



# GOLD GV

## Water Boiler — Series 3 & 4

# Venting Supplement

## StaR-34

### Special gas vent system vent and combustion air supplement

Flex-L International, Inc. **StaR-34** AL29-4C® Stainless Steel Special Gas Vent System may be used in new installations of GV-3 through GV-6 boilers.

#### Hazard definitions

The following defined terms are used throughout these Instructions to bring attention to the presence of hazards of various risk levels or to important information concerning the life of the product.

- DANGER** Indicates presence of hazards that **will cause severe** personal injury, death or substantial property damage.
- WARNING** Indicates presence of hazards that **can cause severe** personal injury, death or substantial property damage.
- CAUTION** Indicates presence of hazards that **will or can cause minor** personal injury or property damage.
- NOTICE** Indicates special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.

#### To the installer:

**WARNING** This Venting Supplement must only be used by a qualified installer/service technician. Read these Instructions completely before beginning the installation. Failure to follow all instructions can cause severe personal injury, death or substantial property damage.

To install a new vent system follow instructions in:

- This Venting Supplement.
- GV Boilers Vent/Air Intake Termination Assembly Instructions, if using Weil-McLain Vent/Air Intake Termination Kit. — OR —
- GV Water Boiler Series 3 & 4 Direct Vent Through-Roof or Through-Unused-Chimney Venting Supplement, if using Weil-McLain Through-Roof or Through-Unused-Chimney Termination Kit.
- StaR-34 manufacturer's instructions supplied with vent material.

For installations above 5,500 feet use only direct vent (ducted combustion air) when sidewall venting. All of the vertical (through-roof or through-unused-chimney) methods in this Venting Supplement are acceptable and can result in severe personal injury, death or substantial property damage if ignored.



**WARNING**



# Combustion air supply

## Special note

Refer to GV Boiler Manual for sizing free area of combustion/ventilation air openings.

All boilers experience some condensation in section assembly during start-up. Unlike most conventional boilers, condensation is minimized in the GV Boiler by a built-in mixing system, maintaining boiler return water temperature above 130 °F, during steady state operation.

Flue gas condensate is slightly acidic. In most cases pH level is not harmful to vents or drains. When combustion air is contaminated by vapors from products and areas, listed in Table 1 below, condensate acidic levels increase. Higher acidic levels attack many materials, including stainless steel commonly used in high efficiency systems.

You may choose to use outside combustion air for any of the following reasons:

- Installation is in an area containing contaminants listed in Table 1 below, which will induce acidic contamination.
- You want to reduce infiltration into your home through openings around windows and doors.

**Table 1** Corrosive contaminants

Products to avoid	Areas likely to have contaminants
Spray cans containing chloro/fluorocarbons	Dry cleaning/laundry areas and establishments
Permanent wave solutions	Swimming pools
Chlorinated waxes/cleaners	Metal fabrication plants
Chlorine-based swimming pool chemicals	Beauty shops
Calcium chloride used for thawing	Refrigeration repair shops
Sodium chloride used for water softening	Photo processing plants
Refrigerant leaks	Auto body shops
Paint or varnish removers	Plastic manufacturing plants
Hydrochloric acid/muriatic acid	Furniture refinishing areas and establishments
Cements and glues	New building construction
Antistatic fabric softeners used in clothes dryers	Remodeling areas
Chlorine-type bleaches, detergents, and cleaning solvents found in household laundry rooms	Garages with workshops
Adhesives used to fasten building products and other similar products	

**WARNING**

To prevent the potential of severe personal injury or death, check for areas and products listed above before installing boiler. If found:

- remove products permanently — OR —
- provide outside combustion air



# Vent termination

## Venting method definitions

**Direct vent** — Uses outside combustion air with combustion air connector piping sealed at all joints and seams. Also known as “sealed combustion”.

**Non-Direct vent** — Uses inside combustion air with no combustion air connector piping.

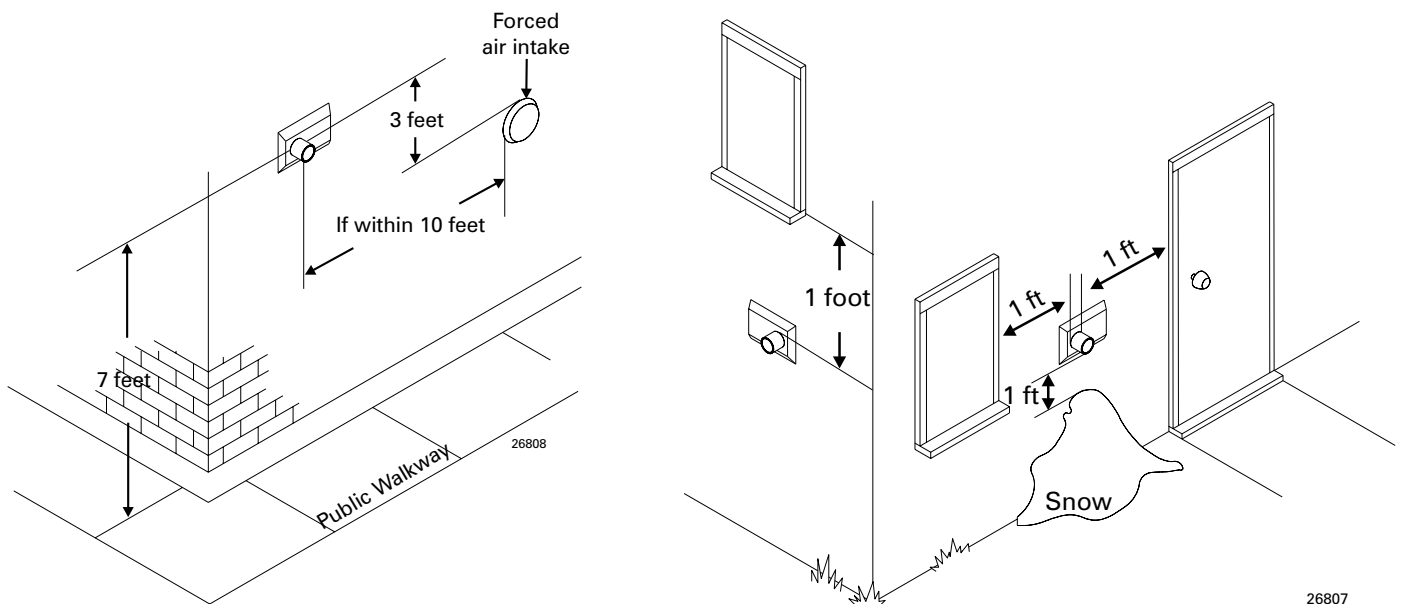
## Properly locate vent termination

**WARNING**

Follow instructions on this page when determining vent location to avoid possibility of severe personal injury, death or substantial property damage.

1. When using direct vent method — Refer to separate instructions packed with Weil-McLain direct vent termination kit and vent pipe manufacturer's instructions for additional locations.
2. For location of non-direct vent vertical termination, see vent pipe manufacturer's instructions.
3. Gases will form white plume in winter. Plume could obstruct window view.
4. Prevailing winds could cause freezing of condensate and water/ice buildup on building, plants or roof.
5. Locate or guard vent to prevent accidental contact by people or pets.
6. Do not terminate vent in window well, stairwell, alcove, courtyard, or other recessed areas.
7. Non-Direct vent installations only — Vent must terminate more than 4 feet below or to side of all doors or windows.
8. Vent must terminate more than 1 foot above grade or anticipated snow line. In addition, vent termination must be at least 7 feet above public walkway and 3 feet above any forced air intake within 10 feet. Stay well away from trees, shrubs, and decorative items. Site conditions may dictate greater clearances. See Figure 1.
9. Vent must terminate at least 4 feet horizontally, and in no case above or below, unless a 4 foot horizontal distance is maintained, from electric meters, gas meters, regulators, relief valves, and other equipment.
10. Locate or guard vent to prevent condensate from damaging exterior finishes.
11. Do not extend exposed vent pipe outside of building. Condensate could freeze and block vent pipe.
12. Vent must terminate at least 6 feet away from adjacent walls.
13. Do not terminate vent closer than 5 feet below roof overhang.
14. Do not terminate vent above any door or window. Condensate can freeze, causing ice formations.
15. Do not use existing chimney as raceway if another appliance or fireplace is vented into or through chimney.
16. Do not connect:
  - Any other appliance to vent pipe.
  - Multiple boilers to a common vent pipe.
17. Do not wrap or insulate vent pipe and fittings.
18. Canadian installations — See B149.1 or B149.2 Installation Code.
19. **WARNING** A gas vent extending through an exterior wall shall not terminate adjacent to the wall or below building extensions such as eaves, parapets, balconies or decks. Failure to comply could result in severe personal injury, death or substantial property damage.

**Figure 1** Vent termination locations





# Installation

## Pre-installation planning

1. Follow national, state, local or provincial codes or regulations when venting GV boiler.
2. Choose vent method from those shown on page 5.
3. Select vent run components from Table 2. Table 3 states maximum vent run lengths and number of elbows. Do not exceed data in Table 3. See Figure 2 for slightly reduced boiler output.
4. If installing with direct vent method, use same maximum run length and number of elbows from step 2. Vent and combustion air connector piping configurations must match. Use suitable 3" material for combustion air connector piping, such as:
  - Dryer vent
  - Galvanized steel
  - PVC (3" I.D.)
5. Refer to vent termination WARNING, item 19 on page 3.

**Table 2** Parts list

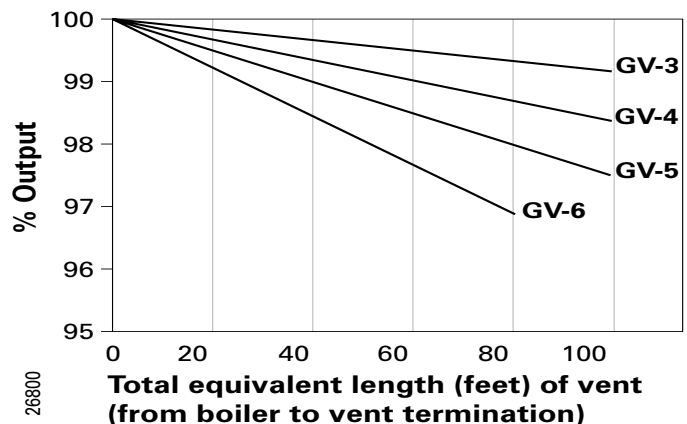
Description	Flex-L International, Inc. Part Number (Note 1)
GV starter tee	SRTDWG
GV termination coupling	SRWGV
45° elbow	SRE4503
90° elbow	SRE9003
6" pipe	SR06P03
1' pipe	SR12P03
2' pipe	SR24P03
3' pipe	SR36P03
5' pipe	SR60P03
Joiner band	SRJB-14
Weil-McLain Vent/Air Intake Termination Kit	382-200-430 (Note 2)
Weil-McLain Through-Roof or Through-Unused-Chimney Termination Kit	382-200-435 (Note 2)
<b>Notes</b>	
1. Flex-L International, Inc. part number. Parts available through Flex-L International, Inc.	
2. Weil-McLain part number. Parts available through Weil-McLain distributor.	

**Table 3**

Vent and combustion air connector piping lengths and number of elbows

Maximum vent length (feet)	Total number of elbows							
	0	2	3	4	5	6	7	8
GV-3 thru GV-5	100	80	70	60	50	40	30	20
GV-6	80	60	50	40	30	20	10	--

**Figure 2** Boiler output





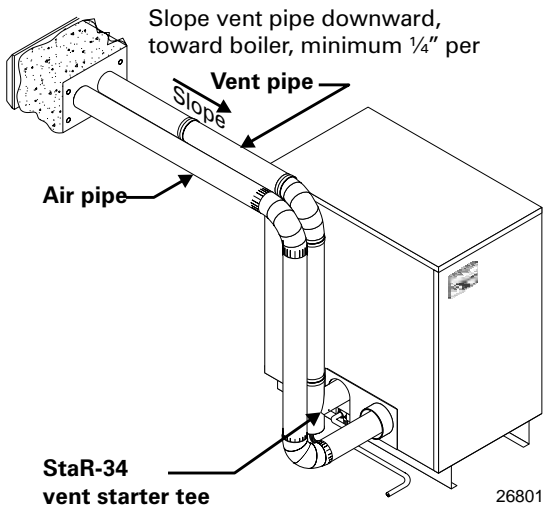
# Installation continued

**WARNING**

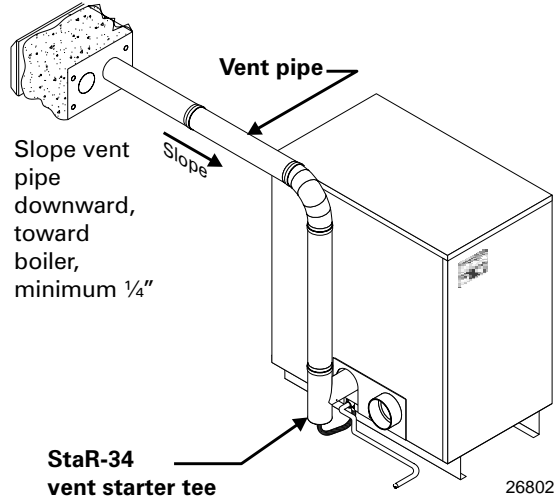
For altitudes more than 5,500 feet above sea level — Do not use non-direct vent through sidewall methods as shown in Figures 4 and 6 below. Can cause severe personal injury, death or substantial property damage if ignored.

## Select vent method

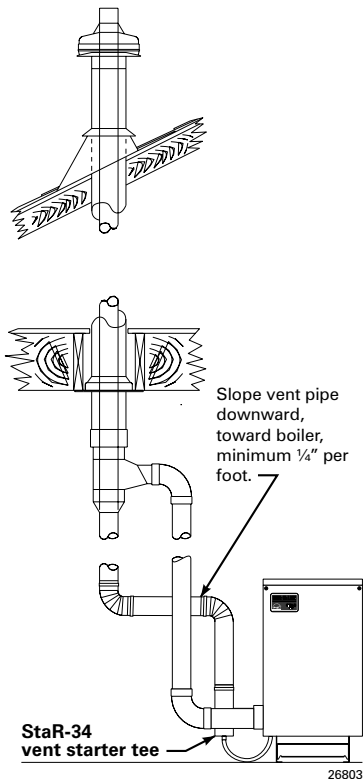
**Figure 3** GV direct vent through sidewall (using Weil-McLain Vent/Air Intake Termination Kit)



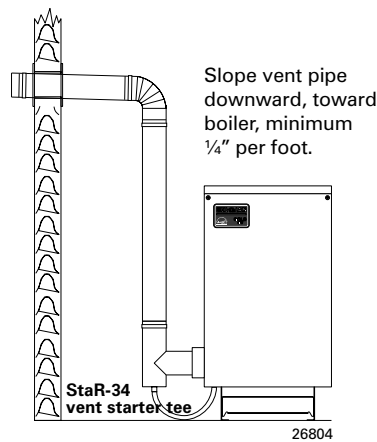
**Figure 4** GV non-direct vent through sidewall (using Weil-McLain Vent/Air Intake Termination Kit) (See WARNING above.)



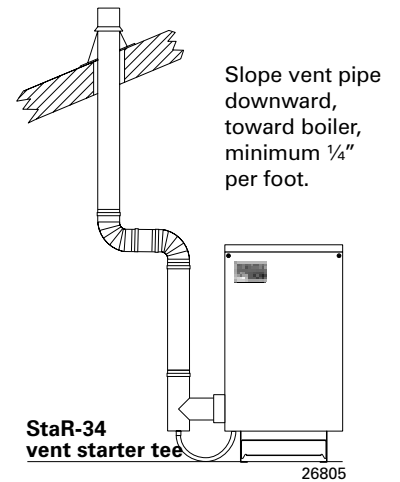
**Figure 5** GV direct vent (using Weil-McLain Through-Roof or Through-Unused Chimney Termination Kit)



**Figure 6** GV non-direct vent through sidewall (using termination coupling) (See WARNING above.)



**Figure 7** GV non-direct vent through roof (See WARNING above.)





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# Installation — assembly

## Connect vent starter tee to boiler

Follow the instructions in the GV Boiler Manual to connect the vent starter tee to the boiler.

## Construct vent and optional combustion air run

**WARNING**

Follow vent pipe manufacturer's instructions for sealing the vent. Vent and combustion air connector piping must be sealed gas-tight to prevent possibility of flue gas spillage and carbon monoxide emissions, resulting in severe personal injury or death.

1. Follow StaR-34 manufacturer's instructions to construct vent run and for methods of supporting vent runs.
  - Clean joints before sealing. See vent pipe manufacturer's instructions to clean joints.
  - Use their specified sealant (maximum 250 °F flue temperature). Do not use screws.
  - Do not mix types or manufacturers of vent materials.
  - Maintain minimum one-inch clearance from combustible materials to vent pipe; 0" clearance for noncombustible materials.
  - Install vent pipe with seams on top of vent runs. Refer to Figures 3 through 6 on page 5 when installing increasers or reducers.
  - If needed, use slip connector to adjust for nonstandard pipe length. See vent pipe manufacturer's instructions for use.
2. If installing with direct vent through sidewall method, use instructions provided with Weil-McLain Vent/Air Intake Termination Kit. See Figure 3 on page 5.

## Connect vent run to termination

### Venting through sidewall

1. If using Weil-McLain Vent/Air Intake Termination Kit, see instructions provided in that kit. Applies to direct (Figure 3, page 5) or non-direct vent (Figure 4, page 5) method.
2. If using non-direct method with termination coupling only, see Figures 8 and 9.
  - If passing through noncombustible wall, provide hole diameter large enough to insert the slip connector through. Sleeve and spacers are not required.
3. Maintain minimum one-inch clearance from combustible materials to vent pipe; 0" clearance for noncombustible materials.
4. Refer to vent termination WARNING, item 19 on page 3.

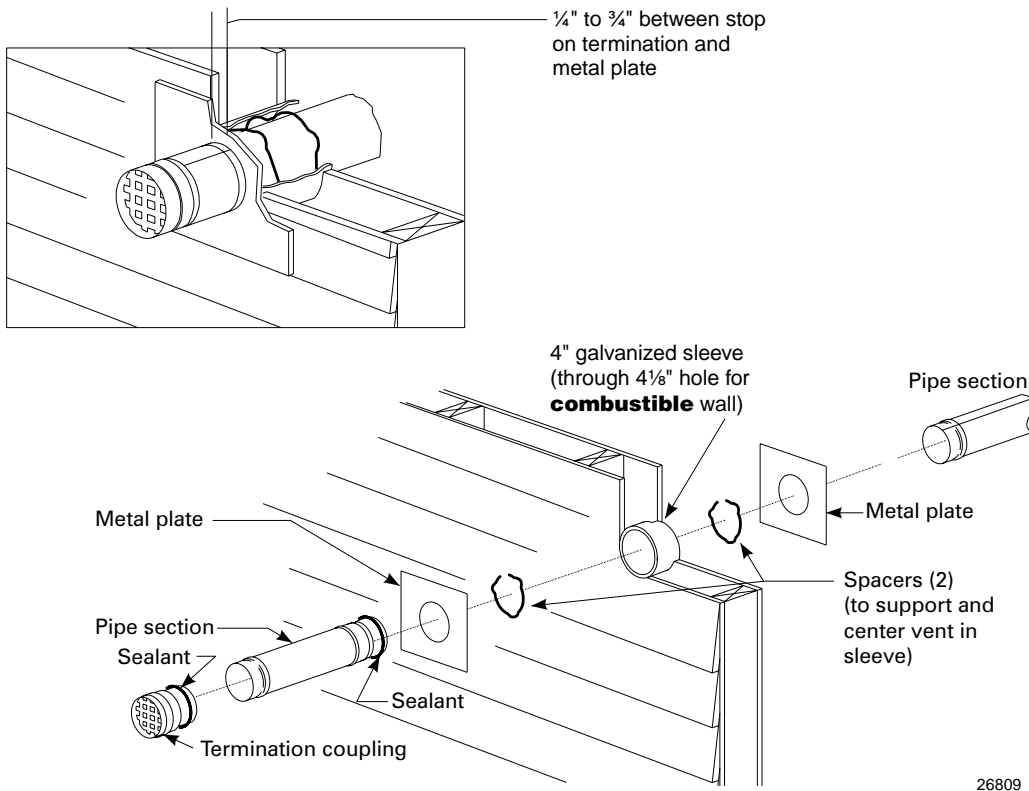
### Venting through existing chimney or roof

1. Direct vent method — follow instructions supplied in Weil-McLain Through-Roof or Through-Unused-Chimney Termination Kit to assemble termination.
2. Non-Direct vent method (only through the roof, not through chimney):
  - Vent pipe must extend through roof flashing, jacket or thimble. See Figure 10.
  - Vent may pass through floor, inside wall or concealed space when installed according to vent pipe manufacturer's instructions.
2. Maintain minimum one-inch clearance from combustible materials to vent pipe.



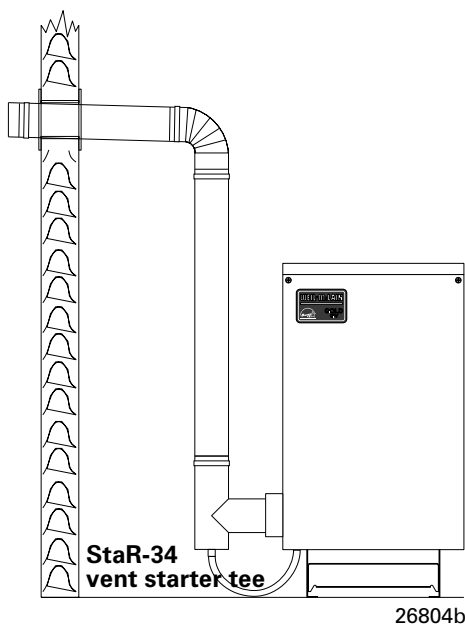
# Installation — assembly continued

**Figure 8** Sidewall termination installation (non-direct venting)

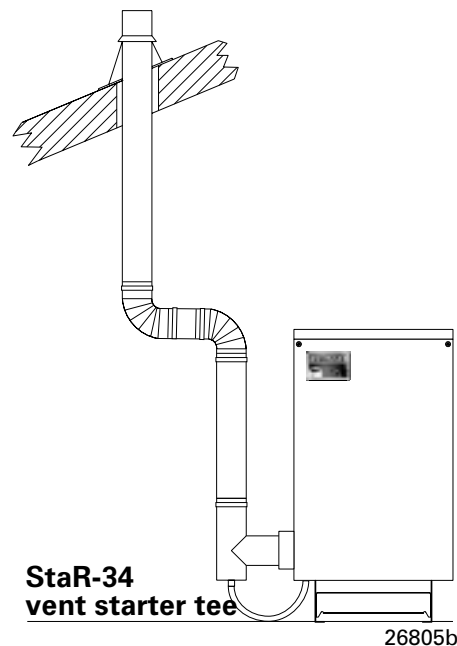


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**Figure 9** Non-direct vent through sidewall (using termination coupling) *Follow StaR-34 manufacturer's instructions for proper installation of vent runs, including slope and support.*



**Figure 10** Non-direct vent through roof *Follow StaR-34 manufacturer's instructions for proper installation of vent runs, including slope and support.*





## Installation — assembly continued

### Finish the vent installation

#### Installing condensate tubing

- See Figure 11 to install condensate tubing (provided by others). Use condensate pump if floor drain is higher than condensate drain on boiler.

If required:

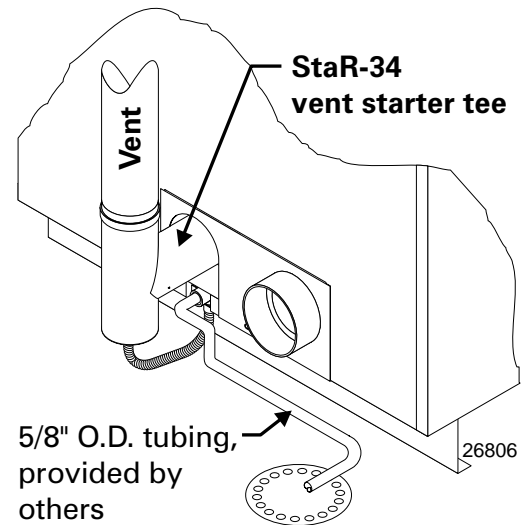
- use a low-profile pump — OR —
- set boiler on foundation (see GV Boiler Manual) to allow gravity flow to discharge.

- Size pump in gal/hr (boiler model):

- 0.78 (GV-3)
- 1.17 (GV-4)
- 1.56 (GV-5)
- 1.95 (GV-6)

Refer to pump manufacturer's instructions. Drain to a non-freezing area.

**Figure 11** Installation of condensate tubing



#### If vent pipe or combustion air pipe must be reassembled

When vent pipe or combustion air pipe is disconnected for any reason, it must be reassembled and resealed according to this Venting Supplement, the direct vent termination kit instructions and the vent pipe manufacturer's instructions.

#### **WARNING**

Sealant recommended by vent pipe manufacturer must be used as indicated in their instructions. Vent and combustion air connector piping must be sealed gas-tight to prevent possibility of flue gas spillage and carbon monoxide emissions, resulting in severe personal injury or death.



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