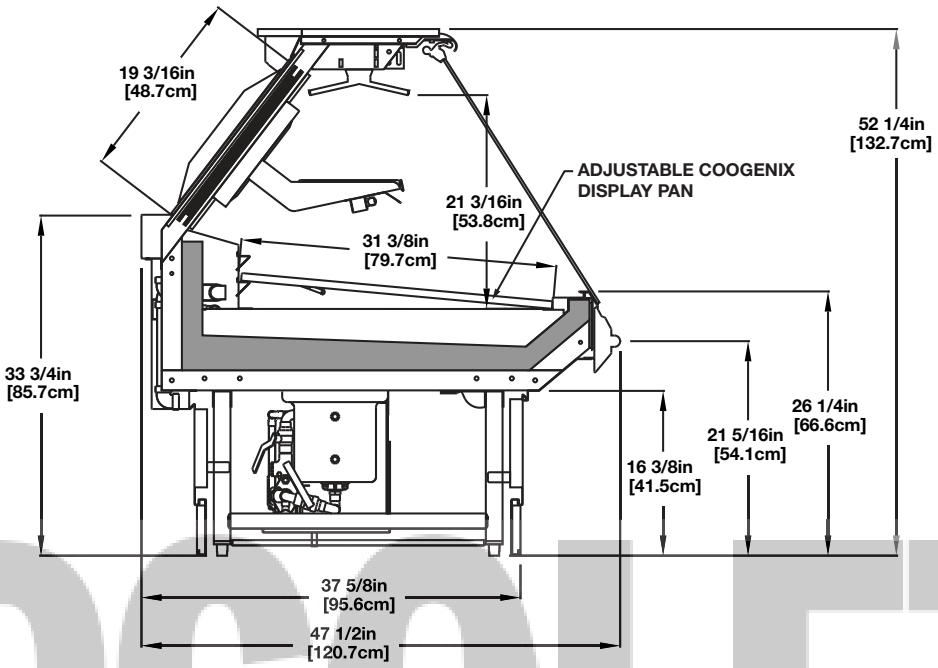
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

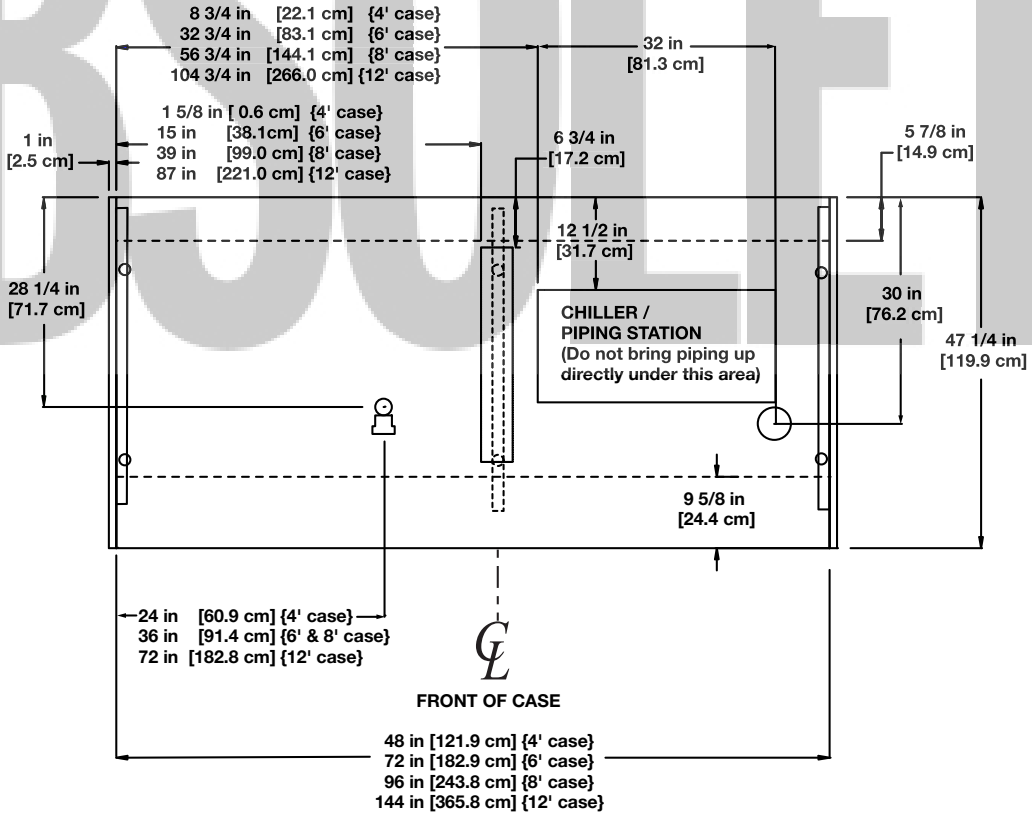
All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY





NOTES:

- SUCTION LINE 5/8"
- LIQUID LINE (ALL LENGTHS) - 3/8"

NSF COMPONENT

c UL us

Open Fish Service Merchandiser with CoolGenix™ Technology
SSFO

Electrical Data

Model		Fans per Case	120 Volts	
			Amps	Watts
SSFO	4'	2	0.34	33.6
	6'	3	0.51	50.4
	8'	4	0.68	67.2
	10'	5	0.85	84.0
	12'	6	1.02	100.8
	14'	7	1.19	117.6
	16'	8	1.36	134.4

Guidelines & Control Settings

Model	[1]BTUH/ft	Evaporator (F°)	Discharge Air (F°)[1]
SSFO	685	20°	28°

1 BTUH/ft listings are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.14.

2 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost[4]	
		Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
SSFO	3	- - -[3]	- - -	45	47

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

4 Fan status is "ON".

Medium Temperature Defrost Schedule

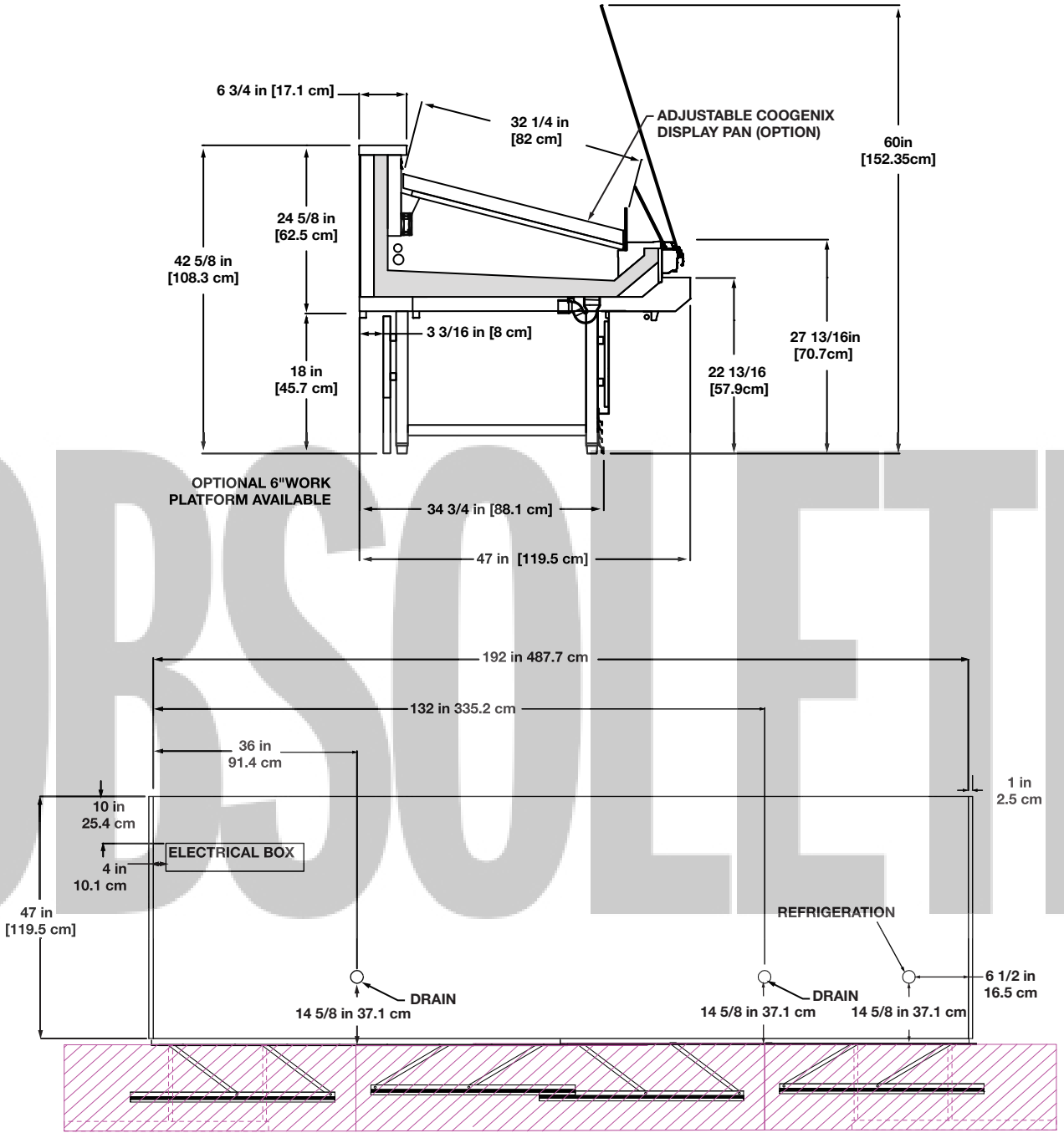
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



Egress Locations

CASE LENGTH (FT)	SSFO Drain Locations (in)†
4	24
6	36
8	36
10	60
12	72
14	36 and 132
16	36 and 132

† Drain dimensions are from the left-hand side without end panel attached.
Drain is 14 5/8 in. from casefront.
Refrigeration Egress is 6 1/2 in. from R/H end of case and 14 5/8 in from casefront.
Electrical Box is 4 in. from L/H end and 10 in from back of case.

NOTES:

*STUB-UP AREA

**ELECTRICAL CONNECTION MUST BE FLEXIBLE TO JUNCTION BOX
***SUCTION LINE - 5/8", LIQUID LINE - 3/8"
****ALLOW 25" OF CLEARANCE FOR GLASS TO SWING OUTWARD
ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT
VARIOUS CASE SIZES AVAILABLE
REFER TO CHART FOR OTHER CASE DRAIN LOCATIONS

NSF COMPONENT
c UL us

Open Fish Inlet/Outlet Service (Wide) Merchandiser with CoolGenix™ Technology
SSFOW

Electrical Data

Model	FANS					
	24" and 36" Section			48" and 60" Section		
	120 Volts			120 Volts		
	Number per Section	Amps	Watts	Number per Section	Amps	Watts
SSFOW	1	0.17	16.8	2	0.34	33.6

Guidelines & Control Settings

Model	BTUH/ft	Evaporator (F°)	Discharge Air (F°)
SSFOW (Inlet)	380	20°	28°
SSFOW (Outlet)	685	20°	28°

1 BTUH/ft listings are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.14.

2 Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost[4]	
		Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
SSFOW	3	- - -[3]	- - -	45	47

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

4 Fan status is "ON".

Medium Temperature Defrost Schedule

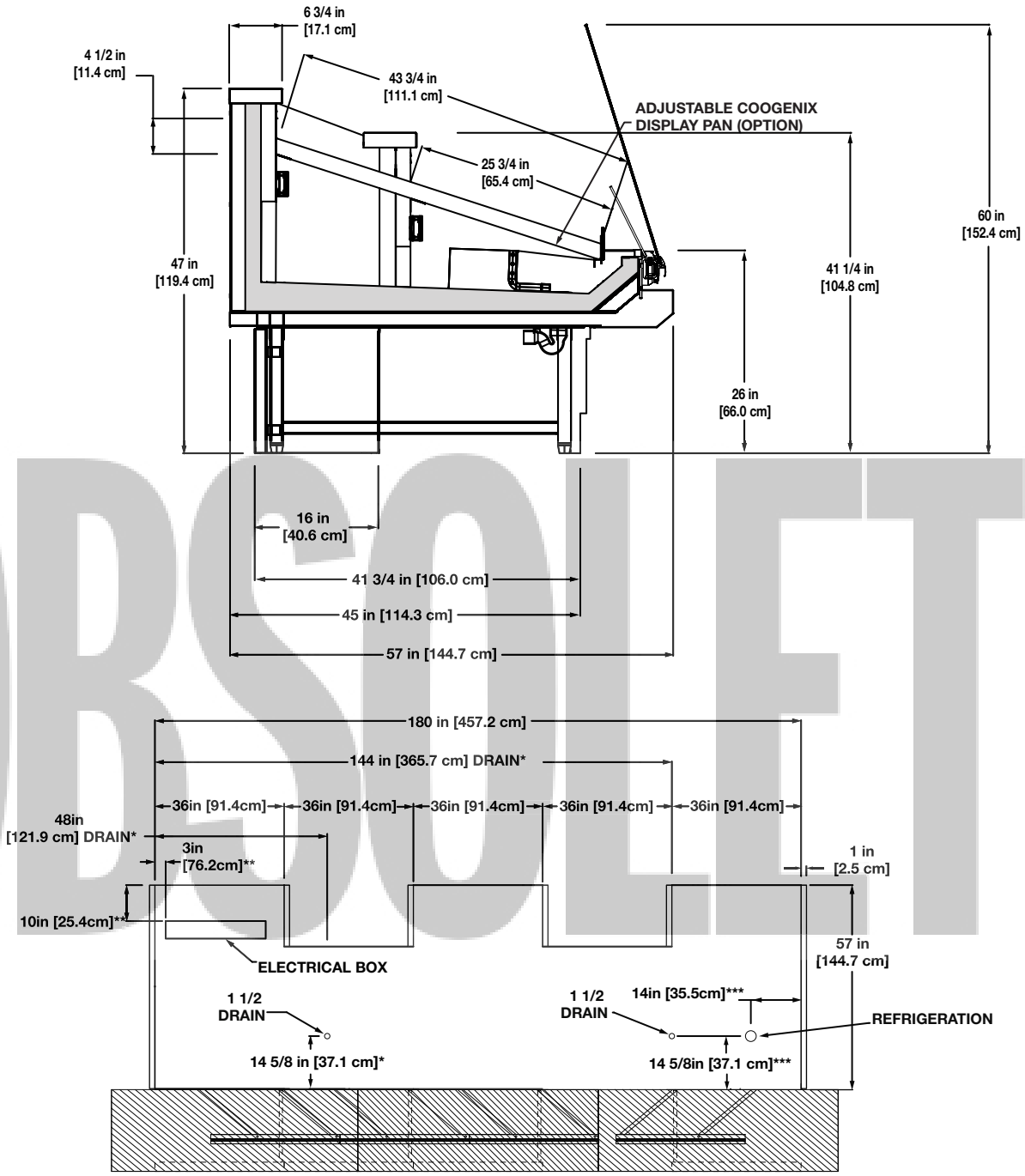
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY

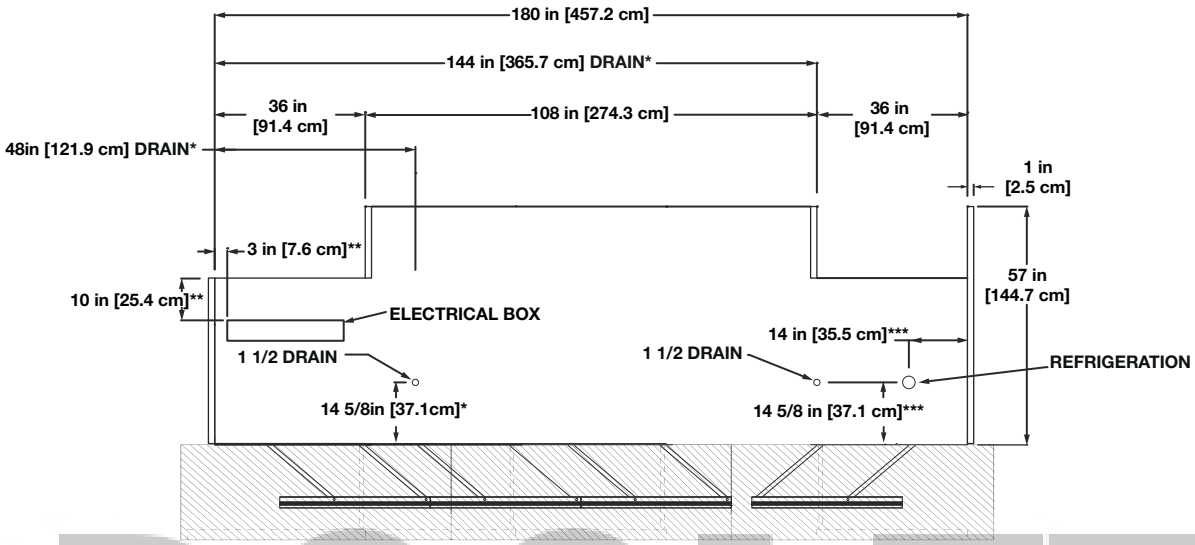


NOTES:

***STUB-UP AREA**

****ELECTRICAL CONNECTION MUST BE FLEXIBLE TO JUNCTION BOX**
*****SUCTION LINE - 5/8", LIQUID LINE - 3/8"**
******ALLOW 25" OF CLEARANCE FOR GLASS TO SWING OUTWARD**
ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT
VARIOUS CASE SIZES AVAILABLE
REFER TO CHART FOR OTHER CASE DRAIN LOCATIONS

NSF COMPONENT
c UL us



NOTES:

*STUB-UP AREA

**ELECTRICAL CONNECTION MUST BE FLEXIBLE TO JUNCTION BOX
***SUCTION LINE - 5/8", LIQUID LINE - 3/8"
****ALLOW 25" OF CLEARANCE FOR GLASS TO SWING OUTWARD
ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT
VARIOUS CASE SIZES AVAILABLE
REFER TO CHART FOR OTHER CASE DRAIN LOCATIONS

CASE LENGTH (FT)	SSFOW Drain Locations (in)†
4	24
5	36
6	36
7	48
8	48
9	60
10	60
11	72
12	72
13	48 and 120
14	48 and 120
15	48 and 144
16	48 and 144

† Drain dimensions are from the left-hand side without end panel attached.
Drain is 14 5/8 in. from casefront.
Refrigeration Egress is 6 1/2 in. from R/H end of case and 14 5/8 in from casefront.

OBSOLETE

Wide Open Fish Inlet/Outlet Service With Self-Service Freezer

SSFOWNZ - 8' &12'

Electrical Data

Model		Fans per Case	High-Efficiency Fans		Sill Light [1] (1 row)		Total Lights [1]		Defrost Heaters			
			120 Volts		120 Volts		120 Volts		208 Volts		240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
SSFOW	12'	6	1.02	101	- - -[2]	- - -	- - -	- - -	- - -	- - -	- - -	- - -
ONZ	12'	6	0.60	44	0.69	84	0.69	84	11.54	2400	13.31	3195

1 T-5 Lighting with electronic ballasts.

2 NOTE: "- - -" indicates that this is not an option on this case model.

Guidelines & Control Settings

Model [5]	[3]BTUH/ft	Evaporator (F°)	Unit Sizing (F°)	Discharge Air (F°)	Discharge Air Velocity [4] (F°)
SSFOW	482	20	18	28	100
ONZ	400	-17	-20	-10	180

3 BTUH/ft listings are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.14 (SSFOW) and/or 1.05 (ONZ).

2 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Average discharge air velocity at peak of defrost.

5 Each case section requires independent circuit for temperature and defrost control.

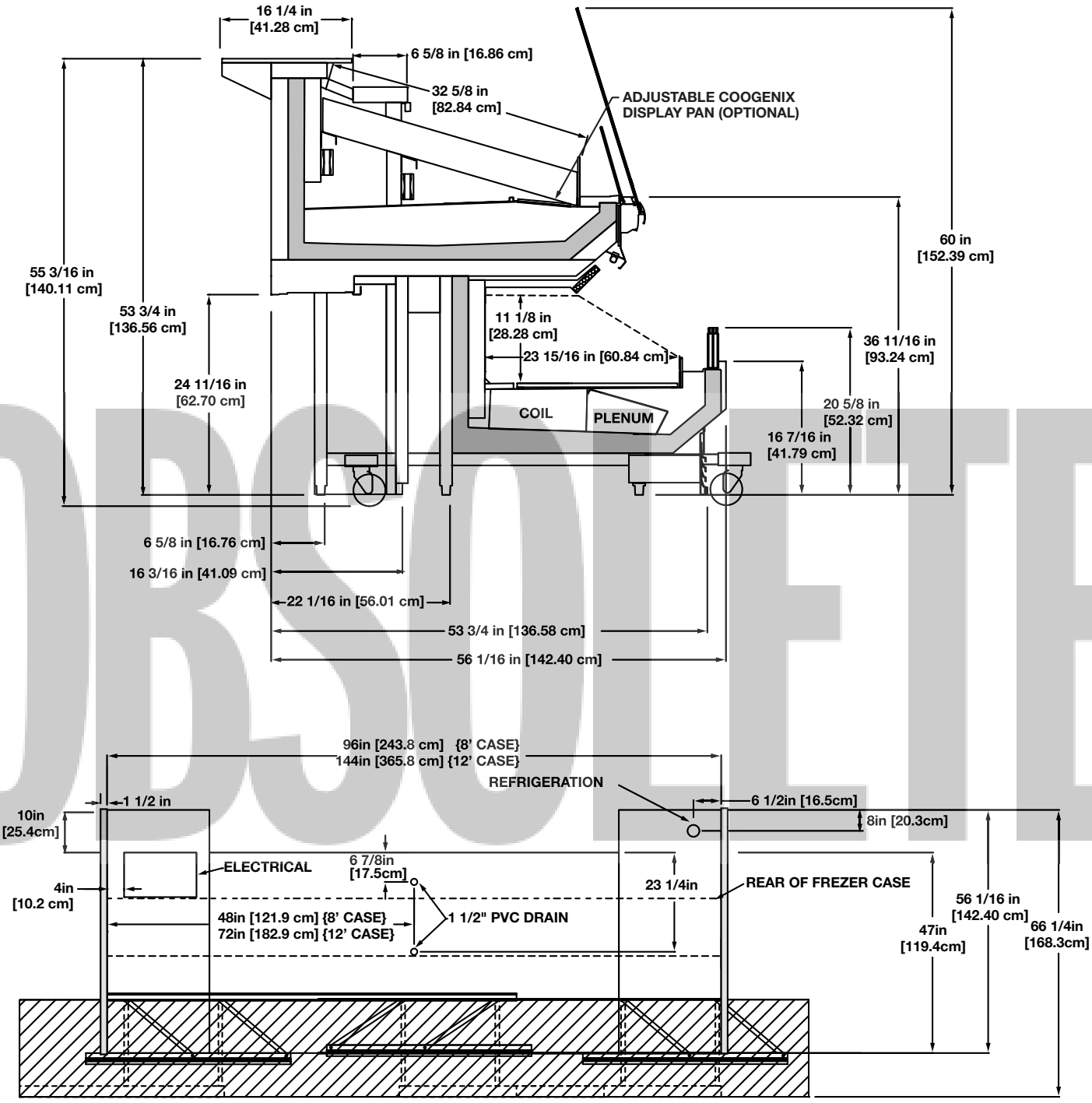
Defrost Controls

Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost	
		Fail-Safe (min)	Termination Temp (°F)	Fail-Safe (min)	Termination Temp (°F)
SSFOW	3	- - -	- - -	45	47
OWZ	3	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 ARI 1200 - 2002 specifications.



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR HUB DRAIN
*** ALLOW 25" OF CLEARANCE FOR GLASS TO SWING OUTWARD

ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT
SUCTION LINE - 5/8", LIQUID LINE - 3/8"
ELECTRICAL CONNECTION MUST BE FLEXIBLE TO JUNCTION BOX

NSF COMPONENT

c UL us

Single Deck Meat Merchandiser with CoolGenix™ Technology
SSGC - 4', 6', 8', 12'

Electrical Data

Model		Secondary Coolant Pump[1] 120 Volts Amps	Watts
SSGC	4'	2.00	240
	6'	2.00	240
	8'	2.00	240
	12'	2.00	240

1 NOTE: Secondary coolant pump is only available for the semi-self contained version.

Cut-In/Cut-Out

	Cut-Out Temp (F°)	Cut-In Temp (F°)
Pans	29	33
Top Coil	31	36

Lighting Data

Model		Bulbs per Row	Bulb Length	Typical per Light Row 120 Volts Amps	Watts	Maximum Lighting 120 Volts Amps	Watts
SSGC	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 (Remote Secondary)

Model	[2,3]BTUH/ft	Supply Temp. (F°)	Flow Rate GPM/ft	Charge GAL/ft
SSGC	315[4]	26	0.45	0.27

Guidelines & Control Settings (Semi-Self Contained)

Model	[2,3]BTUH/ft	Supply Temp. (F°)	Chiller Temp. (F°)	Flow Rate GPM/ft [4]	Charge GAL/ft [5]	Max. Working Pressure (PSIG)	Max. Static Pressure (PSIG)
SSGC	365	26	20	0.45	0.27	50	70

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

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Minimum flow rate.

5 For semi-self contained cases, add 2.75 gallons of fluid to ensure that the chiller reaches full charge.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Timed Off Defrost Fail-Safe (min)	Termination Temp (°F)
SSGC	1	5	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 ARI 1200 - 2002 specifications.

NSF COMPONENT

cULus

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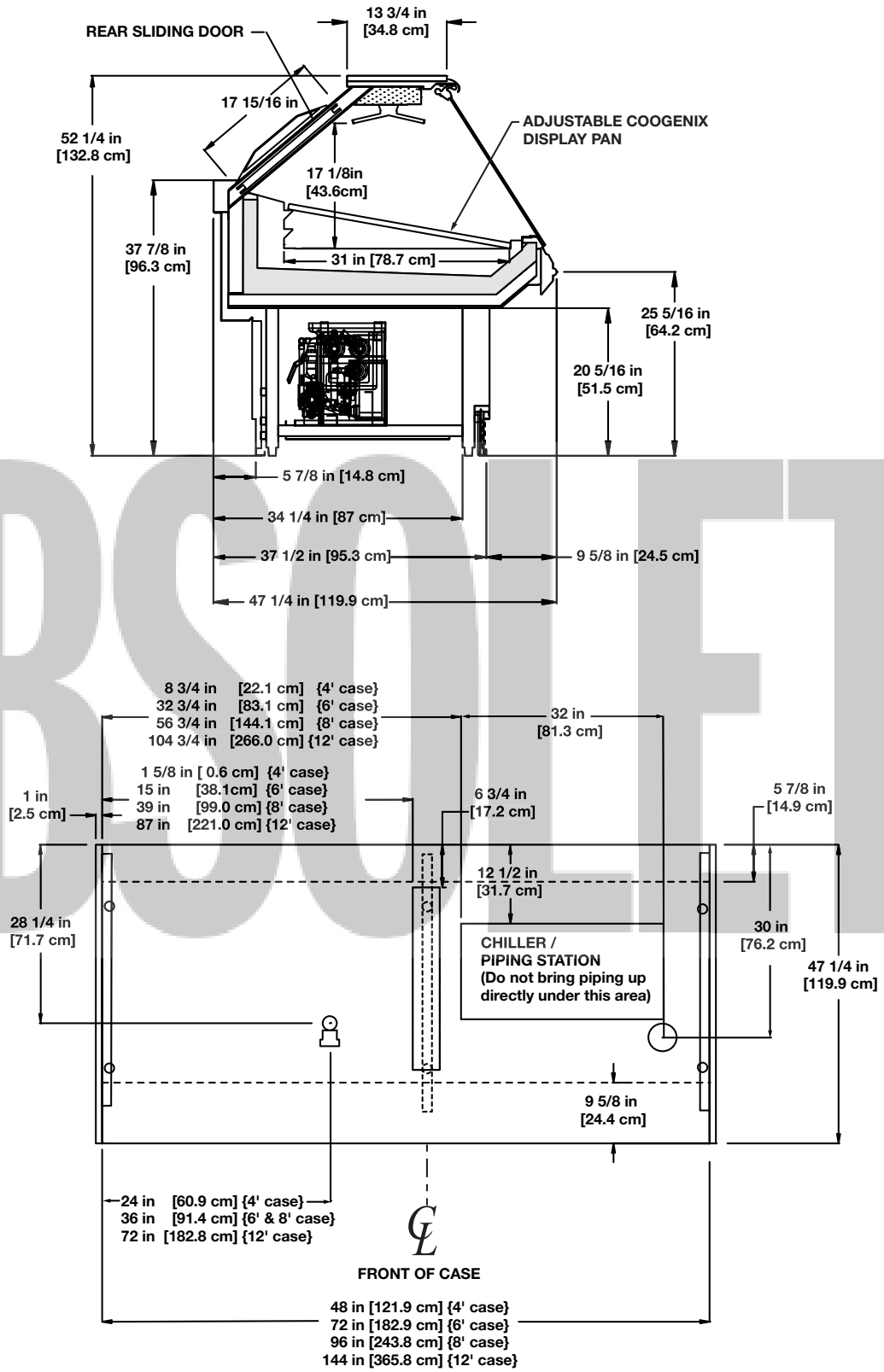


NOTES:

- SUCTION LINE 5/8"
- LIQUID LINE (ALL LENGTHS) - 3/8"
- DASHED LINES SIGNIFY THE AREA BEHIND THE KICK-PLATE

NSF COMPONENT

c UL us

Single Deck Cub Case Merchandiser
CUBN - 4', 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	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
CUBN	4'	2	0.30	36	- - -[1]	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	6'	2	0.30	36	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	8'	3	0.45	54	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

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
CUBN	4'	1	4'	0.25	30	0.25	30
	6'	2	3'	0.50	60	0.50	60
	8'	2	4'	0.50	60	0.50	60

Guidelines & Control Settings

Model	[2]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)
CUBN	498	22	6-8

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

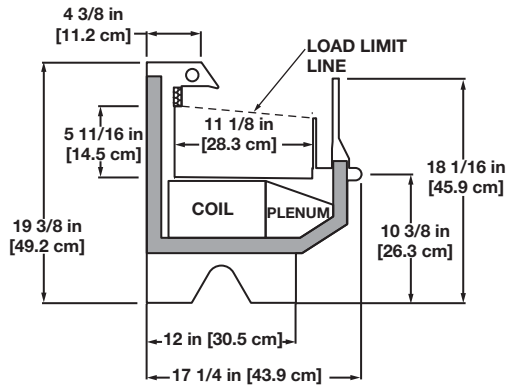
Defrost Controls

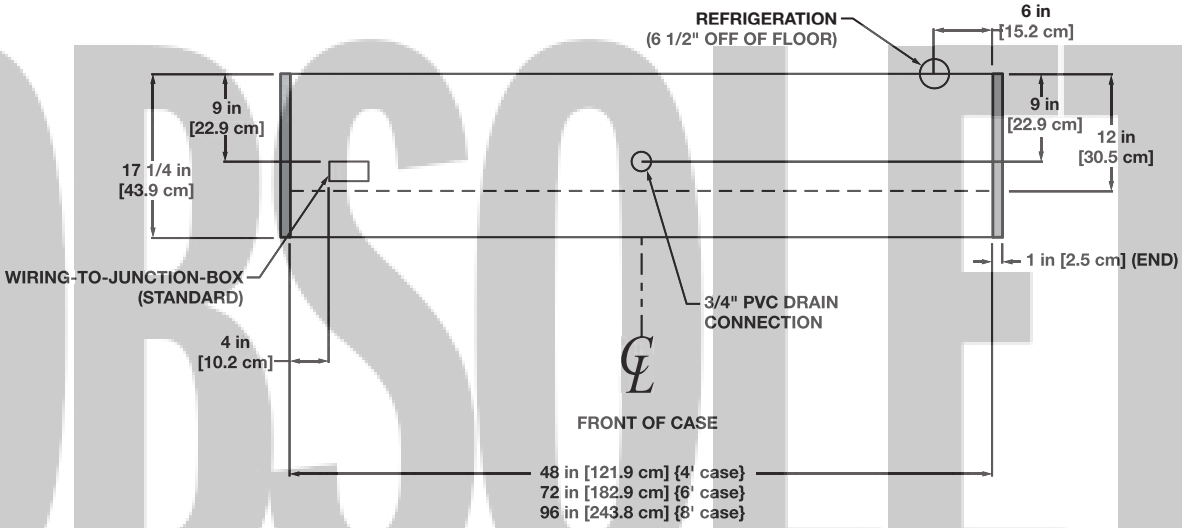
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
CUBN	3	6 - 8	- - -	- - -	20	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 ARI 1200 - 2002 specifications.





NOTES:

- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

Single Deck Cub Case Merchandiser
CUBNH - 4', 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	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
CUBNH	4'	2	0.30	36	- - -[1]	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	6'	2	0.30	36	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	8'	3	0.45	54	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

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
CUBNH	4'	1	4'	0.25	30	0.25	30
	6'	2	3'	0.50	60	0.50	60
	8'	2	4'	0.50	60	0.50	60

Guidelines & Control Settings

Model	[2]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)
CUBNH	614	22	6-8

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

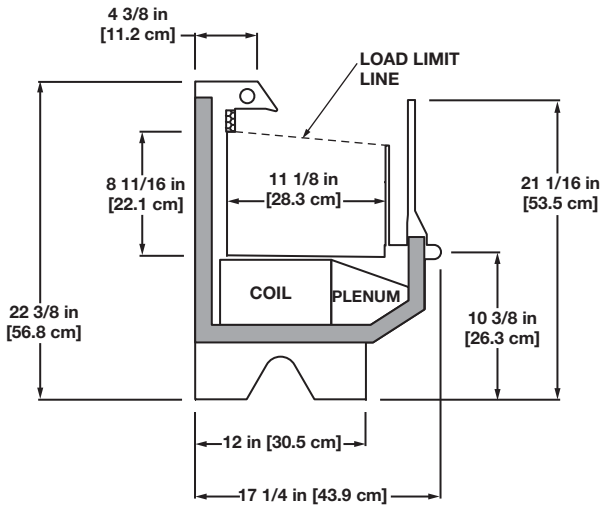
Defrost Controls

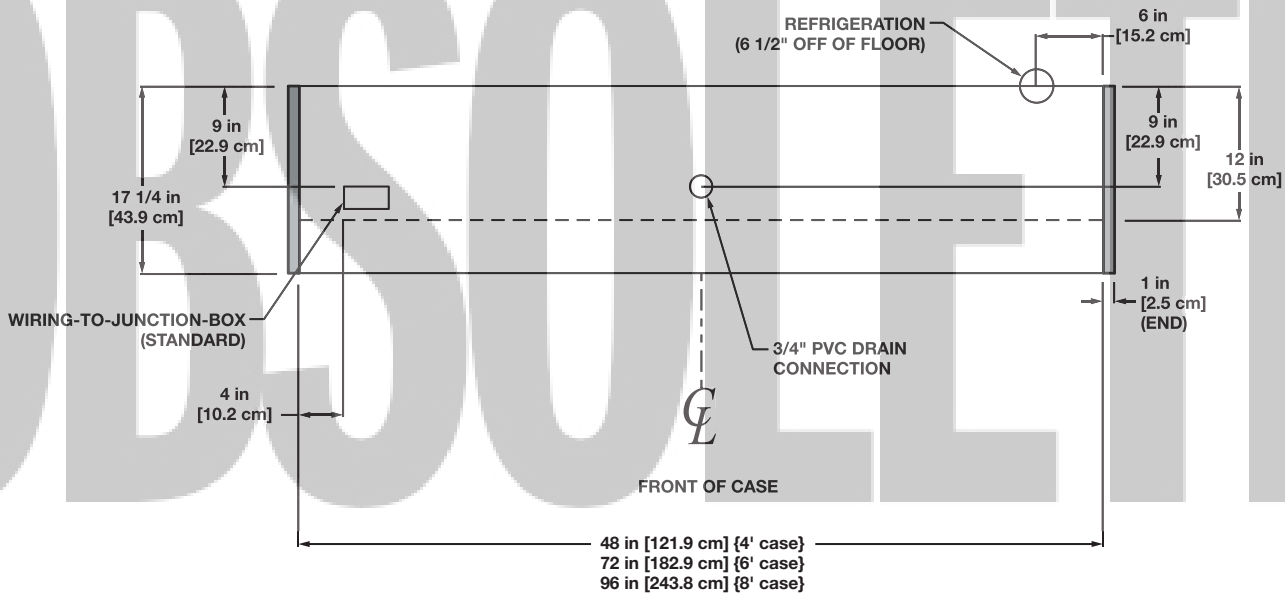
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
CUBNH	3	6 - 8	- - -	- - -	20	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 ARI 1200 - 2002 specifications.





NOTES:

- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

Single Deck Cub Case Merchandiser
CUBW - 4', 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	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
CUBW	4'	2	0.30	36	- - -[1]	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	6'	2	0.30	36	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	8'	3	0.45	54	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

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
CUBW	4'	1	4'	0.25	30	0.25	30
	6'	2	3'	0.50	60	0.50	60
	8'	2	4'	0.50	60	0.50	60

Guidelines & Control Settings

Model	[2]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)
CUBW	614	22	6-8

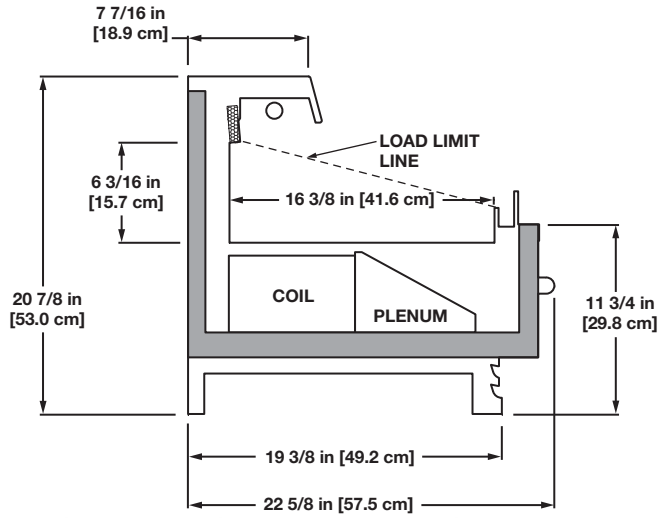
2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

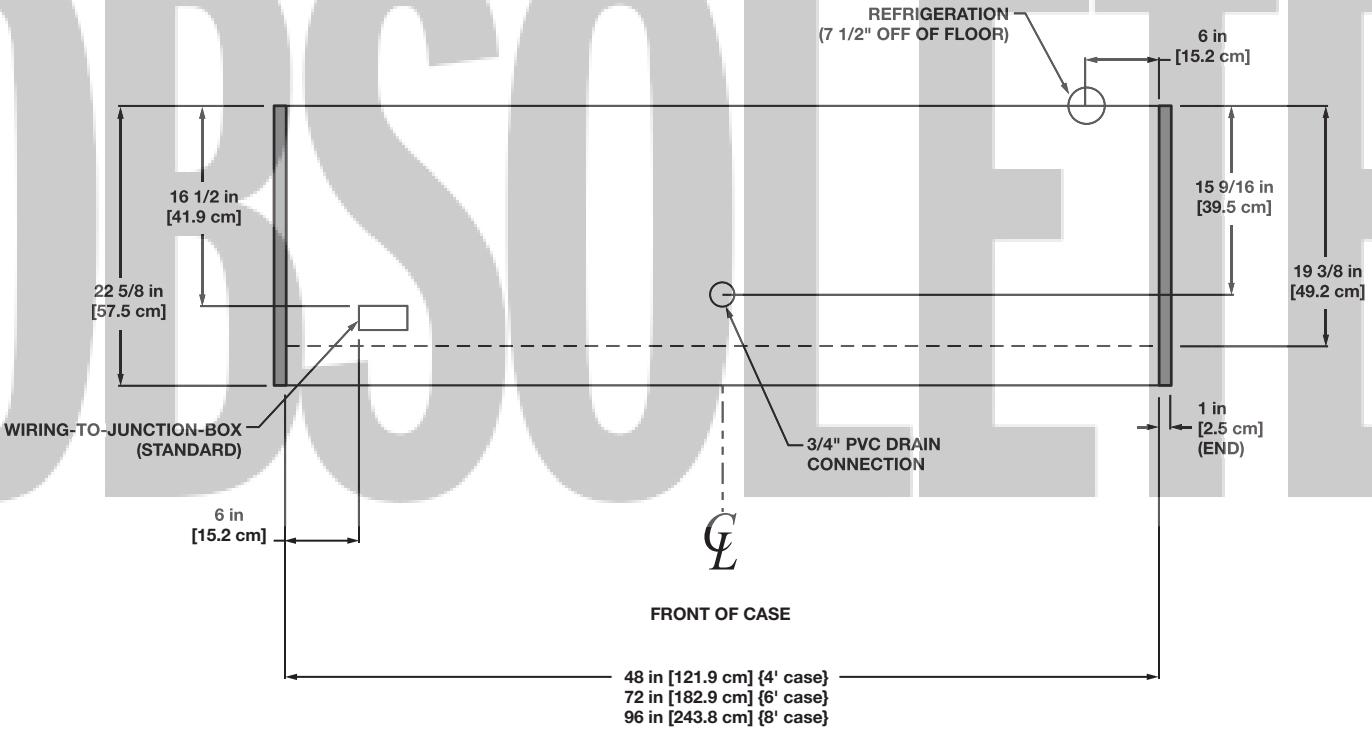
Defrost Controls

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)
CUBW	3	6 - 8	- - -	- - -	20	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





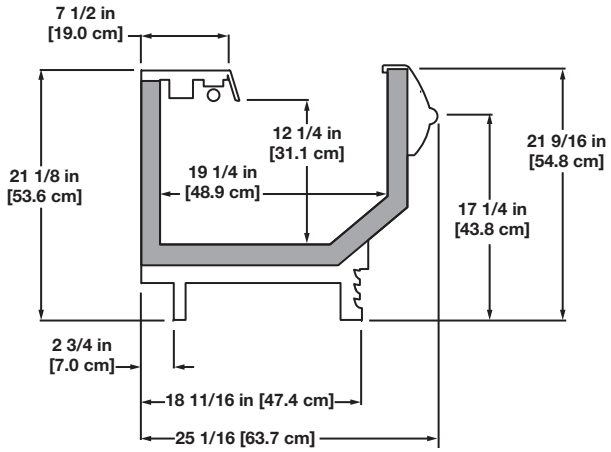
NOTES:

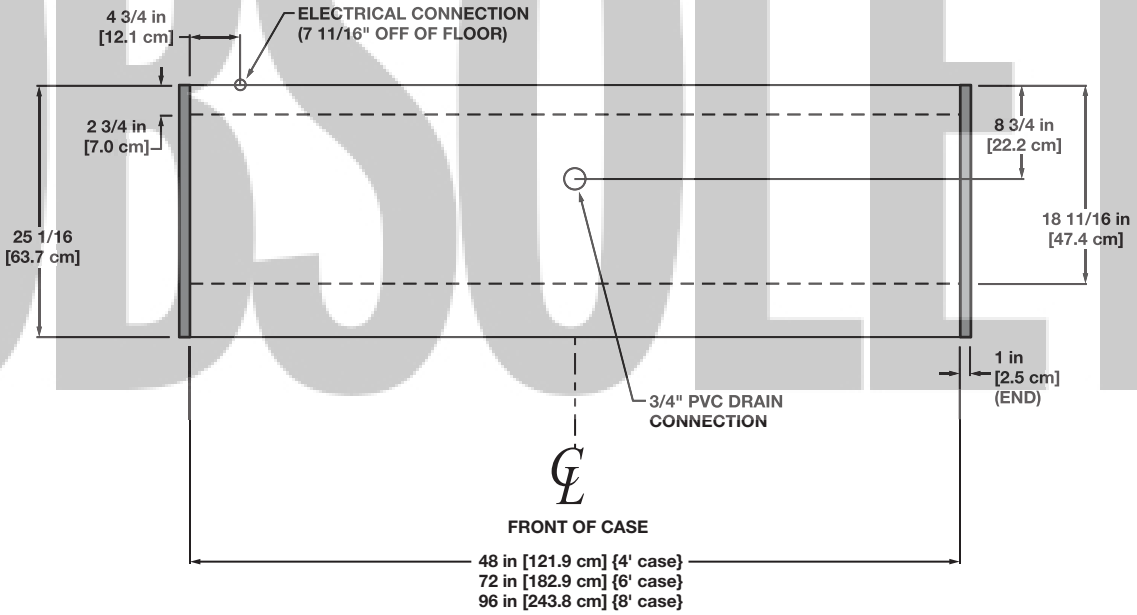
- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

Single Deck Ice Cub Case Merchandiser
CUBD - 4', 6' & 8'

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
CUBD	4'	1	4'	0.25	30	0.25	30
	6'	2	3'	0.50	60	0.50	60
	8'	2	4'	0.50	60	0.50	60





NOTES:

- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

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	[2,3] BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
BB	1150[4]	17	6-8	32	45	325

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.15.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

Defrost Controls

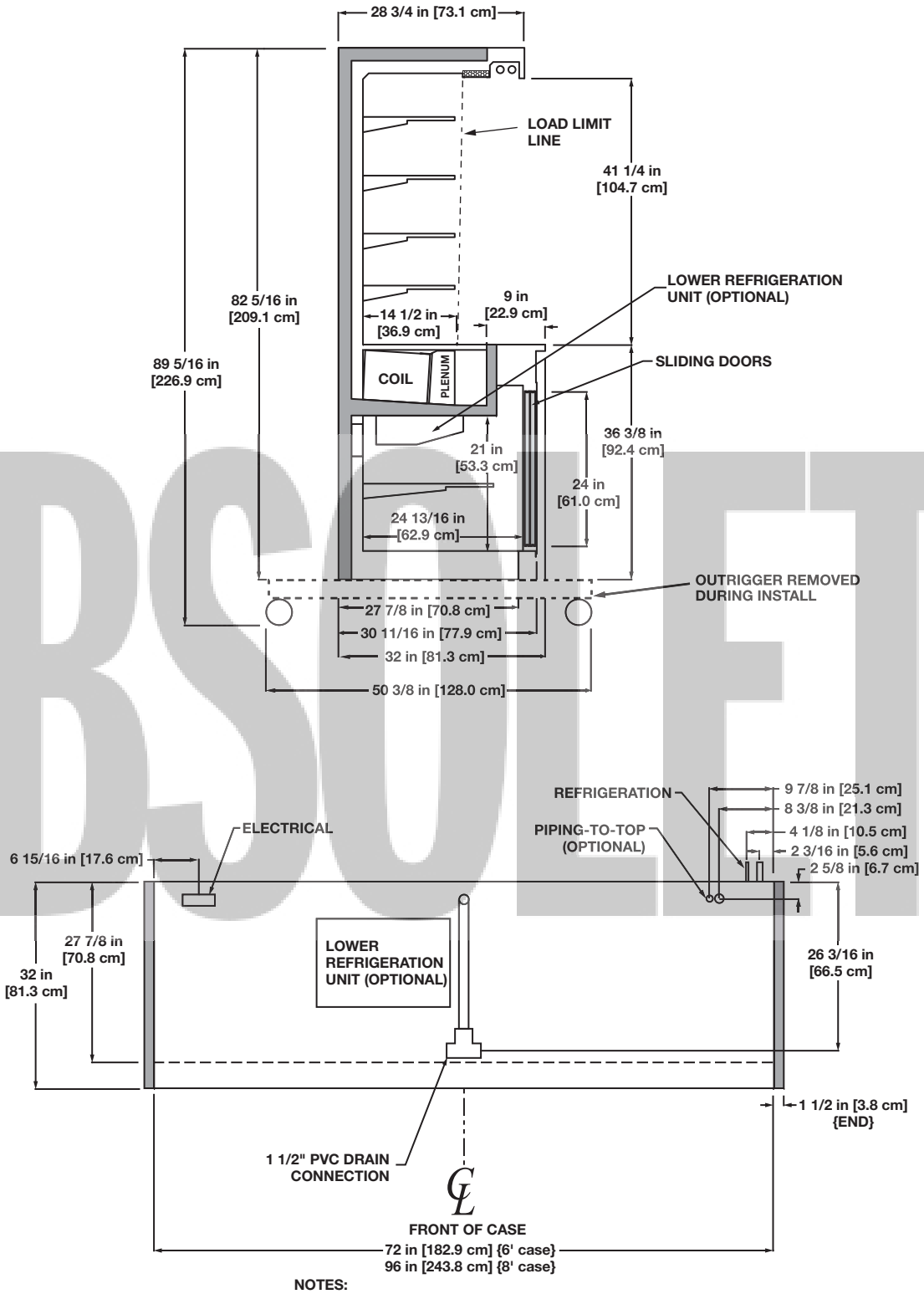
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse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

5 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 ARI 1200 - 2002 specifications.



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 - 3/8"
- AVAILABLE SHELF SIZES: (UPPER SECTION) 12" & 14 (LOWER SECTION) 22"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
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Narrow Multi-Deck Dairy Merchandiser

ONN - 47”

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
ONN	47”	3	1.02	51	0.45	33	- - -[1]	- - -	1.92	400	2.22	532

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
ONN	47”	1	3’	0.19	23	0.19	23

Guidelines & Control Settings

Model	[2]BTUH/case	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ONN	3612[3]	Enh.	22	6-8	31	43	275

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.24.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

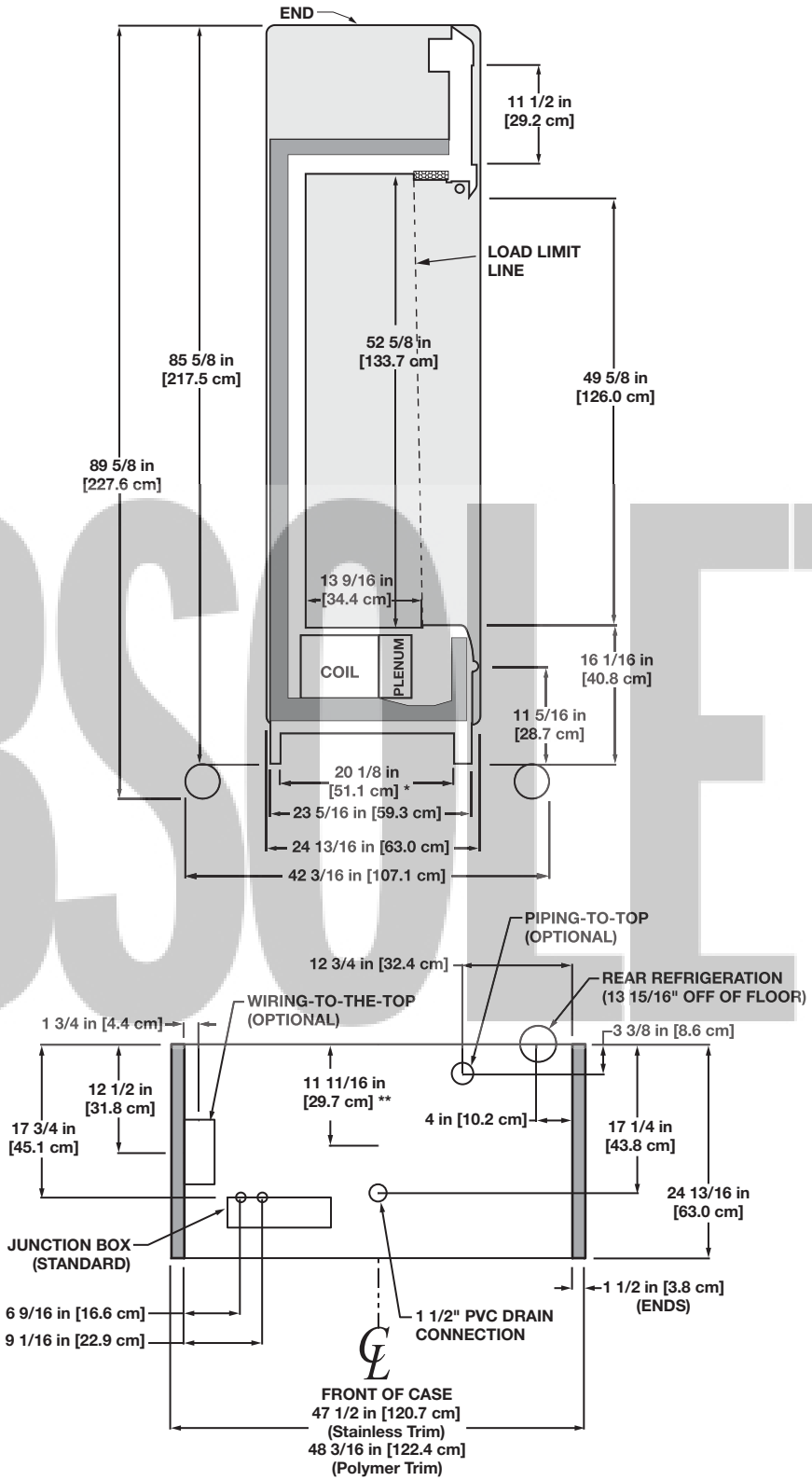
Defrost Controls

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)
ONN	6	35	47	40	47	25	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 ARI 1200 - 2002 specifications.



NOTES:

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

- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- ENDS ARE ALSO AVAILABLE IN 1" WIDTHS
- SUCTION LINE 7/8", LIQUID LINE - 3/8", LIQUID LINE PIPED-TO-TOP - 5/8"
- AVAILABLE SHELF SIZES: 12"

Narrow Multi-Deck Deli Merchandiser
ONN3.5U - 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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONN35U	612[4]	22	6-8	35	45	275

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

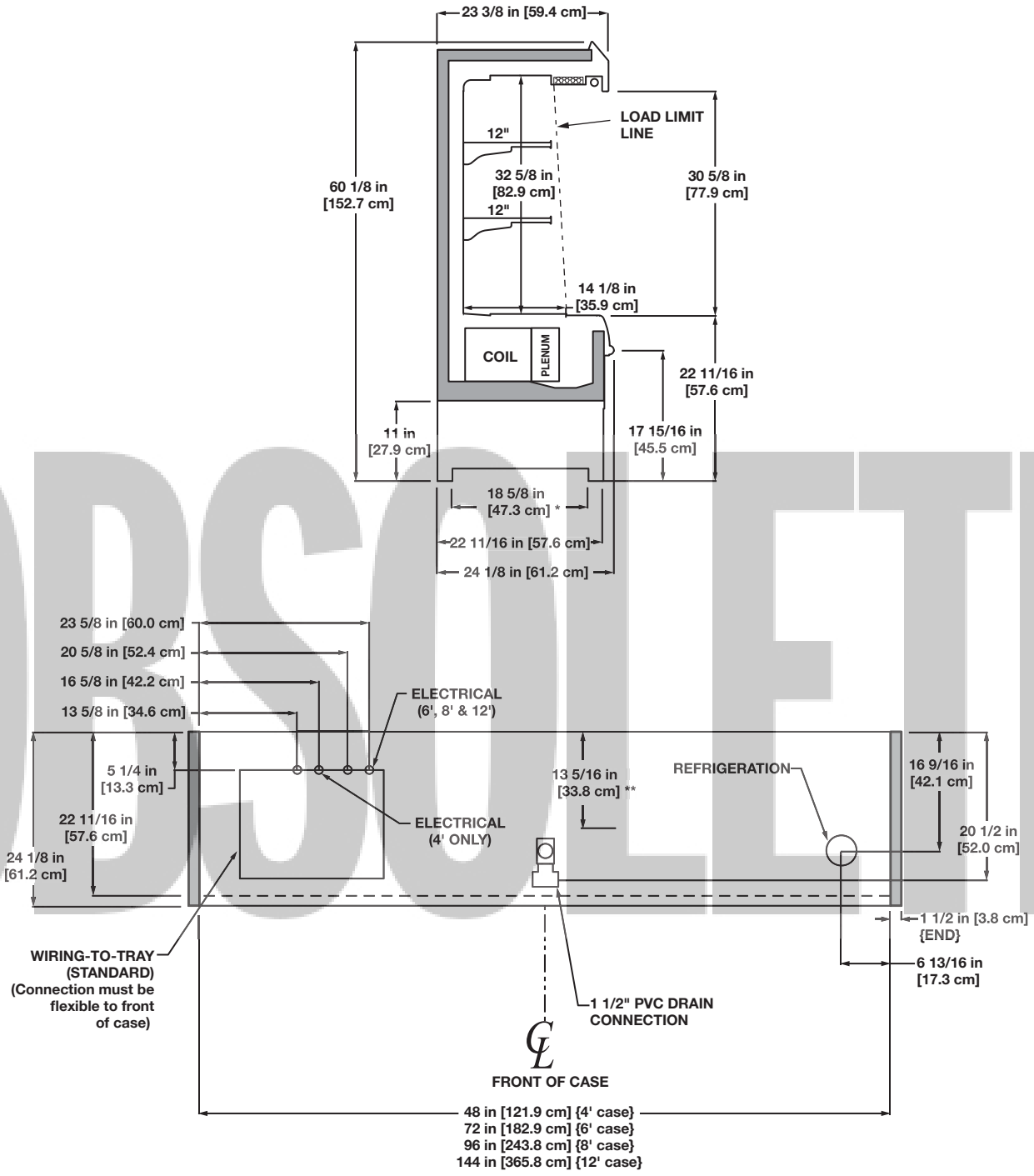
Defrost Controls

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)
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

All measurements are taken per ARI 1200 - 2002 specifications.



NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10" & 12"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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Narrow Multi-Deck Self-Contained Deli Merchandiser

ONN3.5UW - 4', 6', 8', 10' & 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
ONN35UW	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	60	3.33	798
	8'	3	1.50	90	0.59	35.1	- - -	- - -	3.85	800	4.44	1065
	10'	4	2.00	120	0.78	46.8	- - -	- - -	4.81	1000	5.54	1330
	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 Light per Row 120 Volts Amps	Typical Light per Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONN35UW	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
	10'	2	3'	0.60	72	3.60	432
		1	4'				
	12'	3	4'	0.70	84	4.20	504

Guidelines & Control Settings

Model	[2,3] BTUH/ft	Evaporator (°F)	Superheat Set Point @bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONN35UW	916[4]	20	6 - 8	33	44	245

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

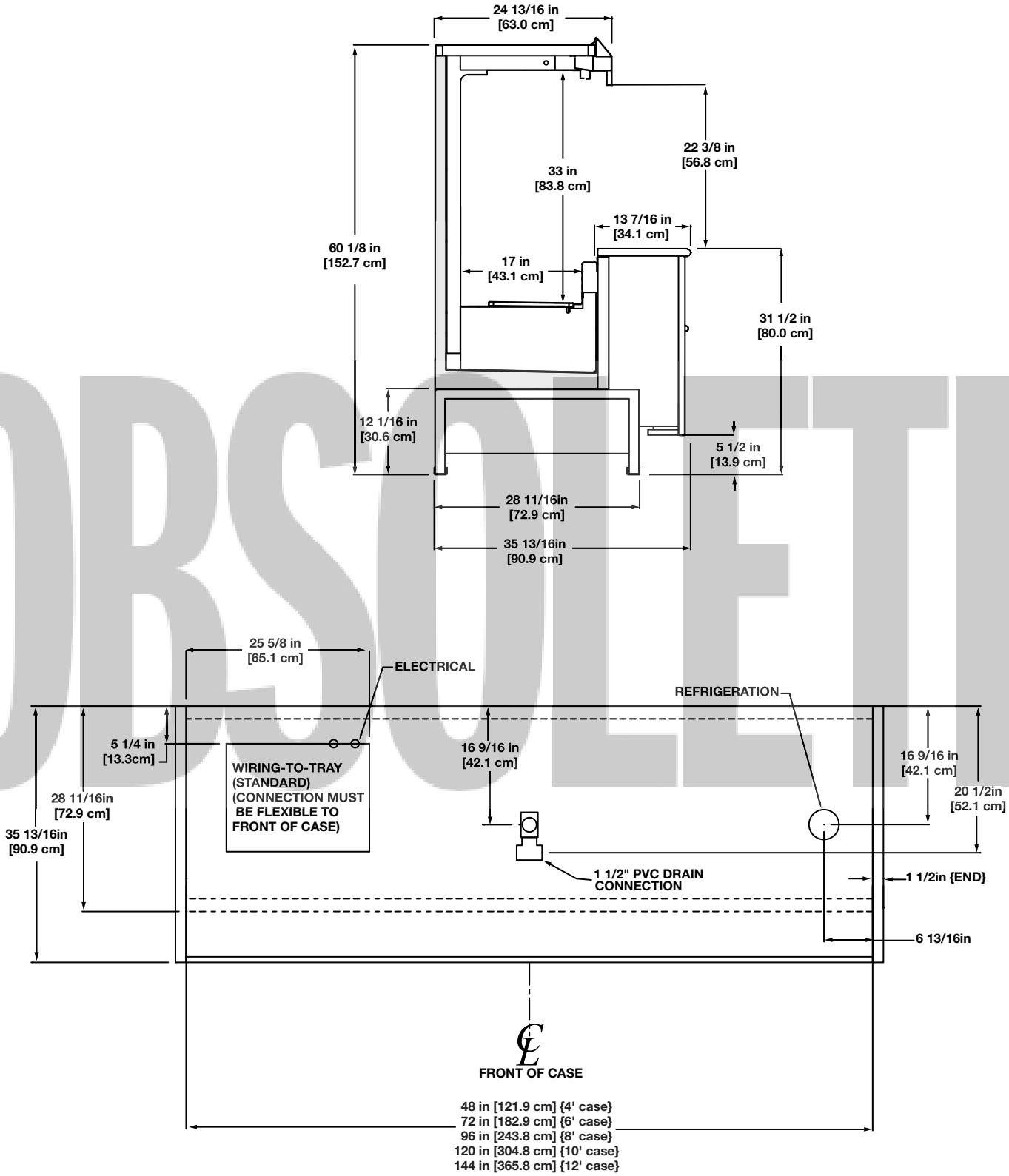
Defrost Controls

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)
ONN35UW	4	6 - 8	35	47	45	47	24	73[10]	- - -	- - -

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 ARI 1200 - 2002 specifications.


24 13/16 in
[63.0 cm]
22 3/8 in
[56.8 cm]
33 in
[83.8 cm]
13 7/16 in
[34.1 cm]
60 1/8 in
[152.7 cm]
17 in
[43.1 cm]
31 1/2 in
[80.0 cm]
12 1/16 in
[30.6 cm]
5 1/2 in
[13.9 cm]
28 11/16in
[72.9 cm]
35 13/16in
[90.9 cm]
25 5/8 in
[65.1 cm]
ELECTRICAL
REFRIGERATION
5 1/4 in
[13.3cm]
WIRING-TO-TRAY
(STANDARD)
(CONNECTION MUST
BE FLEXIBLE TO
FRONT OF CASE)
16 9/16 in
[42.1 cm]
16 9/16 in
[42.1 cm]
20 1/2in
[52.1 cm]
28 11/16in
[72.9 cm]
35 13/16in
[90.9 cm]
1 1/2" PVC DRAIN
CONNECTION
1 1/2in {END}
6 13/16in
FRONT OF CASE
48 in [121.9 cm] {4' case}
72 in [182.9 cm] {6' case}
96 in [243.8 cm] {8' case}
120 in [304.8 cm] {10' case}
144 in [365.8 cm] {12' case}

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONN5U	878[4]	20	6-8	33	44	245

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.11.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

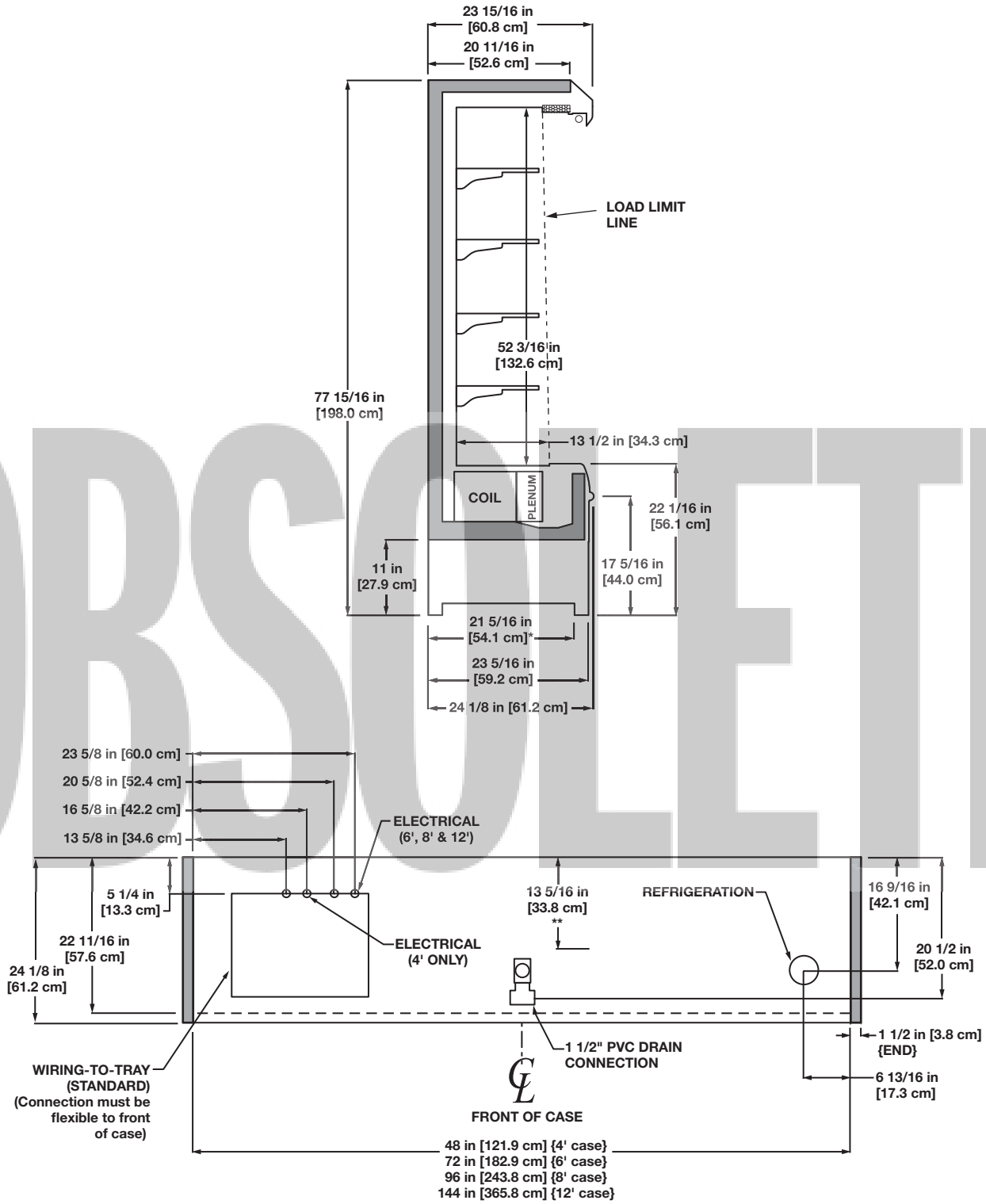
Defrost Controls

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)
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 ARI 1200 - 2002 specifications.



NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 3/8"
- AVAILABLE SHELF SIZES: 10" & 12"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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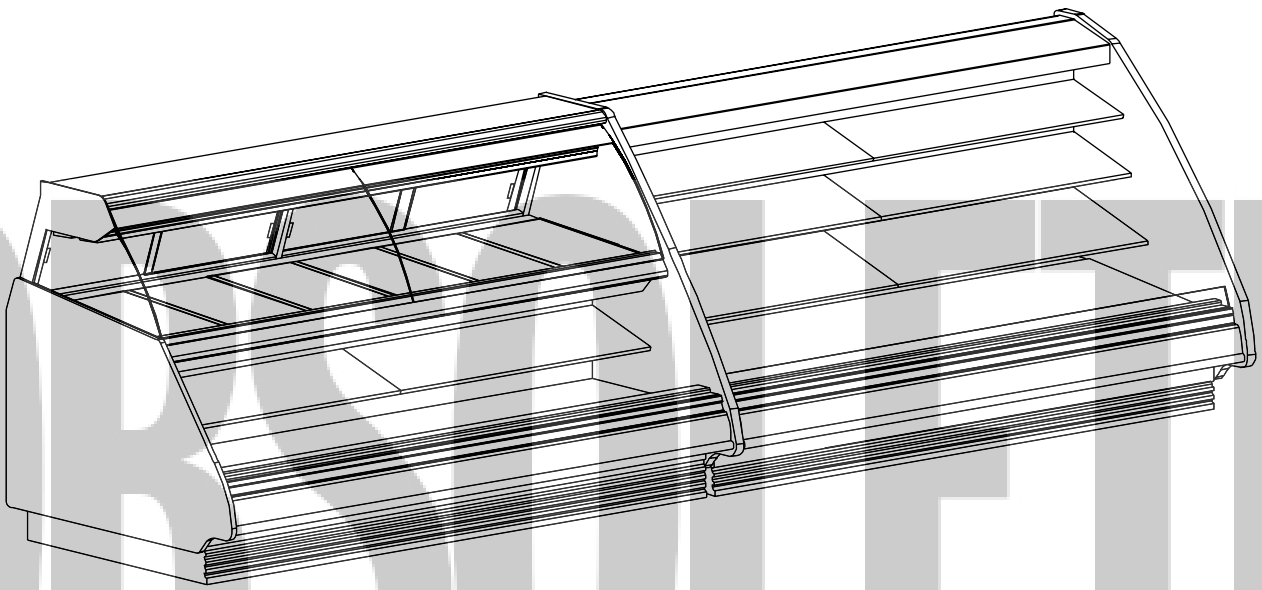
OBSOLETE

DOME



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8” per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

Narrow Multi-Deck Dome Deli Merchandiser

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

Electrical Data

Model		Fans per Case		Ambient[1] Fans 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
ONUMD	4'	2	2	0.20	11	1.00	60	0.47	28	0.14	17	1.92	400	2.22	532
	6'	2	2	0.20	11	1.00	60	0.47	28	0.20	24	2.88	600	3.33	798
	8'	3	4	0.40	22	1.50	90	0.70	42	0.25	30	3.85	800	4.44	1065
	12'	4	6	0.60	33	2.00	120	0.93	56	0.38	46	5.77	1200	6.67	1600

1 Ambient fans are standard equipment for this case model. The primary fans can be either 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
ONUMD	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

Electrical Data (Continued)

Model		Secondary[2] Fans 120 Volts Amps	Secondary[2] Fans 120 Volts Watts
ONUMD	4'	2.19	158
	6'	2.19	158
	8'	2.19	158
	12'	2.19	158

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

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
ONUMD	1338[5]	Enh.	22	6-8	29	40	250

3 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

Defrost Controls

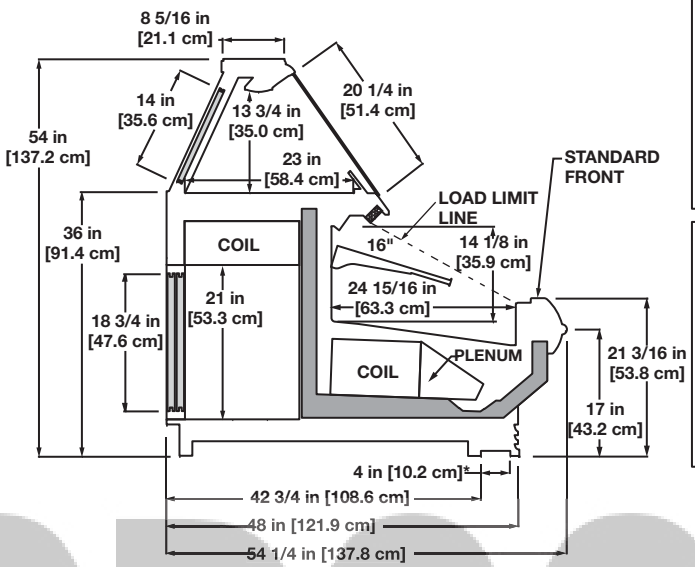
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONUMD	3	6 - 8	40	47	50	45	26	45	- - -[7]	- - -

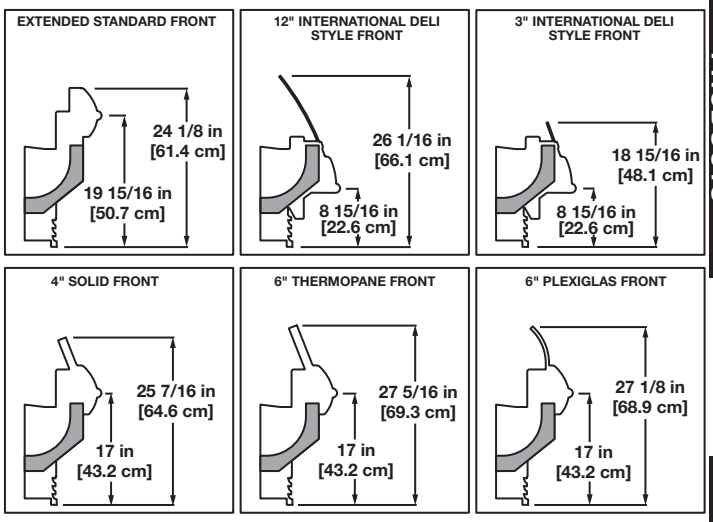
7 NOTE: " - - - " not an option on this case model.

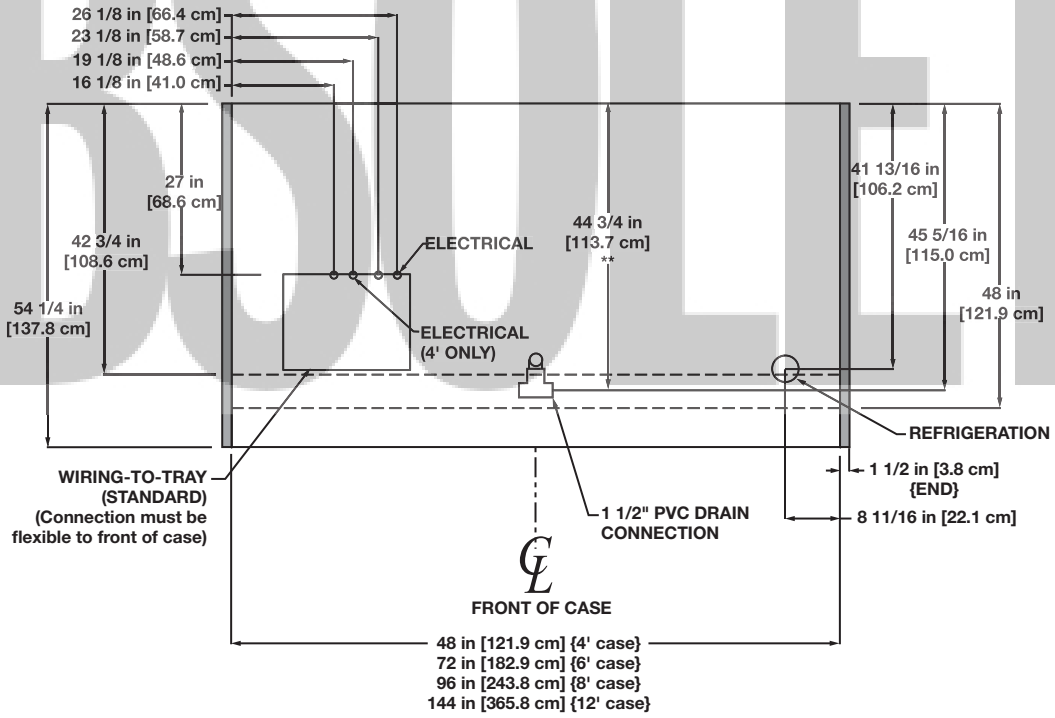
Medium Temperature Defrost Schedule

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 ARI 1200 - 2002 specifications.







NOTES:

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

- FRONT AND REAR SILL HEIGHT VARY WITH BASEFRAME HEIGHT
- SUCTION LINE (4' & 6') - 5/8", SUCTION LINE (8' & 12') - 7/8", LIQUID LINE (ALL LENGTHS) - 3/8"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IN ROWS: 1 - 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

Multi-Deck Curved Glass Dome Deli/Meat/Seafood Merchandiser

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

Electrical Data

Model		Fans per Case	Dome 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	Service Dome Fans 120 Volts Amps	Service Dome Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters[1] 208 Volts Amps	Defrost Heaters[1] 208 Volts Watts	Defrost Heaters[1] 240 Volts Amps	Defrost Heaters[1] 240 Volts Watts
PDNUM	4'	3	2	0.68	34	0.30	22	0.52	52	0.55	66	1.92	400	2.22	532
	6'	4	2	1.36	68	0.60	44	0.52	52	1.03	124	2.88	600	3.33	798
	8'	4	3	1.36	68	0.60	44	0.78	78	1.03	124	3.85	800	4.44	1065
	12'	6	4	2.04	102	0.90	66	1.04	104	1.60	192	5.77	1200	6.67	1600

1 When using electric defrost in both the service and self-service sections of the case, 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
PDNUM	4'	1	4'	0.23	28	0.92	110
	6'	2	3'	0.37	44	1.48	178
	8'	2	4'	0.47	56	1.88	226
	12'	3	4'	0.70	84	2.80	336

Guidelines & Control Settings - Self Service Portion

Model [7]	[2,3]BTUH/ft	Coil [5] Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
PDNUM - Self Service	494[4]	Std.	17	6-8	33	40	260
PDNUM - Service Dome	214[4]	Std.	17	6-8	30	33	360
PDNUM - Self Service	494[4]	Enh.	22	6-8	33	40	260
PDNUM - Service Dome	214[4]	Enh.	22	6-8	30	33	360

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load.
To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Coil type is either Standard Efficiency (Std.) or Enhanced Efficiency (Enh.)

6 Average discharge air velocity at peak of defrost.

7 Independent circuit control is recommended for each case section.

Defrost Controls

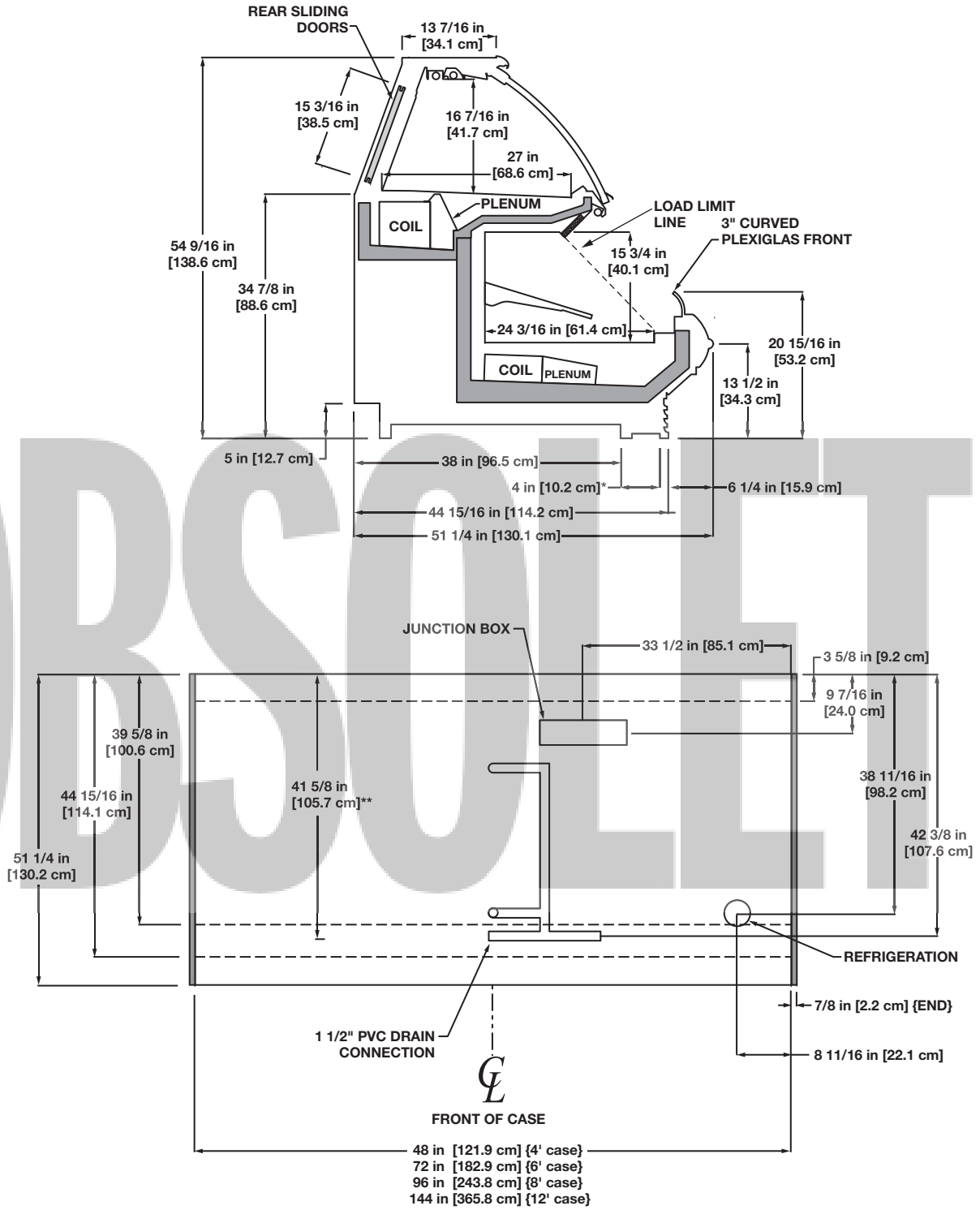
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Fail-safe (min)	Hot Gas Termination Temp. (°F)
PDNUM - Self Service	4	6 - 8	30	47	30	47	26	45
PDNUM - Service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

7 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 ARI 1200 - 2002 specifications.



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"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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Multi-Deck Flat Glass Dome Meat/Seafood Merchandiser with CoolGenix™ Technology PMFN2UM - 4', 6', 8' & 12'

Electrical Data

Model		Fans[1] 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	Secondary[2] Coolant Pump 120 Volts Amps	Secondary[2] Coolant Pump 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
PMFN2UM	4'	3	0.68	34	0.30	22	0.55	66	2.10	252	1.92	400	2.22	532
	6'	4	1.36	68	0.60	44	1.03	124	2.10	252	2.88	600	3.33	798
	8'	4	1.36	68	0.60	44	1.03	124	2.10	252	3.85	800	4.44	1065
	12'	6	2.04	102	0.90	66	1.60	192	2.10	252	5.77	1200	6.67	1600

1 Applicable for self service portion of PMFN2UM case only.

2 Secondary coolant pump is only applicable for the semi-self-contained version of the service dome.

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
PMFN2UM	4'	1	4'	0.23	28	0.92	110
	6'	2	3'	0.37	44	1.48	178
	8'	2	4'	0.47	56	1.88	226
	12'	3	4'	0.70	84	2.80	336

Cut in / Cut Out

	ASHRAE Conditions[3] Cut Out Temp. (°F)	ASHRAE Conditions[3] Cut in Temp. (°F)	Suggested Meat Prep. Settings[4] Cut Out Temp. (°F)	Suggested Meat Prep. Settings[4] Cut in Temp. (°F)
Pans	26	31	29	33
Top Coil	26	31	29	34

3 These temperatures are based on cases running at ASHRAE conditions.

4 These specifications should be considered a guide and may need to be adjusted based on store conditions. Because these cases are often installed in stores near a meat preparation area where standard ASHRAE conditions may not apply; the following suggested meat prep. setting may prove useful.

Guidelines & Control Settings - Semi-Self-Contained

Model	[5,6]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
PMFN2UM - Self Service	764[7]	17	6-8	29	44	275 - 300

Model	[5,6]BTUH/ft	Supply Temp. (°F)	Chiller Temp. (°F)	Flow Rate GPM/ft[10]	Charge GAL/ft[11]	Max. Working Pressure (PSIG)	Max. Static Pressure (PSIG)
PMFN2UM - Dome[9]	322	20	15	0.75	0.25	50	70

5 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.14 (Self-Service) or 1.04 (Dome).

6 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

9 The dome portion of the PMFN2UM case operates using our patented secondary coolant Coolgenix technology.

10 Minimum flow rate.

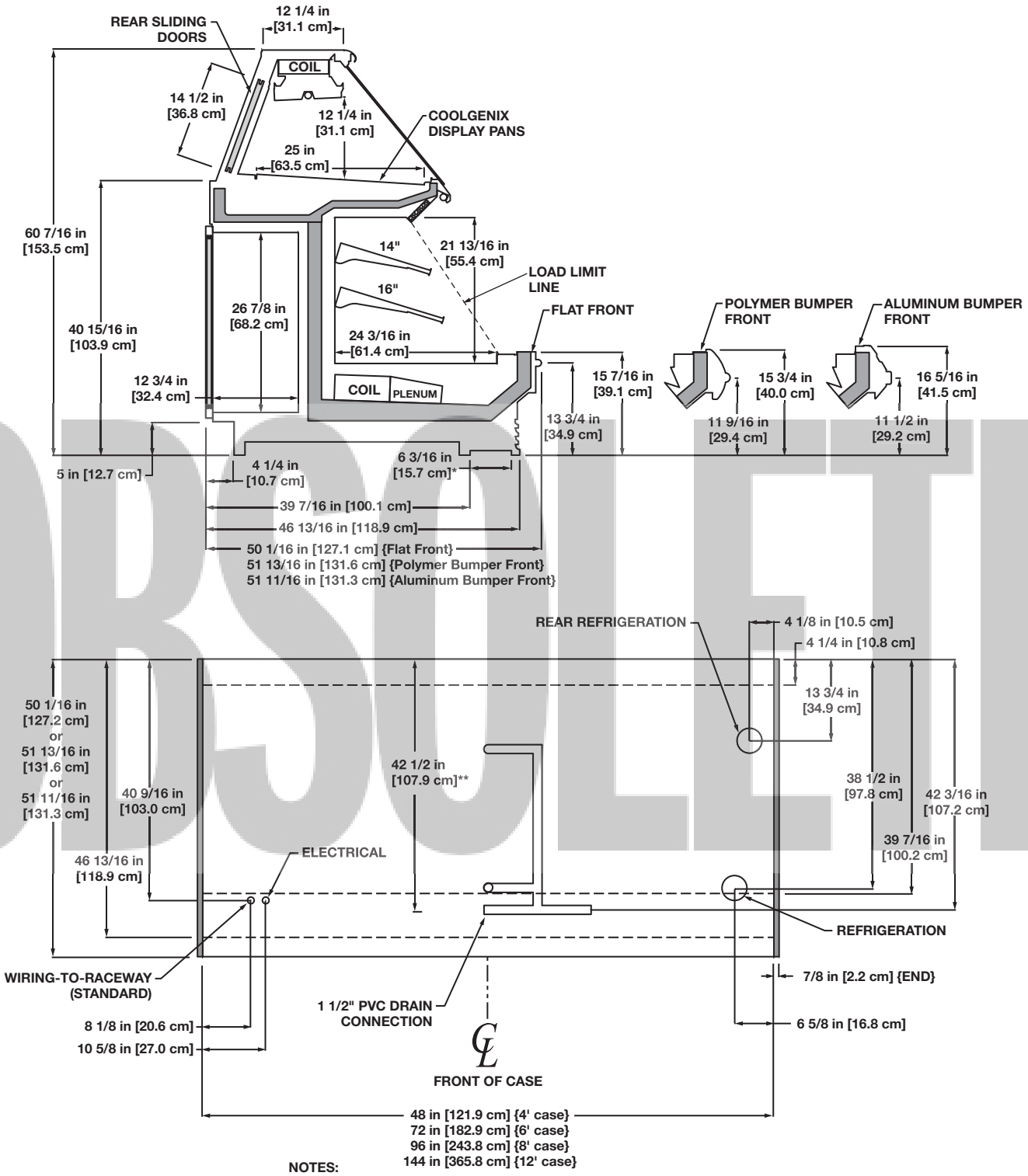
11 For semi-self-contained cases, add 2.75 gallon of fluid for the chiller to the total charge.

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)
PMFN2UM - Self Service	6	6 - 8	30	47	30	47	- - -	- - -
PMFN2UM - Dome	1	5	- - -[12]	- - -	60	45	- - -	- - -

12 NOTE: " - - - " not an option on this case model.

All measurements are taken per ARI 1200 - 2002 specifications.



NOTES:

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

- ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IS ROWS: 1-14" & 1-16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
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Multi-Deck Flat Glass Dome Meat/Seafood Merchandiser with CoolGenix™ Technology PMFNUM - 4', 6', 8' & 12'

Electrical Data

Model		Fans[1] 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	Secondary[2] Coolant Pump 120 Volts Amps	Secondary[2] Coolant Pump 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
PMFNUM	4'	3	1.02	51	1.45	33	0.55	66	2.10	252	1.92	400	2.22	532
	6'	4	1.36	68	0.60	44	0.80	96	2.10	252	2.88	600	3.33	798
	8'	4	1.36	68	0.60	44	1.03	124	2.10	252	3.85	800	4.44	1065
	12'	6	2.04	102	0.90	66	1.60	192	2.10	252	5.77	1200	6.67	1600

1 Applicable for self service portion of PMFNUM case only.

2 Secondary coolant pump is only applicable for the semi-self-contained version of the service dome.

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
PMFNUM	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

Cut in / Cut Out

	ASHRAE Conditions[3] Cut Out Temp. (°F)	ASHRAE Conditions[3] Cut in Temp. (°F)	Suggested Meat Prep. Settings[4] Cut Out Temp. (°F)	Suggested Meat Prep. Settings[4] Cut in Temp. (°F)
Pans	26	31	29	33
Top Coil	26	31	29	34

3 These temperatures are based on cases running at ASHRAE conditions.

4 These specifications should be considered a guide and may need to be adjusted based on store conditions. Because these cases are often installed in stores near a meat preparation area where standard ASHRAE conditions may not apply; the following suggested meat prep. setting may prove useful.

Guidelines & Control Settings - Semi-Self-Contained

Model	[5,6]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
PMFNUM - Self Service	771[7]	17	6-8	29	44	275 - 300

Model	[5,6]BTUH/ft	Supply Temp. (°F)	Chiller Temp. (°F)	Flow Rate GPM/ft[10]	Charge GAL/ft[11]	Max. Working Pressure (PSIG)	Max. Static Pressure (PSIG)
PMFNUM - Dome[9]	329	20	15	0.75	0.25	50	70

5 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.14 (Self-Service) or 1.04 (Dome).

6 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

9 The dome portion of the PMFNUM case operates using our patented secondary coolant Coolgenix technology.

10 Minimum flow rate.

11 For semi-self-contained cases, add 2.75 gallon of fluid for the chiller to the total charge.

Guidelines & Control Settings - Remote Secondary

Model	BTUH/ft	Supply Temp. (°F)	Flow Rate GPM/ft	Charge GAL/ft
PMFNUM - Self Service	840	20	0.65	0.54
PMFNUM - Dome	350	20	0.75	0.50

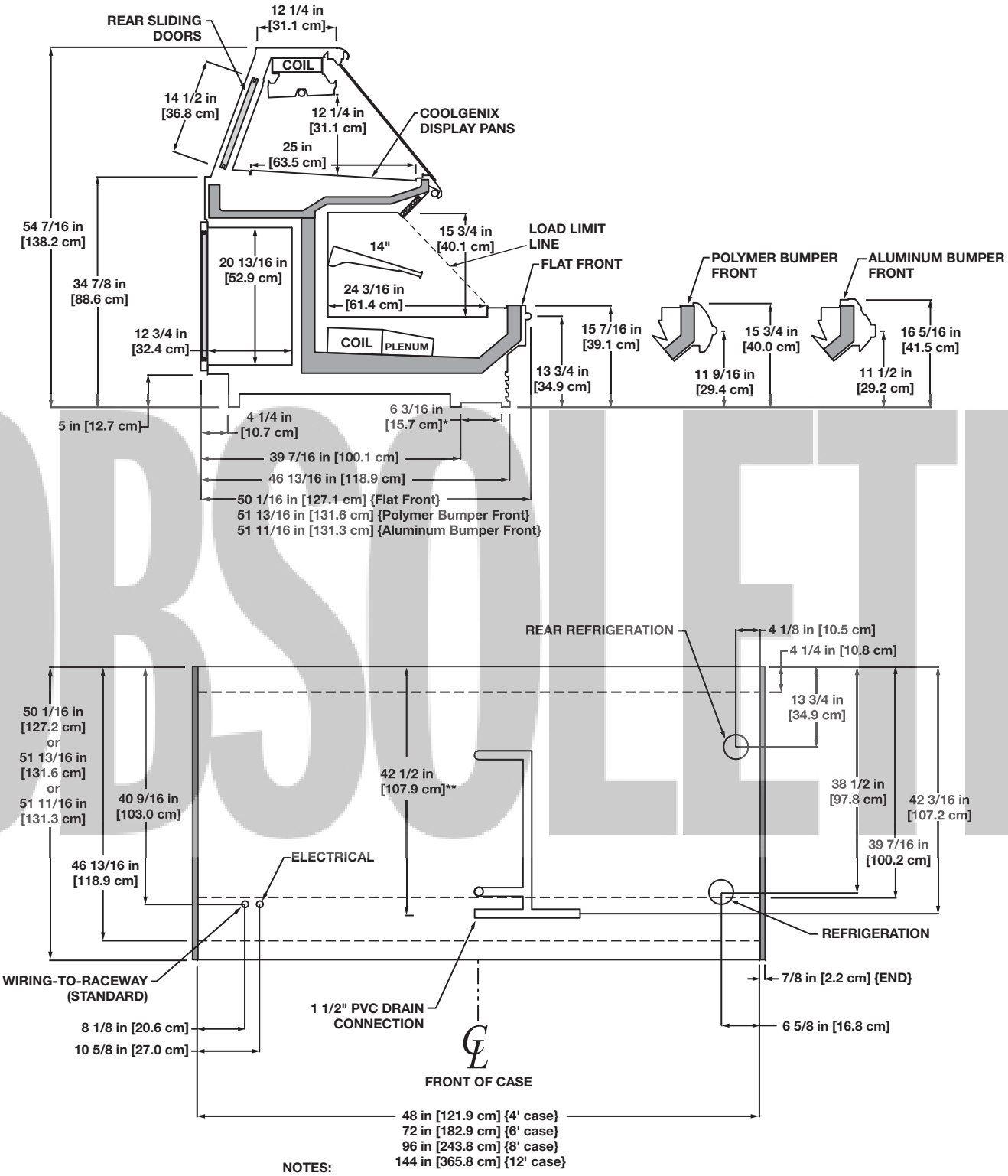
Defrost Controls

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)
PMFNUM - Self Service	6	6 - 8	30	47	30	47	15[13]	45[13]
PMFNUM - Dome	1	5	- - -[12]	- - -	60	45	- - -	- - -

12 NOTE: " - - - " not an option on this case model.

13 This option only available on the remote secondary version.

All measurements are taken per ARI 1200 - 2002 specifications.



NOTES:

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

- ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IS ROWS: 1-14"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

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Multi-Deck Curved Glass Dome Meat/Seafood Merchandiser with CoolGenix™ Technology PMN2UM - 4', 6', 8' & 12'

Electrical Data

Model		Fans[1] 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	Secondary[2] Coolant Pump 120 Volts Amps	Secondary[2] Coolant Pump 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
PMN2UM	4'	3	0.68	34	0.30	22	0.55	66	2.10	252	1.92	400	2.22	532
	6'	4	1.36	68	0.60	44	1.03	124	2.10	252	2.88	600	3.33	798
	8'	4	1.36	68	0.60	44	1.03	124	2.10	252	3.85	800	4.44	1065
	12'	6	2.04	102	0.90	66	1.60	192	2.10	252	5.77	1200	6.67	1600

1 Applicable for self service portion of PMN2UM case only.

2 Secondary coolant pump is only applicable for the semi-self-contained version of the service dome.

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
PMN2UM	4'	1	4'	0.23	28	0.92	110
	6'	2	3'	0.37	44	1.48	178
	8'	2	4'	0.47	56	1.88	226
	12'	3	4'	0.70	84	2.80	336

Cut in / Cut Out

	ASHRAE Conditions[3] Cut Out Temp. (°F)	ASHRAE Conditions[3] Cut in Temp. (°F)	Suggested Meat Prep. Settings[4] Cut Out Temp. (°F)	Suggested Meat Prep. Settings[4] Cut in Temp. (°F)
Pans	26	31	29	33
Top Coil	26	31	29	34

3 These temperatures are based on cases running at ASHRAE conditions.

4 These specifications should be considered a guide and may need to be adjusted based on store conditions. Because these cases are often installed in stores near a meat preparation area where standard ASHRAE conditions may not apply; the following suggested meat prep. setting may prove useful.

Guidelines & Control Settings - Semi-Self-Contained

Model	[5,6]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
PMN2UM - Self Service	764[7]	17	6-8	29	44	275 - 300

Model	[5,6]BTUH/ft	Supply Temp. (°F)	Chiller Temp. (°F)	Flow Rate[10] GPM/ft	Charge[11] GAL/ft	Max. Working Pressure (PSIG)	Max. Static Pressure (PSIG)
PMN2UM - Dome[9]	322	20	15	0.75	0.25	50	70

5 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.14 (Self-Service) or 1.04 (Dome).

6 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

9 The dome portion of the PMNUM case operates using our patented secondary coolant Coolgenix technology.

10 Minimum flow rate.

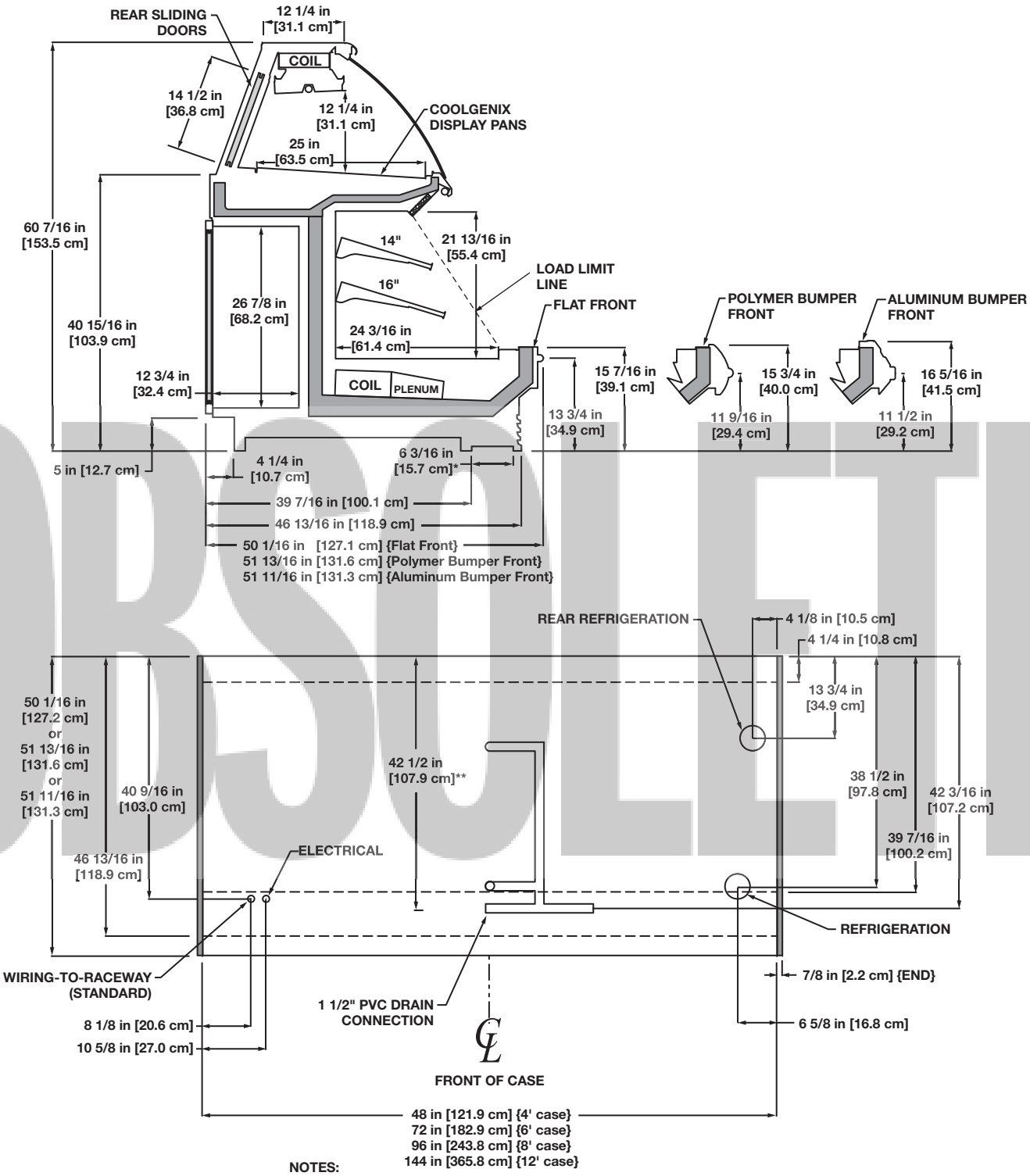
11 For semi-self-contained cases, add 2.75 gallon of fluid for the chiller to the total charge.

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)
PMN2UM - Self Service	6	6 - 8	30	47	30	47	- - -	- - -
PMN2UM - Dome	1	5	- - -[12]	- - -	60	45	- - -	- - -

12 NOTE: "- - -" not an option on this case model.

All measurements are taken per ARI 1200 - 2002 specifications.



NOTES:

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

- ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IS ROWS: 1-14" & 1-16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT
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Multi-Deck Curved Glass Dome Meat/Seafood Merchandiser with CoolGenix™ Technology PMNUM - 4', 6', 8' & 12'

Electrical Data

Model		Fans[1] 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	Secondary[2] Coolant Pump 120 Volts Amps	Secondary[2] Coolant Pump 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
PMNUM	4'	3	0.68	34	0.30	22	0.55	66	2.10	252	1.92	400	2.22	532
	6'	4	1.36	68	0.60	44	1.03	124	2.10	252	2.88	600	3.33	798
	8'	4	1.36	68	0.60	44	1.03	124	2.10	252	3.85	800	4.44	1065
	12'	6	2.04	102	0.90	66	1.60	192	2.10	252	5.77	1200	6.67	1600

1 Applicable for self service portion of PMNUM case only.

2 Secondary coolant pump is only applicable for the semi-self-contained version of the service dome.

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
PMNUM	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

Cut in / Cut Out

	ASHRAE Conditions[3] Cut Out Temp. (°F)	ASHRAE Conditions[3] Cut in Temp. (°F)	Suggested Meat Prep. Settings[4] Cut Out Temp. (°F)	Suggested Meat Prep. Settings[4] Cut in Temp. (°F)
Pans	26	31	29	33
Top Coil	26	31	29	34

3 These temperatures are based on cases running at ASHRAE conditions.

4 These specifications should be considered a guide and may need to be adjusted based on store conditions. Because these cases are often installed in stores near a meat preparation area where standard ASHRAE conditions may not apply; the following suggested meat prep. setting may prove useful.

Guidelines & Control Settings - Semi-Self-Contained

Model	[5,6]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[8] (FPM)
PMNUM - Self Service	764[7]	17	6-8	29	44	275 - 300

Model	[5,6]BTUH/ft	Supply Temp. (°F)	Chiller Temp. (°F)	Flow Rate GPM/ft[10]	Charge GAL/ft[11]	Max. Working Pressure (PSIG)	Max. Static Pressure (PSIG)
PMNUM - Dome[9]	322	20	15	0.75	0.25	50	70

Guidelines & Control Settings - Remote Secondary

Model	[5,6]BTUH/ft	Supply Temp. (°F)	Flow Rate GPM/ft[10]	Charge GAL/ft
PMNUM - Self Service	764[7]	20	0.65	0.54
PMNUM - Dome	322	20	0.75	0.50

5 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.14 (Self-Service) or 1.04 (Dome).

6 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

7 Standard fans increase refrigeration load by 96 BTUH/fan.

8 Average discharge air velocity at peak of defrost.

9 The dome portion of the PMNUM case operates using our patented secondary coolant Coolgenix technology.

10 Minimum flow rate.

11 For semi-self-contained cases, add 2.75 gallon of fluid for the chiller to the total charge.

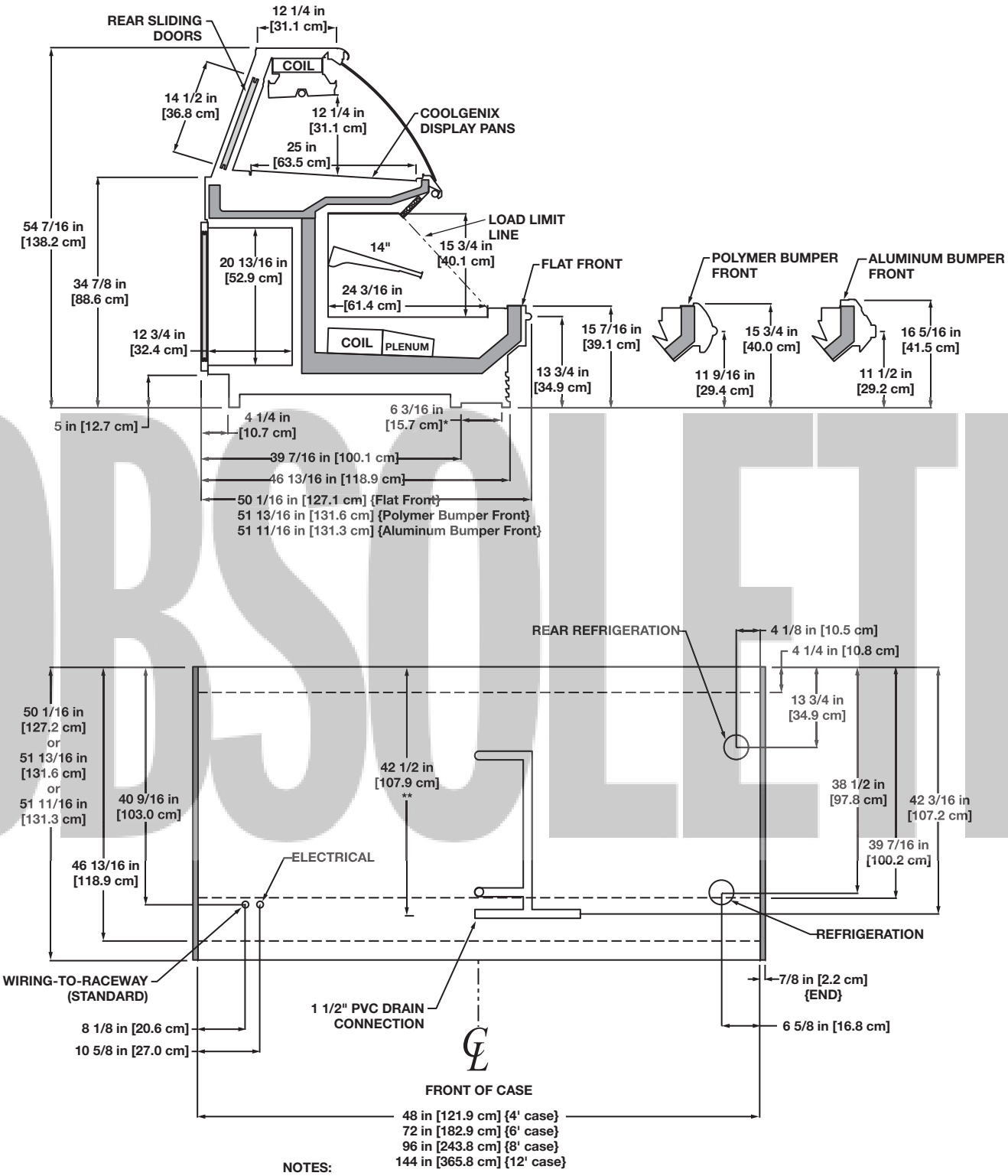
Defrost Controls

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)
PMNUM - Self Service	6	6 - 8	30	47	30	47	15[13]	45[13]
PMNUM - Dome	1	5	- - -[12]	- - -	60	45	- - -	- - -

12 NOTE: "- - -" not an option on this case model.

11 This option only available on the remote secondary version.

All measurements are taken per ARI 1200 - 2002 specifications.



NOTES:

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

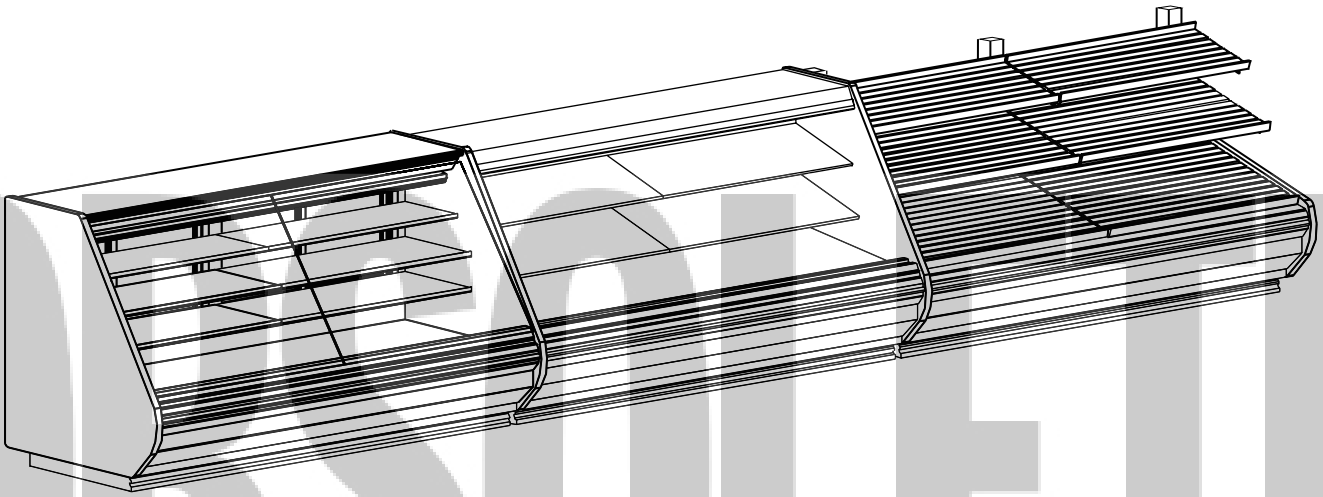
- ENDS ADD APPROXIMATELY 1" TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10", 12", 14" & 16"
- PRODUCT ON TOP SHELF SHOULD BE 3" BELOW DISCHARGE
- RECOMMENDED SHELF CONFIGURATION IS ROWS: 1-14"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

NSF COMPONENT

c UL us

OBSOLETE

BAKERY



NOTES

- ***Cases shown with an ANSI/NSF* Mark are Certified by NSF***
- ***Cases shown with an UL* Mark are Listed by Underwriters Laboratories Inc.***
- ***Allow for an extra 1/8” per joint when lining up merchandisers.***
- ***Technical information contained herein is subject to change without notice.***

** ANSI - American National Standard Institute*
NSF - National Sanitation Foundation
UL - Underwriters Laboratories Inc

Secondary Coolant Curved Glass Blower Coil Deli/Bakery Merchandiser
S3SBV

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	Fans per Case	Ambient Fans 120 Volts Amps	Ambient Fans 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
S3SBV	4'	2	0.68	34	0.30	22	3	33	54	1.92	400	2.22	532
	6'	2	0.68	34	0.30	22	5	55	90	2.88	600	3.33	798
	8'	3	1.02	51	0.45	33	6	66	108	3.85	800	4.44	1065
	12'	4	1.36	68	0.60	44	9	99	162	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
S3SBV	4'	1	4'	0.23	28	1.38	168
	6'	2	3'	0.37	44	2.22	264
	8'	2	4'	0.47	56	2.82	336
	12'	3	4'	0.70	84	4.20	504

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Evaporator (F°)	Superheat Set Point @ bulb (F°)	Discharge Air (F°)	Return Air (F°)	Discharge Air Velocity[5] (F°)
S3SBV [1]	435[4]	22	6-8	30	38	235

1 All settings apply for both deli and bakery application.

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.15.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

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)
S3SBV	4	6-8	35	50	60	47	20	45

Medium Temperature Defrost Schedule

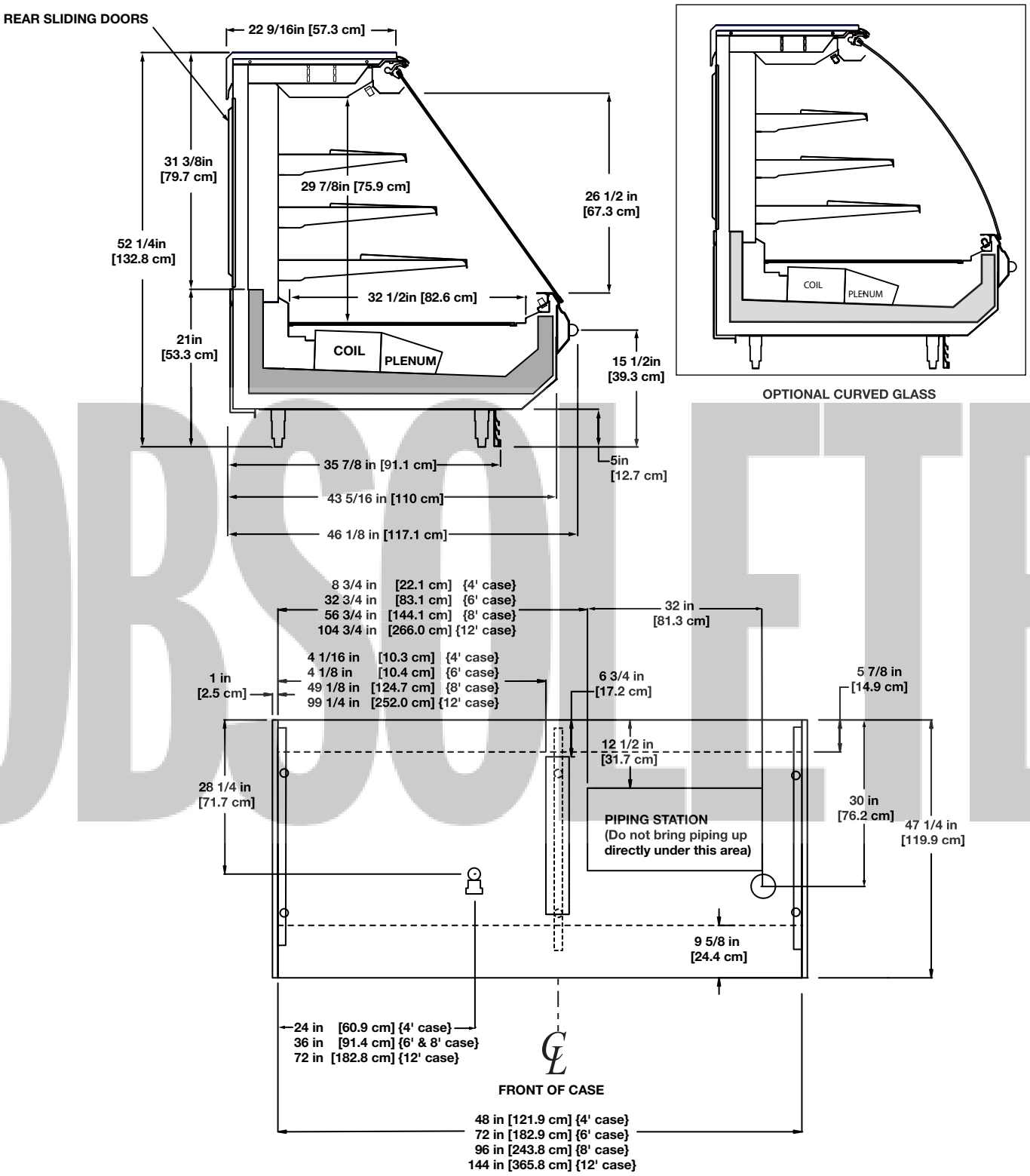
No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT

c UL us

Hill PHOENIX EXCELLENCE A DOVER COMPANY



NOTES:

- SUCTION LINE 5/8"
- LIQUID LINE (ALL LENGTHS) - 3/8"
- DASHED LINES SIGNIFY THE AREA BEHIND THE KICK-PLATE

NSF COMPONENT

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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'	3	2	0.30	11	1.02	51	0.45	33	2.4	288	- - -	- - -	- - -	- - -
	8'	4	3	0.45	17	1.36	68	0.60	44	2.8	336	- - -	- - -	- - -	- - -

1 Ambient fans are standard equipment for this case model. The primary fans can be either 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

Guidelines & Control Settings

Model	[3,4]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[6] (FPM)
OB	522[5]	27	6-8	32	39	338

3 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

4 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

5 Standard fans increase refrigeration load by 96 BTUH/fan.

6 Average discharge air velocity at peak of defrost.

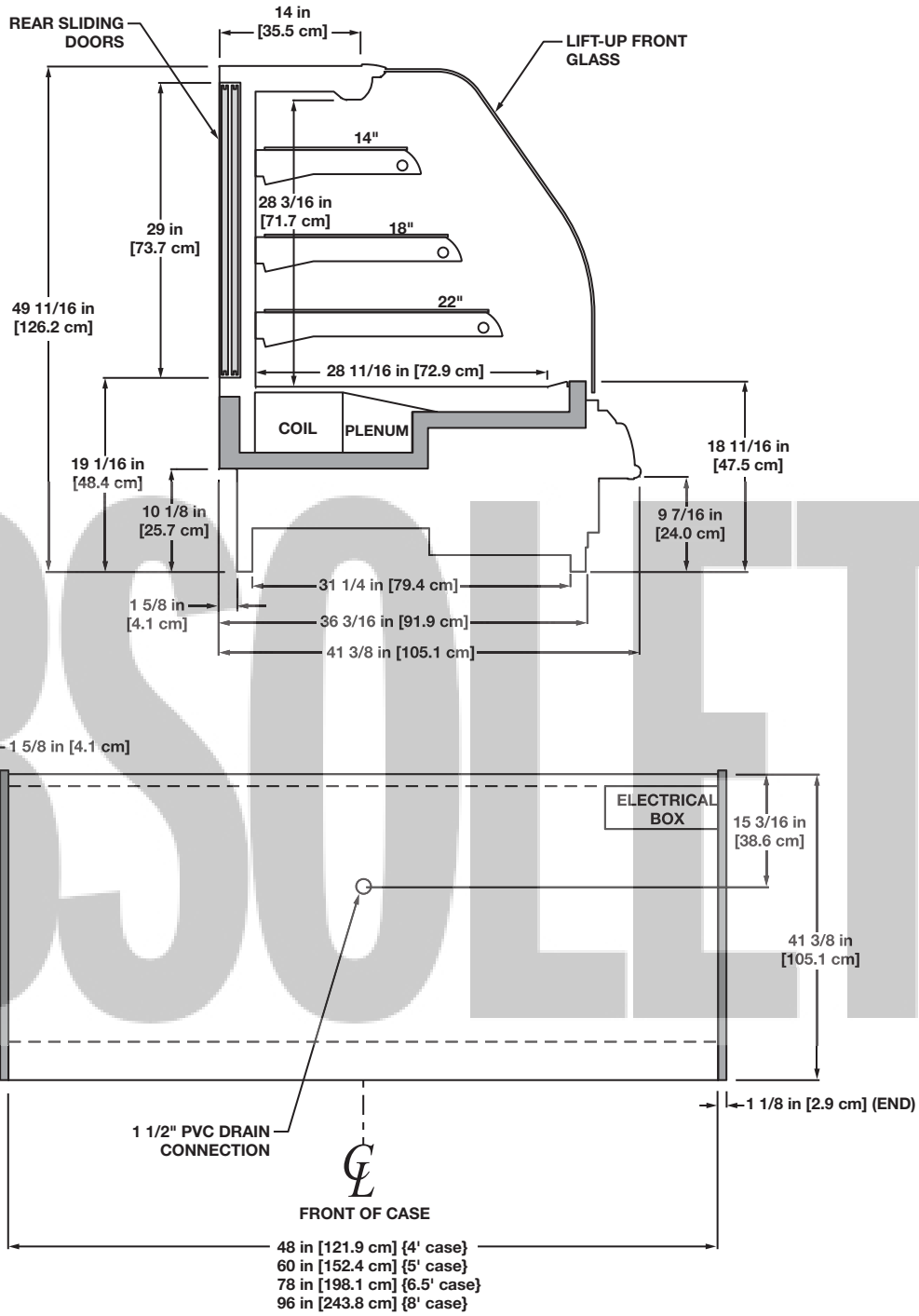
Defrost Controls

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)
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 ARI 1200 - 2002 specifications.



NOTES:

- **AVAILABLE SHELF SIZES: 14", 18", & 22"**
- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

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	12.5	20
	5'	120	1	60	2 wire + ground	12.5	20
	6.5'	120	1	60	2 wire + ground	17.8	25
	8'	220	1	60	3 wire + ground	14.8	20

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
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	9.3	36.0	R134A	3.1
OBA-5'	120	1	60	1/2	9.0	51.0	R134A	3.6
OBA-6.5'	120	1	60	1/2	12.9	66.3	R134A	5
OBA-8'	220	1	60	3/4	10.9	56	R134A	3.75

2 RLA - Running Load Amps.

3 LRA - Locked Rotor Amps.

Defrost Controls

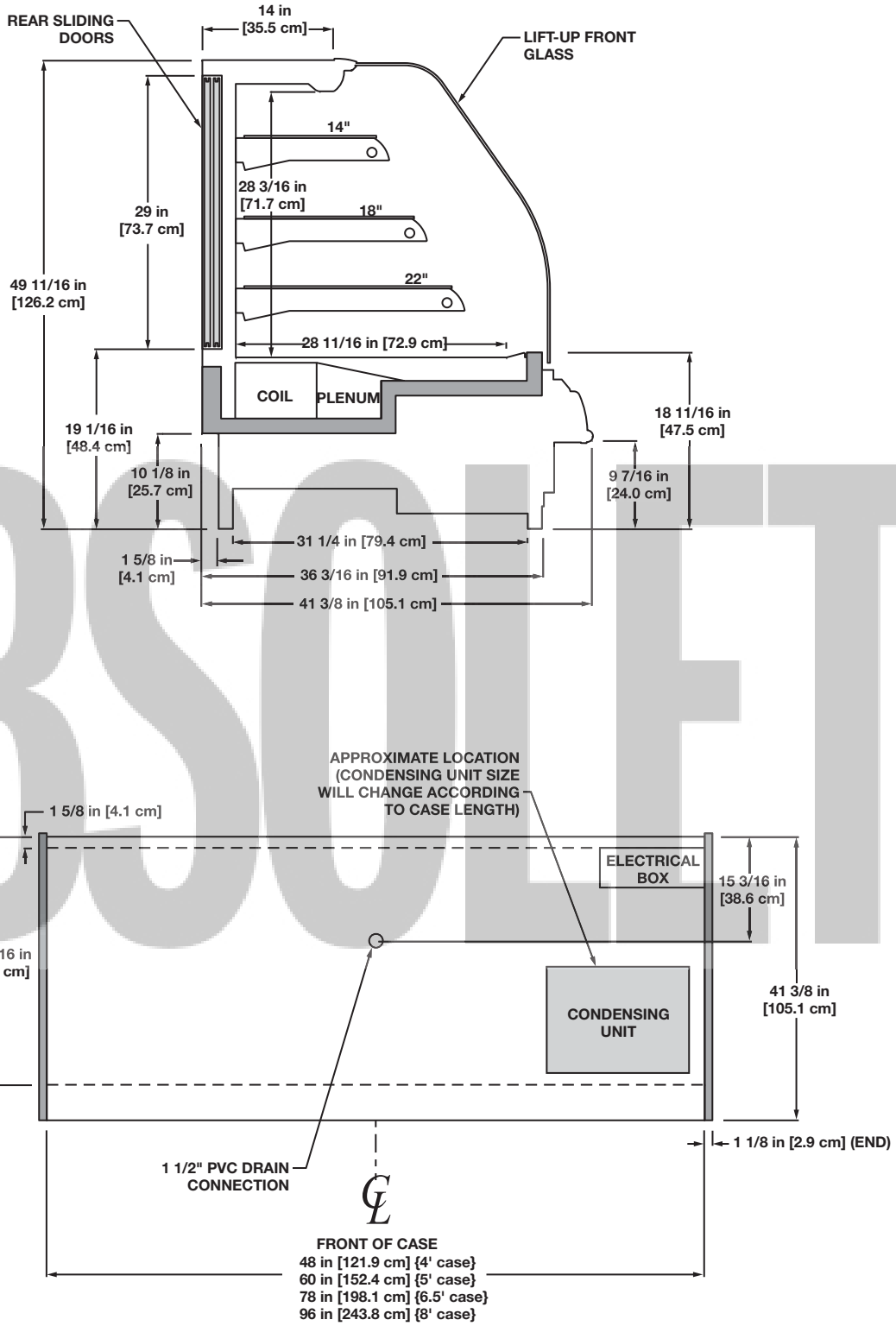
Model	Defrosts Per Day	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.

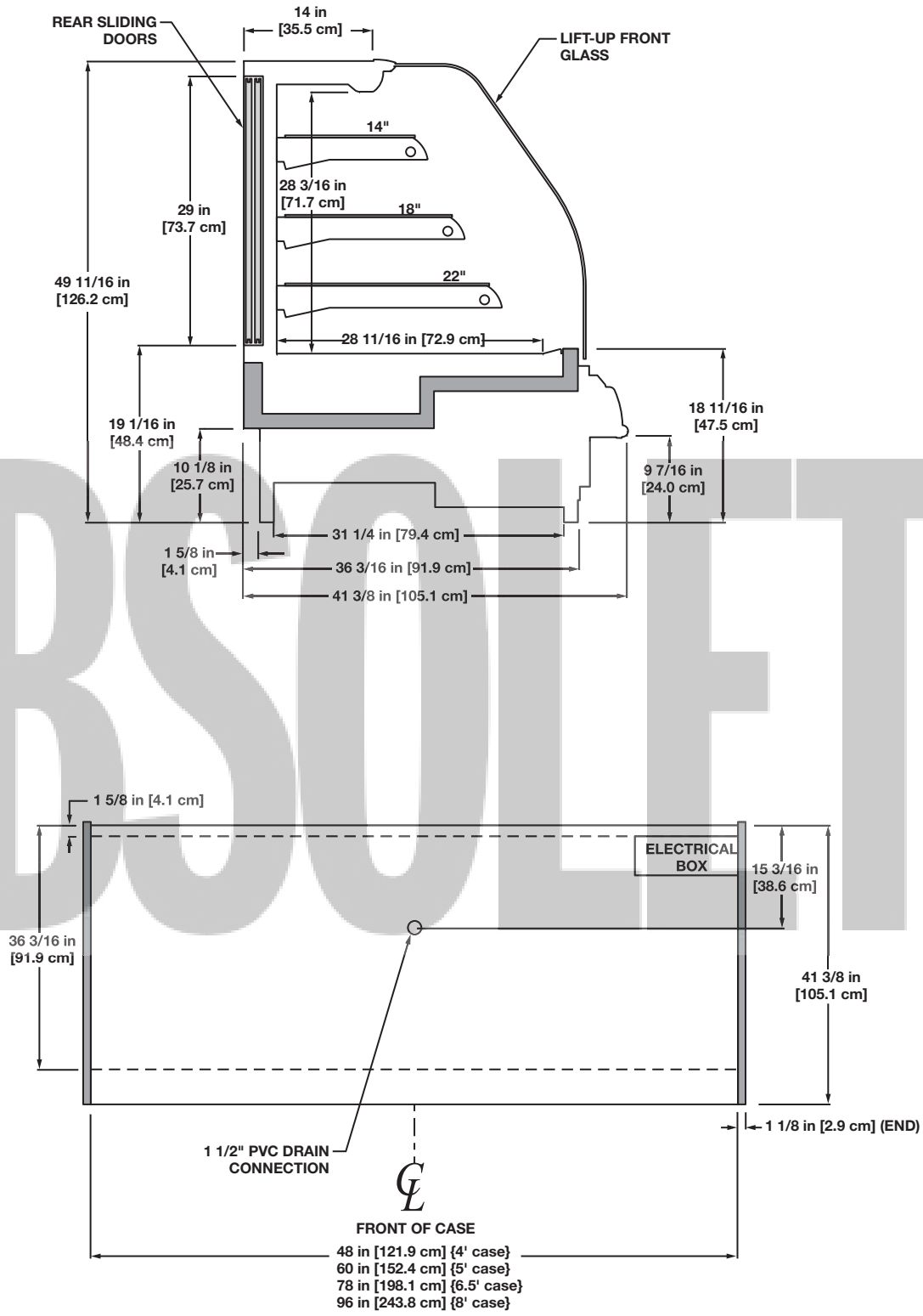

REAR SLIDING DOORS
14 in [35.5 cm]
LIFT-UP FRONT GLASS
14"
28 3/16 in [71.7 cm]
18"
29 in [73.7 cm]
22"
49 11/16 in [126.2 cm]
28 11/16 in [72.9 cm]
COIL
PLENUM
19 1/16 in [48.4 cm]
18 11/16 in [47.5 cm]
10 1/8 in [25.7 cm]
9 7/16 in [24.0 cm]
31 1/4 in [79.4 cm]
1 5/8 in [4.1 cm]
36 3/16 in [91.9 cm]
41 3/8 in [105.1 cm]
APPROXIMATE LOCATION (CONDENSING UNIT SIZE WILL CHANGE ACCORDING TO CASE LENGTH)
1 5/8 in [4.1 cm]
ELECTRICAL BOX
15 3/16 in [38.6 cm]
36 3/16 in [91.9 cm]
CONDENSING UNIT
41 3/8 in [105.1 cm]
1 1/8 in [2.9 cm] (END)
1 1/2" PVC DRAIN CONNECTION
FRONT OF CASE
48 in [121.9 cm] {4' case}
60 in [152.4 cm] {5' case}
78 in [198.1 cm] {6.5' case}
96 in [243.8 cm] {8' case}

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


REAR SLIDING DOORS
14 in [35.5 cm]
LIFT-UP FRONT GLASS
14"
28 3/16 in [71.7 cm]
18"
29 in [73.7 cm]
22"
49 11/16 in [126.2 cm]
28 11/16 in [72.9 cm]
18 11/16 in [47.5 cm]
19 1/16 in [48.4 cm]
10 1/8 in [25.7 cm]
9 7/16 in [24.0 cm]
31 1/4 in [79.4 cm]
1 5/8 in [4.1 cm]
36 3/16 in [91.9 cm]
41 3/8 in [105.1 cm]
1 5/8 in [4.1 cm]
ELECTRICAL BOX
15 3/16 in [38.6 cm]
36 3/16 in [91.9 cm]
41 3/8 in [105.1 cm]
1 1/8 in [2.9 cm] (END)
1 1/2" PVC DRAIN CONNECTION
FRONT OF CASE
48 in [121.9 cm] {4' case}
60 in [152.4 cm] {5' case}
78 in [198.1 cm] {6.5' case}
96 in [243.8 cm] {8' case}

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OBIF	526[4]	27	6-8	29-30	40-42	210-240

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.13.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

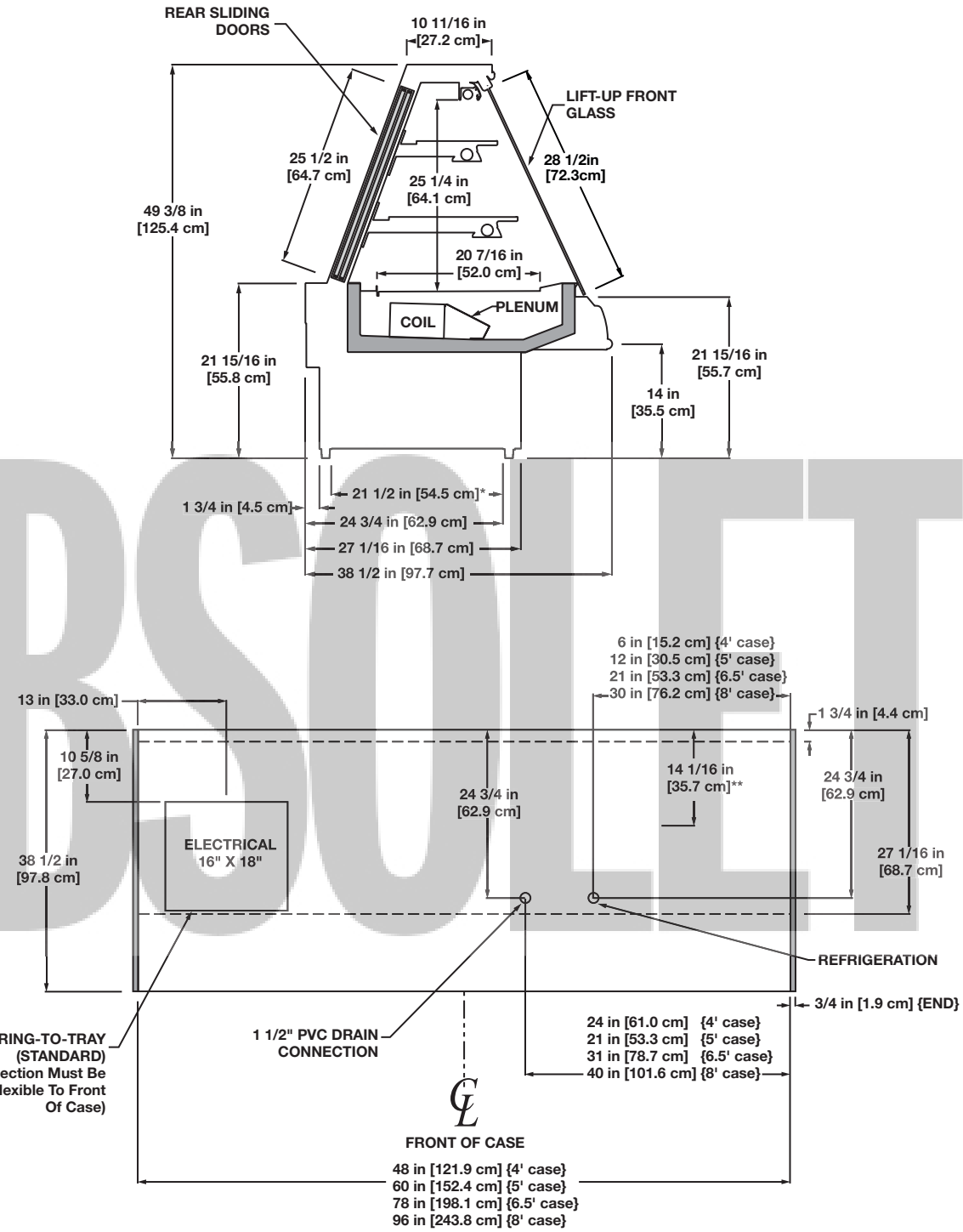
Defrost Controls

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

All measurements are taken per ARI 1200 - 2002 specifications.



NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 10" & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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		Maximum Lighting	
		120 Volts		120 Volts	
		Amps	Watts	Amps	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	R134A	3.1
OBIFA-6.5'	120	1	60	1/3	7.20	29	R134A	3.5

2 RLA - Running Load Amps.

3 LRA - Locked Rotor Amps.

Defrost Controls

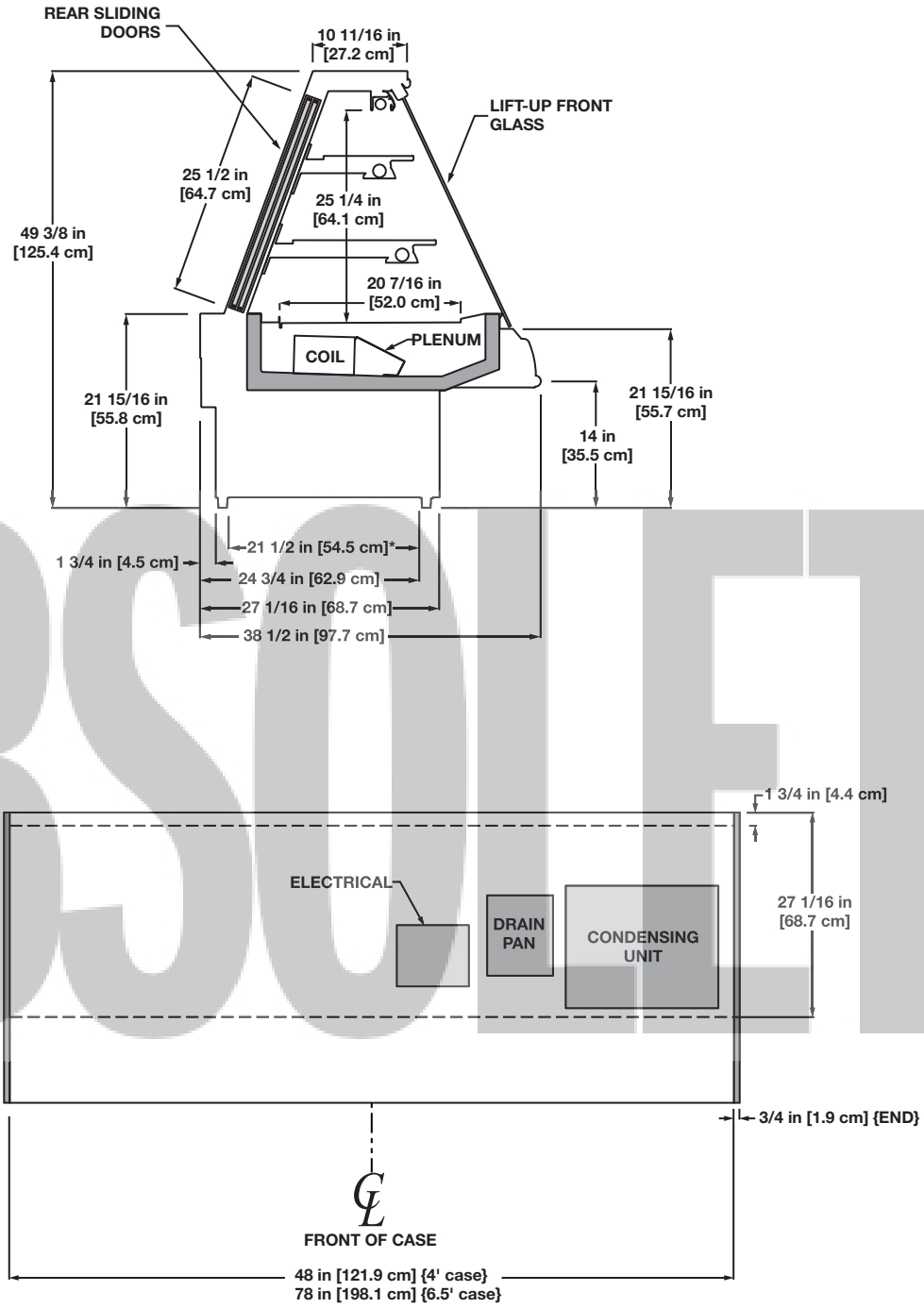
Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OBIFA	4	- - -[4]	- - -	40	49	- - -	- - -	- - -	- - -

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 ARI 1200 - 2002 specifications.



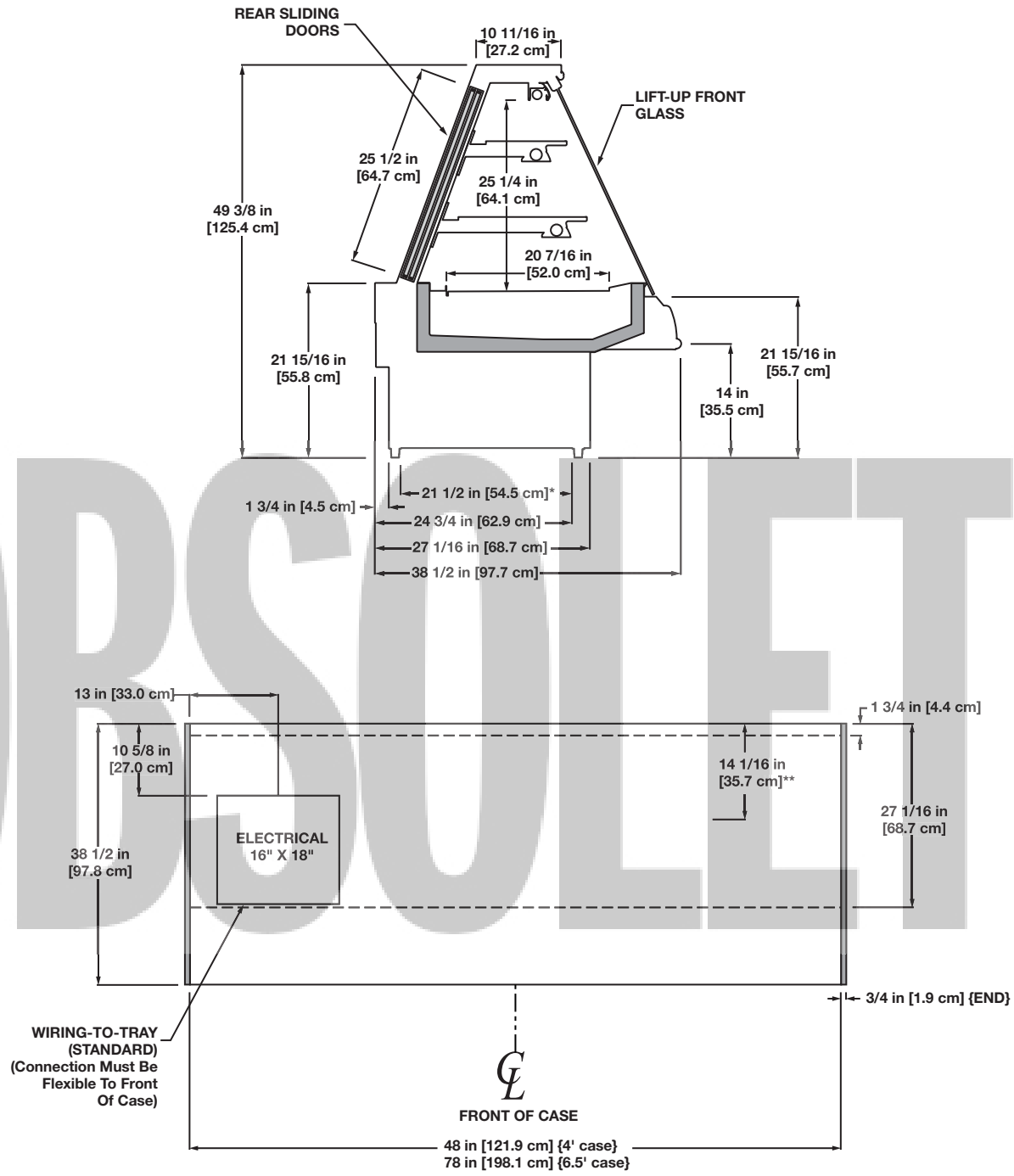
NOTES:

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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



NOTES:

* STUB-UP AREA
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL CONNECTIONS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- AVAILABLE SHELF SIZES: 10" & 16"
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OBO	1070[4]	22	6-8	34	41	305

2 BTUH/ft listing is for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.10.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

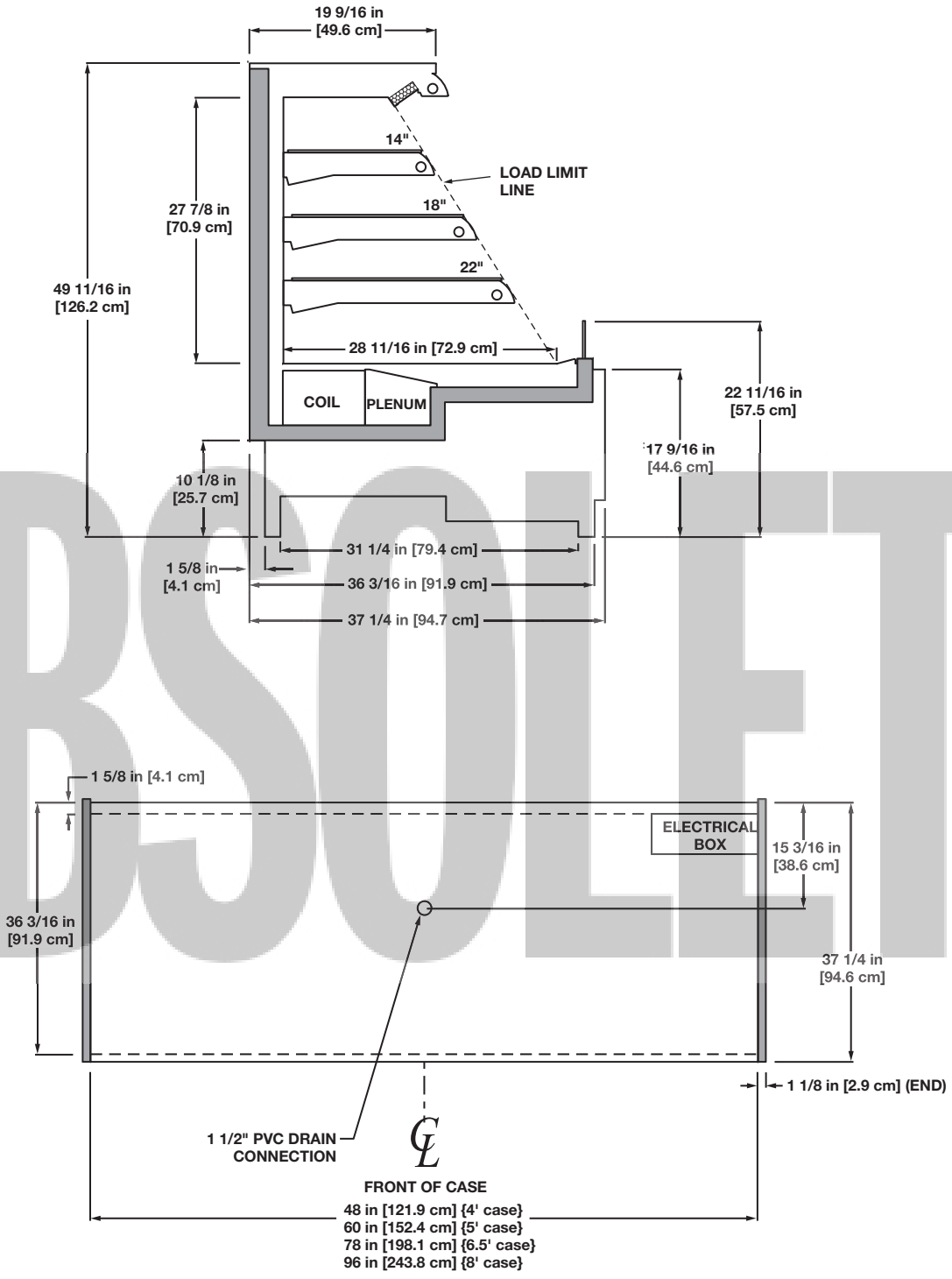
Defrost Controls

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)
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 ARI 1200 - 2002 specifications.



NOTES:

- **AVAILABLE SHELF SIZES: 14", 18", & 22"**
- **DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE**

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Self Service Self-Contained Bakery/Deli Merchandiser
OBOA - 4'

System Requirements

Model		Volts	Phase	Hz	Wire	Minimum Circuit Ampacity	Maximum Fuse Size
OBOA	4'	120	1	60	2 wire + ground	15.5	20

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

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

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	7.6	35.5	R134A	3.0

2 RLA - Running Load Amps.

3 LRA - Locked Rotor Amps.

Defrost Controls

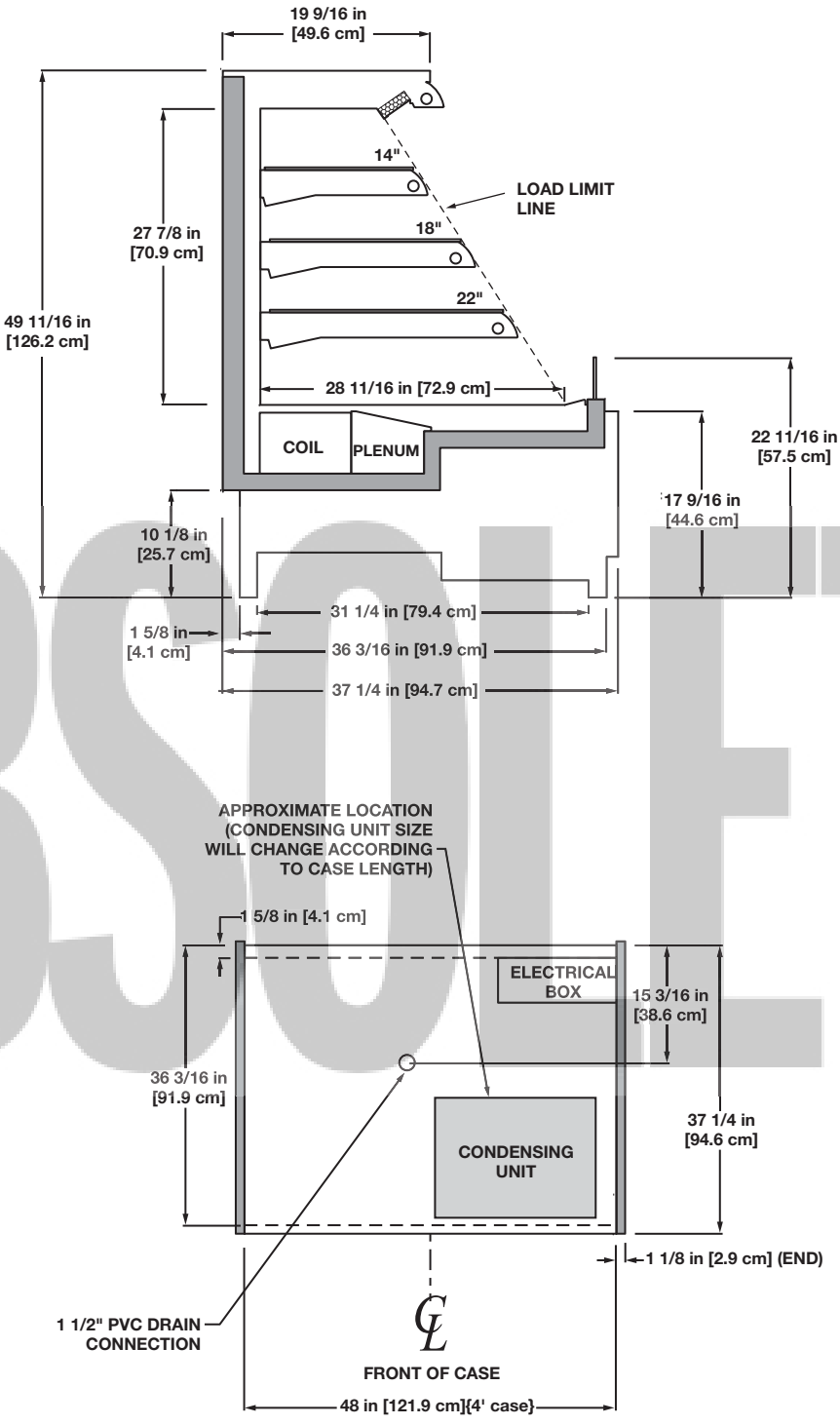
Model	Defrosts Per Day	Electric Defrost		Timed Off Defrost		Hot Gas Defrost		Reverse Air Defrost	
		Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)	Fail-safe (min)	Termination Temp. (°F)
OBOA	4	- - -[4]	- - -	40	49	- - -	- - -	- - -	- - -

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

All measurements are taken per ARI 1200 - 2002 specifications.


19 9/16 in
[49.6 cm]
14"
LOAD LIMIT
LINE
18"
22"
27 7/8 in
[70.9 cm]
49 11/16 in
[126.2 cm]
28 11/16 in [72.9 cm]
COIL
PLENUM
22 11/16 in
[57.5 cm]
17 9/16 in
[44.6 cm]
10 1/8 in
[25.7 cm]
31 1/4 in [79.4 cm]
1 5/8 in
[4.1 cm]
36 3/16 in [91.9 cm]
37 1/4 in [94.7 cm]
APPROXIMATE LOCATION
(CONDENSING UNIT SIZE
WILL CHANGE ACCORDING
TO CASE LENGTH)
1 5/8 in [4.1 cm]
ELECTRICAL
BOX
15 3/16 in
[38.6 cm]
36 3/16 in
[91.9 cm]
CONDENSING
UNIT
37 1/4 in
[94.6 cm]
1 1/8 in [2.9 cm] (END)
1 1/2" PVC DRAIN
CONNECTION
FRONT OF CASE
48 in [121.9 cm]{4' case}

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

Guidelines & Control Settings

Model	[2,3]BTUH/ft	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
OBOL bakery	370[4]	27	6-8	33	40	305
OBOL deli	370[4]	22	6-8	30	37	305

2 BTUHs/ft listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.09.

3 Listed case BTUH/ft indicates unlighted shelves. Add 80 BTUH per 4' lighted shelf and 60 BTUH per 3' lighted shelf to determine Total Lighting BTUH Load. To obtain the BTUH/ft contribution for the lighting, divide the Total Lighting BTUH Load by the length of the case.

4 Standard fans increase refrigeration load by 96 BTUH/fan.

5 Average discharge air velocity at peak of defrost.

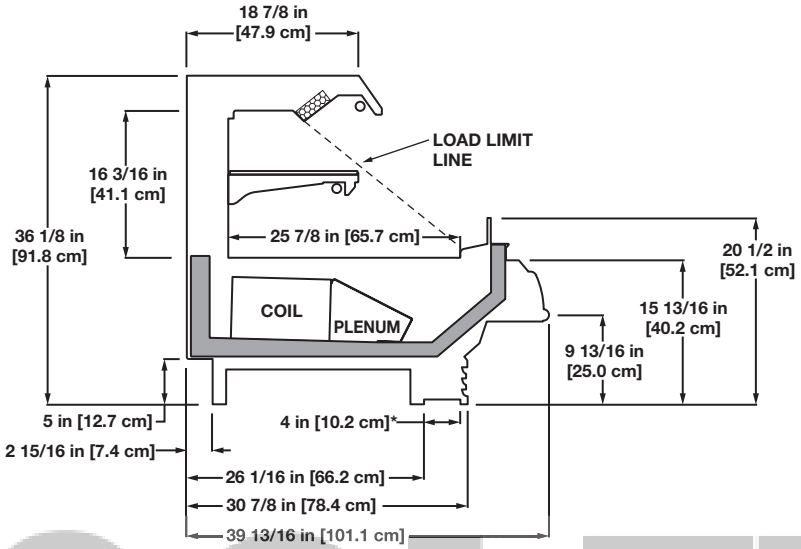
Defrost Controls

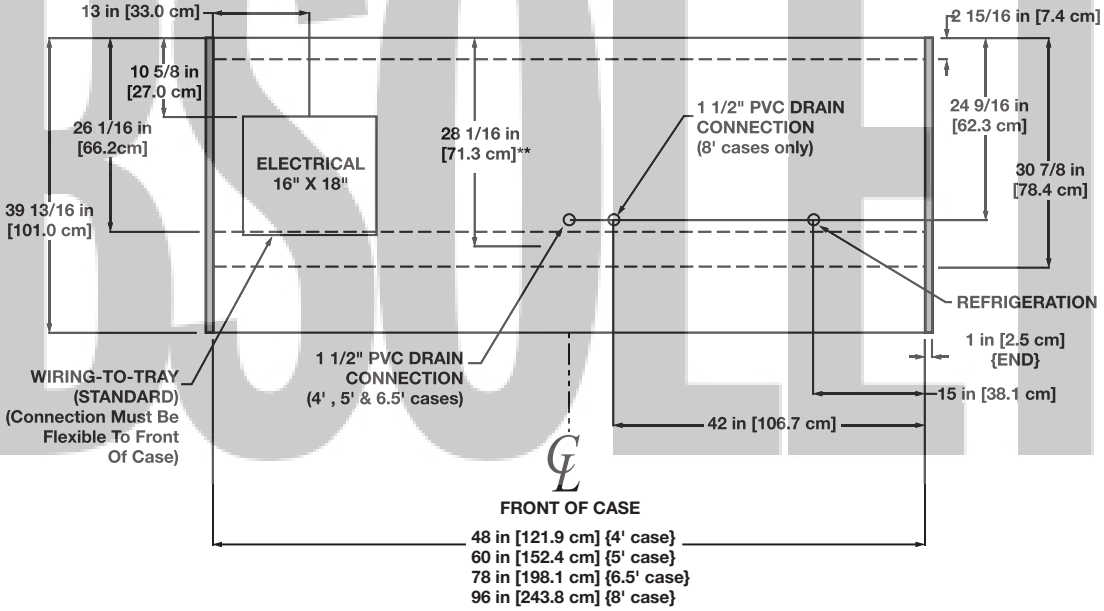
Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
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 ARI 1200 - 2002 specifications.





NOTES:

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

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- SUCTION LINE - 7/8", LIQUID LINE - 1/2"
- AVAILABLE SHELF SIZES: 12" & 14"
- MAXIMUM OF 1 SHELF PER CASE
- DASHED LINES SIGNIFY AREA INSIDE BASE RAIL BEHIND KICK-PLATE

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Hill PHOENIX
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