City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, **Fax:** (207) 874-8716

PERMIT ISSUED
MAY 24 2004
CITY OF PORTLAND

Permit No:	Issue Date:	CBL:
04-0580		306 B001001

Location of Construction:	Owner Name:	Owner Address:	Phone:
563 Riverside St	Six G s Coed Llc	557 Riverside St	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Air Temp	11 Wallace Ave South Portland	1077742300
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		HVAC	IM

Past Use:	Proposed Use:	Permit Fee:	Cost of Work:	(CEO District:
Commercial	Commercial w/ two gas unit heaters hung from structure	$102.00	$9,000.00	5

FIRE DEPT: ☑ Approved ☐ Denied

Signature

INSPECTION: Use Group: N/A Type:

5/20/04

Signature

'EDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date:

Proposed Project Description:

two gas unit heaters hung from structure

'ermit Taken By:	Date Applied For:
ldobson	05/11/2004

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building permits do not include plumbing, septic or electrical work.
3. Building permits are void if work is not started within six ***(6)*** months of the date of issuance. False information may invalidate a building permit and stop all work..

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☐ Shoreland	☐ Variance	☑ Not in District or Landmar
☐ Wetland — Bldg Permit # 04-0015	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☐ Site Plan	☐ Approved	☐ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
Date: OK 5/17/04	late:	Date:

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that **I** have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, **I** certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit **at** any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE	DATE	PHONE

FILL IN AND SIGN WITH INK

APPLICATION FOR PERMIT
HEATING OR POWER EQUIPMENT

PERMIT ISSUED
MAY 24 2004
CITY OF PORTLAND

04-0580

To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL 563-573 Riverside 306 B 1 Use of Building comm. rental Date 5/10/04

Name and address of owner of appliance Six G's Coed LLC

563-573. Riverside

Installer's name and address 11 Wallace Ave

S. Portland, E 4106 Telephone 774-2300

Location of appliance: PTACs in wall

- ❑ Basement
- ❑ Floor
- ❑ Attic
- ❑ Roof

Unitheaters hung from structure (2)

***Type* of Fuel:**

- ☒ Gas
- ❑ Oil
- ❑ Solid

Appliance Name: Rezner + 6E

U L. Approved ☒ Yes ❑ No

Will appliance be installed in accordance with the manufacture's installation instructions? ☒ Yes ❑ No

IF NO Explain:

The *Type* of License of Installer:

- ❑ Master Plumber #
- ❑ Solid Fuel #
- ❑ Oil #
- ☒ Gas # PMT 1977
- ❑ Other

Type of Chimney:

- ❑ Masonry Lined
  Factory built N/A
- ☒ Metal
  Factory Built U.L. Listing # 641
- ❑ Direct Vent
  Type N/A UL#

Type of Fuel Tank

- ❑ Oil
- ~~Gas~~ N/A

Size of Tank N/A

Number of Tanks N/A

Distance from Tank to Center of Flame N/A **feet.**

Cost of Work: $ 9,000

Permit Fee: $ 102.00

$30 1st 1000
$9/1000 after

DEPT. OF BUILDING INSPECTION
CITY OF PORTLAND, ME
MAY 11 2004
RECEIVED

Approved

Fire: Hms

Ele.:

Bldg.:

Approved with Conditions

❑ See attached letter or requirement

Inspector's Signature

Date Approved

Signature of Installer

White - Inspection Yellow - File Pink - Applicant's Gold - Assessor's Copy

ck# 50351

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, **Fax:** (207) 874-8716

Permit No:	Date Applied For:	CBL:
04-0580	05/11/2004	306 B001001

Location of Construction:	Owner Name:	Owner Address:	Phone:
563 Riverside St	Six G s Coed Llc	557 Riverside St	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Air Temp	11 Wallace Ave South Portland	(207) 774-2300
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		HVAC	

Proposed Use:	Proposed Project Description:
Commercial w/ two gas unit heaters hung from structure	two gas unit heaters hung from structure

Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 05/17/2004
Note: **Ok to Issue:** ☐

Dept: Building **Status:** Approved **Reviewer:** Mike Nugent **Approval Date:** 05/20/2004
Note: **Ok to Issue:** ☐

Dept: Fire **Status:** Approved **Reviewer:** Lt. MacDougal **Approval Date:** 05/17/2004
Note: **Ok to Issue:** ☑

Varco Pruden Buildings, Inc.
WISCONSIN SERVICE CENTER
ENGINEERING GROUP

Date: 04/16/04

To: Bill Rudman @ Patco
copy:
Fax: 207-324-1643
Copy **fax:**

number of pages 1

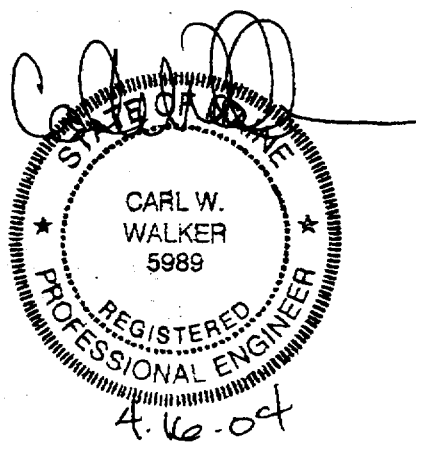
From: Carl **W.** Walker, PE
WI Service Center

ph: 608-882-5001 **ext.** 415
fax: 608-882-2370
e-mail: cwalker@vp.com

SUBJECT: WI0301079
Heater Loadings

Please be advised that the addition of (2) 60 lb heater units **will** not affect the structural integrity **of** the material supplied by **VP** Buildings.

If you **have** any **further** questions, please let us know.



Infra-Red Applications, Inc.
27 Gray Rd. Falmouth, Maine 04105
Phone: (207) 878-9800 Fax: (207) 878-9878

RECORD SUBMITTAL DATA

Date: April 2, 2004

Project: Phoenix Welding
Portland, Maine

Contractor: Air Temp

Manufacturer: Reznor

Equipment : 7- Model UDAP-100 Power Vented Unit Heaters
W/ CL-2 Low Volt T-Stat w/fan switch
VH-4 Wall Vent Hoods

REZNOR®

Model UDAP

Power Vented, Low Static Axial Fan Unit Heaters
for Residential and Commercial/Industrial Use

CSA International Requirement
10.96 U.S.
- Sizes 30-125

CSA 2.6b ANSI Z83.8b

DESCRIPTION

Reznor® V 3 Senes Model UDAP gas-fired unit heaters are available in 14 sizes ranging from 30,000 to 400,000 BTUH gas input. Sizes 30-125 are approved for residential application. All sizes are approved for commercial/industrial installabons. Model UDAP heaters are designed for 82-83% thermal efficiency and are aoproved for installation in the United States and Canada by the Canadian Standards Association (CSA).

Reznor® V 3 Senes unit heaters have a refreshing new aopearance with a glossy white cabinet finish and less visible hardware. 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 stnp on the outside of the cabinet makes connecting control winng easy with no oanels *to* remove. The addibon of a 'G" terminal to the stnp. along with the new design *of* the circuit board, allows for fan only operation (without adding relays). All units have a factory installed gas line nipple to the exterior of the cabinet for easy gas service connection.

The preeminent new internal feature is the TCORE² heat exchanger and single burner combustion system Other standard features include a single-stage gas valve, multi-try direct spark ignition with 100% lockout. pressure switch to verify vent flow, resiliently isolated venter motor, venter wheel with improved housing, resiliently isolated axial fan and motor assembly, and a high temperature limit control. Sizes 30-125 also include a flame rollout safety switch. Operabon is controlled through an integrated circuit board. The circuit board monitors heater operation and has LED diagnostic indicator lights to identify abnormalities in control functions.

The new V j Senes unit heaters are designed to provide all the features you expect in a Reznor heater plus improved efficiency, easier installation, and a new look ***- both inside and out.***

STANDA,?D FEATURES

- Sizes 30-125 certified for residential heating application
- Sizes 30-400 certified for commercial/industrial heating application
- 82-83% Thermal efficient ~ ***TOP in its class!***
- 50-60°F Rise range
- ***NEW*** TCORE² design titanium stabilized aluminized steel heat exchanger ***(patentpending)***
- ***NEW*** TCORE² design single burner combustion system including a one-piece burner assembly **(patent *pending)***
- 115/1/60 Supply voltage
- 115 Volt open fan motor with internal overload protection
- Transformer for 24-volt controls
- Integrated circuit board with diagnostic indicator lights
- Fan relay (included on the circuit board)
- Multi-try direct spark ignition with 100% lockout
- 4 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 ***and4-pt*** Suspension - ***standard on all sizes***
- External terminal stnp for 24-volt wiring
- External gas connection
- 3 Full fan guard ~ ***engineered for safety***
- Improved cabinet design with less visible hardware and a ***NEW*** Reznor appearance

OPTIONAL FEATURES - FACTORY INSTALLED

- Single-stage propane gas valve (field adjustable for operation *to* 9.000 ft. elevation)
- Two-stage naturai or propane gas valve
- 409 or 316 Stainless steel heat exchangers
- 208 or 230 Single phase voltage
- Totally enclosed fan motor (115V only)
- Common venting with other gravity vented Categcry I appliance(s)

ACCESSORIES - FIELD INSTALLED

- Vent cap
- Thermostat
- Thermostat guard with locking cover
- Vertical louvers ~ ***new design***
- Downturn nozzle kits ~ ***new design***
- Gas conversion kits (natural and propane)
- Master/Slave controls for zoning up to six units
- Ceiling suspension kit - Sizes 30-125
- Hanger kits for 1" pipe
- Stepdown transformer (for 230/3 and 460/3 supply voltage)
- Manual shutoff valves

MODEL UDAP TECHNICAL DATA - Sizes 30 - 125

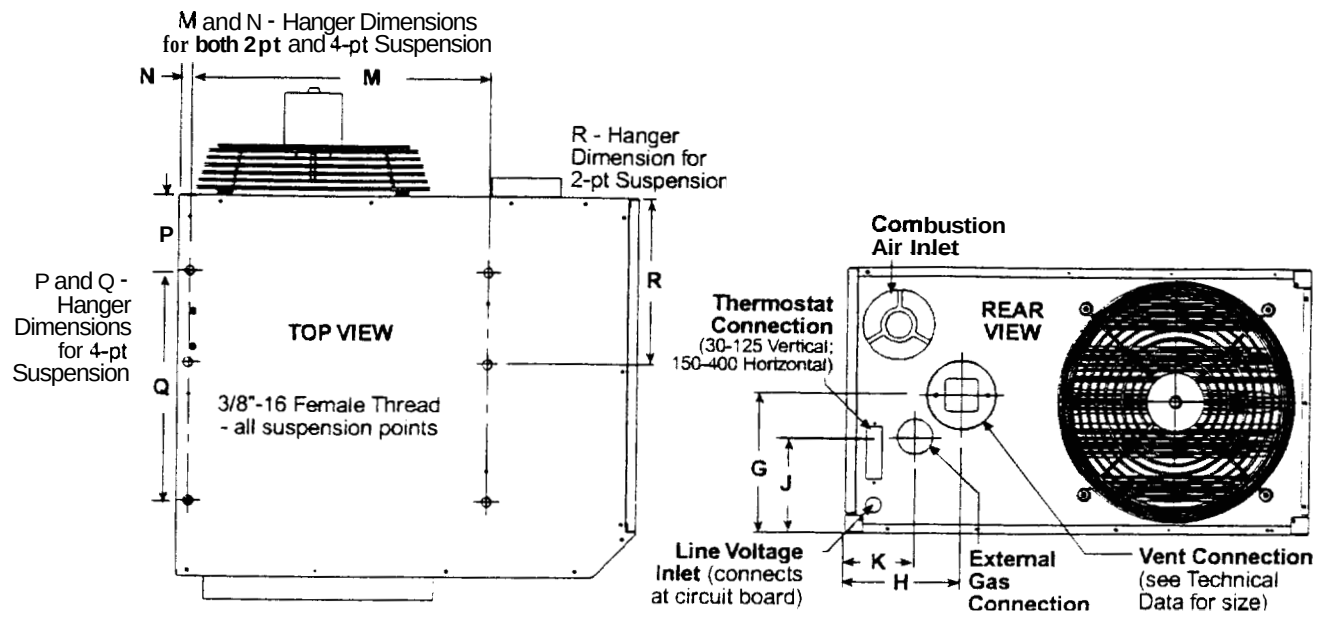
Size		30	45	60	75	100	125
Input Heating Capacity	BTUH	30,000	45,000	60,000	75,000	105,000	120,000
	kw/h	8.8	13.2	17.6	22.0	30.8	35.2
Thermal Efficiency (%)		82	83	83	83	83	83
Output Heating Capacity [A]	BTUH	24,600	37,350	49,800	62,250	87,150	99,600
	kw/h	7.2	11.0	14.6	18.3	25.6	29.2
Gas Connection (inches) [B]	Natural	1/2	1/2	1/2	1/2	1/2	1/2
	Propane	1/2	1/2	1/2	1/2	1/2	1/2
Vent Connection Size [C] (inches diameter)		4	4	4	4	4	4
Control Amps (24 volt)		1.0	1.0	1.0	1.0	1.0	1.0
Full Load Amps (115 volt)		1.9	2.4	2.4	3.3	3.9	5.1
Maximum Over Current Protection (115V) [D]		15	15	15	15	15	15
Normal Power Consumption (watts)		109	155	155	217	276	354
Discharge Air Temperature Rise (°F)		50	55	60	60	60	60
Air Volume	CFM	456	629	769	961	1345	1537
	M^3/minute	12.9	17.8	21.8	27.5	36.7	45.9
Discharge Air Opening Area	ft^2	0.96	0.96	1.25	1.25	2.01	2.01
	M^2	0.09	0.09	0.12	0.12	0.19	0.19
Output Velocity	FPM	475	656	616	770	668	763
	M/minute	145	200	188	238	196	245
Fan Motor HP [E]	Open	0.02	0.03	0.03	0.06	1/30	1/20
	Enclosed	N.A.	N.A.	N.A.	N.A.	1/4	1/4
Fan Motor RPM		1550	1550	1550	1550	1050	1050
Fan Diameter (inches)		10	10	12	12	16	16
Sound Level	dba @ 15 ft	40	40	40	49	54	55
Approximate Net Weight	lbs	54	59	67	72	96	101
	kg	24	27	30	33	44	46
Approximate Ship Weight	lbs	61	66	74	79	118	123
	kg	27	30	33	36	54	56

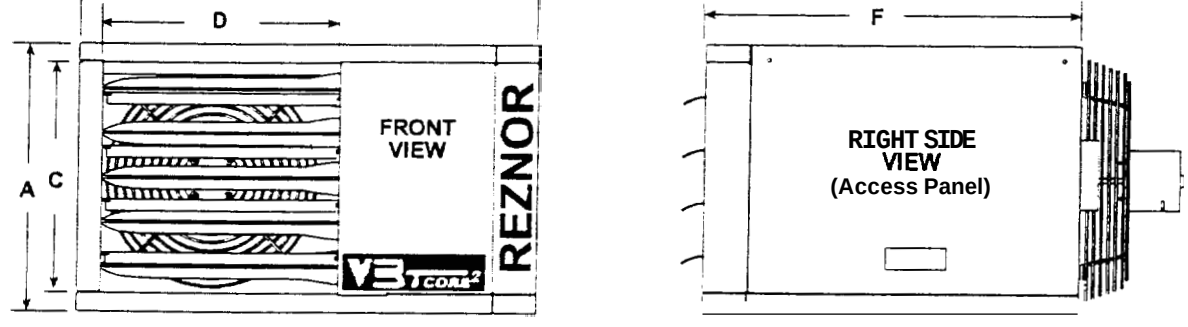
MODEL UDAP TECHNICAL DATA Sizes 150 - 400

Size		150	175	200	225	250	300	350	400
Input Heating Capacity	BTUH	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
	kw/h	43.9	51.2	58.6	65.9	73.2	87.8	102.5	117.1
Thermal Efficiency (%)		83	83	83	83	83	83	83	83
Output Heating Capacity [A]	BTUH	124,500	145,250	166,000	186,750	207,500	249,000	290,500	332,000
	kw/h	36.4	42.5	48.6	54.7	60.8	72.9	85.1	97.2
Gas Connection (inches) [B]	Natural	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4
	Propane	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4
Vent Connection Size [C] (inches diameter)		5	5	5	5	5	6	6	6
Control Amps (24 volt)		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Full Load Amps (115 volt)		3.8	3.8	4.6	7.5	7.5	11.0	11.0	11.0
Maximum Over Current Protection (115V) [D]		15	15	15	15	15	20	20	20
Normal Power Consumption (watts)		392	392	491	747	747	1086	1086	1086
Discharge Air Temperature Rise (°F)		60	60	60	60	60	60	60	60
Air Volume	CFM	1921	2242	2562	2882	3202	3843	4483	5123
	M^3/minute	54.4	63.5	72.5	81.6	90.7	108.8	126.9	145.1
Discharge Air Opening Area	ft^2	2.56	2.56	2.56	3.51	3.51	4.79	4.79	4.79
	M^2	0.24	0.24	0.24	0.33	0.33	0.45	0.45	0.45
Output Velocity	FPM	752	877	1003	820	911	802	936	1069
	M/minute	229	267	306	250	278	244	285	326
Fan Motor HP [E]	Open	1/6	1/6	1/6	1/4	1/4	1/2	1/2	1/2
	Enclosed	1/4	1/4	1/4	1/4	1/4	1/2	1/2	1/2
Fan Motor RPM		1050	1050	1050	1050	1050	1050	1050	1050
Fan Diameter (inches)		18	18	18	20	20	24	24	24
Sound Level	dba @ 15 ft	51	52	53	56	56	59	61	62
Approximate Net Weight	lbs	172	187	187	203	215	269	294	306
	kg	78	85	85	92	98	122	133	139
Approximate Ship Weight	lbs	204	219	219	245	257	321	346	358
	kg	93	100	100	111	117	146	157	163

[A] CSA rating for altitudes to 2000 ft. [B] Size shown is for gas connection to a single stage gas valve, not supply line size. [C] Smaller and/or larger vent and combustion air pipe diameters may be allowed; refer to the Venting Installation Manual for Power Vented Units, Form I-V-PV. Or, if equipped with Option AV6, refer to Venting Installation Manual for Common Vented Units, Form I-V-CV. [D] MODP = 2.25 x (largest motor FLA) + smallest motor FLA. Answer is rounded to the nearest commercially available circuit breaker. [E] All other information in this table is based on a heater equipped with a standard 115 volt open fan motor.

Model UDAP - GENERAL ARRANGEMENT AND DIMENSIONS





MODEL UDAP DIMENSIONS (inches ± 1/16)

Size	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R
30, 45	12-1/8	26-5/8	10	13-13/16	26	21-9/16	5-3/16	6-1/2	2-11/16	3-7/8	17-3/8	11/16	4-5/16	13	9-9/16
60	15-1/8	26-5/8	13	13-13/16	27	21-9/16	7-7/8	6-1/2	5-1/2	3-7/8	17-3/8	11/16	4-5/16	13	10-1/2
75	15-1/8	26-5/8	13	13-13/16	27-5/8	21-9/16	7-7/8	6-1/2	5-1/2	3-7/8	17-3/8	11/16	4-5/16	13	10-1/2
100	23-1/8	26-5/8	21	13-13/16	28-5/8	21-9/16	14-1/2	6-1/2	8-3/4	3-7/8	17-3/8	11/16	4-5/16	13	10-1/2
125	23-1/8	26-5/8	21	13-13/16	29-3/8	21-9/16	14-1/2	6-1/2	8-3/4	3-7/8	17-3/8	11/16	4-5/16	13	10-1/2
150, 175, 200	20-1/8	38-3/16	16	23	42	35-3/8	8-1/2	8-1/4	5-7/16	6-1/2	25-11/16	1-3/8	8-3/16	22-3/16	16-3/8
225, 250	26-1/8	38-3/16	22	23	42	35-3/8	13-1/16	8-13/16	9	6-1/2	25-11/16	1-3/8	8-3/16	22-3/16	15-5/8
300, 350, 400	34-1/8	41	30	23	42	35-3/8	17-1/16	9	11-13/16	7-5/16	27-11/16	1-3/8	8-3/16	22-3/16	16-3/16

MODEL UDAP DIMENSIONS (mm ± 2)

Size	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R
30, 45	308	676	254	351	660	548	132	165	68	98	441	17	110	330	243
60	384	676	330	351	686	548	200	165	140	98	441	17	110	330	267
75	384	676	330	351	702	548	200	165	140	98	441	17	110	330	267
100	587	676	533	351	727	548	368	165	222	98	441	17	110	330	267
125	587	676	533	351	746	548	368	165	222	98	441	17	110	330	267
150, 175, 200	511	970	406	584	1067	899	216	210	138	165	652	35	208	564	416
225, 250	664	970	559	584	1067	899	332	224	229	165	652	35	208	564	397
300, 350, 400	867	1041	762	584	1067	899	433	229	300	186	703	35	208	564	411

Size	Top		Flue Connector		Access Panel		Non-Access Side		Bottom*		Rear	
	'inches)	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
30-125	1	25	6	152	18	457	1	25	1	25	18	457
150-400	4	102	6	152	18	457	2	51	1	25	18	457

***Suspend** the heater so **that** the bottom **is** a minimum of 5' (1.5M) **above** the floor.

REZNOR® PRODUCT LIMITED WARRANTY

Thomas & Betts Corporation warrants to the original owner-user that this Reznor product will be free from defects in material or 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 by Thomas & Betts Corporation, whichever occurs first.

EXTENDED WARRANTY

Model UDAP -- 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.

Model UDAS -- 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.

LIMITATIONS **AND** EXCLUSIONS

Thomas 2 Betts Corcoration's obligation under this warranty is limited to repair or repiacernent at its manufacturing facility of any part or parts of this Reznor product identified **by** model or serial number which shall be returned to Thomas 2 Betts Corporation with transportation charges prepaid and which the manufacturer's examination shall disciose to its satisfaction to be defective. Reznor parts or products will not be accepted at the manufacturing facility without an attached Returr: Materiais Tag Repaired or replacement carts will be shipcea by the Thomas & Berts Corporation facility. FO.B snipping point.

1. This warranty dces not cover labor or other costs incurred in repairing. removing, instailing. servicing, or handling of parts or compiete products

2. This warranty will not apply If the unit has been operated outside the designed output (heating. cooling or airflow), or if the produc: in the judgment of the manufacturer nas been subjected to misuse negligence accident. corrosive atmospheres, atmospheres containing any contaminant (silicone aluminum oxide etc.), excessive thermal shock. physical damage. impact. abrasion. unauthorized alterations or operation contrary to the manufacturer's printed instructions. or if the serial number has Sear: altered. defaced or removed.

3. Thomas & Betts Corporation shall not be liable *for* any default or delay in performance of its warranty obligations hereunder caused by any circumstances beyond its control, including out not limited *to* judicial or government restrictions or restraints, strikes, fires, flocds. or reduced supplies *of* raw materials, energy, or parts.

4. To the maximum extent provided **by** law, Thomas & Betts Corporation will not be liable for any loss. damage. cost of repair, or incidental or consequential damages cf any kind in connection with the sale. use. or repair of any Reznor products. **THIS WARRANTY IS IN LIEU** OF **ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, AND THOMAS & BETTS CORPORATION DISCLAIMS ALL OTHER EXPRESS WARRANTIES AND ALL IMPLIED WARRANTIES INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND** OF **FITNESS FOR A PARTICULAR PURPOSE .** No person is authorized to assume *for* Thomas & Betts Corporation any other warranty, obligation, or liability for any Reznor products.

hanging gas fired unit heaters Rezuor UDAP 800

Commercial/Industrial Installation

1. Type of Vent Pipe is Determined by whether Vent is Horizontal or Vertical

A commercial/industrial installation may have either a horizontal or a vertical vent using one of the types of vent pipe listed.

Horizontal

- Vent pipe approved for a Category III appliance
- Appropriately sealed 26-gauge or heavier galvanized steel or equivalent single-wail pipe

Vertical

- Vent pipe approved for a Category III appliance
- Appropriately sealed 26-gauge or heavier galvanized steel or equivalent single-wall pipe

Or, if at least 75% of the equivalent length of the vent run is vertical

- Double-wall (Type B) vent pipe

2. Vent Pipe Diameter and Maximum Vent Length

Vent pipe diameters and maximum vent lengths in TABLE 5 apply to both Horizontal and **Vertical** vents. Add **all** straight sections and equivalent lengths for elbows. The total combined length must not exceed the **Maximum Vent Length.**

TABLE 5 - Vent Pipe Diameter and Length for Horizontal and Vertical Vents

Size	Vent Pipe Diameter		Maximum Vent Length		Equivalent Straight Length for 90° Elbow		Equivalent Straight Length for 45° Elbow		Field-supplied taper type connection required at the venter outlet
	inches	mm	feet	M	feet	M	feet	M	
30	3	76	20	6.1	3	0.9	15	0.5	4" to 3" (102mm to 76mm) reducer
	4	102	10	3	2	0.6	1	03	None
45	3	76	20	6.1	3	0.9	15	0.5	4" to 3" (102mm to 76m) reducer
	4	102	10	3	2	0.6	1	0.3	None
60	3	76	30	9.1	4	1.2	2	0.6	4" to 3" (102mm to 76mm) reducer
	4	102	15	4.6	2	0.6	1	0.3	None
75	4	102	30	9.1	4	1.2	2	0.6	None
100	4	102	40	12.2	5	1.5	2.5	0.8	None
125	4	102	40	12.2	5	1.5	2.5	0.8	None
150	5	127	35	10.7	5	1.5	2.5	0.8	None
175	5	127	35	10.7	5	1.5	2.5	0.8	None
200	5	127	50	15.2	5	1.5	2.5	0.8	None
225	5	127	50	15.2	5	1.5	2.5	0.8	None
250	5	127	50	15.2	5	1.5	2.5	0.8	None
300	6	152	50	15.2	5	1.5	2.5	0.8	None
350	6	152	50	115.2	7	2.1	3.5	1.1	None
	7	178	50	15.2	4.5	1.4	2.25	0.7	6" to 7" (152 to 178mm) enlarger
400	6	152	50	15.2	8	2.4	4	1.2	None
	7	178	50	15.2	5	1.5	2.5	0.8	6 to 7" (152 to 178mm) enlarger

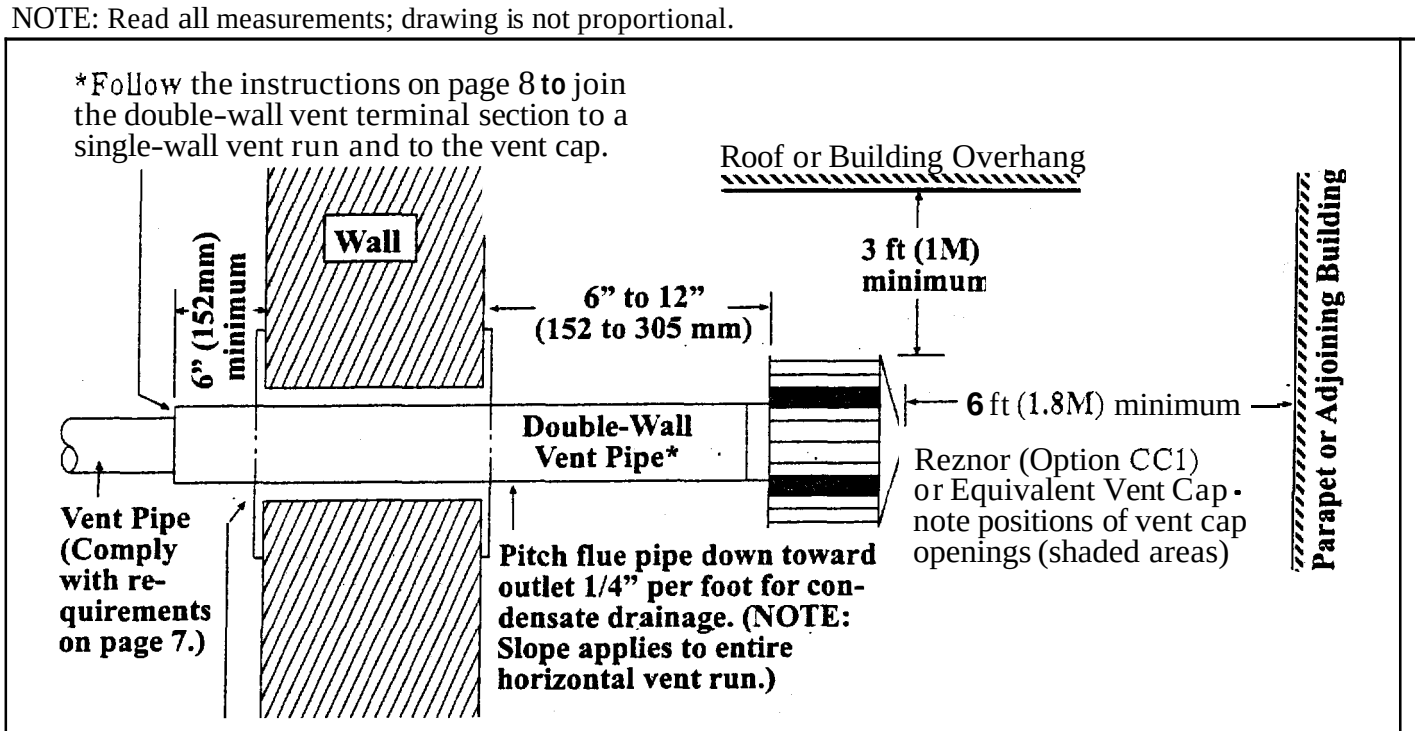
- Use only one diameter of vent pipe on an installation.
- Minimum vent length is 3 feet (1M).

Commercial/Industrial Installation

7, Vent Terminal (Pipe and Vent Cap) - cont'd

FIGURE 6 - Horizontal Vent Terminal - Commercial/Industrial

NOTE: Read all measurements; drawing is not proportional.



Approved clearance thimble is required when flue pipe extends through combustible materials. Follow the requirements of the double-wall pipe manufacturer.

TABLE 7 - Horizontal Vent Terminal Clearances

A vent cap is required. Maintain a clearance of 6 to 12 inches (152-305mm) from the wall to the vent terminal cap for stability under wind conditions.

Products of combustion can cause discoloration of some building finishes and deterioration of masonry materials. Applying a clear silicone sealant that is normally used to protect concrete driveways can protect masonry materials. If discoloration is an esthetic problem, relocate the vent or install a vertical vent.

Structure	Minimum Clearances for Vent Termination Location (all directions unless specified)
Forced air inlet within 10 ft (3.1m)	3 ft (0.9M) above
Combustion air inlet of another appliance	6 ft (1.8M)
Door, window, or gravity air inlet (any building opening)	4 ft (1.2M) horizontally 4 ft (1.2M) below 1 ft (305mm) above
Electric meter, gas meter*, gas regulator*, and relief equipment	U.S. - 4 ft (1.2M) horizontally Canada - 6 ft (1.8M) horizontally)
Gas regulator *	U.S. - 3 ft (0.9M) Canada - 6 ft (1.8M)
Adjoining building or parapet	6 ft (1.8M)
Adjacent public walkways	7 ft (2.1M) above
Grade (ground level)	1 ft (305mm) above**

*Do not terminate the vent directly above a gas meter or service regulator.
** Consider local snow depth conditions. The vent must be at least 6" (152mm) higher than anticipated snow depth.

10. Unit Heater Location (cont'd)

NOTE: Venting requirements may affect location. Consult the Venting Manual for this heater before making final determination.

For best results, the heater should be placed with certain rules in mind. In general, a unit should be located from 8 to 12 feet (2.4-3.7M) above the floor. Units should always be arranged to blow toward or along exposed wall surfaces, if possible. Where two or more units are installed in the same room, a general scheme of air circulation should be maintained for best results.

Suspended heaters are most effective when located as close to the working zone as possible, and this fact should be kept in mind when determining the mounting heights to be used. However. care should be exercised to avoid directing the discharged air directly on the room occupants.

Partitions, columns, counters, or other obstructions should be taken into consideration when locating the unit heater so that a minimum quantity of airflow will be deflected by such obstacles.

When units are located in the center of the space to be heated, the air should be discharged toward the exposed walls. In large areas, units should be located to discharge air along exposed walls with extra units provided to discharge air in toward the center of the area.

At those points where infiltration of cold air is excessive, such as at entrance doors and shipping doors, it is desirable to locate the unit so that it will discharge directly toward the source of cold air from a distance of 15 to 20 feet (4.6-6.1M).

CAUTION: Do not locate the heater where it may be exposed to water spray, rain, or dripping water.

Hazards of Chlorine - applies to location of Model UDAS heater with regard to combustion air inlet

The presence of chlorine vapors in the combustion air of gas-fired heating equipment presents a potential corrosion hazard. Chlorine found usually in the form of freon or degreaser vapors, when exposed to flame will precipitate from the compound, and go into solution with any condensation that is present in the heat exchanger or associated parts. The result is hydrochloric acid which readily attacks all metals including 300 grade stainless steel. Care should be taken to separate these vapors from the combustion process. This may be done by wise location of the unit vent and combustion air terminals with regard to exhausters or prevailing wind directions. Chlorine is heavier than air. Keep these facts in mind when determining installation location of the heater in relation to building exhaust systems.

11. Hanging the Heater

WARNINGS: Check the supporting structure to be used to verify that it has sufficient load carrying capacity to support the weight of the unit. Suspend the heater only from the threaded nut retainers or with a manufacturer provided kit. Do NOT suspend from the heater cabinet.

Before suspending the heater, check the supporting structure to be used to verify that it has sufficient load-carrying capacity to support the weight of the unit.

Size	30	45	60	75	100	125	150	175,200	225	250	300	350	400
lbs	54	59	67	72	96	101	172	187	203	215	269	294	306
kg	24	27	30	33	44	46	78	85	92	98	122	133	139

Model UDAS

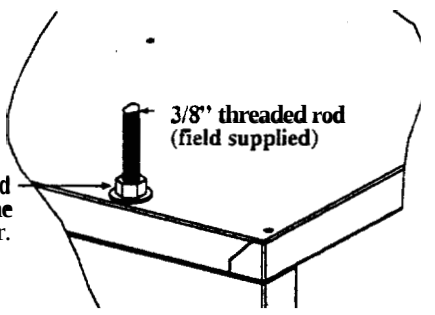
Size	30	45	60	75	100	125	150	175, 200	225	250	300	350	400
lbs	55	60	68	73	97	102	173	188	204	216	270	295	307
kg	25	27	31	33	44	46	78	85	93	98	122	134	138

When the heater is lifted for suspension, support the bottom of the heater with plywood or other appropriately placed material. If the bottom is not supported, damage could occur. Before hanging, verify that all screws used for holding shipping brackets were re-installed in the cabinet.

The heater is equipped for either two-point or four-point suspension. A 3/8"-16 threaded nut retainer is located at each suspension point. See Dimensions in Paragraph **5** and the illustration in **FIGURE 7A.**

FIGURE 7A - Suspending the Heater with Rods from the Threaded Nut Retainers (either two or four point suspension)

Be sure the threaded hanger rods are locked to the heater as illustrated.



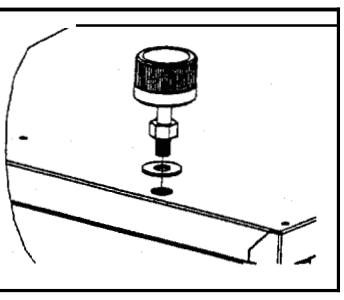
Recommended maximum hanger rod length is 6 feet (1.8M).

WARNING: Unit must be level for proper operation. Do not place or add additional weight to the suspended heater. Hazard Levels, page 2.

If ordered with swivel connectors for 1" pipe, Option CK8 or CK10, attach the swivels at the threaded nut retainers. Suspend with 1" pipe. *(See* FIGURE **7B.)**

FIGURE **7B** - Swivel Connectors to Suspend the Heater from 1" Pipe, Option CKS (2-pt) or CK10 (4-pt)

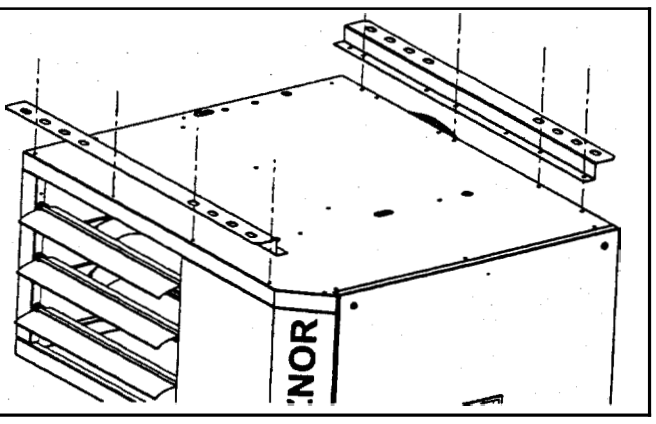
Be sure the threaded swivel connectors are locked to the heater as illustrated.



If ordered with a ceiling suspension kit, Option CK22, follow the illustrated instructions in the kit. (See FIGURE 8.)

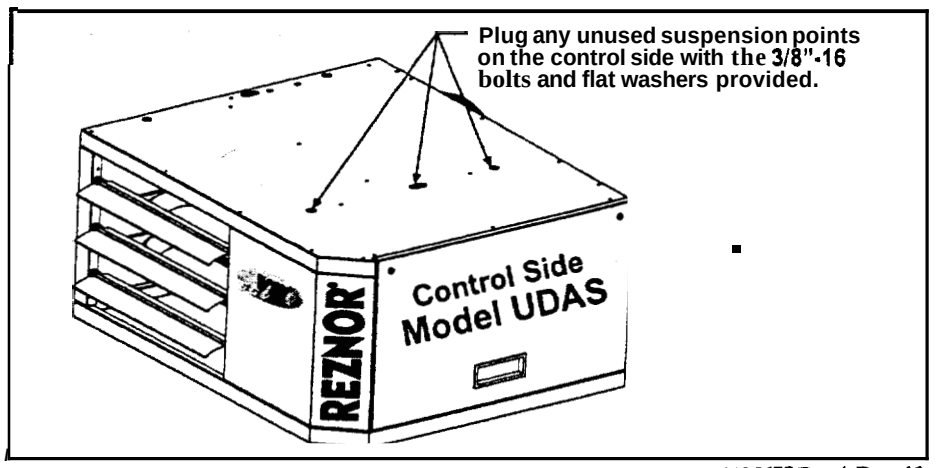
FIGURE **8** - Suspending the Heater using Option CK22, Ceiling Suspension Kit (no hanger rods)

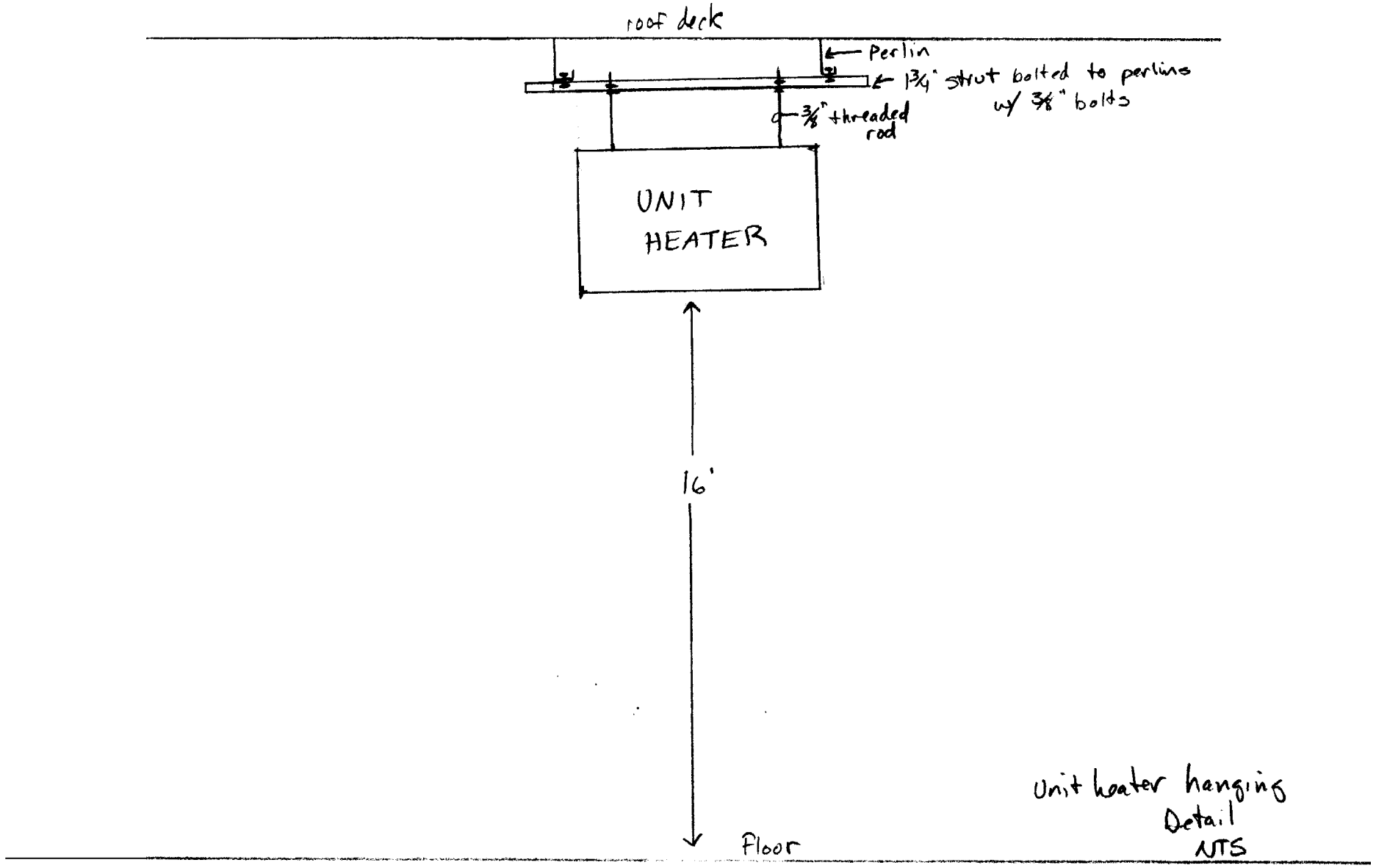
Available for Sizes 30-125. Allows the heater to be installed one inch from the ceiling.



Model UDAS - Whether using the suspension points or the hanger kit, when installing a Model UDAS, the unused suspension points **on the control side of the heater MUST** be **plugged.** Plug these holes **with** the 3/8"-16 bolts and flat washers shipped in the bag with the heater. (See FIGURE *9.)*

FIGURE 9 - Model UDAS - Plug the unused suspension points on the control side of the heater with 3/8"-16 screws and flat washers





Unit heater hanging Detail
NTS

Unit heater flue venting typical 7

Metlvent®

SUBMITTAL DRAWING

SPECIFICATIONS FOR METLVENT FACTORY-BUILT ROUND TYPE B GAS VENT

- TYPE: factory–built double–wall gas vent – round.
- APPLICATION: For venting negative pressure gas–burning appliances. Certified for use with type B gas vent.
- SIZES: *3"* diameter through 24" diameter (nominal diameter – inside)

Nominal Diameter (Inside)	Outside Diameter
3" through 6" (1" increments)	Nominal diameter + 1/2"
7"	Nominal diameter + 1"
8" through 24" (2" increments)	Nominal diameter + 1"

- MATERIAL:

Nominal Size (I.D.)	Component	Material & Thickness
3" though 12"	Inner Liner	Aluminum alloy 3003, 3105, 1100, *3007* – .012" thick
14" though 24"	Inner liner	Aluminum alloy 3003, 3105, 1100, *3007* – .016" thick
3" though 18"	Outer pipe	G–90 Galvanized steel – .018" thick
20" though 24"	Outer pipe	G–90 Galvanized steel – .028" thick
3" though 12"	Lock ring	G–90 Galvanized steel – .018" thick
14" though 24"	Lock ring	G–90 Galvanized steel – .028" thick

INSULATION: Airspace between inner and outer pipe.

CLEARANCE TO COMBUSTIBLES: 1" air space from O.D.

UNDERWRITERS LABORATORY LISTED: Per Standard UL **441**(Latest Edition) File #MH6690.

CAUTION

Flue gas temperature must never exceed 550°F in the vent. Do not use on any type of oil furnace or oil burner.

JOB NAME	SUBMITTED BY:	DATE: 1/28/99	SD–3137
LOCATION		**Specifications For Metlvent Type B Gas Vent**	
ARCHITECT			
ENGINEER			
CONTRACTOR:			

Hart & Cooley, Inc., 500 E. Eighth St., Holland, MI 49423 Telephone (616) 392–7855 Fax 1–800–223–8461

M# AZ25E07D3C

Installation Instructions

Zoneline Air Conditioners

Questions? Call 800.GE.CARES (800.432.2737) or Visit our Website at: **www.GEAppliances.com**

BEFORE YOU BEGIN

Read these instructions completely and carefully.

- IMPORTANT – Save these instructions for local inspector's use.
- IMPORTANT – Observe all governing codes and ordinances.
- **Note to Installer** – Be sure to leave these instructions with the owner.
- **Note to Owner** – Keep these instructions for future reference.
- Proper installation is the responsibility of the installer.
- Product failure due to improper installation is not covered under the Warranty.

TOOLS YOU WILL NEED

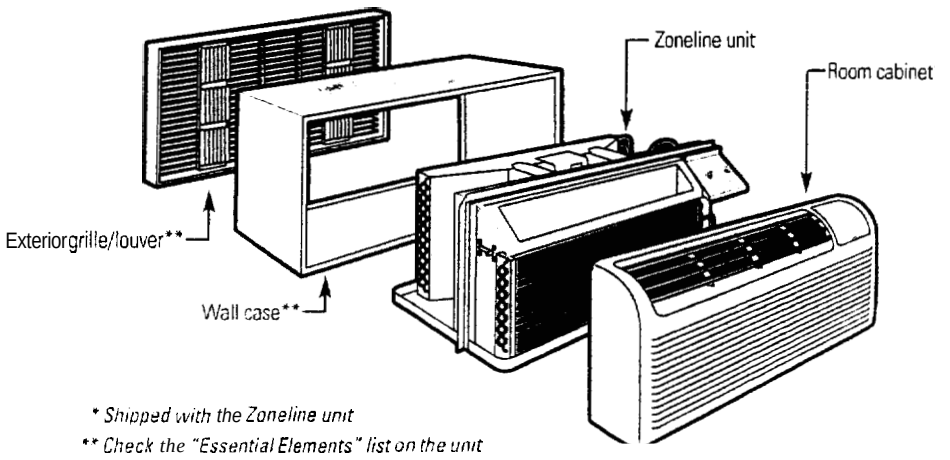
Phillips screwdriver

IMPORTANT ELECTRICAL SAFETY–READ CAREFULLY

A CAUTION:

- Follow the National Electrical Code (NEC) or local codes and ordinances.
- For personal safety, this Zoneline must be properly grounded.
- Protective devices (fuses or circuit breakers) acceptable for Zoneline installations are specified on the nameplate of each unit.
- Do not use an extension cord with this unit.
- Aluminum building wiring may present special problems—consult a qualified electrician.
- When the unit is in the STOP position there is still voltage to the electrical controls.
- Disconnect the power to the unit before servicing by:
  1 Removing the power cord (if it has one) from the wall receptacle.
  OR
  2 Removing the branch circuit fuses or turning the circuit breakers off at the panel.

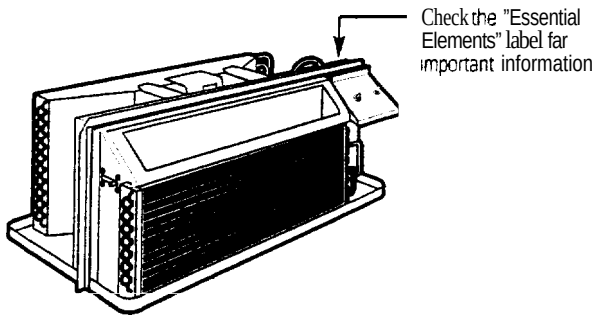
ZONELINE COMPONENTS



* Shipped with the Zoneline unit

** Check the "Essential Elements" list on the unit

REPLACING AN EXISTING UNIT?



Use the correct wall case

This unit is designed to be installed in a GE plastic or insulated metal wall case. This minimizes condensation from forming on the room side of the case.

If the current wall case is not insulated, you can reduce the possibility of condensation forming by installing insulation kit RAK901L, available where you purchased the unit.

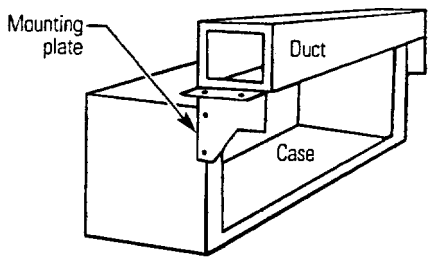
Use the correct outdoor *grille*

You should use the outdoor grilles shown on the "Essential Elements" label on the top of the unit.

- If an existing grille is not replaced, capacity and efficiency will be reduced and the unit may fail to operate properly or fail prematurely. A deflector kit, RAK40, may be used with grilles that were not designed for your new GE Zonelines. The RAK40 contains air deflectors and gaskets that mount to the unit to direct the hot exhaust air away from the air intake to allow the unit to function properly. The grille must have a 65% minimum free area.
- Any vertical deflectors in the existing rear grille should be removed to decrease condenser air recirculation which can cause the unit to "short-cycle" and lead to premature component failure.

Replacing a ducted unit

New ducted installation:
If this unit is to be installed in a new ducted application using a duct adapter kit, the kit must be installed before the unit is placed in the wall case. The installation instructions are packed with the kit.



Existing ducted installation:
Replacement of an existing ducted unit may require different components. Request this information from your sales representative.

- **Replacing 230/208 volt** units:
  See page 14.
- **Replacing 265 volt units:**
  See pages 15 and 16.

HOW TO CONNECT

1. Remove the room cabinet.
2. Connect to electrical power.
3. See the special instructions below for applicable supply voltages.
4. Reinstall the room cabinet.

230/208 VOLT ELECTRICAL SUPPLY

All wiring, including installation of the receptacle, must be in accordance with the NEC and local codes, ordinances and regulations.

This unit is equipped with a line cord for appropriate amperage wall receptacle. See below.

Tandem	*Perpendicular*	*Large Tandem*
15 Amp.	*20 Amp.*	*30 Amp.*

230/208 volt receptacle configuration.

Order Kit RAK4002A for 230/208 volt direct connection.

230/208 volt models may be installed using one of the following electrical subbases:

Branch Circuit and Unit Amperage Rating	*Proper GE Subbase Kit*
15/20	RAK204D20
30	RAK204D30

Electrical subbases provide a flexible enclosure for direct connection or enclosed receptacles.

The instructions provided with the selected subbase kit must be carefully followed. It is the responsibility of the installer to ensure the connection of components is done in accordance with these instructions and all electrical codes.

265 VOLT ELECTRICAL SUPPLY

A WARNING:

Connection of this *265* V AC product to a branch circuit ***MUST*** be done by direct connection in accordance with the National Electric Code. Plugging this unit into a building mounted exposed receptacle is not permitted by code.

These models must be installed using one of the following methods:

A Electrical subbase **kits** are available to provide a flexible enclosure for direct connection.

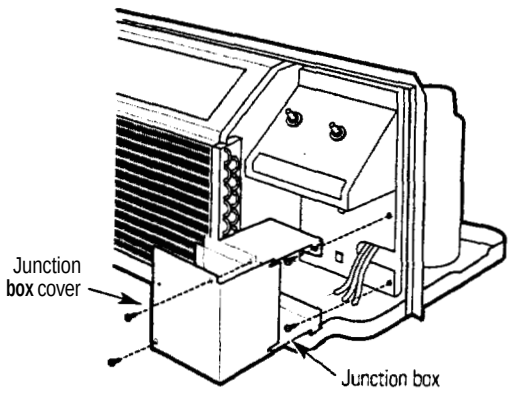
Branch Circuit and Unit Amperage Rating	*Proper GE Subbase Kit*
15	RAK204E15
20	RAK204E20
30	RAK204E30

The instructions provided with the selected subbase kit must be carefully Followed. It is the responsibility of the installer to ensure the connection of components is done in accordance with these instructions and all electrical codes.

B For direct connection to branch circuit wiring inside the provided junction box without using a subbase kit, cut the cord, strip the wire ends and connect **as** follows.

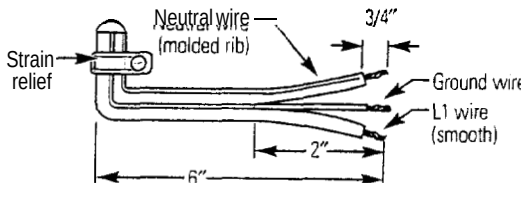
1 REMOVE JUNCTION BOX

1. Remove the junction box cover by taking out the front **two** screws.
2. Remove the junction box by taking out the top and bottom rear screws. Note how the tabs on the lower left side of the junction box serve to hold the side in place. This will help when the box is being reinstalled. The cord will be coiled up inside the junction box.



2 CUT AND STRIP THE CORDSET

1. Measure 6" down the cord from the strain relief securing the cord to the unit and cut the cord through at this point.
2. Carefully split the cord insulation at the center for **2"** so **as** to separate into three insulated wires. **Be** careful not to cut through the center green ground wire insulation.
3. Strip 3/4" of the insulation away at the **end** of each of the three wires (L1, Neutral and Ground). The Neutral wire is identified by molded rib along its entire length. The L1 (Hot) wire insulation is smooth.

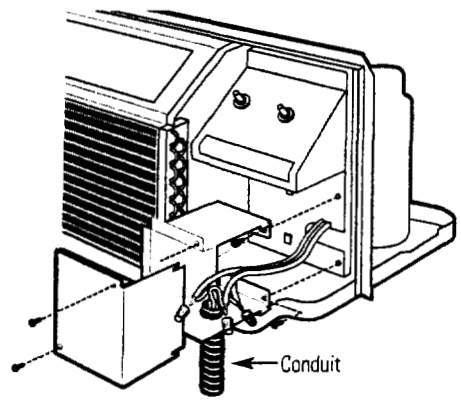


265 VOLT ELECTRICAL SUPPLY

NOTE: Order Kit RAK4002CW to enable a quick disconnect inside the junction-bo;?‘

3 ATTACH CONDUIT

1 Use the round knockout at the bottom of the junction box to attach conduit coming from the branch circuit. Remove the knockout, attach the conduit and bring wires into the junction box. Leave 6” of wire free at the end of the conduit **to** allow connections to be made.



2 If a fuse and fuseholder are to be used, the knockout at the top of the box is for mounting a **Buss** Fuseholder. Be sure the fuse and fuseholder are of the same rating **as** the branch circuit. Leadwires at the fuse **can** be either soldered in place or attached using UL-listed 1/4″ female (receptacle) crimp connectors.

4 REINSTALL JUNCTION BOX

- Reinstall the junction box by engaging the left **tabs** on the lower right face of the unit, aligning the screw holes at the top and bottom and driving the two screws until secure. Be sure that all wire leads are inside the box and not pinched between the box and the unit.

The identified (ribbed) Neutral wire of the cordset **MUST** be connected to the white Neutral wire of the branch circuit. The green insulated ground wire from the unit **MUST** be connected to the branch circuit ground wire.

5 MAKE WIRING CONNECTIONS

1 Make all wire connections **by** using appropriate UL-listed electrical connectors and techniques (black to black, white to white and green to green).

2 Carefully tuck all wires and connections back inside the junction box. Be sure there are no loose connections or stray uninsulated wires exposed.

3 Place the junction box cover in place. Replace the two screws removed earlier and tighten securely.

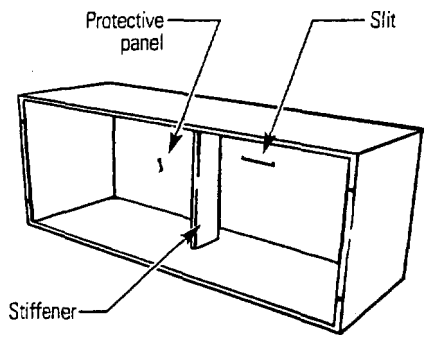
4 Discard the unused portion of the plug and the cordset.

INSTALLING THE ZONELINE

1 INSTALL THE WALL CASE AND EXTERIOR GRILLE

The RAB71 series or RAB77 wall case must be properly installed per instructions packed with the case.

- Remove the corrugated stiffener and the outdoor protective panel. Use the slit in the outdoor panel as a handhold and push out.



- Install the exterior grille from the room side following instructions packed with the grill.

Insulated Wall Case

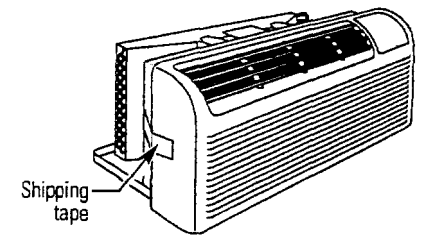
This unit is designed to be installed in a GE plastic or an insulated steel wall case. This minimizes condensation from forming on the room side of the case.

The RAB71 series wall cases are insulated. Insulation kit RAK901L is available for use with RAB77 or existing uninsulated wall cases when needed.

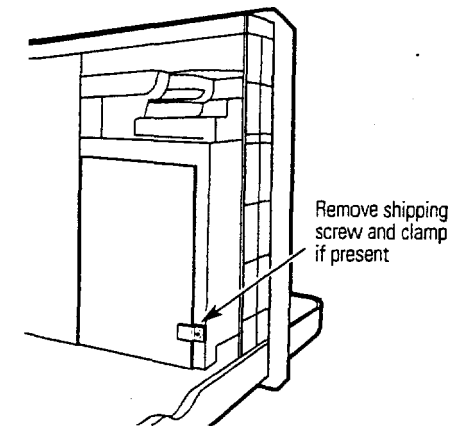
NOTE: For installation with a subbase or duct adapter, see the instructions packed with those kits.

2 PREPARE THE ROOM CABINET

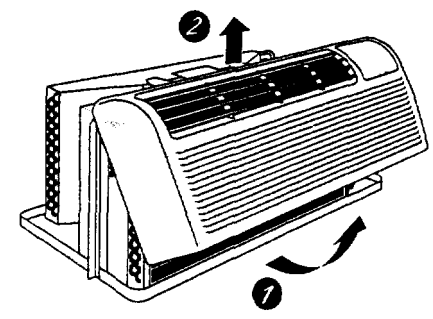
- Carefully remove shipping tape, if there is any, from the room cabinet and vent door.



- Remove the shipping screw/clamp from the top of the vent door, if present.

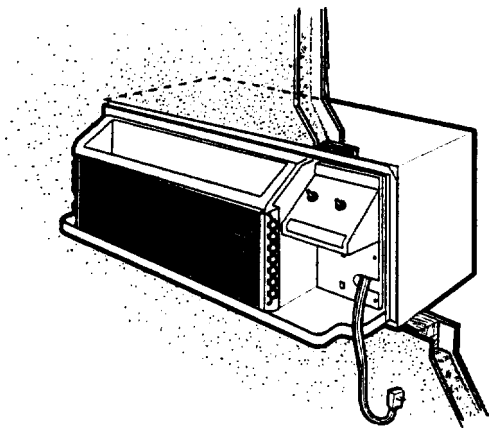


- Remove the room cabinet by pulling it out at the bottom to release it (1), then lift it up to clear the rail along the unit top (2).



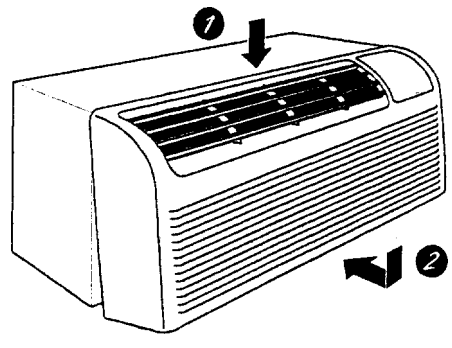
3 INSTALL THE UNIT INTO THE WALL CASE

Slide the unit into the wall case and secure with four screws through the unit flange holes.



4 REPLACE THE ROOM CABINET

Reinstall the room cabinet by hooking the top over the rail along the unit top (1), then pushing it in at the bottom (2).

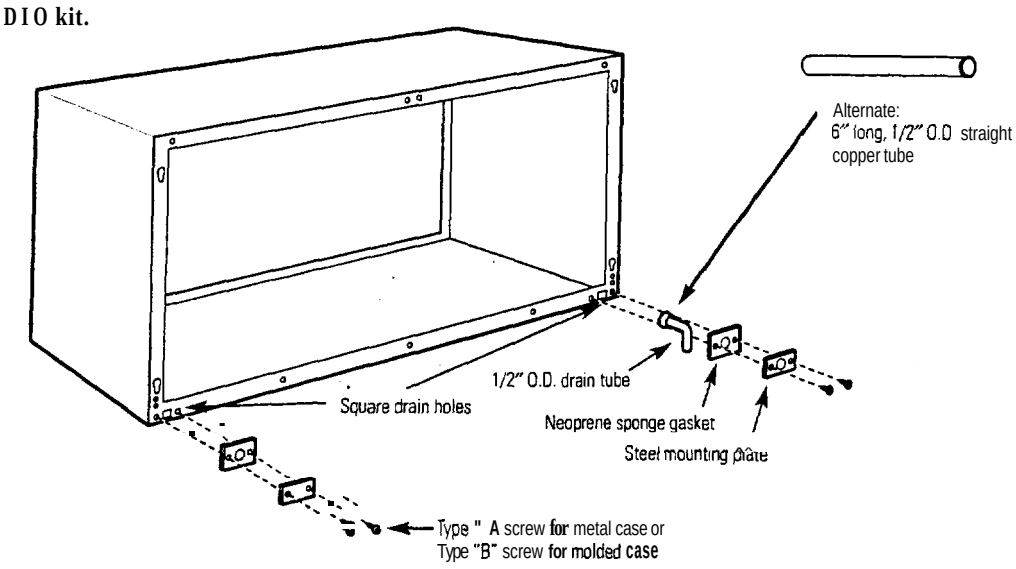


OPTIONAL – DRAIN KIT INSTALLATION

Dry Air 2500 Series models are designed to improve dehumidification by 25%. Since more moisture will be removed from the air, there is a greater possibility that water will drip from the wall case than with a standard unit. To prevent this water from dripping onto external building walls, we recommend the use of RAD10 Drain Kit.

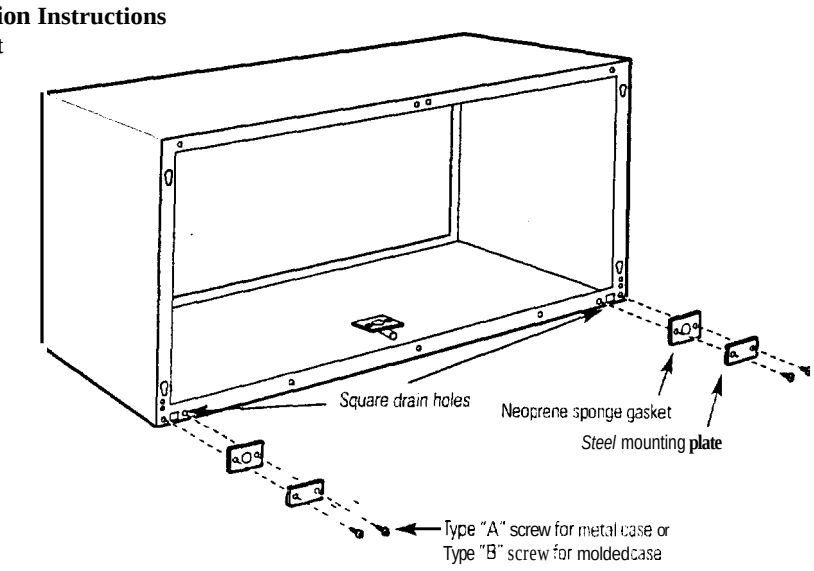
External Drain

See the Installation Instructions in the RADIO kit.



Internal Drain

See the Installation Instructions in the RAD10 kit



Installation instructions for your new

RAB-71 Standard or Extended Room Air Conditioner Case

Before you begin—Read these instructions completely and carefully.
IMPORTANT—OBSERVE ALL GOVERNING CODES AND ORDINANCES.
Note to Installer—Be sure to leave these instructions with the Consumer.
Note to Consumer—Keep these instructions with your Use and Care Book for future reference.

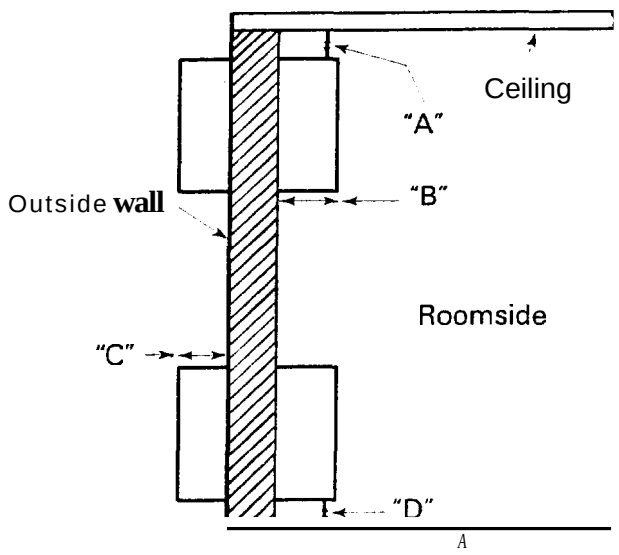
Note:

- Handle the case carefully.
- The cardboard stiffener inside the case, and the rear protective panel must remain in place until the chassis is installed to assure case rigidity and squareness.
- If a sub-base is to be used, it may be desirable to assemble it to the case beforesecuring the case in the wall.

Case location

As a general rule the air conditioner should be located in an outside wall to assure proper distribution of conditioned air. It should be located in a portion of the wall where there is no electrical wiring or plumbing, and where there are no obstructions immediately inside or outside.

Critical Dimensions



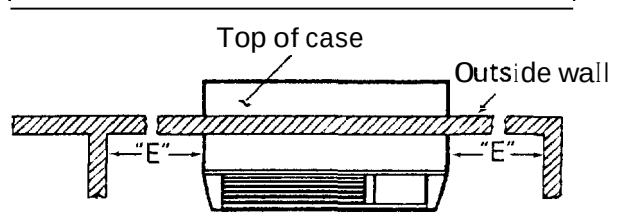
Finished floor or top of carpet

Note:

Care should be taken in location of electrical supply entry in relationship to wall sleeve to assure access *to* power once the unit is installed.

Dimensions	Recommended Installation Clearance
A	**Top** of case to finished ceiling – 3“ min.
B	Projection of case into room – 0” min. (no sub-base) 2⅜” min. when sub-base is used. If more than 6” of the case projects into the room, a sub-base or other support is recommended.
C	Projection of case to outside – 1/4” min.
D	Height above finished floor or top of carpet – 0” rnin. without sub-base 3” min. with sub-Ease
E	Left/Right side of case to adjacent wall – 2” min.

INSTALL CASE LEVEL IN ALL DIRECTIONS



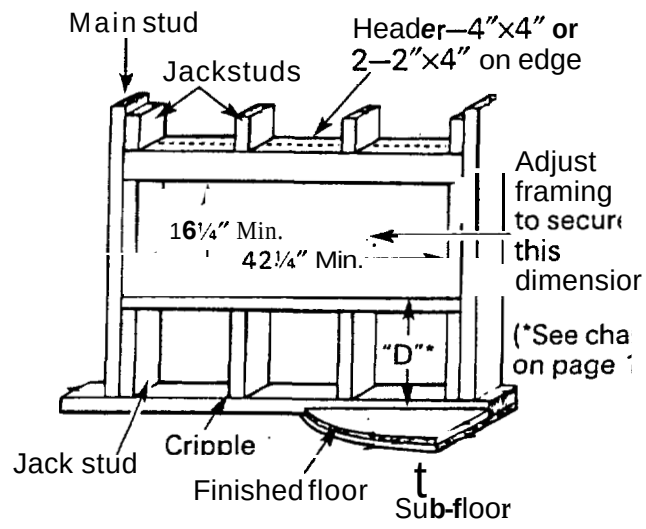
Pub. No. 30-7795-2
04-00 JR

STEP 1
Preparation of the wall

The wall case should be installed during construction and lintels should be used to support the block above the wall case. The case will not support the concrete block or brick. The case is modular in height and width:

Height — Fits 2 courses concrete block
— Fits 6 courses standard brick
— Fits 5 courses jumbo brick
Width — Fits approximately 3 stud spaces.

For existing construction, wall openings must be made. Wall openings of the proper dimensions are essential to avoid the necessity of fillers or additional framing.



Note:
Use lintel to support brick, block, etc. above the air conditioner case. (If directly under a window sill the use of a lintel may not be necessary.)

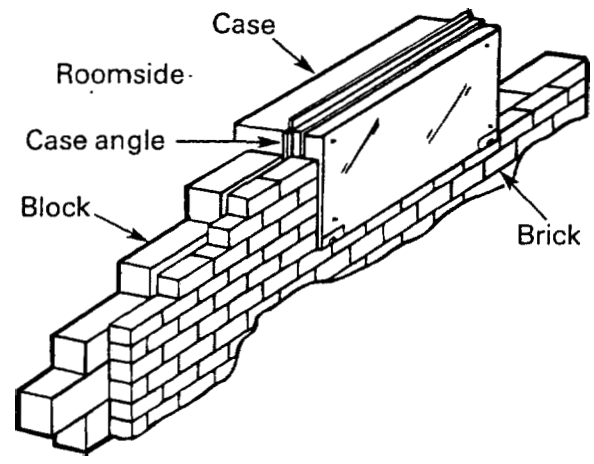
	MINIMUM FINISHED OPENING DIMENSIONS		CASE DIMENSIONS					
	Height	Width	Height	Width	Depth			
Using ıse Angles	16¼″	42½″	16″	42″	13¾″	16″	24″	28″	31″
OT Using ıse Angles	16¼″	42¼″							

STEP 2
Preparation of the case

Do not remove the cardboard stiffener inside the case until the chassis is installed.

If field supplied case angles are to be used and must be installed, proceed as follows:

1. Position the case angles around top and sides of the case at the desired location (front to rear) with angles facing toward rear (outside). Position the case angles vertically on each side of the case to provide a level installation.
2. Mark the case through the holes in the case angles.
3. Drill 5/32" diameter holes at marked locations on the case and assemble the angles using only 10×1/2″ screws. Install the screws from the outside of the case.
4. Do not drill any holes in bottom of the case.

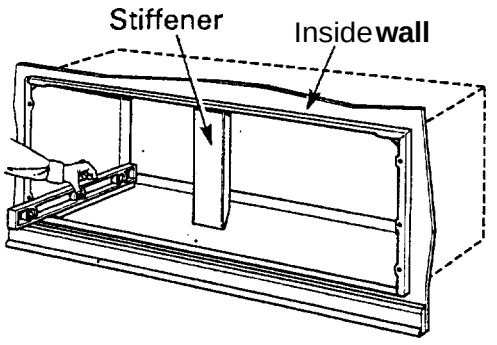


STEP 3
Installation of the case in the wall opening

1. Position the case into the wall. Refer to chart on page 1 for roomside projection. The rear (outside) edge of the case should extend at least 1/4" beyond the outside wall to be able *to* caulk properly and prevent sealing the drain holes in the rear flange of the case, and to facilitate easy installation of an accessory drain, if desired. (If it is desired to have the rear grille flush on the outside, a drip rail must be installed under the case, and caulking applied between the drip rail and case.)

Important:

Install case level **from** left to **right and** level **from roomside to the** outside.

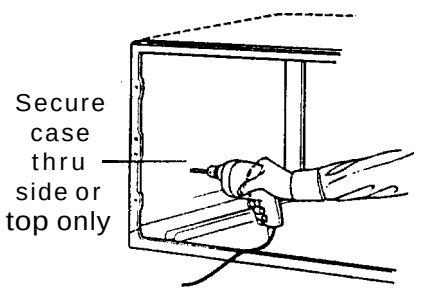


2. Firmly secure the case to wall structure. Do not drill any holes in the bottom of the case.

3. Caulk the e'ntire opening on the outside between the case and the building exterior.

4. Caulk the entire opening on the inside between the case and the building interior.

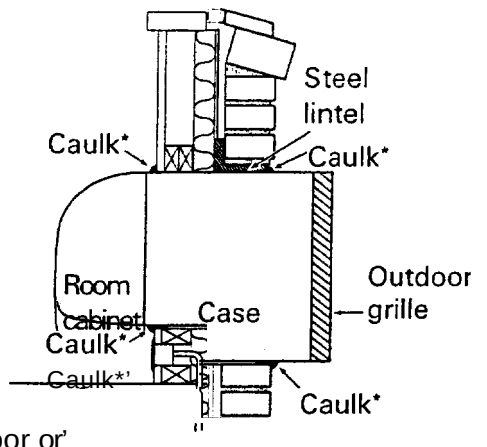
Use lintel, when required, to support brick and block above the case.



Note:
Do not drill any holes in the case for electrical connections. See the Owner's Manual for how to connect the electrical supply.

STEP 4
Weatherproofing

Weather proof gaps between the exterior and interior walls and the case with caulking or equivalent weather proofing material.

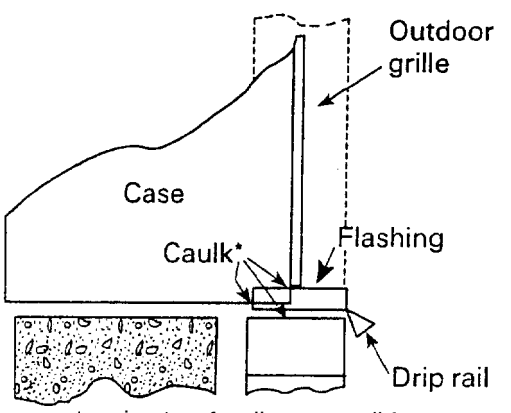


'Caulk around perimeter of wall case on all four sides on the outside and the roomside where it joins the building.

For installation in extra thick walls

1. If the case is being installed in a thick wall where the case is recessed more than 3", an extended wall case will be required with depths as called out in the table in Step **1.**

2. If the case is being installed in a wall where the recess is 3" or less, and an extended wall case is not used, flashing must be installed under the case and extend up 2" **on** each side. The flashing must include a drip rail as illustrated in the figure below.

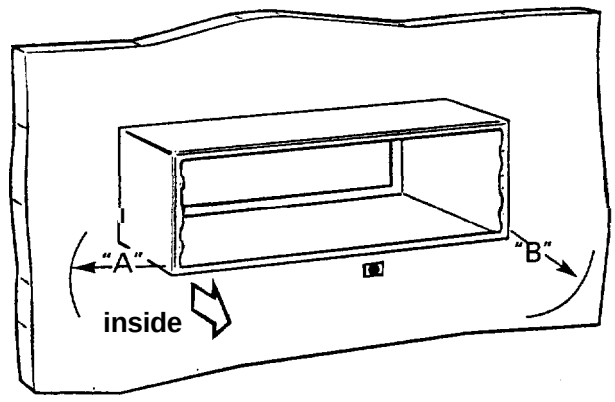


*Caulk around perimeter of wall case on all four sides where it joins the building.

3. For further details. refer to the "**GE** Architects and Engineers Design Data Manual" for Zonelines. To obtain a copy of that manual, call the GE Answer Center" at 800 626 2000.

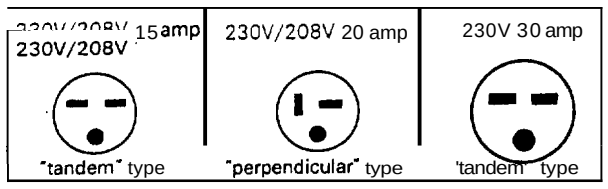
ELECTRICAL REQUIREMENTS (230/208V)

Provisions should be made to have the proper electrical outlet near the case. All wiring should be made in accordance with local codes and regulations. The line cord included with the chassis (if used) will extend to a wall receptacle located within the area shown in tabulation below.



Model	"A"	"B"
AZ Series	21"	58"

Wall Receptacles



All wiring should be made in accordance with local electrical codes and regulations.

See the Owner's Manual for how to connect electrical supply.

Note:
Aluminum wiring in structure may pose special problems—consult a qualified electrician.

ELECTRICAL REQUIREMENTS (265V)

Warning:
Connection of a 265V product to a branch circuit ***MUST*** be done by direct connection to be in compliance with the National Electric Code. Plugging a 265V unit directly into a building mounted exposed receptacle is not permitted by code.

See the Owner's Manual for how to connect electrical supply.

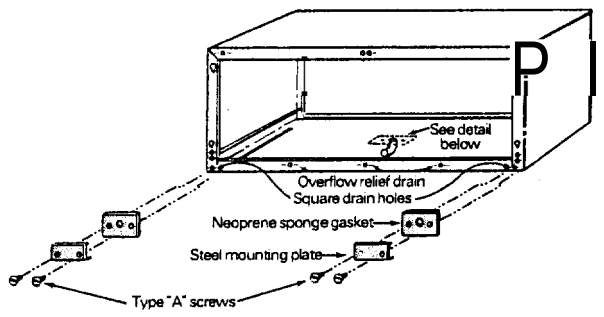
DRAIN KIT

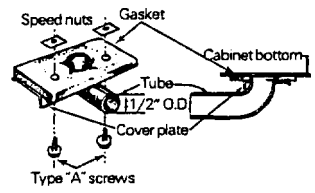
If it is necessary to install a drain kit on this wall case, the following kit is available:

RAD10 **Internal/External** Drain

1. With an "Internal Drain", the condensate drain tube must be connected to an internal drain system in the building.

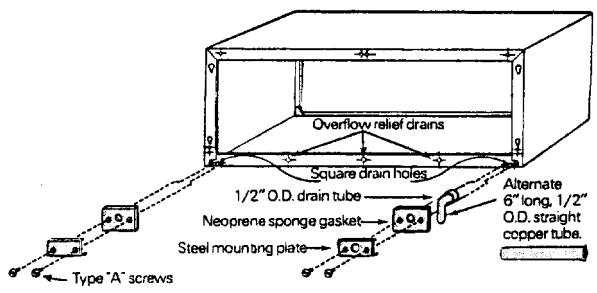
WALL CASE WITH RAD10 DRAIN UNIT
INTERNAL DRAIN





2. With an "External Drain" (which may be connected to a field supplied drain line) condensate water can be drained away from the unit and building.

WALL CASE WITH RAD10 DRAIN UNIT
EXTERNAL DRAIN



Note:
It may be desirable or necessary to install the drain kit on the case prior to installing the case into the wall.