SUBMITTAL

Project

~Untitled18

Date

Tuesday, July 09, 2013

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Prepared By: 02:25PM

rtu-2

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Unit Report For rtu-2

Project: ~Untitled18
Prepared By:

07/09/2013
02:25PM

Unit Parameters

Unit Model: **50TCQA05A0A3-0A0A0**
Unit Size: **05 (4 Tons)**
Volts-Phase-Hertz: **230-1-60**
Heating Type: **Heat Pump**
Duct Cfg: **Vertical Supply / Vertical Return**
Standard One-Stage Cooling Refrigeration Coil

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length: **6' 2.375"**
Unit Width: **3' 10.75"**
Unit Height: **2' 9.375"**
*** Total Operating Weight: **550** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Condensate Drain Line Size: **3/4**
Return Air Filter Type: **Throwaway**
Return Air Filter Quantity: **2**
Return Air Filter Size: **16 x 25 x 2**

Unit Configuration

Electric Drive X13
Al/Cu - Al/Cu
Base Electromechanical Controls
Standard Packaging

Warranty Information

5-Year electric heaters (STD.)
1-Year parts (STD.)
5-Year Compressor (std.)

No optional warranties were selected.

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

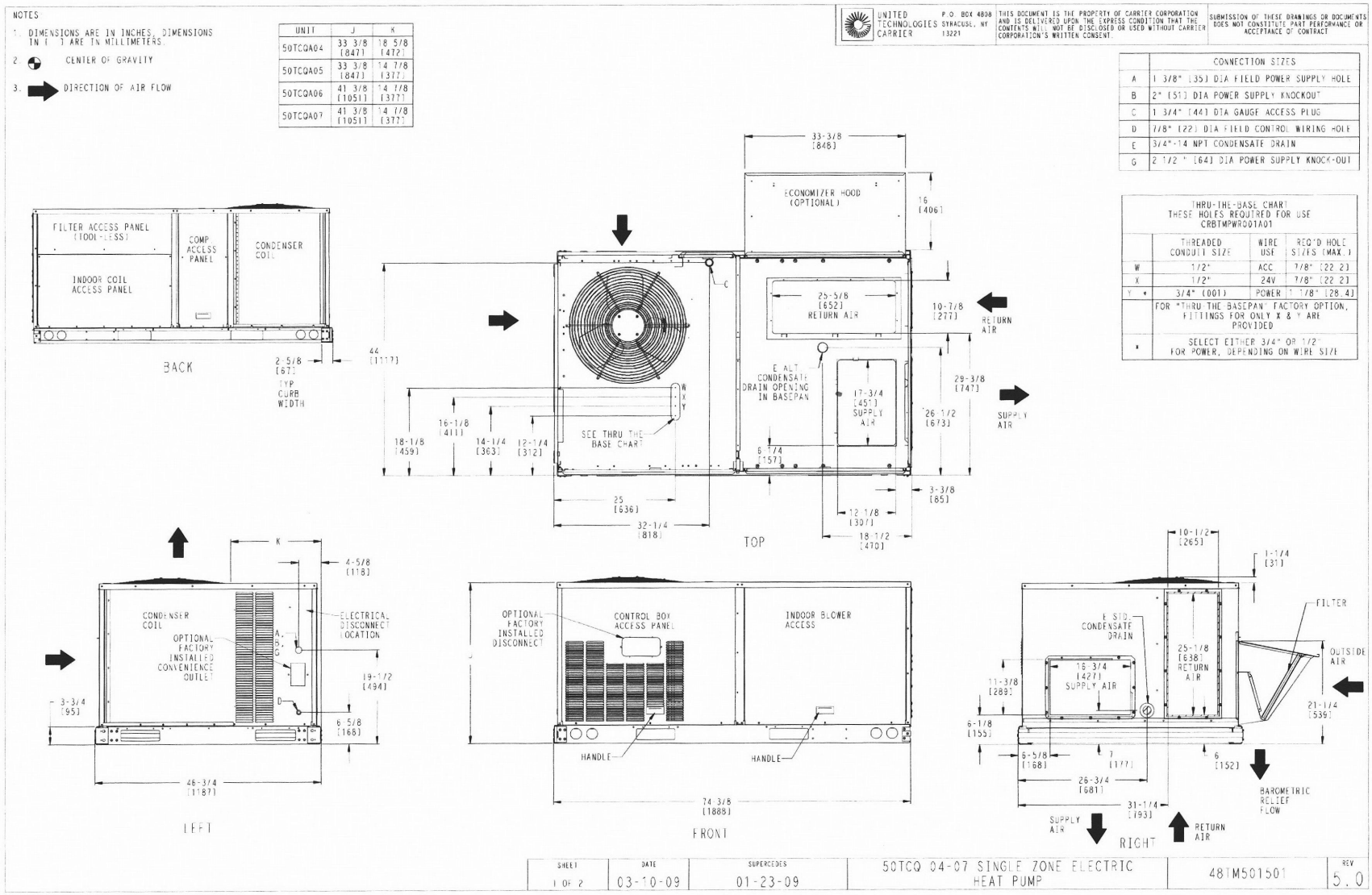
Ordering Information

Part Number	Description	Quantity
50TCQA05A0A3-0A0A0	Rooftop Unit	1
	Base Unit	
	Electromechanical control, No intake or exhaust option	
	None	
Accessories		
CRHEATER103B00	6.5/8.0/8.7 kW 208/230/240-1/3-60 Volt Electric Heater	2
CRSINGLE041A00	Single Point Kit	1

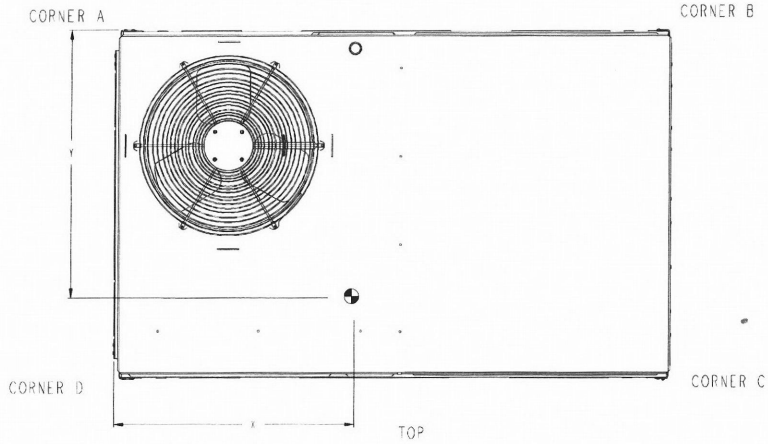
Certified Drawing for rtu-2

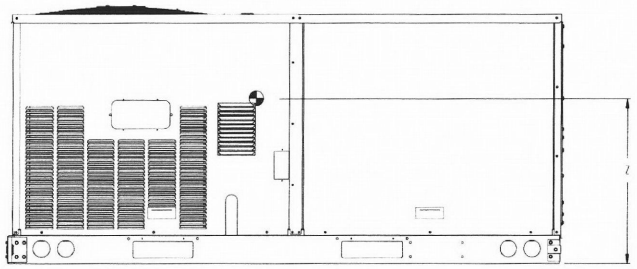
Project: ~Untitled18
Prepared By:

07/09/2013
02:25PM



UNIT	STD. UNIT WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		HEIGHT
	LBS.	KG.	LBS	KG	LBS.	KG	LBS.	KG	LBS.	KG	X	Y	Z
50TCQA04	505	229	136	62	130	59	117	53	123	56	36 1/4 [921]	22 1/8 [562]	16 3/8 [416]
50TCQA05	510	231	138	63	131	59	118	54	124	56	36 1/4 [921]	22 1/8 [562]	16 1/2 [419]
50TCQA06	590	268	159	72	146	66	137	62	149	68	35 5/8 [905]	22 5/8 [575]	20 1/8 [511]
50TCQA07	630	286	166	75	166	75	149	68	149	58	37 1/4 [946]	22 1/8 [562]	20 3/4 [527]





SHEET	DATE	SUPERCEDES			REV
2 OF 2	03-10-09	01-23-09	50TCQ 04-07 SINGLE ZONE ELECTRIC HEAT PUMP	48TM501501	5.0

Performance Summary For rtu-2

Project: ~Untitled18 07/09/2013
Prepared By: 02:25PM

Part Number:50TCQA05A0A3-0A0A0

ARI SEER:	**13.10**	
Base Unit Dimensions		
Unit Length:	**74.4**	in
Unit Width:	**46.8**	in
Unit Height:	**33.4**	in
Operating Weight		
Base Unit Weight:	**510**	lb
Accessories		
6.5/8.0/8.7 kW 208/230/240-1/3-60 Volt Electric Heater:	**30**	lb
Single Point Kit:	**10**	lb
Total Operating Weight:	**550**	lb
Unit		
Unit Voltage-Phase-Hertz:	**230-1-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Direct**	
Actual Airflow:	**1485**	CFM
Site Altitude:	**0**	ft
Cooling Performance		
Condenser Entering Air DB:	**95.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**57.7**	F
Evaporator Leaving Air WB:	**56.7**	F
Evaporator Leaving Air Enthalpy:	**24.23**	BTU/lb
Gross Cooling Capacity:	**48.12**	MBH
Gross Sensible Capacity:	**35.77**	MBH
Compressor Power Input:	**3.40**	kW
Coil Bypass Factor:	**0.206**	
Heating Performance		
Outdoor Ambient Temperature:	**47.0**	F
Entering Air Indoor Coil DB:	**70.0**	F
Leaving Air Indoor Coil DB:	**98.4**	F
Total Heating Capacity:	**45.48**	MBH
Integrated Heating Capacity:	**45.48**	MBH
Heating Power Input:	**3.89**	kW
HSPF:	**7.7**	
Electric Heating Capacity:	**16.00**	kW
Unit Leaving Air Temp:	**132.4**	F
Supply Fan		
External Static Pressure:	**0.50**	in wg
Options / Accessories Static Pressure		
Electric Heaters:	**0.16**	in wg
Total External Static:	**0.66**	in wg
Fan RPM:	**1200**	
Fan Power:	**1.00**	BHP
Fan Motor Size, hp:	**1**	
NOTE:	**Motor Speed Tap 5, Vert, Direct Drive**	
Electrical Data (Before July 30, 2012)		
Minimum Voltage:	**187**	
Maximum Voltage:	**253**	

Compressor #1 RLA:	**21.8**
Compressor #1 LRA:	**117**
Actual Electric Heater kW:	**16**
Electric Heater FLA:	**72.5**
Outdoor Fan Motor Qty:	**1**
Outdoor Fan FLA (ea):	**1.5**
Indoor Fan Motor Type:	**Direct Drive**
Indoor Fan Motor FLA:	**7.4**
Power Supply MCA:	**126.8**
Power Supply MOCP (Fuse or HACR):	**150**
Min. Unit Disconnect FLA:	**119**
Min. Unit Disconnect LRA:	**273**
Electrical Convenience Outlet:	**None**

Electrical Data (July 30, 2012 and Beyond)

Indoor Fan Motor FLA:	**7.4**
Power Supply MCA:	**127**
Power Supply MOCP:	**150**
Disconnect Size FLA:	**119**
Disconnect Size LRA:	**273**

July 30th and beyond units can be identified by serial number 3112XXXXXXXXX and higher

Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Rating: **80.0** db

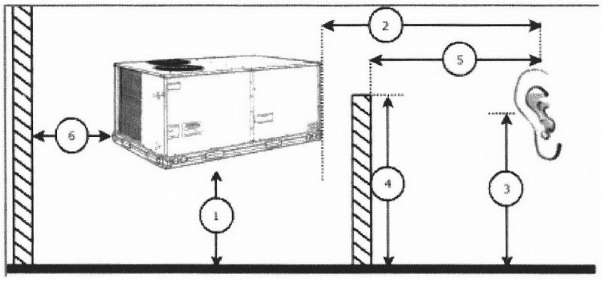
Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	NA	NA	90.4
125 Hz	NA	NA	84.6
250 Hz	NA	NA	77.6
500 Hz	NA	NA	77.5
1000 Hz	NA	NA	74.8
2000 Hz	NA	NA	70.6
4000 Hz	NA	NA	68.0
8000 Hz	NA	NA	64.2

Advanced Acoustics

Advanced Accoustics Parameters

1. Unit height above ground:	**30.0**	ft
2. Horizontal distance from unit to receiver:	**50.0**	ft
3. Receiver height above ground:	**5.7**	ft
4. Height of obstruction:	**0.0**	ft
5. Horizontal distance from obstruction to receiver:	**0.0**	ft
6. Horizontal distance from unit to obstruction:	**0.0**	ft



Detailed Acoustics Information

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
Sound Power Levels at Unit's Acoustic Center (Lw), dB	90.4	84.6	77.6	77.5	74.8	70.6	68.0	64.2	91.9 Lw
A-Weighted Sound Power Levels at Unit's Acoustic Center (LwA), dBA	64.2	68.5	69.0	74.3	74.8	71.8	69.0	63.1	80.0 LwA
Sound Pressure Levels at Distance Specified above (Lp), dB	58.0	52.2	45.2	45.1	42.4	38.2	35.6	31.8	59.5 Lp

Performance Summary For rtu-2

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A-Weighted Sound Pressure Levels at Distance Specified above (LpA), dBA	31.8	36.1	36.6	41.9	42.4	39.4	36.6	30.7	47.6 LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

Spec Sheet for rtu-2

Project: ~Untitled18 07/09/2013
Prepared By: 02:25PM

SUBMITTAL

MicroMetl

FORM NO. 1877-15P | **DATE: 3/12**

Manual and 2 Position Hoods for Carrier 48/50TC A/B04-A/B07; 50TCQ A04-A07; 48/50HC,LC A04-A06; 50HCQ A04-A06; 48/50TF,TM,HJ,TFQ 004-007; 48/50HE 003-006 Units

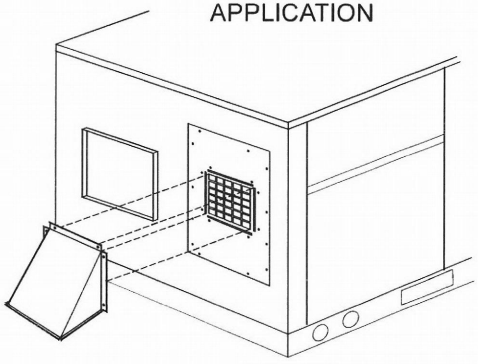
Part Number: **0723,0724 Series**

SUBMITTED TO_____
COMPANY:_____
DRAWN BY: _____
JOB NAME:_____
EQUIPMENT:_____
NOTES:_____

FEATURES:

- Color coordinated, baked-on paint finish.
- Insulated cover panel
- Attachment hardware package provided.

DOWN DISCHARGE APPLICATION

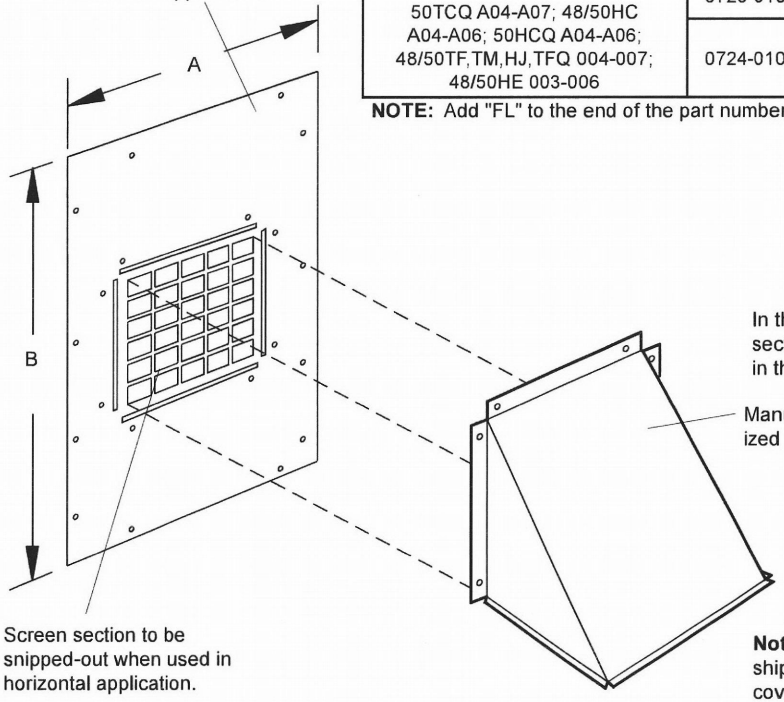


Outside Air Intake Hoods Specifications (in inches)

Carrier Units	MicroMetl Part No.	Description	A	B
48/50TC A/B04-A/B07; 50TCQ A04-A07; 48/50HC A04-A06; 50HCQ A04-A06; 48/50TF,TM,HJ,TFQ 004-007; 48/50HE 003-006	0723-0100-00910	Manual O.A. Hood	11 15/16"	26 13/16"
	0724-0101-70910	2 Position O.A. Hood		

NOTE: Add "FL" to the end of the part number for water entrainment filters.

Cover panel is not used in horizontal application.



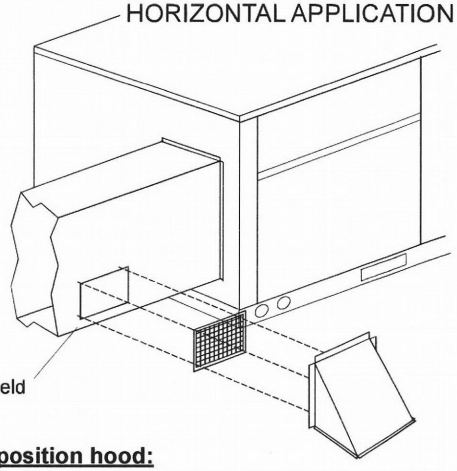
Screen section to be snipped-out when used in horizontal application.

In the horizontal application, the hood and screen section must be secured over a field cut opening in the side of the field supplied return air duct.

Manually adjusted or 2 position motorized hood.

Note: Hood is shipped unattached to cover panel.

HORIZONTAL APPLICATION



Return duct (field supplied)

For 2 position hood:

NOTE: Unit transformers must have an additional 10V.A. If not, then an optional transformer must be used.

MMC INDIANAPOLIS - 3035 NORTH SHADELAND AVENUE, SUITE 300 INDIANAPOLIS, IN. 46226 1-800-662-4822 / MMC WEST 202 SOUTH 18TH ST. SPARKS, NV 89431 1-800-884-4662

SUBMITTAL

MicroMetl

FORM NO. 1174-1D	7/9/2013

50TCQ A04 - 50TCQ A070

Part Number:
0537-014A-00010

Submitted To:
Company:
Job Name:
Notes

Knockdown Curbs

Full Perimeter

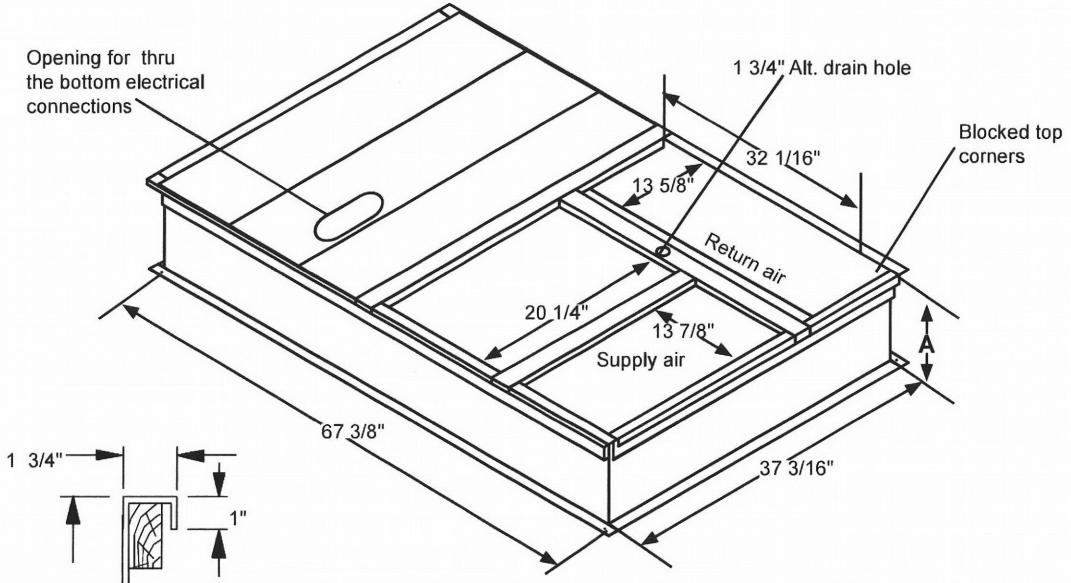
NOTES:

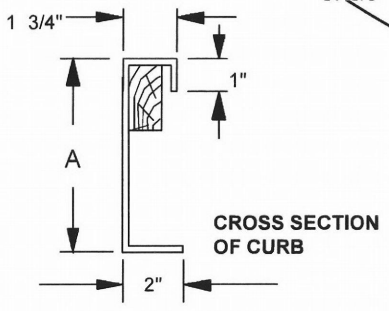
- * Custom Heights Are Available.
- * Fully Insulated Perimeter Curbs Are Available And Designated With A "CI" Suffix.
- * Hold Down Brackets Are Available For Most Curbs.
- Attach Ductwork Directly To Roof Curb. Flanges Of Duct Rest On Top Of Curb.
- Any Posted Weight Is Actual Weight, Not Shipping Weight

**** Please Contact Factory For Pricing and Availability***

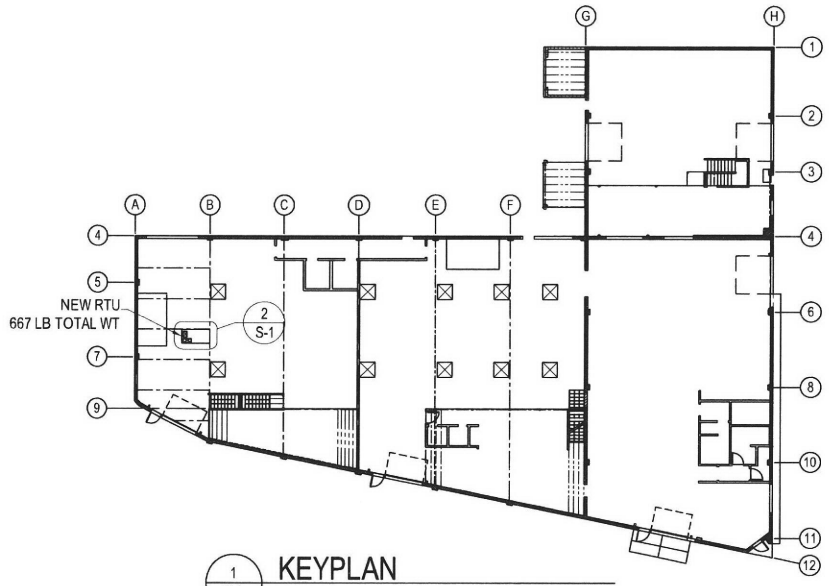
FEATURES:

- Ships Knockdown, Assembly Hardware Provided When Needed.
- Deck Pans When Factory Provided, Are Factory Insulated.
- Constructed Of Galvanized Steel.
- Gasketing Package Provided.
- Full Perimeter Wood Nailer Provided.

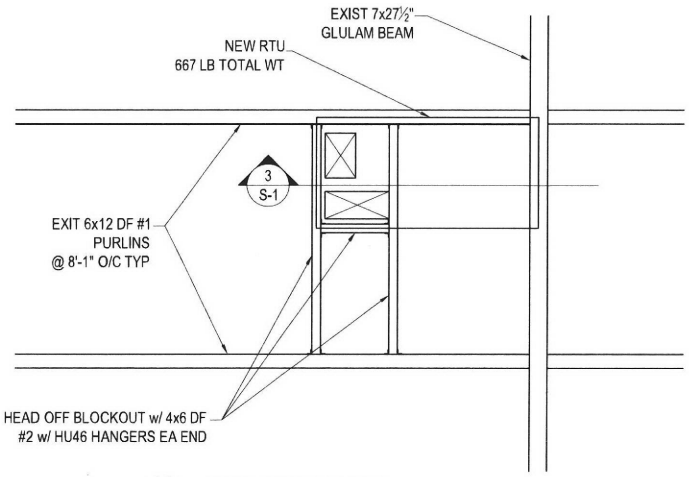




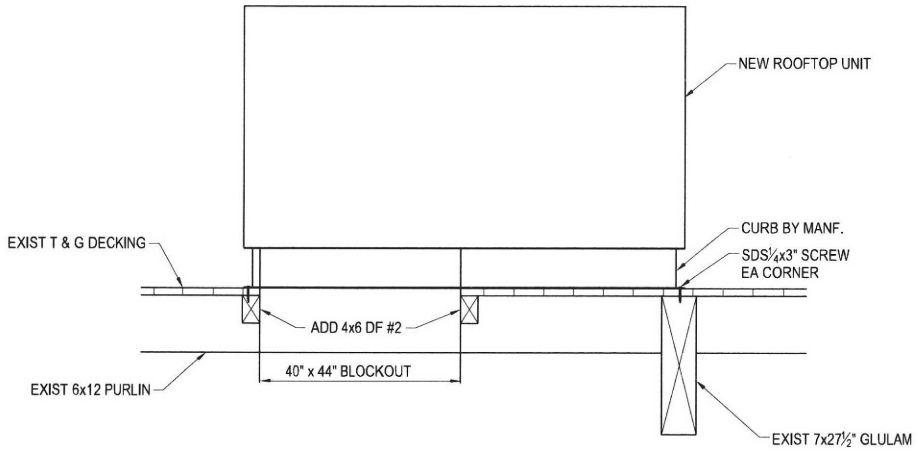
0537 Series Roofcurb Specifications (in inches)			
MicroMetl Part No.	**Carrier Part No.**	**A**	**Weight**
0537-008A-00010		8"	71 lbs
0537-011A-00010		11"	82 lbs
0537-014A-00010	CRRFCURB001A02	14"	94 lbs
0537-018A-00010		18"	
0537-024A-00010	CRRFCURB002A02	24"	131 lbs



1 S-1 **KEYPLAN**
1/32" = 1'-0"



2 S-1 **RTU FRAMING**
1/4" = 1'-0"



3 S-1 **FRAMING SECTION @ RTU**
1/2" = 1'-0"

STRUCTURAL NOTES:

1. These plans are for the structural aspects of adding one rooftop unit for Salt & Straw on the building located at 2101 SE 7th Avenue in Portland, Oregon. All new and existing components to carry new or increased loads were designed in accordance with the 2010 Oregon Structual Specialty Code. Existing components that do not carry any new or increased loads were not analyzed and may or may not conform to current code requirements.
2. Loading:
   Roof: 14 psf Dead + 25 psf Snow
   RTU 510 lb + 115 lb curb + 42 lb accessories 7.5 ton unit Model No 50TCQ04-07
   Seismic Seismic Design Category "D", Ss = 1.0. Sds = 0.733, ap = 2.5
3. Verify existing framing prior to beginning work. Notify engineer of any discrepancies.
4. Framing was analyzed specifically for location shown. Notify the engineer if the unit is to be moved from the location on the plans.
5. Materials:
   Sawn Lumber: DF #2 or better
   Framing Hardware: by Simpson Strongtie as called out on plans or approved equivalent.

Rev	Description	By	Client

Butler Consulting, Inc.
16110 SE Goosehollow Drive
Damascus, Oregon 97089
(503) 658-0200
(503) 658-0204 fax

SALT & STRAW
2101 SE 7TH AVENUE
PORTLAND, OREGON

ROOFTOP UNIT FRAMING

Job No.	283-0812-05.4	Date	7/09/13	Sheet
Client	7th & Lincoln, LLC	By	MEB	**S-1**

STRUCTURAL CALCULATIONS
ROOFTOP UNITS
Salt & Straw
2101 SE 7th Avenue
Portland, Oregon

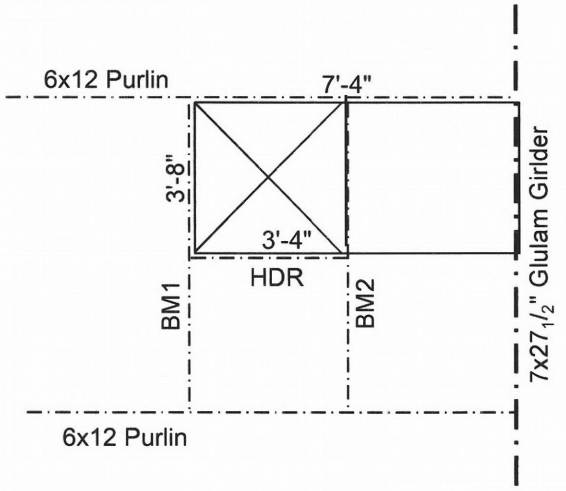
July 9, 2013

These structural calculations are adding a new rooftop unit for Salt & Straw located at 2101 SE 7th Avenue in Portland, Oregon. The existing roof framing was analyzed in accordance with the 2010 Oregon Structural Specialty Code. Existing components to remain in place that do not carry any additional loads were not analyzed and may or may not conform to current code requirements. The new units will have no significant impact on the lateral or foundation loads.

Loading: Existing Roof: 14 psf DL + 25 psf LL

Size	4 ~~7.5~~ ton
Model	50TCQ 04-07
Unit Weight	510 lb
Curb Weight	115 lb
Elec Heater + Dampers	42 lb
Total Weight	667 lb

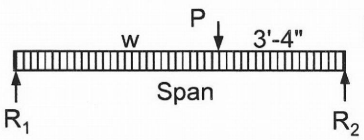
Roof Framing



Header:

Span	3.33	ft
Roof Trib	4.04	ft
w =	158	plf
Section	4x6 DF #2	
R =	262	lb
f_v =	20.4	psi OK
M =	218	ft-lb
f_b =	148	psi OK
Δ_x =	0.008	in OK

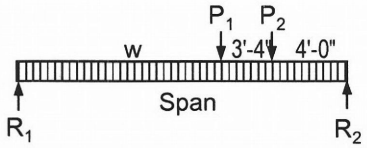
Use 4x6 DF #2



Beam	BM1		BM2	
Span =	8.08	ft	8.08	ft
Roof Trib =	1.00	ft	1.00	ft
w =	39	plf	39	plf
P =	462	lb Hdr + corner Wt	262	lb Header
R_1 =	348	lb	266	lb
R_2 =	429	lb	312	lb
M_{Max} =	1,214	ft-lb	822	ft-lb
Section	4x6 DF #2		4x6 DF #2	
f_v =	33.5	psi OK	24.3	psi OK
f_b =	825	psi OK	559	psi OK
Δ_x =	0.183	in = L/530 OK	0.124	in = L/782 OK
	Use 4x6 DF #2		Use 4x6 DF #2	

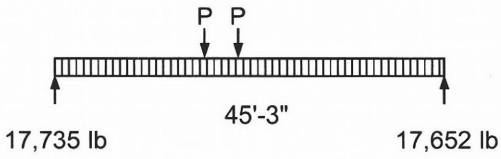
Roof Framing (Cont.)

Check Existing Purlins



Purlin	Purl1		Purl2	
Span =	19.50	ft	19.50	ft
Roof Trib =	8.08	ft	8.08	ft
w_1 =	315	plf	315	plf
P_1 =	348	lb BM1	630	lb BM1 + Corner wt
P_2 =	266	lb BM2	312	lb BM2
R_1 =	3,258	lb	3,373	lb
R_2 =	3,501	lb	3,713	lb
M_{Max} =	9,911	ft-lb	10,618	ft-lb
Section	6x12 DF #1		6x12 DF #1	
f_v =	83.0	psi OK	88.1	psi OK
f_b =	981	psi OK	1,051	psi OK
Δ_x =	0.608	in = L/385 OK	0.652	in = L/359 OK
	Exist 6x12 DF #1 OK		Exist 6x12 DF #1 OK	

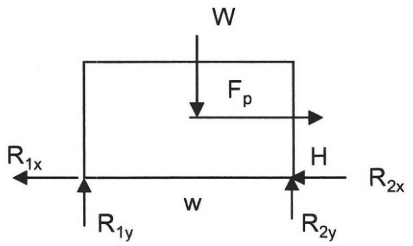
Check Existing Roof Girder



w = (14+25) x 19'-9" = 770 plf
P_1 = 272 lb
P_2 = 272 lb
V_{Max} = 17,735 lb
M_{Max} = 202,333 ft-lb
Section 7x27 1/2" glulam F_B = 2,600
f_v = 124.44 psi OK
f_b = 2,752 OK for Fb = 2,600 x 1.15
Exist 7x27 1/2" glulam OK

Rooftop Unit Anchorage

Seismic Loading



$$F_p = \frac{0.4 a_p S_{DS} W}{R_p / I_p} (1 + 2z/h)$$

a_p =	1.00
R_p =	2.50
I_P =	1.00
z/h =	1.00
S_s =	1.00
F_a =	1.10

$S_{DS} = 2/3\ F_a\ S_s =$ 0.733

	RTU7	
W =	667	lb
F_p =	234.8	lb
w	3.67	ft
H	1.38	ft
R_{1y}	123	lb
R_{2y}	211	lb
$R_{1x} = R_{2x}$	58.7	lb

No net uplift. Design attachment for lateral reaction R_x

Simpson SDS$^1/_4$x3

Z = 280 lb allowable OK

Use Simpson SDS$^1/_4$x3 screw each corner

SUBMITTAL

MicroMetl

FORM NO. 4250-9P | **DATE: 2/12**

SUBMITTED TO _____

COMPANY: _____

DRAWN BY: _____

JOB NAME: _____

EQUIPMENT: _____

NOTES: _____

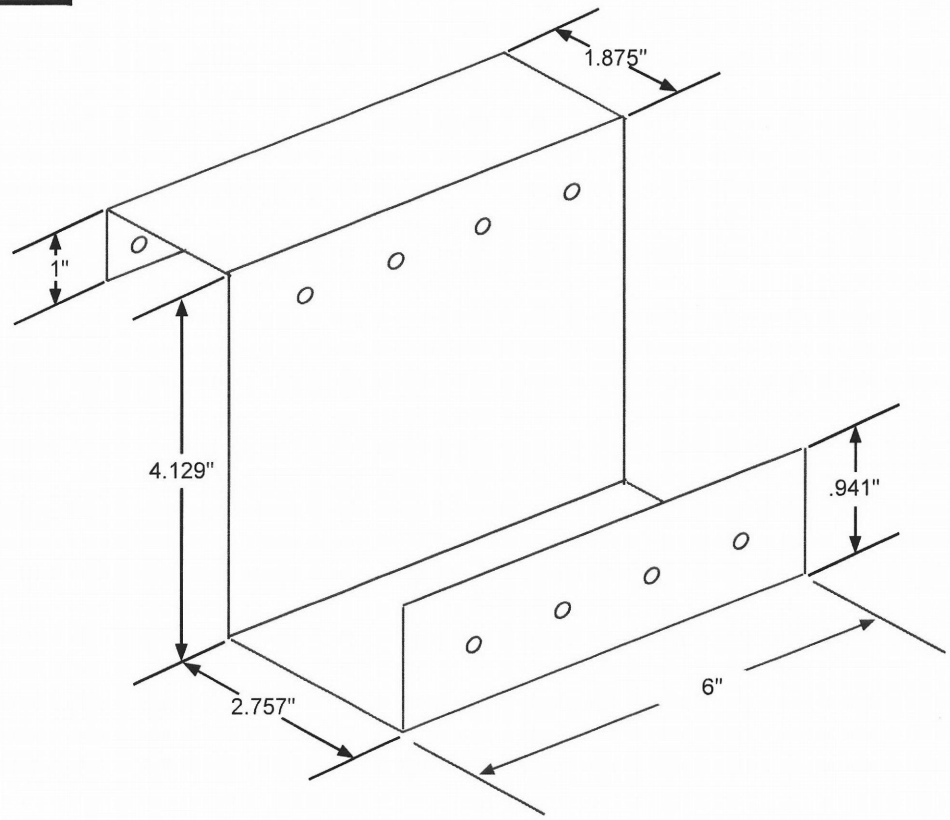
MICRO-HOLD for Carrier
48/50TC A/B04-A/B07,A/D08, A09,A/D12,D14,D16;
50TCQ A04-A07,D08-D14; 48/50HC A04-A07,D08-D14;
50HCQ A04-A07,D08-D12; 48/50TF,TM,HJ 004-014; 48/50HE 003-006;
50TFQ 004-014; 50HJQ 008-009 Units

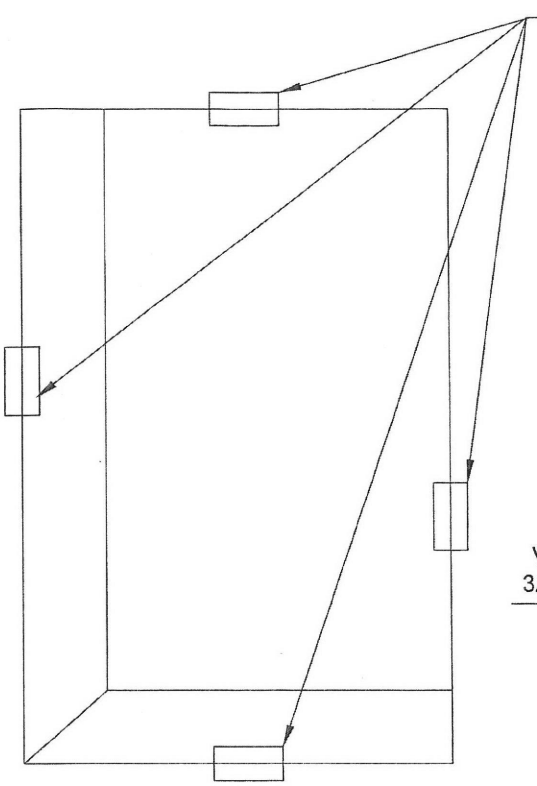
Part Number:

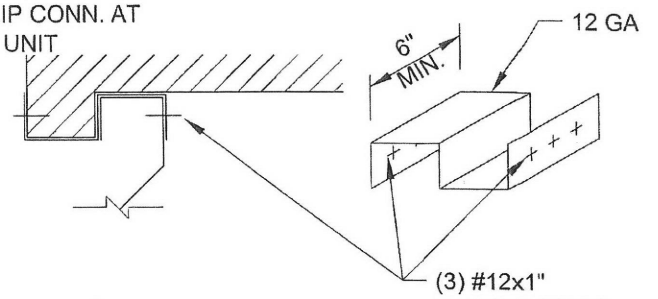
0406-0100

FEATURES:

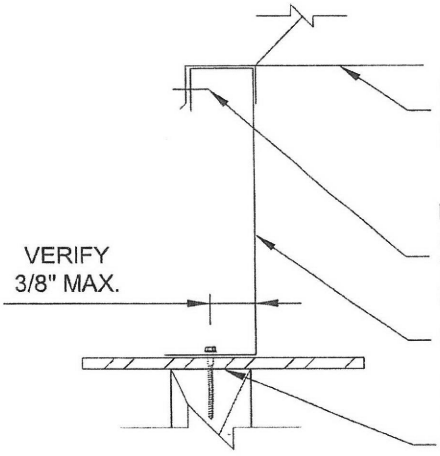
- Manufactured from 16 ga galvinized steel
- Package includes:
  - (4) Hold-Down brackets
  - (48) #10 x 1/2" tek screws (12) per bracket
- Some units may require additional Hold-Downs.
- Use of this bracket provides a secure connection of the rooftop unit to the curb, but does not result in a calculated curb.
- When attaching the brackets, confirm there will be no interference with anything on the unit base rail.



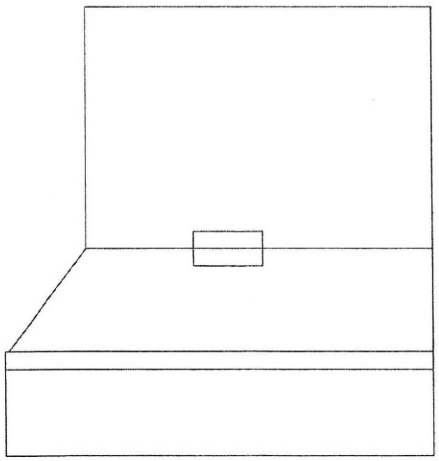




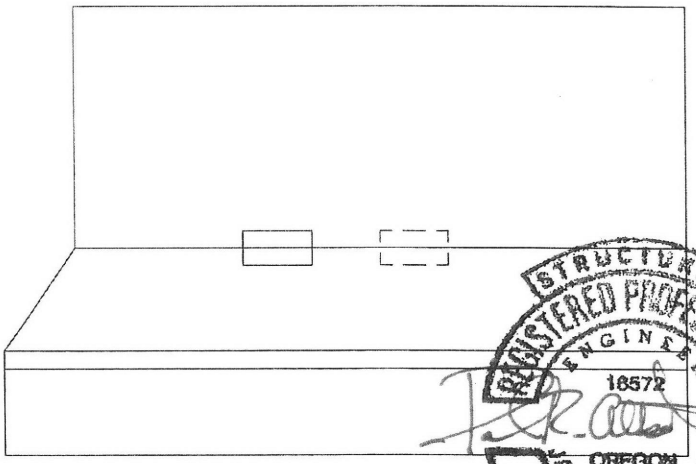
(3) #12x1" SELF-TAPPING SCREWS EA. SIDE EA. CONNECTION



UNIT PLAN



CLIP CONN. DETAIL



END ELEV.

SIDE ELEV.

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 18572 OREGON JANUARY 23, 2001 PAUL R. ALBERTINE

EXPIRES: 12-31-2003

MECH. UNIT - ADAPTER CURB ANCHORAGE

N.T.S.

MILLER CONSULTING ENGINEERS

9570 SW Barbur Blvd.
Suite One Hundred
Portland, OR 97219-5412

(503) 246-1250
FAX: 246-1395

Project Name MECHANICAL UNIT ANCHORAGE Project # 120252

Location

Client PYRAMID HEATING & COOLING

By MC Ck'd PRA Date 04.16.2012 Page S3 of 3

DAIKIN AC
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Submittal Data Sheet

Project Name:	
Location:	Approval:
Engineer:	Date:
Submitted to:	Construction:
Submitted by:	Unit #:
Reference:	Drawing #:

Performance

Indoor Unit Model No:	FTXN24KVJU
Outdoor Unit Model No:	RXN24KEVJU
Rated Cooling Capacity (Btu/hr):	22000
Sensible Capacity (Btu/hr):	14370
Max/Min Cooling Capacity (Btu/hr / kW):	22000/7500
Cooling Input Power (kW):	3
SEER:	18
Rated Heating Capacity (Btu/hr):	24000
Max/Min Heating Capacity (Btu/hr / kW):	25400/7500
Heating Input Power (kW):	2.895
Heating COP (Btu/hr / Btu/hr):	2.52
HSPF:	8.5

Indoor Unit Type:	Wall Mounted
Condensing Unit Type:	Std SEER Heat Pump
Rated Cooling Conditions	Indoor: 80°F DB/67°F WB Outdoor: 95°F DB/75°F WB
Rated Heating Conditions	Indoor: 70°F DB/60°F WB Outdoor: 47°F DB/43°F WB
Rated Piping Length(ft)	25
Rated Height Separation(ft)	0

Indoor Unit Details

Power Supply (V/Hz/Ph:)	208-230/60/1ph
Power Supply Connections:	L1, L2, Ground
Min Circuit Amps MCA (A):	N/A
Max Overcurrent Amps MFA (A):	N/A
Dimensions (HxWxD):	11-7/16x41-5/16x9-3/8
Panel (HxWxD):	N/A
Net Weight (lbs):	26.5
Weight with Panel (lbs):	

Airflow Rate (CFM wet coil)	614/533/448/403
Moisture Removal (pt/h):	
Gas Pipe Connection (inch):	1/2
Liquid Pipe Connection (inch):	1/4
Condensate Connection (inch):	11/16
Sound Pressure Level (dBA):	46
Sound Power Level (dBA):	62
Static Pressure Rated/Max (inWg)	0 / 0/0

Condensing Unit Details

Power Supply (V/Hz/Ph):	208-230/60/1ph
Power Supply Connections:	L1, L2, Ground
Min. Circuit Amps MCA (A):	15.5
Max. Overcurrent Amps MFA (A):	20
Max. Starting Current MSC(A):	
Rated Load Amps RLA (A):	12
Dimensions (HxWxD):	23-7/16x31-5/16x11-13/16
Net Weight (lbs):	93

Compressor Type:	Inverter
Capacity Control Range (%):	
Airflow Rate (CFM):	1752
Gas Pipe Connection (inch):	1/2
Liquid Pipe Connection (inch):	1/4
Sound Pressure Level (dBA):	54
Sound Power Level (dBA):	68

System Details

Refrigerant Type:	R-410A
Holding Refrigerant Charge (lbs):	3.2
Additional Charge (oz/ft):	0.21
Pre-charge Piping (Length ft):	33 ft
Max. Pipe Length (Total ft):	98.4 ft

Max. Pipe Length (Vertical ft):	65.6 ft
Cooling Operation Range (°F):	14 - 115
Cooling Range w/Baffle (°F):	0 - 115
Heating Operation Range (°F):	5 - 77
Heating Range w/Baffle (°F):	5 - 77

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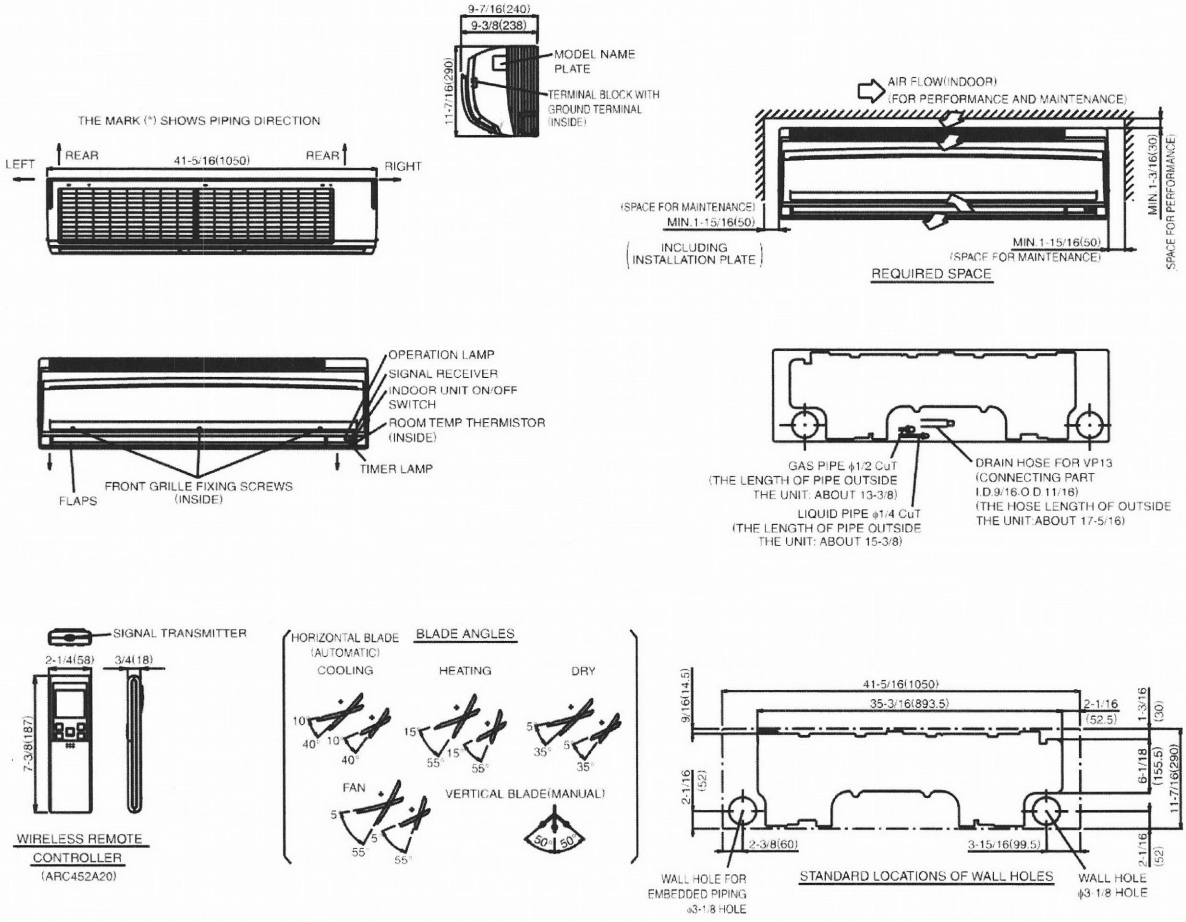
Dimensional Drawing - Indoor Unit

FTXN24KVJU



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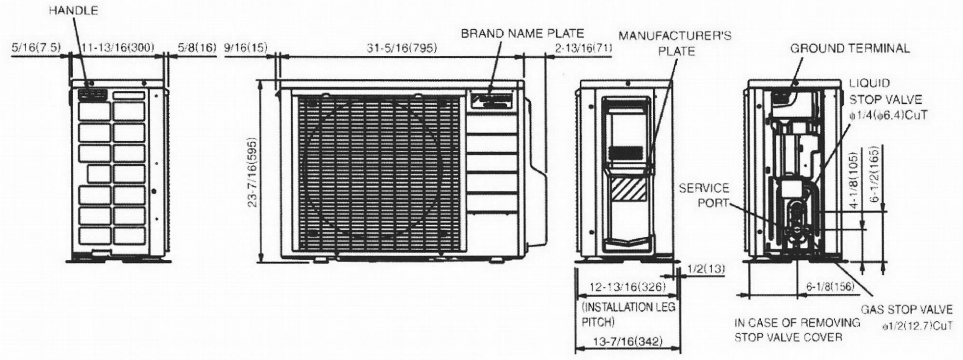
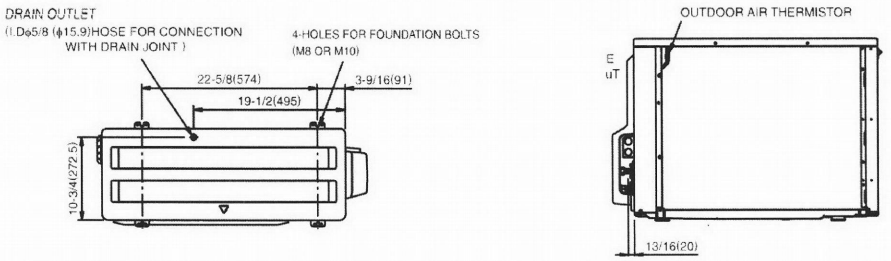
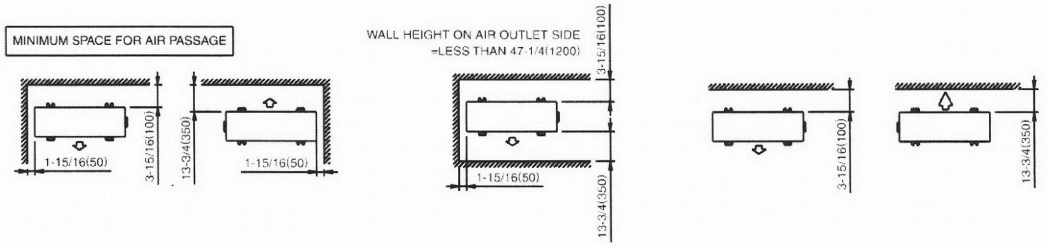
Dimensional Drawing - Condensing Unit

RXN24KEVJU







UNIT=INCH(mm)

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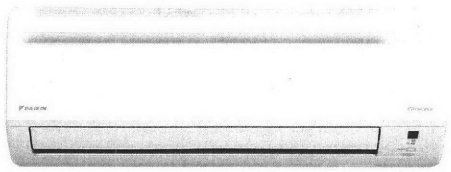
FTXN24KVJU



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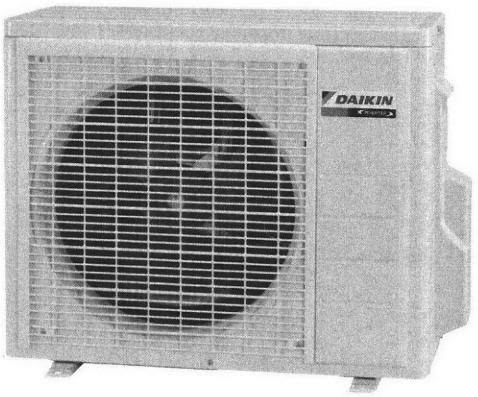

FTXN24KVJU

Std U.S. Warranty: 6yrs Compressor, 2yrs Parts

RXN24KEVJU

Std U.S. Warranty: 6yrs Compressor, 2yrs Parts