PERMIT ISSUED
CITY OF PORTLAND

City of Portland, Maine - Building or Use Permit Application

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

Permit No:	Issue Date:	CBL:
05-0541	MAY 2 3 2005	238A A005001

Location of Construction:	Owner Name:	Owner Address:	Phone:
2273 Congress St	Rew Realty Llc	2273 Congress St	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Johnson & Jordan	18 Mussey Road Scarborough	2078838345
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		HVAC	I-M

Past Use:	(Proposed Use:	Permit Fee:	Cost of Work:	(CEO District:
Commercial	Commercial / install trane gas furnace	$831.00	$89,579.00	3

install trane gas furnace

FIRE DEPT: ☑ Approved ☐ Denied

Signature: JLK. PFD. 5-13-05

INSPECTION: Use Group 6 Type: HVAC

Signature: JMB 5/17/05

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date.

Permit Taken By:	Applied For:
ldobson	05/04/2005

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	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☐ Site Plan SK	☐ Approved	☐ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
Date: JMB 5/17/05	Date	Date: JMB

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 2 3 2005
CITY OF PORTLAND

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 2273 Congress St Use of Building Office Date 5/3/05

Name and address of owner of appliance REW Realty 2273 Congress St Portland, ME

Installer's name and address Johnson + Jordan 18 Mussey Rd, Scarborough, ME Telephone 883-8345

Location of appliance:

- ☐ Basement
- ☑ Floor
- ☐ Attic
- ☐ Roof

Type of Fuel:

- ☑ Gas
- ☐ Oil
- ☐ Solid

Appliance Name: Trane

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 1875
- ☐ Other _____

Type of Chimney:

- ☐ Masonry Lined
  Factory built _____
- ☐ Metal
  Factory Built U.L. Listing # _____
- ☐ Direct Vent
  Type _____

DEPT. OF BUILDING INSPECTION
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Type of Fuel Tank

- ☐ Oil
- ☐ Gas

Sue of Tank _____

Number of Tanks _____

Distance from Tank to Center of Flame _____ **feet.**

Cost of Work → $89579 Fee $831.00

Approved

Fire: _____

Ele.: _____

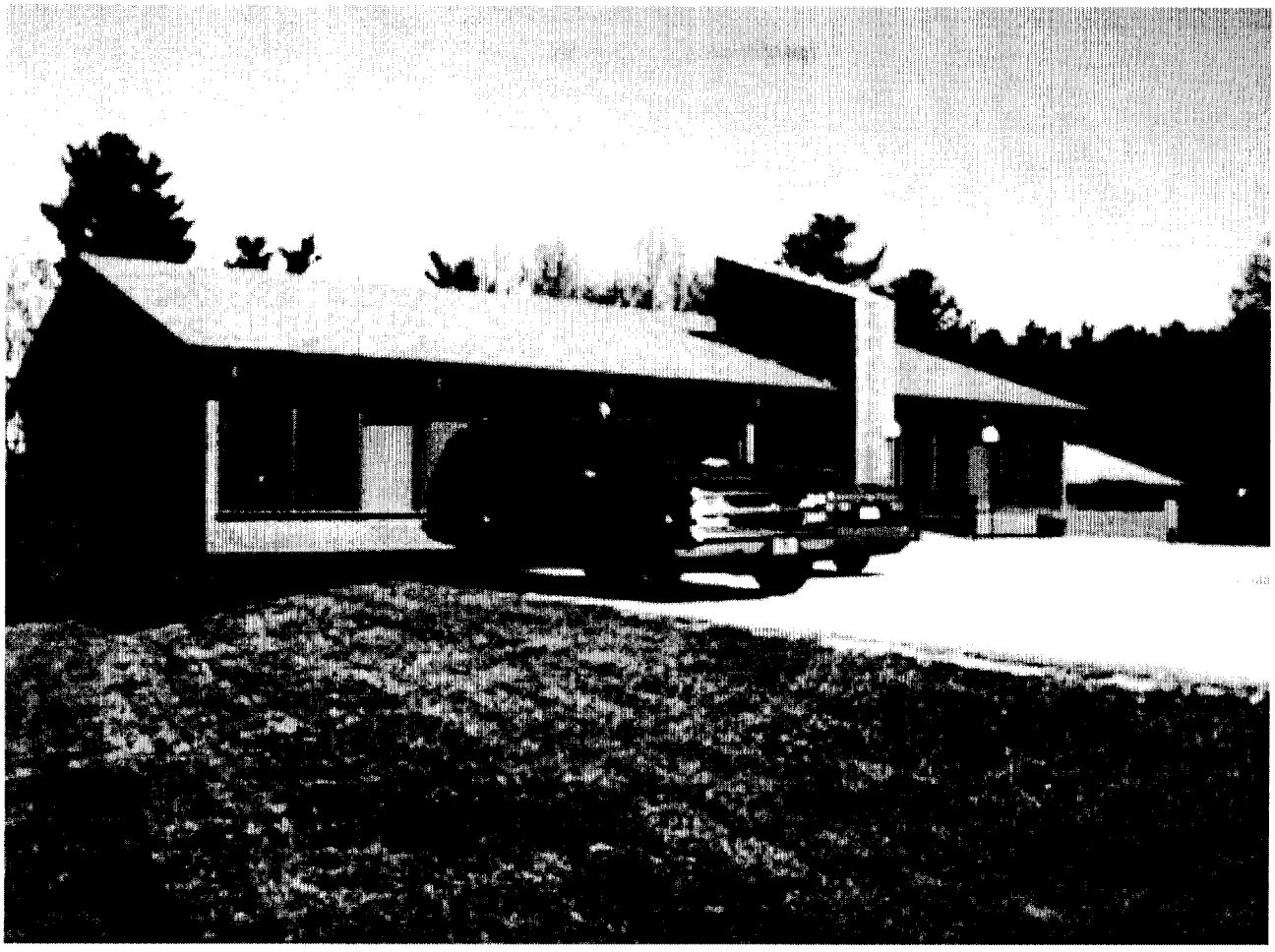
Bldg.: _____

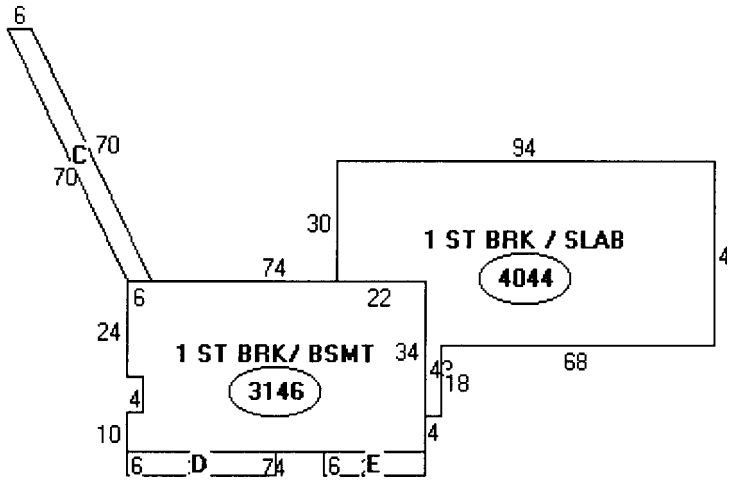
Approved with Conditions

- ☐ See attached letter or requirement

Signature of Installer Glenn Boudreau

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





Descriptor/Area

A:1 ST BRK/ BSMT
3146 sqft

B:1 ST BRK / SLAB
4044 sqft

C:1 ST FRM CONNE
378 sqft

D:1 ST FRM /POST
222 sqft

E:1 ST FRM /POST
150 sqft

GENERAL VENTING

THIS FURNACE MUST BE VENTED TO THE OUTDOORS.

THESE FURNACES ARE INDUCED DRAFT VENTED AND MUST **NOT** BE CONNECTED TO *ANY* VENT SERVING ANOTHER APPLIANCE. PLEASE NOTE THAT THESE FURNACES USE POSITIVE-PRESSURE VENT SYSTEMS.

Proper venting is essential to obtain maximum efficiency from a condensing furnace. Proper installation of the vent system is necessary to assure drainage of the condensate and prevent deterioration of the vent system.

American Gas Association has certified the design of condensing furnaces for a minimum of 0" clearance from combustible materials with a single wall plastic vent pipe.

The recommended system is assembled from 2", 2-1/2", or 3" plastic pipe and fittings (See Table 7, page 14). Where the system is routed to the outdoors through an existing masonry chimney containing flue products from another gas appliance, or where required by local codes, then 3" venting of Type 29-4C stainless steel must be used in place of PVC material.

These furnaces have been classified as CATEGORY IV furnaces in accordance with the latest edition of ANSI 221.47 • CAN/CGA-2.3 Standards. Category IV furnaces operate with positive vent pressure and with a vent gas temperature less than 140° F above the dewpoint. These conditions require special venting systems, which must be gas tight and water tight.

NOTE:
When an existing furnace is removed from a venting system serving other gas appliances, the venting system is likely to be too large to properly vent the remaining attached appliances.

The following steps shall be followed with each appliance remaining connected to the common venting system placed in operation, while the other appliances remaining connected to the common venting system are not in operation.

1. Seal any unused openings in the common venting system.
2. Visually inspect the venting system for proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion or other deficiencies which could cause an unsafe condition.
3. Insofar as is practical, close all building doors and windows and **all** doors between the space in which the appliances remaining connected to the common venting system are located and other spaces of the building. Turn on clothes dryers and any appliances not connected to the common venting system. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan, close fireplace dampers.
4. Follow the lighting instructions. Place the appliance being inspected in operation. Adjust thermostat so appliance will operate continuously.
5. Test for spillage at the draft hood relief opening after **5** minutes of main burner operation. Use the flame of a match or candle, or smoke from a cigarette, cigar, or pipe.
6. After it has been determined that each appliance remaining connected to the common venting system properly vents when tested as outlined above, return door, windows, exhaust fans, fireplace dampers and any other gas-burning appliance to their previous conditions of use.

If improper venting is observed during any of the above tests, the remaining common venting system must be corrected.

Correction of the remaining common vent system should be done by referring to the latest edition of the National Fuel Gas Code (ANSI 2223.1) • CAN/CGA B149.1 Installation Codes or "Exhibit J" of ANSI 221.47 • CAN/CGA-2.3 Standards. The following are general steps to be used to correct or resize a remaining vent system when a furnace which may not be common vented is removed from the system:

a. Determine the Btu per hour input of all remaining appliances attached to the venting system.
b. Determine the diameter, rise, and lateral of the existing venting system, as well as quantity and type of bends.
c. Use the appropriate tables in the latest edition of the National Fuel Gas Code (ANSI 2223.1 • CAN/CGA B149.1 Installation Codes or "Exhibit J" of ANSI 221.47 • CAN/CGA-2.3 Standards. "Exhibit J" includes examples and drawings of typical venting systems.

IMPORTANT:
These furnaces may be installed as Direct Vent (sealed combustion) or as Non-direct vent (single pipe). The furnaces are shipped ***DIRECT VENT*** *with sealed combustion.*

For ***DIRECT VENT APPLICATION:*** *The furnaces must be vented to the exterior of the house and combustion air MUST come through the inlet air pipe FROM OUTSIDE* ***AIR.***

For ***NONDIRECT VENT APPLICATION:*** *The furnace shall be vented to the exterior of the house, but combustion air may enter from the surrounding area as long as combustion air requirements are met. (See* ***AIR*** *FOR COMBUSTION AND VENTILATION)*

PVC VENT FITTING MATERIAL

These fittings are available from your Gas Furnace Distributors.

Straight Pipe Sections, Couplings, 45" Elbows, 60° Elbows, 90° Elbows, Vent or Sanitary Tee, or other [illegible] may be 2", 2½", 3", or 4" diameter. The allowable [illegible] are shown in Table 7. A vent screen is optional, but recommended. The vent screen must be 3/8" open mesh weave (minimum 70% open), made of any noncorrosive material having at least 3/8" open mesh weave.

VENT FITTING MATERIAL – PLASTIC

Gas and liquid tight single wall vent fittings, designed for resistance to corrosive flue condensate, MUST be used throughout.

Listed in Tables 8 & 9 are 2", 2½", 3", and 4" size fittings that meet these requirements. The materials listed are various grades of PVC and ABS plastic.

PIPE JOINTS: All joints must be fastened and sealed to prevent escape of combustion products into the building.

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TABLE 7

PLASTIC PIPE DESIGNATIONS			
PVC			
ASTM STANDARD	PIPE TYPE	ALLOWABLE TEMPERATURE	MARKING
F891	CELLULAR CORE	*158	ASTM F891
D2665	DWV PIPE	**158	ASTM D2665
D1785	SCH 40, 80, 120	"158	ASTM D1785
D2241	SDR SERIES	**158	ASTM D2241
CPVC			
ASTM STANDARD	PIPE TYPE	ALLOWABLE TEMPERATURE	MARKING
D2846	CPVC 41	**212	ASTM D2846
F441	SCH 40, 80	**212	ASTM F441
F442	SDR SERIES	**212	ASTM F442
ABS			
ASTM STANDARD	PIPE TYPE	ALLOWABLE TEMPERATURE	MARKING
D2661	SCH 40 DWV	**180	ASTM D2661
F628	SCH 40 DWV CELLULAR CORE	***180	ASTM F628

* - Allowable temperatures based on classifications covered in ASTM D4396 [Deflection Temps Under Load (264 PSI)]
** - Allowable temperatures based on classifications covered in ASTM D1784 [Deflection Temps Under Load (264 PSI)]
*** - Allowable temperatures based on classifications covered in ASTM D3965 [Deflection Temps Under Load (264 PSI)]

NOTE:
It is recommended that the first joints from the furnace be connected and sealed with high temperature RTV. This will enable the pipes to be removed later without cutting.

Be sure to properly support these joints.

BONDING OF PVC

Commercially available solvent cement must be used to join the pipe and fittings. Follow instructions on the container carefully.

Procedure for Cementing Joints:

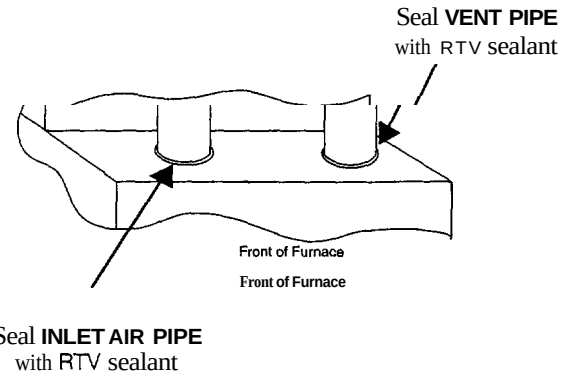
1. Cut pipe square, remove ragged edges and burrs. Chamfer end of pipe, then clean fitting socket and pipe joint area of all dirt, grease, moisture or chips.
2. After checking pipe and socket for proper fit, wipe socket and pipe with cleaner-primer. Apply a liberal coat of primer to inside surface of socket and outside of pipe.

   DO NOT ALLOW PRIMER TO DRY BEFORE APPLYING CEMENT.
3. Apply a thin coat of cement evenly in the socket. Quickly apply a heavy coat of cement to the pipe end and insert pipe into fitting with a slight twisting movement until it bottoms out.
4. Hold the pipe in the fitting for 30 seconds to prevent tapered socket from pushing the pipe out of the fitting.
5. Wipe all excess cement from the joint with a rag. Allow 15 minutes before handling. Cure time varies according to fit, temperature and humidity.

NOTE:
Follow venting instructions carefully when using PVC cement.

IMPORTANT:
All joints must be water tight. Flue condensate is somewhat acidic, and leaks can cause equipment damage.

(24) **VENT AND INLET AIR CONNECTIONS**



Connection of the pipe and collar of the **combustion air inlet** should just be a friction fit. It is recommended that the inlet air joint be sealed with RTV type sealant to allow the joint to be separated for possible future service. The inlet and vent pipes must be properly supported throughout the entire length.

Connection of the **vent pipe** to the vent collar should also be accomplished using RTV type sealant. This type sealant provides a connection which remains flexible and can be separated in the future if service needs require the removal of the vent pipe for service or clearance.

NOTE:
***To** ensure proper operation at the vent lengths indicated, the combustion air inlet and vent terminals should be in the same pressure zone. Terminating the vent and inlet in different pressure zones will change the maximum vent lengths and may cause nuisance tripping of the pressure switch(es). The amount of change cannot be predicted. The selection of the inlet and outlet terminal locations are the responsibility of the designer/installer. If the installer chooses separate pressure zones for the terminals, the combustion air inlet termination must be in the higher (more positive) pressure zone.*

UPFLOW / HORIZONTAL VENTING TABLE
TABLE 8

MAXIMUM VENT LENGTH:

MODEL	DIRECT VENT (2 PIPE SYSTEM) - MAXIMUM TOTAL EQUIVALENT FEET FOR VENT AND INLET AIR PIPES (See Notes)				NONDIRECT VENT (1 PIPE SYSTEM) - MAXIMUM TOTAL EQUIVALENT FEET FOR VENT PIPE ONLY (See Notes)			
	2" PIPE & FITTINGS	2-1/2" PIPE & FITTINGS	3" PIPE & FITTINGS	4" PIPE & FITTINGS	2" PIPE & FITTINGS	2-1/2" PIPE & FITTINGS	3" PIPE & FITTINGS	4" PIPE & FITTINGS
*UX040C294	60	80	100	130	50	80	80	130
*UX060C936	60	80	100	130	50	80	80	130
*UX080C942	50	80	100	130	40	80	80	130
*UX080C960	50	80	100	130	40	80	80	130
*UX100C948	NOT ALLOWED	40	100	130	NOT ALLOWED	40	80	130
*UX100C960	NOT ALLOWED	40	100	130	NOT ALLOWED	40	80	130
*UX120C960	NOT ALLOWED	15	60	130	NOT ALLOWED	25	70	130

NOTES: * - First letter may be "A" or "T"

1. The INLET AIR of one pipe systems require the installation of a 90° elbow (to prevent dust and debris from falling straight into the furnace) and a 2 foot horizontal or vertical straight pipe section connected before or after the elbow.
2. DO NOT MIX PIPE DIAMETERS IN THE SAME LENGTH OF PIPE OUTSIDE THE FURNACE CABINET (Except adapters at the top of the furnace). If different inlet and vent pipe sizes are used, the vent pipe must adhere to the maximum length limit shown in the table above (See Note 7 below for exception). The inlet pipe can be of a larger diameter, but never smaller than the vent pipe.
3. MAXIMUM PIPE LENGTHS MUST NOT BE EXCEEDED! THE LENGTH SHOWN IS NOT A COMBINED TOTAL, IT IS THE MAXIMUM LENGTH OF EACH (Vent or Inlet air pipes in two pipe systems).
4. One standard radius 90" elbow is equivalent to 12' of 4" pipe; one SHORT radius 90" elbow is equivalent to 10 of 3' pipe and one LONG radius elbow is equivalent to 6 of 3" pipe. One SHORTRONG radius 90° elbow is equivalent to 7%' of 2%" pipe, & 5' of 2" pipe. Two 45° elbows equal one 90°elbow.
5. The termination tee or bend must be included in the total number of elbows. If the BAYVENT100 termination kit is used, the equivalent length of pipe is 5 feet. There is zero equivalent length for the BAYVENTPOO.
6. Pipe adapters are field supplied.
7. 4" pipe may be reduced to 3" for termination with BAYVENT100 or BAYVENT200 without additional length restriction.

DOWNFLOW / HORIZONTAL VENTING TABLE
TABLE 9

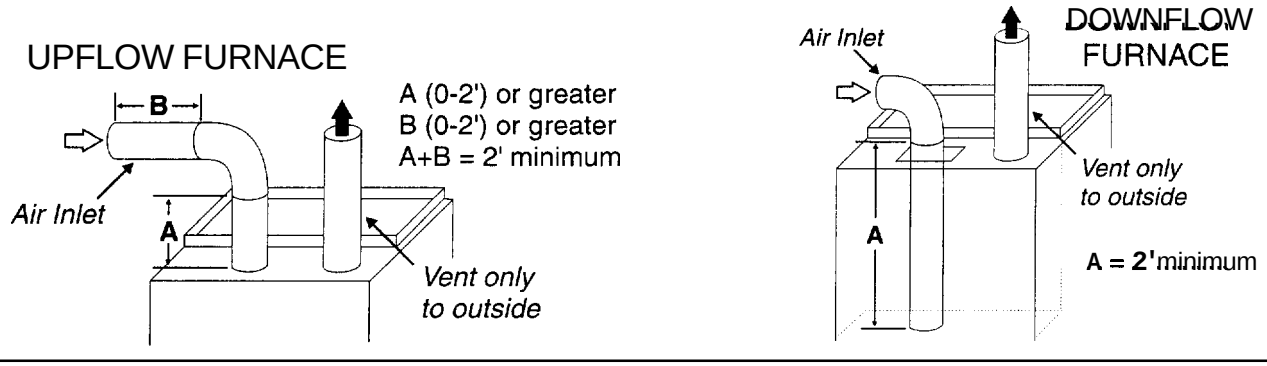
MAXIMUM VENT LENGTH:

MODEL	DIRECT VENT (2 PIPE SYSTEM) - MAXIMUM TOTAL EQUIVALENT FEET FOR VENT AND INLET AIR PIPES (See Notes)				NONDIRECT VENT (1 PIPE SYSTEM) - MAXIMUM TOTAL EQUIVALENT FEET FOR VENT PIPE ONLY (See Notes)			
	2" PIPE & FITTINGS	2-1/2" PIPE & FITTINGS	3" PIPE & FITTINGS	4" PIPE & FITTINGS	2" PIPE & FITTINGS	2-1/2" PIPE & FITTINGS	3" PIPE & FITTINGS	4" PIPE & FITTINGS
*DX040C924	60	80	100	130	50	80	80	130
*DX060C936	50	80	100	130	50	80	80	130
*DX080C942	45	80	100	130	40	80	80	130
*DX100C948	NOT ALLOWED	80	100	130	NOT ALLOWED	80	80	130
*DX120C960	NOT ALLOWED	15	60	130	NOT ALLOWED	25	70	130

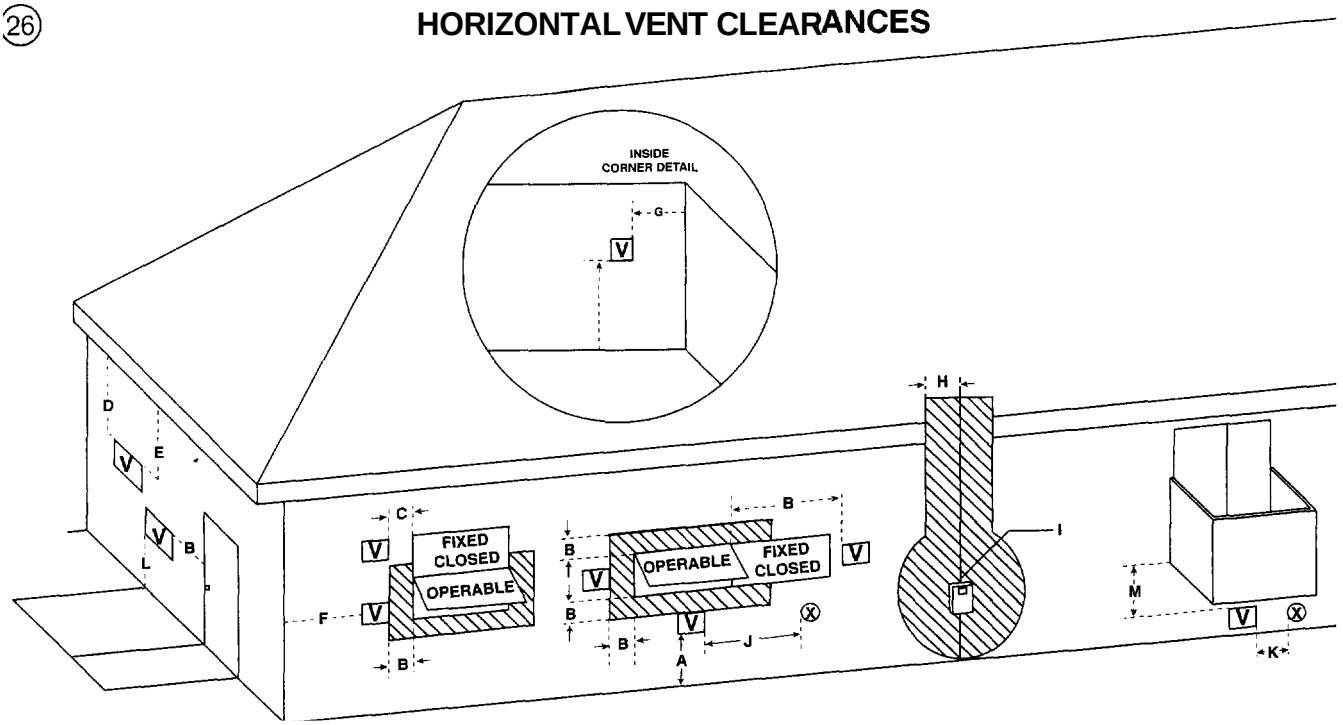
NOTES: * - First letter may be 'A' or "T"

1. The INLET AIR of one pipe systems require the installation of a 90" elbow (to prevent dust and debris from falling straight into the furnace) and a 2 foot horizontal or vertical straight pipe section connected before or after the elbow.
2. DO NOT MIX PIPE DIAMETERS IN THE SAME LENGTH OF PIPE OUTSIDE THE FURNACE CABINET (Except adapters at the top of the furnace). If different inlet and vent pipe sizes are used, the vent pipe must adhere to the maximum length limit shown in the table above (See Note 7 below for exception). The inlet pipe can be of a larger diameter, but never smaller than the vent pipe.
3. MAXIMUM PIPE LENGTHS MUST NOT BE EXCEEDED! THE LENGTH SHOWN IS NOT A COMBINED TOTAL, IT IS THE MAXIMUM LENGTH OF EACH (Vent or Inlet air pipes in two pipe systems).
4. One standard radius 90" elbow is equivalent to 12' of 4" pipe; one SHORT radius 90" elbow is equivalent to 10' of 3" pipe and one LONG radius elbow is equivalent to 6 of 3' pipe. One SHORT/LONG radius 90" elbow is equivalent to 7½' of 2%" pipe, & 5' of 2" pipe. Two 45" elbows equal one 90°elbow.
5. The termination tee or bend must be included in the total number of elbows. If the BAYVENT100 termination kit is used, the equivalent length of pipe is 5 feet. There is zero equivalent length for the BAYVENTPOO.
6. Pipe adapters are field supplied.
7. 4" pipe may be reduced to 3" for termination with BAYVENT100 or BAYVENTPOO without additional length restriction.

SINGLE PIPE VENTING



(26) HORIZONTAL VENT CLEARANCES

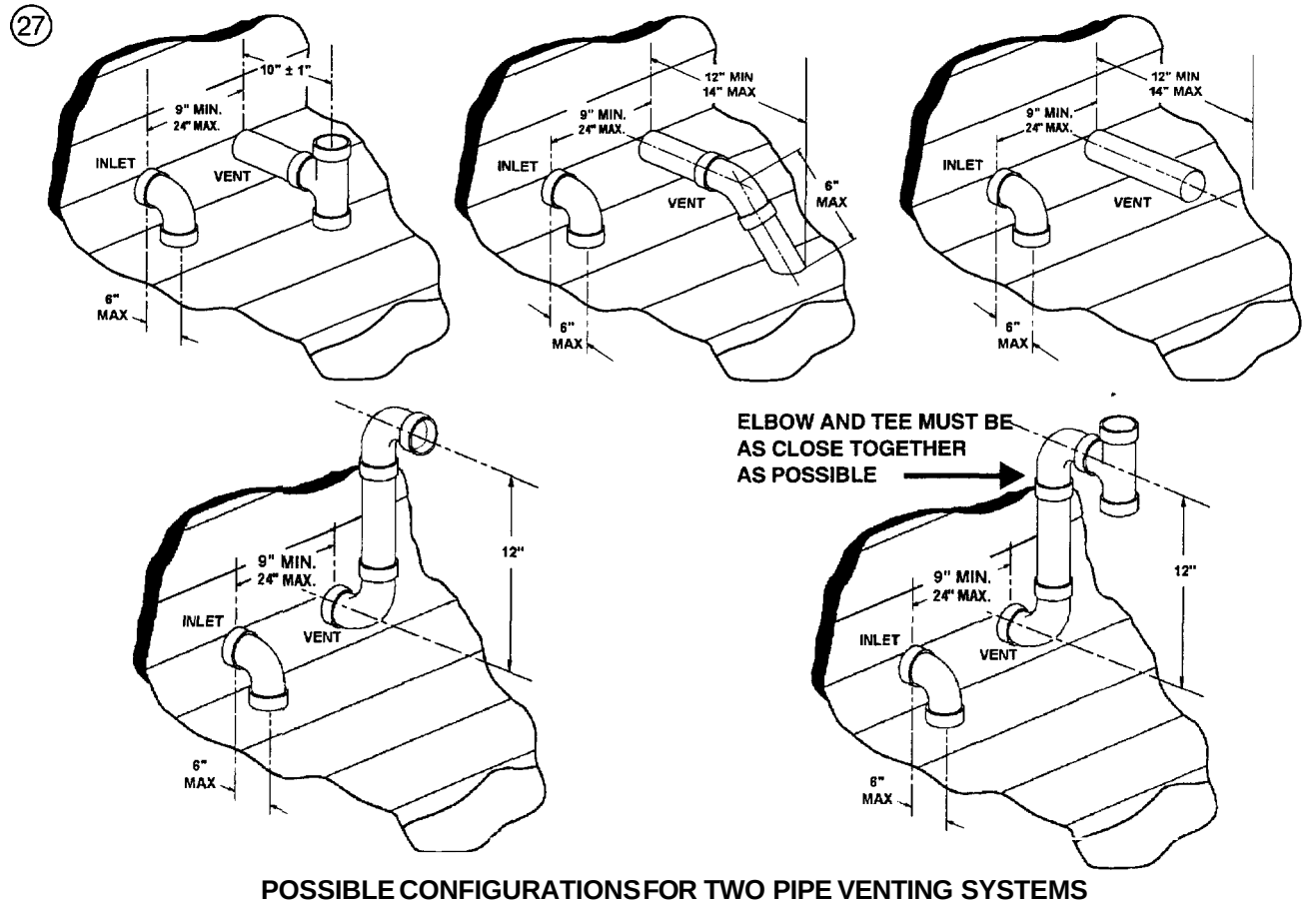


V VENT TERMINAL X AIR SUPPLY INLET AREA WHERE TERMINAL IS NOT PERMITTED

		Direct Vent Terminal Clearances	
		Canadian Installations	US Installations
A=	Clearance above grade, veranda, porch, deck, or balcony	12 inches (30cm)	12 inches (30cm)
B=	Clearance to window or door that may be opened	6 inches (15 cm) for appliances =/< 10,000 Btuh (3 kw), 12 inches (30 cm) for appliances > 10,000 Btuh (3kw) and =/< 100,000 Btuh (30 kw), 36 inches (91 cm) for appliances > 100,000 Btuh (30 kw)	6 inches (15 cm) for appliances =/< 10,000 Btuh (3kw), 9 inches (23 cm) for appliances > 10,000 Btuh (3 kw) and =/< 50,000 Btuh (15 kw), 12 inches (30 cm) for appliances > 50,000 Btuh (15 kw)
C=	Clearance to permanently closed window	*	
D=	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*	
E=	Clearance to unventilated soffit		
F=	Clearance to outside corner		
G=	Clearance to inside corner		
H=	Clearance to each side of center line extended above meter/regulator assembly	3 feel (91 cm) with a height 15 feet (4.5 m) above the meter/regulator assembly	
I=	Clearance to service regulator vent outlet	3 feet (91 cm)	
J=	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	6 inches (15 cm) for appliances =/< 10,000 Btuh (3kw), 12 inches (30 cm) for appliances > 10,000 Btuh (3kw) and =/< 100,000 Btuh (30kw), 36 inches (91 cm) for appliances > 100.000 Btuh (30kw)	6 inches (15 cm) for appliances =/< 10,000 Btuh (3 kw), 9 inches (23 cm) for appliances > 10,000 Btuh (3kw) and =/< 50,000 Btuh (15 kw). 12 inches (30 cm) for appliances > 50,000 Btuh (15 kw)
K=	Clearance to a mechanical air supply inlet	6 feet (1.83m)	3 feet (91 cm) above if within 10 feet (3m) horizontally
L=	Clearance above a paved sidewalk or paved driveway located on public property	7 feet (2.13m) †	
M=	Clearance under veranda, porch, deck, or balcony	12 inches (30 cm) ‡	

atural Gas and Propane InstallationCode.
NFPA 54 National Fuel Gas Code.
walk or paved driveway that is located between two single family dwelling and serves both dwellings.
ny is fully open on a minimum of two sides beneath the floor.
codes and the requirements of the gas supplier and the manufacturer's Installation Instructions.

		Canadian Installations	US Installations
A=	Clearance above grade, veranda, porch, deck, or balcony	12 inches (30 cm)	12 inches (30 cm)
B=	Clearance to window or door that may be opened	6 inches (15 cm) for appliances =/< 10,000 Btuh (3 kw), 12 inches (30 cm) for appliances > 10,000 Btuh (3 kw) and =/< 100,000 Btuh (30 kw), 36 inches (91 cm) for appliances > 100,000 Btuh (30 kw)	4 feet (1.2m) below or to the side of opening: 1 foot (0.3m) above opening.
C=	Clearance to permanently closed window		
D=	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal		
E=	Clearance to unventilated soffit		
F=	Clearance to outside corner		
G=	Clearance to inside corner	*	*
H=	Clearance to each side of center line extended above meter/regulator assembly	3 feet (91 cm) with a height 15 feet (4.5 m) above the meter/regulator assembly	
I=	Clearance to service regulator vent outlet	3 feet (91 cm)	
J=	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	6 inches (15 cm) for appliances =/< 10,000 Btuh (3 kw). 12 inches (30 cm) for appliances > 10,000 Btuh (3 kw) and =/< 100,000 Btuh (30 kw), 36 inches (91 cm) for appliances > 100,000 Btuh (30 kw)	4 feet (1.2 m) below or to side of opening; 1 foot (300 m) above opening
K=	Clearance to a mechanical air supply inlet	6 feet (1.83m)	3 feet (91 cm) above if within 10 feet (3m) horizontally
L=	Clearance above a paved sidewalk or paved driveway located on public property	7 feet (2.13 m) †	7 feet (2.13 m)
M=	Clearance under veranda, porch, deck, or balcony	12 inches (30 cm) ‡	



POSSIBLE CONFIGURATIONS FOR TWO PIPE VENTING SYSTEMS

HORIZONTAL VENTING

NOTE:
Vent termination kit BAYVENT100* or BAYVENT200* may be used instead of the horizontal and vertical termination options shown in the following figures.

⚠ CAUTION

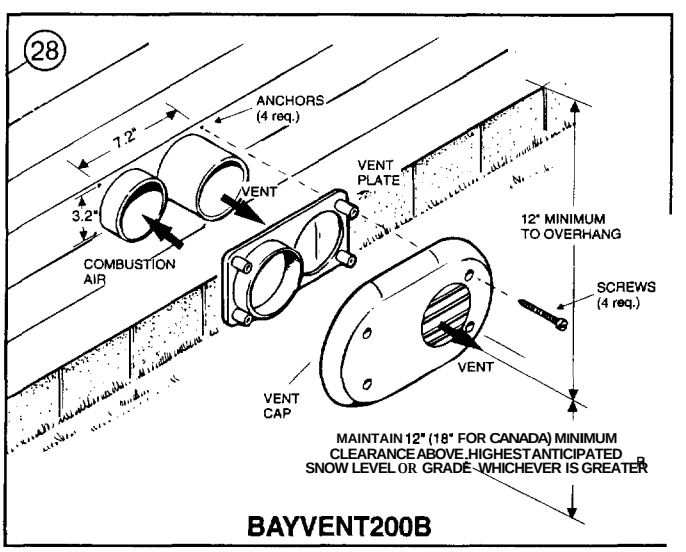
When the vent pipe is exposed to temperatures below freezing, i.e., when it passes through unheated spaces, etc., the pipe must be insulated with 1/2 inch (22.7 mm) thick Armaflex-type insulation or equal. If the space is heated sufficiently to prevent freezing, then the insulation would not be required. If domestic water pipes are not protected from freezing then it is assumed the space meets the condition of a heated space.

HORIZONTAL VENTING THROUGH THE WALL

These furnaces may be installed as direct vent (as shipped) or as non-direct vent. Installation must conform to national, state, and local codes.

The vent & inlet terminals must be located at least 12" minimum above normally expected snow accumulation level. Avoid areas where staining or condensate drippage may be a problem.

Location of the vent/wind terminal should be chosen to meet the requirements of Figure 26 for either direct or non-direct vent applications.



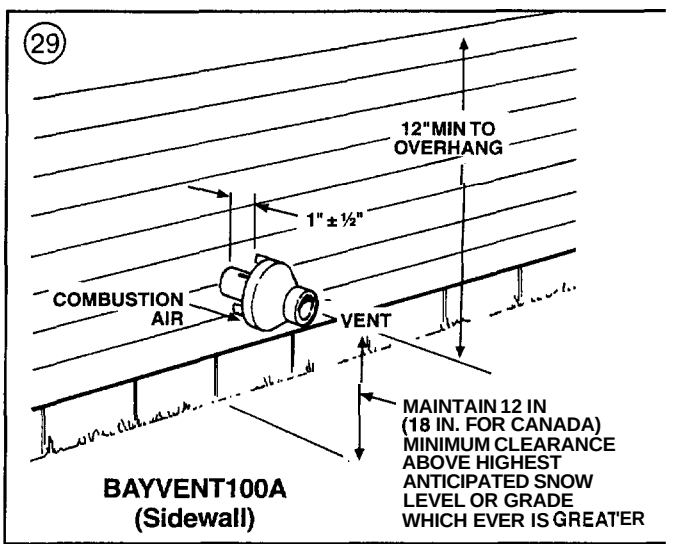
PITCH - Venting through the wall must maintain 1/4" per foot pitched upward to insure that condensate drains back to the furnace.

FLUE GAS DEGRADATION - The moisture content of the flue gas may have a detrimental effect on some building materials. This can be avoided by using the roof or chimney venting option. When wall venting is used on any surface that can be affected by this moisture, it is recommended that a corrosion resistant shield (24 inches square) be used behind the vent terminal. This shield can be wood, plastic, sheet metal, etc. *Also,* silicone caulk all cracks, seams and joints within 3 feet of the vent terminal.

COMBUSTIBLE MATERIAL WALL

A minimum clearance of 1" to combustible materials must be maintained when using single wall stainless steel venting. See Figure 30 above.

Shield material to be a minimum of 24 gauge stainless or aluminized sheet metal. Minimum dimensions are 12"x12". Shield must be fastened to both inside and outside of wall. Use screws or anchor type fasteners suited to the outside or inside wall surfaces.

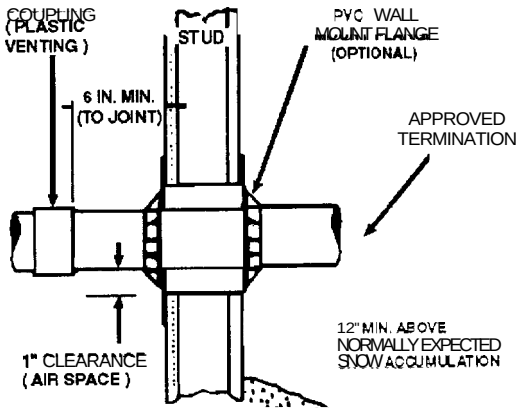


NONCOMBUSTIBLEMATERIAL WALL

The hole through the wall must be large enough to maintain pitch of vent and properly seal.

Use cement mortar seal on inside and outside of wall. See Figure 31 above.

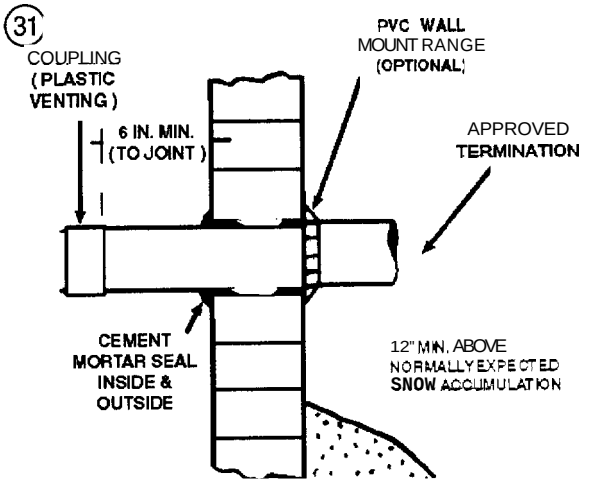
30



VENTING THROUGH COMBUSTIBLEWALLS
Pitch – 1/4 Inch Per Ft

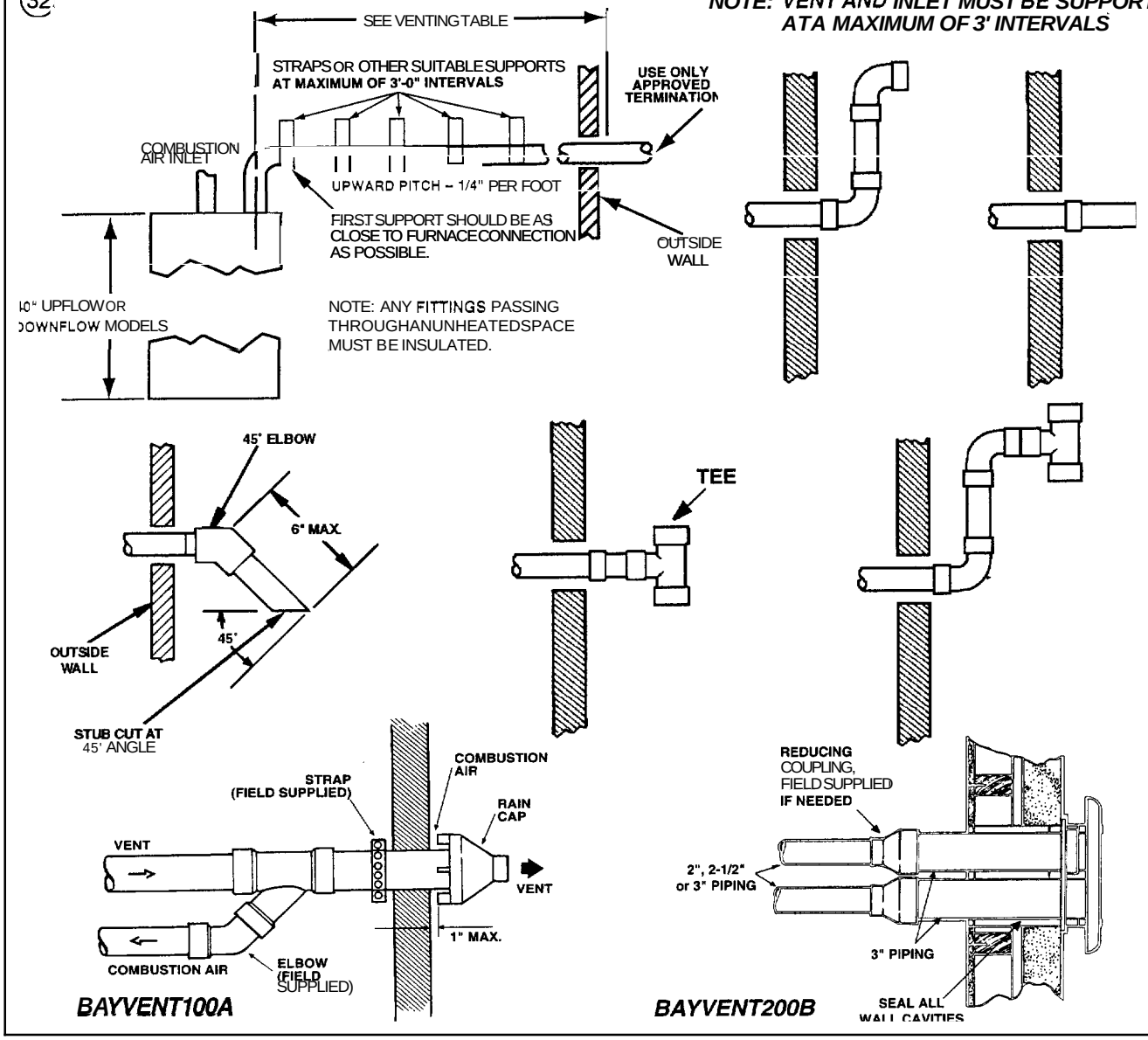
CLEARANCE (0" ACCEPTABLE FOR PVC VENT PIPE)
(1" ACCEPTABLE FOR TYPE 29-4C STAINLESS STEEL VENT PIPE)

31



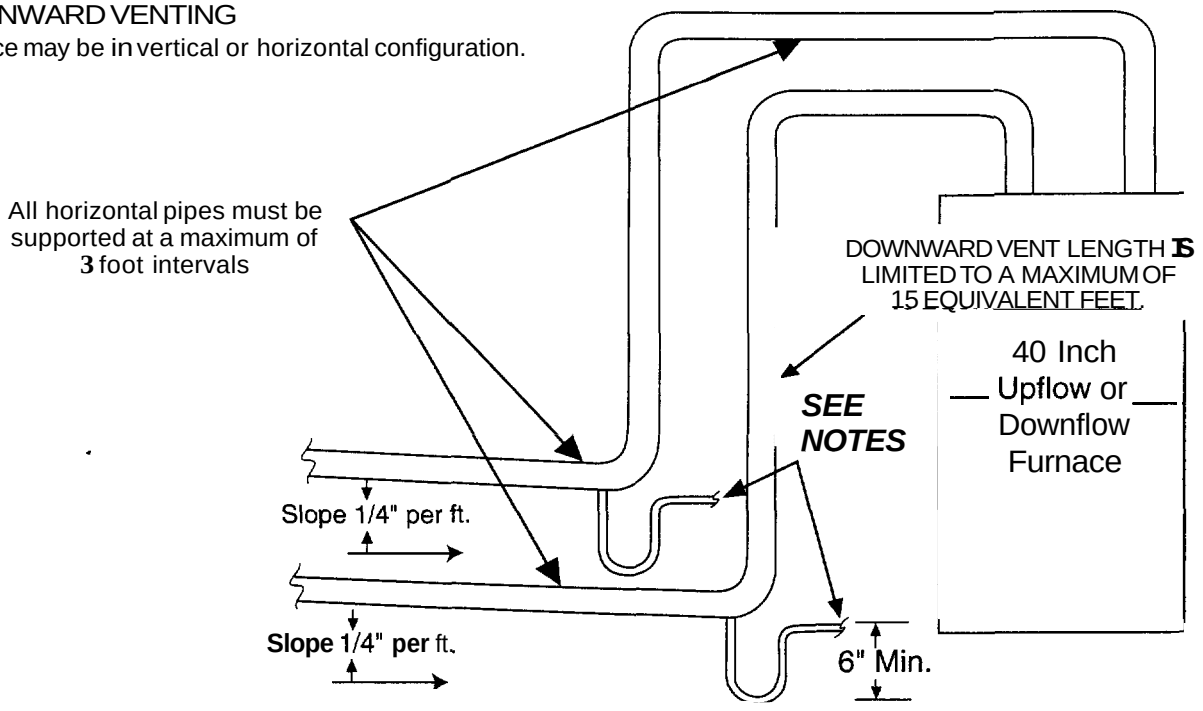
VENTING THROUGH NON-COMBUSTIBLEWALLS
Atch – 1/4 Inch Per Ft

32



(33) DOWNWARD VENTING

Furnace may be in vertical or horizontal configuration.



NOTES:

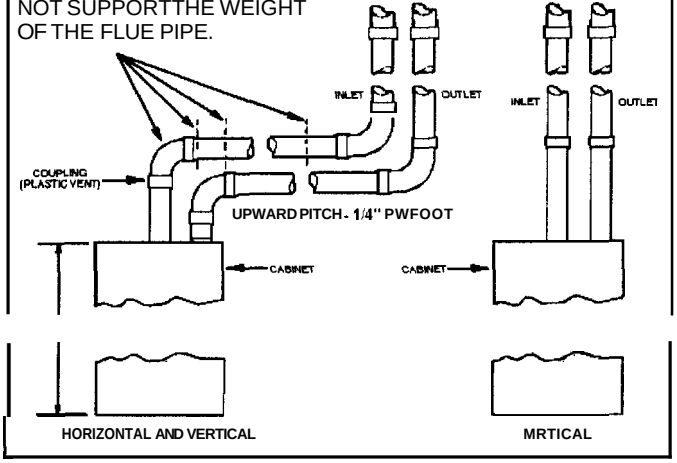
A) Condensate trap for vent pipe must be a minimum of 6 inches in height.

B) Condensate trap for vent and inlet pipe must be connected into a condensate drain pump; an open or vented drain; or it can be connected to the outlet hose of the furnace's condensate trap. Outdoor draining of the furnace and coil condensate is permissible if allowed by local codes. Caution should be taken to prevent drains from freezing or causing slippery conditions that could lead to personal injury. Excessive draining of condensate may cause saturated ground conditions that may result in damage to plants.

C) The condensate trap should be primed at initial start up prior to heating season operation.

(34)

SUPPORT HORIZONTAL PIPE EVERY 3 0" WITH THE FIRST SUPPORT AS CLOSE TO THE FURNACE AS POSSIBLE. INDUCED DRAFT BLOWER, HOUSING, AND FURNACE MUST NOT SUPPORT THE WEIGHT OF THE FLUE PIPE.

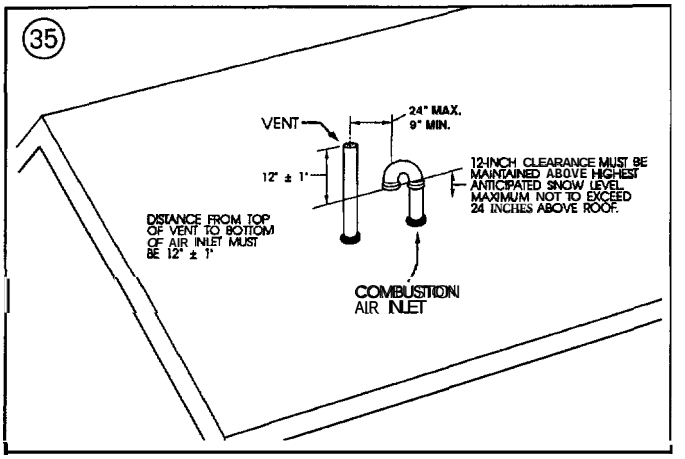


NOTE:

No vent cap as shown in Figure 35 is the preferred method for vertical vent termination in extremely cold climates.

In extreme climate conditions, insulate the exposed pipe above the roof line with Armaflex type insulation.

(35)



VENTING THROUGH THE ROOF

When penetrating roof with a 2" PVC vent pipe, a 2" electrical conduit flashing may be used for a weather tight seal. Lubricate flexible seal on flashing before PVC pipe is pushed through the seal. (Field Supplied)

VENT FITTING MATERIAL – STAINLESS STEEL

Gas and liquid tight single wall metal vent fitting, designed for resistance to corrosive flue condensate such as Type 29-4C MSJST be used throughout.

These fittings and fitting accessories are to be supplied locally.