

Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc. P.O. Box 16620 Little Rock, AR 72231 Phone 501-834-3320 Fax 501-834-5416

Date: 2/4/2025 Return Request: 2/14/2025 Project: City Of Sherwood Public Works (Maintenance Building) Supplier: Harrison Energy Partners Manufacturer: Reznor Submittal: Fuel Fired Unit Heaters Submittal Number: 23 55 33-01 Drawing # and Installation: Mechanical Drawings

ARCHITECT

Cromwell 1300 East 6th Street Little Rock, AR 72202 501-372-2900

GENERAL CONTRACTOR

Baldwin & Shell 1000 W. Capitol Ave. Little Rock, AR 72201 501-374-8677

Notes:

ENGINEER

Cromwell 1300 East 6th Street Little Rock, AR 72202 501-372-2900

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc. 9924 Landers Rd. N. Little Rock, AR 72117 501-834-3320

CSUSA PROJECT NO. 24-6084 sean@comfortar.com

> 9924 Landers Rd. No. Little Rock, AR 72117

Submittal



Prepared For: Cromwell Architects Engineers **Date:** 12/10/2024

Sold To: Comfort Systems USA Job Name: Sherwood Public Works

Harrison Energy Partners is pleased to provide the enclosed submittal for your review and approval.

Qty. Product Summary

10 Gas Unit Heater (GUH-1 Thru 10)

Josh Robinson, New Systems SalesThe attached information describes the equipment we
propose to furnish for this project and is submitted for
your approval.Harrison Energy Partners • Commercial HVAC ExcellenceThe attached information describes the equipment we
propose to furnish for this project and is submitted for
your approval.1501 Westpark Dr., Ste. 9 • Little Rock, AR 72204The attached information describes the equipment we
propose to furnish for this project and is submitted for
your approval.

Reznor Gas Unit Heaters (GUH-1 Thru 10)

- Gas Unit Heater
- 250 MBH Heat Capacity (GUH-1,2,3,4,5,6)
- 200 MBH Heat Capacity (GUH-7,8,9,10)
- Vent Cap 5"
- Built-in Disconnect Switch
- Thermostat



TABLE OF CONTENTS

UDXC 250 - GUH 1 THRU 6	1
General Information	_1
Included Options	2
Technical Data	4
UDXC 200 - GUH 7 THRU 10	9
General Information	9
Included Options	10
Technical Data	12
Warranty	.17

REZNOR[°] UDXC-Series

Low Static, Axial Fan Commercial/Industrial Unit Heaters

- Separated Combustion Capable
- 82-83% Thermal Efficiency



Reznor[®] Model UDXC gas-fired unit heaters are available in 14 sizes ranging from 30,000 to 400,000 BTUH gas input. Model UDXC heaters are approved for installation in the United States and Canada by ETL. These models are built for traditional applications but are easily and quickly converted to separated combustion for use in dirty, dusty, or contaminated spaces.

Each size cabinet is easily suspended from either 2 or 4 suspension points. Or, an optional hanger kit for Sizes 30-125 allows for ceiling mounting. The low voltage terminal strip on the outside of the cabinet makes connecting control wiring easy with no panels to remove. The addition of a "G" terminal to the strip allows for fan only operation (without adding relays).

Reznor model UDXC unit heaters offer a sleek design sure to complement any space. The UDXC features a two-tone black and white powder coated, scratch-resistant paint scheme with a single red louver. Each unit has clean rounded corners and edges with no visible screws or fasteners, and the bottom is embossed with the Reznor logo. Model UDXC unit heaters provide the same superior performance customers have relied on for more than 130 years along with added features that make servicing the unit easier, installation safer and improve monitoring capabilities.

Features and Benefits

- Separated combustion capable with field installed kit
- Sizes 30-400 MBTUH certified for commercial/industrial heating application
- Sizes 30-125 MBTUH also approved for use in residential garage/ workshop heating applications
- 50-60°F Rise range
- Built-in disconnect switch (20A @ 115V Rating)
- Integrated circuit board with 7 segment display
- External status indicating LED
- Hinged door with 1/4 turn latch
- Improved cabinet design with removeable front face and two tone white and black powder paint.
- Reznor logo embossed on bottom of unit
- Tcore2 titanium stabilized aluminized steel heat exchanger
- Patented single burner combustion system including a one-piece burner assembly
- 115V, 1 phase, 60 Hz Supply voltage
- 115 Volt open fan motor with internal overload protection
- Transformer for 24-volt controls
- · Sealed control compartment houses all electrical components
- Multi-try direct spark ignition with timed lockout
- Fan relay (included on the circuit board)
- Single-stage natural gas valve (field adjustable for operation to 9,000 ft. elevation)*
- Vibration/noise isolated fan and venter motors designed for low noise operation
- 2-pt and 4-pt Suspension ~ standard on all sizes

- External terminal strip for 24-volt wiring
- External gas pipe connection
- · Sealed junction box for supply wiring
- Full fan guard

Optional Features

- Two-stage gas valve (sizes 60-400)
- 409 or 316 stainless steel heat exchangers
- Totally enclosed fan motor (sizes 30-400)
- Horizontal or vertical combustion air/vent kit including concentric adapter
- Many control options from simple to wifi-controllable thermostats to BacNET compatility
- Thermostat guard with locking cover
- Integrated vertical louvers
- Integrated 30° & 60° downturn nozzles
- Gas conversion kits (propane)
- Primary/secondary controls for zoning up to six units
- Ceiling suspension kit Sizes 30-125
- Hanger kits for 1" pipe
- Stepdown transformer (for 208/115, 230/115 or 460/115 supply voltage)

*Note: Pressure switch change required for installations above 6,000 ft.

REZNOR



Included Options for UDXC-250 / GUH 1 THRU 6

AA1 Unit equipped for natural gas heating.Natural gas is a naturally occurring gas mixture consisting primarily of methane and includes varying volumes of alkanes, carbon dioxide, nitrogen, and hydrogen sulfide.1 Therm = 100,000 BTU = 29.3kWh

AC1 Heat exchanger is manufactured from die-formed halves of aluminized steel.

AG1 Gas controls designed for recirculating air heating application. Furnace has a 24 volt, single stage combination gas valve which includes the electronic on-off valve controlled by a single-stage 24 volt room thermostat, a pressure regulator, a safety pilot valve, and the manual shutoff valve.

AK1 115 Volt, Single Phase, 60 cycle supply voltage.

AL1 Standard fan motor

AV2 Power Venting

AZ0 Unit supply fan protected by a close mesh fan guard.



CC1 Vent cap

P:City of Sherwood | Q:City of Sherwood - M | D:UDXC-250 | T:GUH 1 THRU 6





CL1 Single-stage thermostat 40-80F, 24 volt

Technical Data

Demension	Unit of			Unit Size	(MBTUh)		
Parameter	Measure	30	45	60	75	100	125
Thermal efficiency	%	82	83	8	3	8	33
	BTUh	30,000	45,000	60,000	75,000	105,000	120,000
Input heating capacity	kW	8.8	13.2	17.6	22.0	30.8	35.2
Output has the same site have first	BTUh	17,220	26,145	34,860	43,575	61,005	69,720
Output heating capacity, low fire*	kW	5.0	7.6	10.2	12.7	17.9	20.4
Output has the same site high first	BTUh	24,600	37,350	49,800	62,250	87,150	99,600
Output heating capacity, high fire*	kW	7.2	10.9	14.6	18.2	25.5	29.2
Gas connection**				1.	/2	·	·
Vent connection diameter***	inch			4	4		
Control, 24V				1	.0		
Full load amps, 115V	amp	1.9	2.4	2.4	3.7	4.3	5.6
Maximum overcurrent protection, 115V [†]				. 1	5		
Normal power consumption	watt	109	155	155	217	276	354
Discharge sinteresting via	°F	50	55	6	60	6	60
Discharge air temperature rise	°C	10	12.8	15	5.5	1!	5.5
	CFM	456	629	769	961	1345	1537
Air volume	meter ³ /minute	12.9	17.8	21.8	27.5	36.7	45.9
S : 1 · · ·	foot ²	0.	96	1.	25	2.	01
Discharge air opening area	meter ²	0.	09	0.	12	0.	19
• · · · · ·	FPM	475	656	616	770	668	763
Output velocity	meter/minute	145	200	188	235	204	233
Open fan motor horsepower		0.02	0.03	0.03	0.06	1/30	1/20
Totally-enclosed fan motor horsepower	- HP	0.	06	0.	06	1	/4
Fan motor speed	RPM	15	50	15	50	10	50
Fan diameter	inch	1	0	1	2	1	6
Sound level @ 15 feet	dBa	4	10	40	49	54	55
*ETL ratings for elevations up to 2,000 feet.	х.			×			
**Size shown is for natural gas or propane g	as connection to a si	ngle-stage g	as valve—no	t supply line :	size.		

***Smaller and/or larger vent and combustion air pipe diameters may be permissible.

[†]MOCP = 2.25 × (largest motor FLA) + smallest motor FLA. Answer is rounded to the next lower standard circuit breaker size.

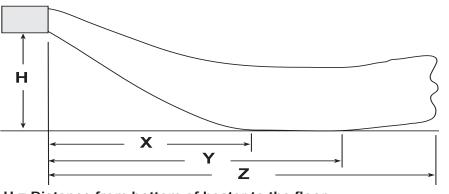
Devemeter	Unit of				Unit Size	(MBTUh)			
Parameter	Measure	150	175	200	225	250	300	350	400
Thermal efficiency	%				8	<mark>3</mark>			
Input besting sons situ	BTUh	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
Input heating capacity	kW	44.0	51.3	<mark>58.6</mark>	65.9	<mark>73.3</mark>	87.9	102.6	117.2
Output has the second site law first	BTUh	87,150	101,675	<mark>116,200</mark>	130,725	<mark>145,250</mark>	174,300	203,350	232,400
Output heating capacity, low fire*	kW	25.5	29.8	<mark>34.0</mark>	38.3	<mark>42.6</mark>	51.0	59.6	68.1
	BTUh	124,500	145,250	<mark>166,000</mark>	186,750	<mark>207,50</mark> 0	249,000	290,500	332,000
Output heating capacity, high fire*	kW	36.5	42.6	<mark>48.7</mark>	54.7	<mark>60.8</mark>	73.0	85.1	97.3
*ETL ratings for elevations up to 2,000	feet.								



Parameter	Unit of				Unit Size	(MBTUh)			
Parameter	Measure	150	175	200	225	250	300	350	400
Gas connection**	inch		1/2	Gung	3/4		3	/4	
Vent connection diameter***	inch		Į	5		5		6	
Control, 24V					1	.0			
Full load amps, 115V	amp	3	.8	4.6	7.5	7.5		11.0	
Maximum overcurrent protection, 115V [†]			1	5		15			
Normal power consumption	watt	39	92	491	747	747		1086	
Discharge air temperature rise	°F				6	0			
Discharge all temperature lise	°C				15	5.5			
Air volume	CFM	1921	2242	2562	2882	3202	3843	4483	5123
Air volume	meter ³ /minute	54.4	63.5	72.5	81.6	90.7	108.8	126.9	145.1
Discharge ein enening eree	foot ²		2.56		3.51	3.51		4.79	
Discharge air opening area	meter ²		0.24		0.33	0.33		0.45	
Output valacity	FPM	752	877	1003	820	911	802	936	1069
Output velocity	meter/minute	229	267	306	250	278	244	285	326
Open fan motor horsepower	HP		1/6		1/4	1/4		1/2	
Totally-enclosed fan motor horsepower	пг		1/4		1/4	1/4		1/2	
Fan motor speed	RPM				10	50			
Fan diameter	inch		18		20	20		24	
Sound level @ 15 feet	dBa	51	52	53	56	56	59	61	62
**Size shown is for natural gas or propan	e gas connection to	a single-	stage gas	valve—not	t supply lin	e size.			
***Smaller and/or larger vent and combus	stion air pipe diame	ters may b	pe permiss	sible.					
[†] MOCP = 2.25 × (largest motor FLA) + sn	nallest motor FLA.	Answer is	rounded to	the next	ower stan	dard circui	t breaker :	size.	

Heater Throw Distances with Standard Horizontal Louvers

The graphic shows throw patterns and the table lists throw distances for heaters suspended at varying mounting heights. The louver angles listed are relative to the top of the heater. The throw pattern changes with the addition of optional vertical louvers and/or downturn nozzles.



- H = Distance from bottom of heater to the floor
- X = Distance from heater to start of floor coverage
- Y = Distance to end of floor coverage
- Z = Distance at which air velocity drops below 50 feet (15.2 meters) per minute

H*				Un	it Size (MBTU	Jh)		
(Feet	Distance* or Angle	30	45	60	75	100	125	150
(Meters))	-		•		Feet (Meters)		•	•
	Х	6 (1.8)	7 (2.1)	8 (2.4)	9 (2.7)	9 (2.7)	10 (3.0)	
- // ->	Y	14 (4.3)	16 (4.9)	18 (5.5)	20 (6.1)	20 (6.1)	22 (6.7)	1
5 (1.5)	Z	30 (9.1)	40 (12.2)	45 (13.8)	57 (17.4)	59 (18.0)	65 (19.9)	- I
ľ	Downward louver angle	21°	20°	16°	14°	18°	14°	1
	X	7 (2.1)	9 (2.7)	10 (3.0)	12 (3.7)	11 (3.4)	12 (3.7)	13 (4.0)
F	Y	13 (4.0)	16 (4.9)	18 (5.5)	22 (6.7)	21 (6.4)	23 (7.0)	24 (7.3)
8 (2.4)	Z	26 (7.9)	37 (11.3)	42 (12.8)	54 (16.5)	56 (17.1)	63 (19.2)	73 (22.3)
F	Downward louver angle	39°	34°	29°	25°	28°	24°	26°
	X	6 (1.8)	9 (2.7)	10 (3.0)	12 (3.7)	12 (3.7)	13 (4.0)	14 (4.3)
F	Ý	11 (3.4)	15 (4.6)	17 (5.2)	22 (6.7)	20 (6.1)	24 (7.3)	24 (7.3)
10 (3.0)	Z	22 (6.7)	33 (10.0)	39 (11.9)	52 (15.8)	52 (15.8)	60 (18.3)	69 (21.0)
ŀ	Downward louver angle	52°	43°	37°	32°	36°	30°	32°
	X	52	8 (2.4)	10 (3.0)	12 (3.7)	11 (3.4)	14 (4.3)	14 (4.3)
ŀ	<u> </u>	-	12 (3.7)	16 (4.9)	21 (6.4)	19 (5.8)	23 (7.0)	24 (7.3)
12 (3.7)	Z	- 1	27 (8.2)	34 (10.4)	48 (14.6)	47 (14.3)	57 (17.4)	64 (19.5)
ŀ		-	55°	46°	39°	44°	36°	39°
	Downward louver angle		00	9 (2.7)	12 (3.7)			
ŀ	X Y	-		. ,	Í .	11 (3.4)	14 (4.3)	14 (4.3)
14 (4.3)	Z		_	14 (4.3)	19 (5.8)	17 (5.2)	22 (6.7)	22 (6.7)
ŀ		-		29 (8.8)	44 (13.4)	42 (12.8)	53 (16.1)	59 (18.0)
	Downward louver angle			56°	46°	51°	43°	45°
ŀ	X Y	-			11 (3.4)	10 (3.0)	13 (4.0)	13 (4.0)
16 (4.9)		-	_		17 (5.2)	14 (4.3)	20 (6.1)	20 (6.1)
· · ·	<u>Z</u>	-			38 (11.6)	34 (10.4)	47 (14.3)	53 (16.2)
	Downward louver angle				54°	58°	50°	51°
ŀ	X	-					11 (3.4)	11 (3.4)
18 (5.5)	Y	_		_			17 (5.2)	17 (5.2)
, , ,	Z	_					40 (12.2)	44 (13.4)
	Downward louver angle						57°	58°
H*								
		475			it Size (MBTL		050	400
(Feet	Distance* or Angle	175	200	225	250	300	350	400
			·	225	250 Feet (Meters)	300	, T	
(Feet	X	15 (4.6)	16 (4.9)	225 14 (4.3)	250 Feet (Meters) 16 (4.9)	300 15 (4.6)	17 (5.2)	18 (5.5)
(Feet	X Y	15 (4.6) 28 (8.5)	16 (4.9) 30 (9.1)	225 14 (4.3) 27 (8.2)	Eeet (Meters) 16 (4.9) 29 (8.8)	300 15 (4.6) 28 (8.5)	17 (5.2) 31 (9.4)	18 (5.5) 34 (11.3)
(Feet (Meters))	X Y Z	15 (4.6) 28 (8.5) 90 (27.4)	16 (4.9) 30 (9.1) 93 (28.0)	225 14 (4.3) 27 (8.2) 86 (26.2)	Event (Meters) 16 (4.9) 29 (8.8) 93 28.3	300 15 (4.6) 28 (8.5) 94 (28.7)	17 (5.2) 31 (9.4) 105 (32.0)	18 (5.5) 34 (11.3) 113 (34.4)
(Feet (Meters))	X Y Z Downward louver angle	15 (4.6) 28 (8.5) 90 (27.4) 22°	16 (4.9) 30 (9.1) 93 (28.0) 20°	225 14 (4.3) 27 (8.2) 86 (26.2) 24°	Even (Meters) 16 (4.9) 29 (8.8) 93 28.3 21°	300 15 (4.6) 28 (8.5) 94 (28.7) 24°	17 (5.2) 31 (9.4) 105 (32.0) 20°	18 (5.5) 34 (11.3) 113 (34.4) 17°
(Feet (Meters))	X Y Z Downward louver angle X	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1)
(Feet (Meters))	X Y Z Downward louver angle X Y	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2)	Eet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7)
(Feet (Meters)) 8 (2.4)	X Y Z Downward louver angle X Y Z	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0)	E250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5)
(Feet (Meters)) 8 (2.4)	X Y Z Downward louver angle X Y Z Downward louver angle	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27°	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25°	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30°	E250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26°	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29°	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25°	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21°
(Feet (Meters)) 8 (2.4)	X Y Z Downward louver angle X Y Z Downward louver angle X	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9)	Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4)
(Feet (Meters)) 8 (2.4) 10 (3.0)	X Y Z Downward louver angle X Y Z Downward louver angle X Y	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2)	E250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0)
(Feet (Meters)) 8 (2.4)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Y Z	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9)
(Feet (Meters)) 8 (2.4) 10 (3.0)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32°	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30°	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35°	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31°	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34°	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30°	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25°
(Feet (Meters)) 8 (2.4) 10 (3.0)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0)
(Feet (Meters)) 8 (2.4) 10 (3.0)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Y	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7)
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0)
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle Z Downward louver angle	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37°	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34°	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3) 41°	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36°	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40°	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34°	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29°
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X X	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3) 41° 16 (4.9)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0)
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7) 14 (4.3)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3) 41° 16 (4.9) 24 (7.3)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7)
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Z	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3) 41° 16 (4.9) 24 (7.3) 67 (20.4)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8)
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7) 14 (4.3)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42°	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3) 41° 16 (4.9) 24 (7.3)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8 41°	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6) 45°	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7)
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7) 14 (4.3)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X X X X X	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42° 17 (5.2)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1) 39° 19 (5.8)	225 14 (4.3) 27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3) 41° 16 (4.9) 24 (7.3) 67 (20.4)	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8)
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7) 14 (4.3) 16 (4.9)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Y	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42°	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1) 39°	$\begin{array}{c} \textbf{225} \\ \hline \\ 14 (4.3) \\ 27 (8.2) \\ 86 (26.2) \\ 24^{\circ} \\ 15 (4.6) \\ 27 (8.2) \\ 82 (25.0) \\ 30^{\circ} \\ 16 (4.9) \\ 27 (8.2) \\ 78 (23.8) \\ 35^{\circ} \\ 16 (4.9) \\ 26 (7.9) \\ 73 (22.3) \\ 41^{\circ} \\ 16 (4.9) \\ 24 (7.3) \\ 67 (20.4) \\ 47^{\circ} \end{array}$	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8 41°	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6) 45°	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4) 38°	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8) 33°
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7) 14 (4.3)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X X X X X	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42° 17 (5.2)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1) 39° 19 (5.8)	$\begin{array}{c} \textbf{225} \\ \hline \\ 14 (4.3) \\ 27 (8.2) \\ 86 (26.2) \\ 24^{\circ} \\ 15 (4.6) \\ 27 (8.2) \\ 82 (25.0) \\ 30^{\circ} \\ 16 (4.9) \\ 27 (8.2) \\ 78 (23.8) \\ 35^{\circ} \\ 16 (4.9) \\ 26 (7.9) \\ 73 (22.3) \\ 41^{\circ} \\ 16 (4.9) \\ 24 (7.3) \\ 67 (20.4) \\ 47^{\circ} \\ 14 (4.3) \end{array}$	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8 41° 18 (5.5)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6) 45° 16 (4.9)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4) 38° 20 (6.1)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8) 33° 23 (7.0)
(Feet (Meters)) 8 (2.4) 10 (3.0) 12 (3.7) 14 (4.3) 16 (4.9)	X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Y	15 (4.6) 28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42° 17 (5.2) 26 (7.9)	16 (4.9) 30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1) 39° 19 (5.8) 28 (8.5)	$\begin{array}{c} \textbf{225} \\ \hline \\ 14 (4.3) \\ 27 (8.2) \\ 86 (26.2) \\ 24^{\circ} \\ 15 (4.6) \\ 27 (8.2) \\ 82 (25.0) \\ 30^{\circ} \\ 16 (4.9) \\ 27 (8.2) \\ 78 (23.8) \\ 35^{\circ} \\ 16 (4.9) \\ 26 (7.9) \\ 73 (22.3) \\ 41^{\circ} \\ 16 (4.9) \\ 24 (7.3) \\ 67 (20.4) \\ 47^{\circ} \\ 14 (4.3) \\ 22 (6.7) \end{array}$	250 Feet (Meters) 16 (4.9) 29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8 41° 18 (5.5) 27 (8.2)	300 15 (4.6) 28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6) 45° 16 (4.9) 24 (7.3)	17 (5.2) 31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4) 38° 20 (6.1) 30 (9.1)	18 (5.5) 34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8) 33° 23 (7.0) 35 (10.7)

Clearances

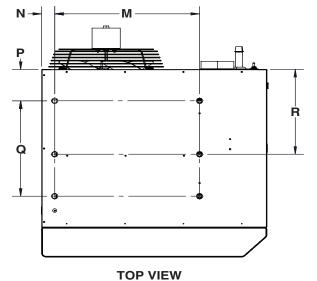
Units must be located so that clearances are provided for with regards to combustion air space, inspection, and service and for proper spacing from combustible construction. Clearance to combustibles is defined as the minimum distance from the heater to a surface or object for which it is necessary to ensure that a surface temperature of 90°F (50°C) above the surrounding ambient temperature is not exceeded.

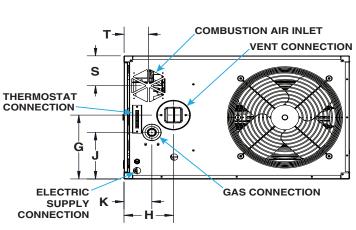
	Unit Size	(MBTUh)
Heater Surface	30–125	150-400
Surface	Minimum Clearar	nce (Inches (mm))
Тор	1 (25)	4 (102)
Flue connector	6 (152)	6 (152)
Access panel	18 (457)	18 (457)
Non-access side	1 (25)	2 (51)
Bottom*	1 (25)	1 (25)
Rear**	18 (457)	18 (457)
Front	Refer to values for variable X (distance in Heater Throw Distances with St	e from heater to start of floor coverage) andard Horizontal Louvers section
*Suspend the heater so that the bottom is a r	ninimum of 5 feet (1.5 meters) above the floor.	
**Measure rear clearance from the fan motor	· · · ·	

Weights

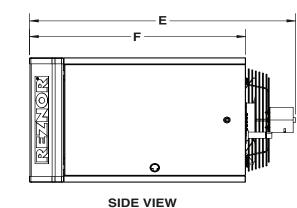
						Unit	Size (MB	TUh)					
Туре	30	45	60	75	100	125	150	200	225	250	300	350	400
		Pounds (kg)											
Unit	57 (26)	62 (28)	71 (32)	76 (34)	101 (46)	106 (48)	178 (81)	193 (88)	211 (96)	223 (101)	277 (126)	303 (137)	316 (143)
Shipping	63 (29)	68 (31)	76 (34)	81 (37)	120 (54)	125 (57)	206 (93)	221 (100)	247 (112)	259 (117)	323 (147)	348 (158)	360 (163)

Dimensions

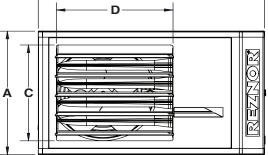




REAR VIEW



-**B**



FRONT VIEW

Dimension				Unit Size	e (MBTUh)			
(See Graphic	30, 45	60	75	100	125	150, 175, 200	225, 250	300, 350, 400
Above)				Inche	s (mm)			
A	13-3/4 (349)	16-3/4	(425)	24-3/4	(629)	20-1/8 (511)	26-1/8 (664)	34-1/8 (867)
В	27 (686)					38-3/1	6 (970)	41 (1041)
С	10 (254)	13 (330)	21 (533)	16 (406)	22 (559)	30 (762)
D			13-13/16 (351)				23 (584)	
E	29-3/4 (756)	32-23/32 (831)	31-29/32 (810)	34-9/32 (871)	34-9/32 (871)	48-7/16	6 (1230)	48-29/32 (1243)
F			25-9/16 (649)				40 (1016)	
G	6 (152)	8-11/1	6 (221)	15-5/1	6 (389)	9-5/8 (244)	13-1/16 (332)	17-1/16 (433)
Н			5-15/16 (151)			8-5/16	6 (211)	8-1/2 (216)
J	3-1/2 (89)	6 (1	52)	8-29/3	2 (226)	5-3/8 (137)	9 (229)	11-13/16 (300)
К			3-11/32 (85)			6-1/2	(165)	7-5/16 (186)
M*			17-3/8 (441)			25-11/1	6 (652)	27-11/16 (703)
N*			1-9/16 (40)				1-13/32 (36)	
P*			4-9/32 (109)				8-1/8 (206)	
Q*			13 (330)				22-3/16 (564)
R**			11-9/16 (294)			16-3/8 (416)	15-5/8 (397)	16-1/4 (413)
S	3-3/4 (95)	4-1/16	6 (103)	5-15/3	2 (139)	5-1/2 (140)	8-1/16 (205)	11-9/16 (294)
Т			2-15/16 (75)	•		4-1/4 (108)	4-5/16 (110)	4-1/2 (114)
*Heater suspen	sion points (3/	8-16 FEM).				• • •		· · · · ·
			ension (3/8-16 F	EM).				

REZNOR[®] UDXC-Series

Low Static, Axial Fan Commercial/Industrial Unit Heaters

- Separated Combustion Capable
- 82-83% Thermal Efficiency



Reznor[®] Model UDXC gas-fired unit heaters are available in 14 sizes ranging from 30,000 to 400,000 BTUH gas input. Model UDXC heaters are approved for installation in the United States and Canada by ETL. These models are built for traditional applications but are easily and quickly converted to separated combustion for use in dirty, dusty, or contaminated spaces.

Each size cabinet is easily suspended from either 2 or 4 suspension points. Or, an optional hanger kit for Sizes 30-125 allows for ceiling mounting. The low voltage terminal strip on the outside of the cabinet makes connecting control wiring easy with no panels to remove. The addition of a "G" terminal to the strip allows for fan only operation (without adding relays).

Reznor model UDXC unit heaters offer a sleek design sure to complement any space. The UDXC features a two-tone black and white powder coated, scratch-resistant paint scheme with a single red louver. Each unit has clean rounded corners and edges with no visible screws or fasteners, and the bottom is embossed with the Reznor logo. Model UDXC unit heaters provide the same superior performance customers have relied on for more than 130 years along with added features that make servicing the unit easier, installation safer and improve monitoring capabilities.

Features and Benefits

- Separated combustion capable with field installed kit
- Sizes 30-400 MBTUH certified for commercial/industrial heating application
- Sizes 30-125 MBTUH also approved for use in residential garage/ workshop heating applications
- 50-60°F Rise range
- Built-in disconnect switch (20A @ 115V Rating)
- Integrated circuit board with 7 segment display
- External status indicating LED
- Hinged door with 1/4 turn latch
- Improved cabinet design with removeable front face and two tone white and black powder paint.
- Reznor logo embossed on bottom of unit
- Tcore2 titanium stabilized aluminized steel heat exchanger
- Patented single burner combustion system including a one-piece burner assembly
- 115V, 1 phase, 60 Hz Supply voltage
- 115 Volt open fan motor with internal overload protection
- Transformer for 24-volt controls
- · Sealed control compartment houses all electrical components
- Multi-try direct spark ignition with timed lockout
- Fan relay (included on the circuit board)
- Single-stage natural gas valve (field adjustable for operation to 9,000 ft. elevation)*
- Vibration/noise isolated fan and venter motors designed for low noise operation
- 2-pt and 4-pt Suspension ~ standard on all sizes

- External terminal strip for 24-volt wiring
- External gas pipe connection
- · Sealed junction box for supply wiring
- Full fan guard

Optional Features

- Two-stage gas valve (sizes 60-400)
- 409 or 316 stainless steel heat exchangers
- Totally enclosed fan motor (sizes 30-400)
- Horizontal or vertical combustion air/vent kit including concentric adapter
- Many control options from simple to wifi-controllable thermostats to BacNET compatility
- Thermostat guard with locking cover
- Integrated vertical louvers
- Integrated 30° & 60° downturn nozzles
- Gas conversion kits (propane)
- Primary/secondary controls for zoning up to six units
- Ceiling suspension kit Sizes 30-125
- Hanger kits for 1" pipe
- Stepdown transformer (for 208/115, 230/115 or 460/115 supply voltage)

*Note: Pressure switch change required for installations above 6,000 ft.

REZNOR



Included Options for UDXC-200 / GUH 7 THRU 10

AA1 Unit equipped for natural gas heating.Natural gas is a naturally occurring gas mixture consisting primarily of methane and includes varying volumes of alkanes, carbon dioxide, nitrogen, and hydrogen sulfide.1 Therm = 100,000 BTU = 29.3kWh

AC1 Heat exchanger is manufactured from die-formed halves of aluminized steel.

AG1 Gas controls designed for recirculating air heating application. Furnace has a 24 volt, single stage combination gas valve which includes the electronic on-off valve controlled by a single-stage 24 volt room thermostat, a pressure regulator, a safety pilot valve, and the manual shutoff valve.

AK1 115 Volt, Single Phase, 60 cycle supply voltage.

AL1 Standard fan motor

AV2 Power Venting

AZ0 Unit supply fan protected by a close mesh fan guard.



CC1 Vent cap





CL1 Single-stage thermostat 40-80F, 24 volt

Technical Data

Demonster	Unit of			Unit Size	(MBTUh)		
Parameter	Measure	30	45	60	75	100	125
Thermal efficiency	%	82	83	8	3	8	33
land the stimulation of the	BTUh	30,000	45,000	60,000	75,000	105,000	120,000
Input heating capacity	kW	8.8	13.2	17.6	22.0	30.8	35.2
	BTUh	17,220	26,145	34,860	43,575	61,005	69,720
Output heating capacity, low fire*	kW	5.0	7.6	10.2	12.7	17.9	20.4
	BTUh	24,600	37,350	49,800	62,250	87,150	99,600
Output heating capacity, high fire*	kW	7.2	10.9	14.6	18.2	25.5	29.2
Gas connection**				1.	/2		
Vent connection diameter***	inch				4		
Control, 24V		1		1	.0		
Full load amps, 115V	amp	1.9	2.4	2.4	3.7	4.3	5.6
Maximum overcurrent protection, 115V [†]				. 1	5		
Normal power consumption	watt	109	155	155	217	276	354
	°F	50	55	6	0	6	60
Discharge air temperature rise	°C	10	12.8	15	5.5	1!	5.5
	CFM	456	629	769	961	1345	1537
Air volume	meter ³ /minute	12.9	17.8	21.8	27.5	36.7	45.9
D : 1 · · ·	foot ²	0.	96	1.	25	2.	01
Discharge air opening area	meter ²	0.	09	0.	12	0.	19
	FPM	475	656	616	770	668	763
Output velocity	meter/minute	145	200	188	235	204	233
Open fan motor horsepower	115	0.02	0.03	0.03	0.06	1/30	1/20
Totally-enclosed fan motor horsepower	- HP	0.	06	0.	06	1	/4
Fan motor speed	RPM	15	50	15	50	10)50
Fan diameter	inch	1	0	1	2	1	6
Sound level @ 15 feet	dBa	4	0	40	49	54	55
*ETL ratings for elevations up to 2,000 feet.	•	•				•	
**Size shown is for natural gas or propane of	as connection to a si	ngle-stage g	as valve—no	t supply line :	size.		

***Smaller and/or larger vent and combustion air pipe diameters may be permissible.

[†]MOCP = 2.25 × (largest motor FLA) + smallest motor FLA. Answer is rounded to the next lower standard circuit breaker size.

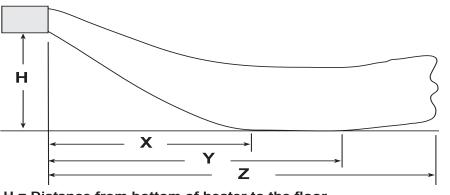
Devemeter	Unit of				Unit Size	(MBTUh)			
Parameter	Measure	150	175	200	225	250	300	350	400
Thermal efficiency	%			ann	8	3			
Innut besting conseits	BTUh	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
Input heating capacity	kW	44.0	51.3	58.6	65.9	73.3	87.9	102.6	117.2
Outrast has stime and site have first	BTUh	87,150	101,675	116,200	130,725	145,250	174,300	203,350	232,400
Output heating capacity, low fire*	kW	25.5	29.8	34.0	38.3	42.6	51.0	59.6	68.1
	BTUh	124,500	145,250	166,000	186,750	207,500	249,000	290,500	332,000
Output heating capacity, high fire*	kW	36.5	42.6	48.7	54.7	60.8	73.0	85.1	97.3
*ETL ratings for elevations up to 2,000 f	eet.								



Parameter	Unit of				Unit Size	(MBTUh)			
Farameter	Measure	150	175	200	225	250	300	350	400
Gas connection**	inch		1/2	Curra	3/4	.	3	/4	
Vent connection diameter***	Inch		Ę	5		5		6	
Control, 24V					1	.0			
Full load amps, 115V	amp	3	.8	4.6	7.5	7.5		11.0	
Maximum overcurrent protection, 115V [†]			1	5		15			
Normal power consumption	watt	39	92	491	747	747		1086	
Discharge ein temperature rice	°F				6	0			
Discharge air temperature rise	°C				15	5.5			
Air volume	CFM	1921	2242	2562	2882	3202	3843	4483	5123
Air volume	meter ³ /minute	54.4	63.5	72.5	81.6	90.7	108.8	126.9	145.1
Discharge ein enening eree	foot ²		2.56		3.51	3.51		4.79	
Discharge air opening area	meter ²		0.24		0.33	0.33		0.45	
Output valagity	FPM	752	877	1003	820	911	802	936	1069
Output velocity	meter/minute	229	267	306	250	278	244	285	326
Open fan motor horsepower	HP		1/6		1/4	1/4		1/2	
Totally-enclosed fan motor horsepower	пг		1/4		1/4	1/4		1/2	
Fan motor speed	RPM				10	50			
Fan diameter	inch		18		20	20		24	
Sound level @ 15 feet	dBa	51	52	53	56	56	59	61	62
**Size shown is for natural gas or propan	e gas connection to	a single-	stage gas	valve—not	supply lin	e size.			
***Smaller and/or larger vent and combus	stion air pipe diame	ters may b	pe permiss	ible.					
[†] MOCP = 2.25 × (largest motor FLA) + sn	nallest motor FLA.	Answer is	rounded to	the next	ower stan	dard circui	t breaker :	size.	

Heater Throw Distances with Standard Horizontal Louvers

The graphic shows throw patterns and the table lists throw distances for heaters suspended at varying mounting heights. The louver angles listed are relative to the top of the heater. The throw pattern changes with the addition of optional vertical louvers and/or downturn nozzles.



- H = Distance from bottom of heater to the floor
- X = Distance from heater to start of floor coverage
- Y = Distance to end of floor coverage
- Z = Distance at which air velocity drops below 50 feet (15.2 meters) per minute

H* (Feet				Un	nit Size (MBTL	Jh)		
(1.001	Distance* or Angle	30	45	60	75	100	125	150
(Meters))					Feet (Meters)			
	Х	6 (1.8)	7 (2.1)	8 (2.4)	9 (2.7)	9 (2.7)	10 (3.0)	
	Y	14 (4.3)	16 (4.9)	18 (5.5)	20 (6.1)	20 (6.1)	22 (6.7)	
5 (1.5)	Z	30 (9.1)	40 (12.2)	45 (13.8)	57 (17.4)	59 (18.0)	65 (19.9)	_
Γ	Downward louver angle	21°	20°	16°	14°	18°	14°	1
	X	7 (2.1)	9 (2.7)	10 (3.0)	12 (3.7)	11 (3.4)	12 (3.7)	13 (4.0)
	Y	13 (4.0)	16 (4.9)	18 (5.5)	22 (6.7)	21 (6.4)	23 (7.0)	24 (7.3)
8 (2.4)	Z	26 (7.9)	37 (11.3)	42 (12.8)	54 (16.5)	56 (17.1)	63 (19.2)	73 (22.3)
ľ	Downward louver angle	39°	34°	29°	25°	28°	24°	26°
	X	6 (1.8)	9 (2.7)	10 (3.0)	12 (3.7)	12 (3.7)	13 (4.0)	14 (4.3)
F	Y	11 (3.4)	15 (4.6)	17 (5.2)	22 (6.7)	20 (6.1)	24 (7.3)	24 (7.3)
10 (3.0)	Z	22 (6.7)	33 (10.0)	39 (11.9)	52 (15.8)	52 (15.8)	60 (18.3)	69 (21.0)
F	Downward louver angle	52°	43°	37°	32°	36°	30°	32°
	X		8 (2.4)	10 (3.0)	12 (3.7)	11 (3.4)	14 (4.3)	14 (4.3)
F	Y	1	12 (3.7)	16 (4.9)	21 (6.4)	19 (5.8)	23 (7.0)	24 (7.3)
12 (3.7)	Z	1 —	27 (8.2)	34 (10.4)	48 (14.6)	47 (14.3)	57 (17.4)	64 (19.5)
ŀ	Downward louver angle	1	55°	46°	39°	44°	36°	39°
	X			9 (2.7)	12 (3.7)	11 (3.4)	14 (4.3)	14 (4.3)
F	<u> </u>	1		14 (4.3)	12 (3.7)	17 (5.2)	22 (6.7)	22 (6.7)
14 (4.3)	7		_	29 (8.8)	44 (13.4)	42 (12.8)	53 (16.1)	
F	Downward louver angle	4		29 (8.8) 56°	44 (13.4) 46°	42 (12.0) 51°	43°	59 (18.0) 45°
	X							
ŀ	<u> </u>	-			11 (3.4)	10 (3.0)	13 (4.0)	13 (4.0)
16 (4.9)	Z	4	_		17 (5.2)	14 (4.3)	20 (6.1)	20 (6.1)
ŀ		-			38 (11.6)	34 (10.4)	47 (14.3)	53 (16.2)
ł	Downward louver angle				54°	58°	50°	51°
ŀ	<u> </u>	4					11 (3.4)	11 (3.4)
18 (5.5)	Y 7	4		_			17 (5.2)	17 (5.2)
ŀ	Z	4					40 (12.2)	44 (13.4)
	Downward louver angle			11-			57°	58°
H*	Distance* or Aprila	175	6003	225	it Size (MBTU	300	350	400
(Feet (Meters))	Distance* or Angle	175	200		Feet (Meters)			400
					reer (meters)			
	×	15 (4 6)	16(10)	14 (4 3)	16 (4 9)	15 (4 6)	17 (5 2)	18 (5 5)
ŀ	X	15 (4.6)	16 (4.9)	14 (4.3)	16 (4.9)	15 (4.6)	17 (5.2)	18 (5.5)
8 (2.4)	Y	28 (8.5)	30 (9.1)	27 (8.2)	29 (8.8)	28 (8.5)	31 (9.4)	34 (11.3)
8 (2.4)	Y Z	28 (8.5) 90 (27.4)	30 (9.1) 93 (28.0)	27 (8.2) 86 (26.2)	29 (8.8) 93 28.3	28 (8.5) 94 (28.7)	31 (9.4) 105 (32.0)	34 (11.3) 113 (34.4)
8 (2.4)	Y Z Downward louver angle	28 (8.5) 90 (27.4) 22°	30 (9.1) 93 (28.0) 20°	27 (8.2) 86 (26.2) 24°	29 (8.8) 93 28.3 21°	28 (8.5) 94 (28.7) 24°	31 (9.4) 105 (32.0) 20°	34 (11.3) 113 (34.4) 17°
8 (2.4) -	Y Z Downward louver angle X	28 (8.5) 90 (27.4) 22° 17 (5.2)	30 (9.1) 93 (28.0) 20° 17 (5.2)	27 (8.2) 86 (26.2) 24° 15 (4.6)	29 (8.8) 93 28.3 21° 17 (5.2)	28 (8.5) 94 (28.7) 24° 16 (4.9)	31 (9.4) 105 (32.0) 20° 18 (5.5)	34 (11.3) 113 (34.4) 17° 20 (6.1)
8 (2.4)	Y Z Downward louver angle X Y	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4)	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2)	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1)	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7)
	Y Z Downward louver angle X Y Z	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7)	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0)	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5)
	Y Z Downward louver angle X Y Z Downward louver angle	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27°	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25°	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30°	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26°	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29°	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25°	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21°
	Y Z Downward louver angle X Y Z Downward louver angle X	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5)	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9)	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5)	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4)
	Y Z Downward louver angle X Y Z Downward louver angle X Y	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4)	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2)	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1)	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0)
10 (3.0)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8)	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8)	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9)
10 (3.0)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32°	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30°	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35°	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31°	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34°	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30°	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25°
10 (3.0)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8)	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9)	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5)	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0)
10 (3.0)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1)	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9)	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1)	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7)
10 (3.0) 12 (3.7)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Z	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6)	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3)	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0)
10 (3.0) 12 (3.7)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle Z Downward louver angle	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37°	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34°	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3) 41°	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36°	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40°	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34°	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29°
10 (3.0) 12 (3.7)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8)	$\begin{array}{c} 27 \ (8.2) \\ 86 \ (26.2) \\ 24^{\circ} \\ 15 \ (4.6) \\ 27 \ (8.2) \\ 82 \ (25.0) \\ 30^{\circ} \\ 16 \ (4.9) \\ 27 \ (8.2) \\ 78 \ (23.8) \\ 35^{\circ} \\ 16 \ (4.9) \\ 26 \ (7.9) \\ 73 \ (22.3) \\ 41^{\circ} \\ 16 \ (4.9) \end{array}$	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8)	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0)
10 (3.0) 12 (3.7) 14 (4.3)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8)	$\begin{array}{c} 27 \ (8.2) \\ 86 \ (26.2) \\ 24^{\circ} \\ 15 \ (4.6) \\ 27 \ (8.2) \\ 82 \ (25.0) \\ 30^{\circ} \\ 16 \ (4.9) \\ 27 \ (8.2) \\ 78 \ (23.8) \\ 35^{\circ} \\ 16 \ (4.9) \\ 26 \ (7.9) \\ 73 \ (22.3) \\ 41^{\circ} \\ 16 \ (4.9) \\ 24 \ (7.3) \end{array}$	$\begin{array}{c} 29 \ (8.8) \\ 93 \ 28.3 \\ 21^{\circ} \\ 17 \ (5.2) \\ 30 \ (9.1) \\ 90 \ 27.4 \\ 26^{\circ} \\ 18 \ (5.5) \\ 30 \ (9.1) \\ 87 \ 26.5 \\ 31^{\circ} \\ 18 \ (5.5) \\ 30 \ (9.1) \\ 87 \ 26.5 \\ 31^{\circ} \\ 18 \ (5.5) \\ 30 \ (9.1) \\ 83 \ 25.3 \\ 36^{\circ} \\ 19 \ (5.8) \\ 28 \ (8.5) \end{array}$	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7)
10 (3.0) 12 (3.7)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1)	27 (8.2) 86 (26.2) 24° 15 (4.6) 27 (8.2) 82 (25.0) 30° 16 (4.9) 27 (8.2) 78 (23.8) 35° 16 (4.9) 26 (7.9) 73 (22.3) 41° 16 (4.9) 24 (7.3) 67 (20.4)	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8)
10 (3.0) 12 (3.7) 14 (4.3)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42°	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1) 39°	$\begin{array}{c} 27 \ (8.2) \\ 86 \ (26.2) \\ 24^{\circ} \\ 15 \ (4.6) \\ 27 \ (8.2) \\ 82 \ (25.0) \\ 30^{\circ} \\ 16 \ (4.9) \\ 27 \ (8.2) \\ 78 \ (23.8) \\ 35^{\circ} \\ 16 \ (4.9) \\ 26 \ (7.9) \\ 73 \ (22.3) \\ 41^{\circ} \\ 16 \ (4.9) \\ 24 \ (7.3) \\ 67 \ (20.4) \\ 47^{\circ} \end{array}$	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8 41°	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6) 45°	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4) 38°	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8) 33°
10 (3.0) 12 (3.7) 14 (4.3)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X X	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42° 17 (5.2)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1) 39° 19 (5.8)	$\begin{array}{c} 27 \ (8.2) \\ 86 \ (26.2) \\ 24^{\circ} \\ 15 \ (4.6) \\ 27 \ (8.2) \\ 82 \ (25.0) \\ 30^{\circ} \\ 16 \ (4.9) \\ 27 \ (8.2) \\ 78 \ (23.8) \\ 35^{\circ} \\ 16 \ (4.9) \\ 26 \ (7.9) \\ 73 \ (22.3) \\ 41^{\circ} \\ 16 \ (4.9) \\ 24 \ (7.3) \\ 67 \ (20.4) \\ 47^{\circ} \\ 14 \ (4.3) \end{array}$	$\begin{array}{c} 29 \ (8.8) \\ 93 \ 28.3 \\ 21^{\circ} \\ 17 \ (5.2) \\ 30 \ (9.1) \\ 90 \ 27.4 \\ 26^{\circ} \\ 18 \ (5.5) \\ 30 \ (9.1) \\ 87 \ 26.5 \\ 31^{\circ} \\ 18 \ (5.5) \\ 30 \ (9.1) \\ 83 \ 25.3 \\ 36^{\circ} \\ 19 \ (5.8) \\ 28 \ (8.5) \\ 78 \ 23.8 \\ 41^{\circ} \\ 18 \ (5.5) \end{array}$	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6) 45° 16 (4.9)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4) 38° 20 (6.1)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8) 33° 23 (7.0)
10 (3.0) 12 (3.7) 14 (4.3) 16 (4.9)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42° 17 (5.2) 26 (7.9)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1) 39° 19 (5.8) 28 (8.5)	$\begin{array}{c} 27 \ (8.2) \\ 86 \ (26.2) \\ 24^{\circ} \\ 15 \ (4.6) \\ 27 \ (8.2) \\ 82 \ (25.0) \\ 30^{\circ} \\ 16 \ (4.9) \\ 27 \ (8.2) \\ 78 \ (23.8) \\ 35^{\circ} \\ 16 \ (4.9) \\ 26 \ (7.9) \\ 73 \ (22.3) \\ 41^{\circ} \\ 16 \ (4.9) \\ 24 \ (7.3) \\ 67 \ (20.4) \\ 47^{\circ} \\ 14 \ (4.3) \\ 22 \ (6.7) \end{array}$	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8 41° 18 (5.5) 27 (8.2)	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6) 45° 16 (4.9) 24 (7.3)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4) 38° 20 (6.1) 30 (9.1)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8) 33° 23 (7.0) 35 (10.7)
10 (3.0) 12 (3.7) 14 (4.3)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Z Downward louver angle X Y Z	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42° 17 (5.2) 26 (7.9) 68 (20.7)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1) 39° 19 (5.8) 28 (8.5) 74 (22.6)	$\begin{array}{c} 27 \ (8.2) \\ 86 \ (26.2) \\ 24^{\circ} \\ 15 \ (4.6) \\ 27 \ (8.2) \\ 82 \ (25.0) \\ 30^{\circ} \\ 16 \ (4.9) \\ 27 \ (8.2) \\ 78 \ (23.8) \\ 35^{\circ} \\ 16 \ (4.9) \\ 26 \ (7.9) \\ 73 \ (22.3) \\ 41^{\circ} \\ 16 \ (4.9) \\ 24 \ (7.3) \\ 67 \ (20.4) \\ 47^{\circ} \\ 14 \ (4.3) \\ 22 \ (6.7) \\ 60 \ (18.3) \end{array}$	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8 41° 18 (5.5) 27 (8.2) 72 (21.9)	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6) 45° 16 (4.9) 24 (7.3) 66 (20.1)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4) 38° 20 (6.1) 30 (9.1) 85 (25.9)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8) 33° 23 (7.0) 35 (10.7) 97 (26.9)
10 (3.0) 12 (3.7) 14 (4.3) 16 (4.9)	Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y Z Downward louver angle X Y	28 (8.5) 90 (27.4) 22° 17 (5.2) 29 (8.8) 87 (26.6) 27° 18 (5.5) 29 (8.8) 84 (25.6) 32° 18 (5.5) 28 (8.5) 79 (24.1) 37° 18 (5.5) 27 (8.2) 74 (22.6) 42° 17 (5.2) 26 (7.9)	30 (9.1) 93 (28.0) 20° 17 (5.2) 31 (9.4) 91 (27.7) 25° 18 (5.5) 31 (9.4) 88 (26.8) 30° 19 (5.8) 30 (9.1) 84 (25.6) 34° 19 (5.8) 29 (8.8) 79 (24.1) 39° 19 (5.8) 28 (8.5)	$\begin{array}{c} 27 \ (8.2) \\ 86 \ (26.2) \\ 24^{\circ} \\ 15 \ (4.6) \\ 27 \ (8.2) \\ 82 \ (25.0) \\ 30^{\circ} \\ 16 \ (4.9) \\ 27 \ (8.2) \\ 78 \ (23.8) \\ 35^{\circ} \\ 16 \ (4.9) \\ 26 \ (7.9) \\ 73 \ (22.3) \\ 41^{\circ} \\ 16 \ (4.9) \\ 24 \ (7.3) \\ 67 \ (20.4) \\ 47^{\circ} \\ 14 \ (4.3) \\ 22 \ (6.7) \end{array}$	29 (8.8) 93 28.3 21° 17 (5.2) 30 (9.1) 90 27.4 26° 18 (5.5) 30 (9.1) 87 26.5 31° 18 (5.5) 30 (9.1) 83 25.3 36° 19 (5.8) 28 (8.5) 78 23.8 41° 18 (5.5) 27 (8.2)	28 (8.5) 94 (28.7) 24° 16 (4.9) 28 (8.5) 89 (27.1) 29° 17 (5.2) 28 (8.5) 85 (25.9) 34° 17 (5.2) 27 (8.2) 80 (24.4) 40° 17 (5.2) 25 (7.6) 74 (22.6) 45° 16 (4.9) 24 (7.3)	31 (9.4) 105 (32.0) 20° 18 (5.5) 32 (9.8) 103 (31.4) 25° 19 (5.8) 32 (9.8) 98 (29.9) 30° 20 (6.1) 32 (9.8) 95 (29.0) 34° 21 (6.4) 31 (9.4) 90 (27.4) 38° 20 (6.1) 30 (9.1)	34 (11.3) 113 (34.4) 17° 20 (6.1) 35 (10.7) 110 (33.5) 21° 21 (6.4) 36 (11.0) 108 (32.9) 25° 23 (7.0) 35 (10.7) 105 (32.0) 29° 23 (7.0) 35 (10.7) 101 (30.8) 33° 23 (7.0) 35 (10.7)

Clearances

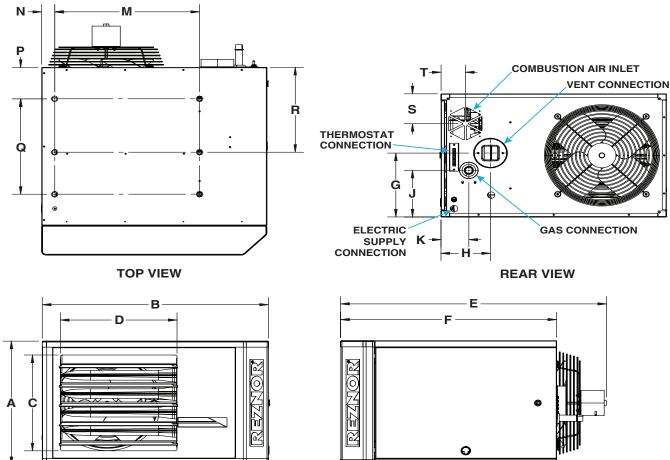
Units must be located so that clearances are provided for with regards to combustion air space, inspection, and service and for proper spacing from combustible construction. Clearance to combustibles is defined as the minimum distance from the heater to a surface or object for which it is necessary to ensure that a surface temperature of 90°F (50°C) above the surrounding ambient temperature is not exceeded.

	Unit Size (MBTUh)				
Heater Surface	30–125	150–400			
Surface	Minimum Clearance (Inches (mm))				
Тор	1 (25)	4 (102)			
Flue connector	6 (152)	6 (152)			
Access panel	18 (457)	18 (457)			
Non-access side	1 (25)	2 (51)			
Bottom*	1 (25)	1 (25)			
Rear**	18 (457)	18 (457)			
Front Refer to values for variable X (distance from heater to start of floor coverage) in Heater Throw Distances with Standard Horizontal Louvers section					
*Suspend the heater so that the bottom is a r	ninimum of 5 feet (1.5 meters) above the floor.				
**Measure rear clearance from the fan motor					

Weights

	Unit Size (MBTUh)												
Туре	30	45	60	75	100	125	150	175, 200	225	250	300	350	400
[Pounds (kg)												
Unit	57 (26)	62 (28)	71 (32)	76 (34)	101 (46)	106 (48)	178 (81)	193 (88)	211 (96)	223 (101)	277 (126)	303 (137)	316 (143)
Shipping	63 (29)	68 (31)	76 (34)	81 (37)	120 (54)	125 (57)	206 (93)	221 (100)	247 (112)	259 (117)	323 (147)	348 (158)	360 (163)





FRONT VIEW

Dimension	Unit Size (MBTUh)								
(See Graphic	30, 45	60	75	100	125	150, 175, 200	225, 250	300, 350, 400	
Above)									
A	13-3/4 (349)	16-3/4	(425)	24-3/4	(629)	20-1/8 (511)	26-1/8 (664)	34-1/8 (867)	
В	27 (686)						38-3/16 (970)		
С	10 (254)	13 (330)	21 (533)	16 (406)	22 (559)	30 (762)	
D			13-13/16 (351)		23 (584)				
E	29-3/4 (756) 32-23/32 (831) 31-29/32 (810) 34-9/32 (871) 34-9/32 (871) 48-7/16 (1230)						6 (1230)	48-29/32 (1243)	
F				40 (1016)					
G	6 (152)	8-11/1	8-11/16 (221) 15-5/16 (389) 9-5/8 (13-1/16 (332)	17-1/16 (433)	
Н			5-15/16 (151)	8-5/16	8-1/2 (216)				
J	3-1/2 (89)	3-1/2 (89) 6 (152)			2 (226)	5-3/8 (137)	9 (229)	11-13/16 (300)	
K	3-11/32 (85) 6-1/2 (165) 7-5/16 (186							7-5/16 (186)	
M*	17-3/8 (441) 25-11/16 (652) 27-11/16 (703							27-11/16 (703)	
N*	1-9/16 (40) 1-13/32 (36)								
P*	4-9/32 (109) 8-1/8 (206)								
Q*	13 (330) 22-3/16 (564)								
R**							16-1/4 (413)		
S	3-3/4 (95)	4-1/16			8-1/16 (205)	11-9/16 (294)			
Т		-	2-15/16 (75)	4-1/4 (108)	4-5/16 (110)	4-1/2 (114)			
*Heater suspension points (3/8-16 FEM).									
**Heater suspension points for two-point suspension (3/8-16 FEM).									

SIDE VIEW



JOB	RECORD
JOB	
INSTALLATION DATE	

CONTRACTOR DISTRIBUTOR

Revision: W (06-24) 1036195-D

Supersedes: W (02-24) 1036195-C

WARRANTY

Applies to: Nortek Global HVAC, LLC Products

MANUFACTURER PRODUCT LIMITED WARRANTY

Nortek Global HVAC, LLC warrants to the original owner-user that this product will be free from defects in material and workmanship. This warranty is limited to twelve (12) months from the date of original installation, whether or not actual use begins on that date, or eighteen (18) months from date of shipment, whichever occurs first.

MANUFACTURER REPLACEMENT PARTS LIMITED WARRANTY

Nortek Global HVAC, LLC warrants replacement parts for thirty (30) days after installation or thirteen (13) months from date of shipment, whichever occurs first.

EXTENDED WARRANTY

(Limited to the following Models, Components, and Applications. See Application NOTE below.)

Model ZQYRA—Extended one (1)-year, non-prorated warranty on all parts.

- Models F and B-Extended nine (9)-year, non-prorated warranty on the heat exchanger, burners, draft hood, and flue baffle assembly. Extended four (4)-year, non-prorated warranty on all electrical and mechanical operating components (with the exception of blower belts on Model B).
- Models UBX, UBXC, UBZ, UDX, UDXC, UDZ, and UEZ-Extended nine (9)-year, non-prorated warranty on the heat exchanger, burner, and flue collection box assembly. Extended four (4)-year, non-prorated warranty on all electrical and mechanical operating components (with the exception of blower belts on Models UBX, UBXC, and UBZ).
- Models EUH, H, and UWS-Extended four (4)-year non-pro-rated warranty on all electrical and mechanical operating components.

Model CAUA—Extended nine (9)-year, non-prorated warranty on the heat exchanger and burners. Extended four (4)-year, nonprorated warranty on all electrical and mechanical operating components (with the exception of blower belts).

Models VCS, VCT, VPS, VPT, VR, VZ, and VZH—Extended nine (9)-year, non-prorated warranty on all tubes. Extended four (4)year, non-prorated warranty on the burner and all electrical and mechanical operating components.

Model OH—Extended four (4)-year, non-prorated warranty on the heat exchanger and combustion chamber.

Application NOTE: Extended warranty on electrical and mechanical operating components does not apply to any HVAC equipment installed in highly humid environments such as greenhouses.

OPTIONAL PURCHASED EXTENDED WARRANTY

(Purchased with and limited to the following Models and Components.) Option XW1—Extended four (4) years for a total five-year, non-prorated warranty on compressors. For Models: PEH, PXH, PDH, RCB, RDB, RDCB, RDDB, RECB, REDB, RCC, RDC, RDCC, RDDC, RECC, REDC, RHH, REH, RXH, RDH, SDH, SHH, MASA, YDHA, YDMA, YDSA, DF6SF, JS4BD, JT4BD, P6SD, P6SP, Q6SD, Q6SP, R6GD, R6GF, R6GI, R6GP, R6GN, R8GD, R8HE, S5BP, T5BP

Option XW2—Extended four (4) years for a total five-year, non-prorated warranty on the heat exchanger. For Models: PDH, PXH, SDH, SHH, RDH with AC2 or AC4, RHH with AC5, RDCB, RDDB, RDCC, RDDC, RPB, RPBL, SCE, SSCBL, YDHA, YDMA, YDSA

Option XW3—Extended nine (9) years for a total ten-year, non-prorated warranty on the heat exchanger.

For Models: PDH. PXH. SDH. SHH. RDH with AC2 or AC4. RHH with AC5. RDCB. RDDB. RDCC. RDDC. RPB. RPBL.

SCE, SSCBL, YDHA, YDMA, YDSA, B6BMM, DF6SF, R6GD, R6GF, R6GI, R6GP, R6GN, R8GD, R8HE

Option XW4—Extended four (4) years for a total five-year, non-prorated warranty on electric furnace.

For Models: PEH, REH, RECB, REDB, RECC, REDC, YDHA, YDMA, YDSA

Option XW8—Extended one (1) year for a total two-years, non-prorated warranty on all parts (including compressor and heat section).

For Models: YDHA, YDMA, YDSA, B5SM, B6BMM, DF6SF, JS4BD, JT4BD, P6SD, P6SP, Q6SD, Q6SP, R6GD, R6GF, R6GI, R6GP, R6GN, R8GD, R8HE, S5BP, T5BP

Option XW9—Extended three (3) years for a total five-year, non-prorated warranty on all parts. For Model: ZQYRA

Option XW10—Extended eight (8) years for a total ten-year, non-prorated warranty on all parts. For Model: ZQY1

LIMITATIONS AND EXCLUSIONS
Nortek Global HVAC, LLC (Nortek) obligations under this warranty and the sole remedy for its breach are limited to repair, at its
manufacturing facility, of any part or parts of its products which prove to be defective; or, in its sole discretion, replacement of such
products. All returns of defective parts or products must include the product model number and serial number, and must be made
through an authorized distributor or arranged through Customer Service. Authorized returns must be shipped prepaid. Repaired or
replacement parts will be shipped F.O.B. shipping point.
 The warranty provided herein does not cover charges for labor or other costs incurred in the troubleshooting, repair, removal, installation, service or handling of parts or complete products.
EXCEPTION: Model WS —If heat exchanger leaks or other failure occurs within the warranty period, Nortek will pay up to \$50
for qualified contractor to make necessary repairs. If the heat exchanger cannot be repaired, Nortek will exchange the defective
unit for a new hydronic heater.
2. All claims under the warranty provided herein must be made within ninety (90) days from the date of discovery of the defect.
Failure to notify the manufacturer of a warranted defect within ninety (90) days of its discovery voids obligation hereunder.
3. The warranty provided herein shall be void and of no effect in the event that (a) the product has been operated outside its
designed output capacity (heating, cooling, airflow); (b) the product has been subjected to misuse, neglect, accident, improper
or inadequate maintenance, corrosive environments, environments containing airborne contaminants (silicone, aluminum oxide,
etc.), or excessive thermal shock; (c) unauthorized modifications are made to the product; (d) the product is not installed or
operated in compliance with the manufacturer's printed instructions; (e) the product is not installed and operated in compliance
with applicable building, mechanical, plumbing and electrical codes; or (f) the serial number of the product has been altered,
defaced, or removed.
4. The warranty provided herein is for repair or replacement only. the manufacturer shall not be liable for any loss, cost, damage,
or expense of any kind arising out of a breach of the warranty. Further, shall not be liable for any incidental, consequential,
exemplary, special, or punitive damages, nor for any loss of revenue, profit or use, arising out of a breach of this warranty or in
connection with the sale, maintenance, use, operation, or repair of any product. In no event will be liable for any amount greater
than the purchase price of a defective product. The disclaimers of liability included in this paragraph 4 shall remain in effect and shall continue to be enforceable in the event that any remedy herein shall fail of its essential purpose.
5. THIS WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY FOR NORTEK PRODUCTS, AND IS IN LIEU OF ALL OTHER
EXPRESS AND IMPLIED WARRANTIES. NORTEK GLOBAL HVAC LLC SPECIFICALLY DISCLAIMS ALL OTHER EXPRESS
AND IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ALL IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR A PARTICULAR PURPOSE. No person or entity is authorized to bind NORTEK to any other warranty,
obligation, or liability for any product. Installation, operation, or use of the product for which this warranty is issued shall
constitute acceptance of the terms hereof.
6. Failure and replacement caused by contamination from bacteria are excluded from warranty coverage (i.e. dirty sock
syndrome). Consequential or other damage(s) caused by rust, brownouts, blackouts, oxidation, corrosion, water, water condition,
freezing, fire, other abnormal environmental conditions or other natural acts are excluded from warranty coverage. Premature
failure due to the use of inferior building materials such as high sulfur content dry wall, corrosive conditions caused by location,
moisture, green slime, etc. are also excluded from warranty coverage.
7. This warranty does not apply to parts that fail as a direct result of environmental influences.

Specifications and illustrations subject to change without notice or incurring obligations. ©2024 Nortek Global HVAC LLC, O'Fallon, MO. All rights reserved. W (06-24) 1036195-D

