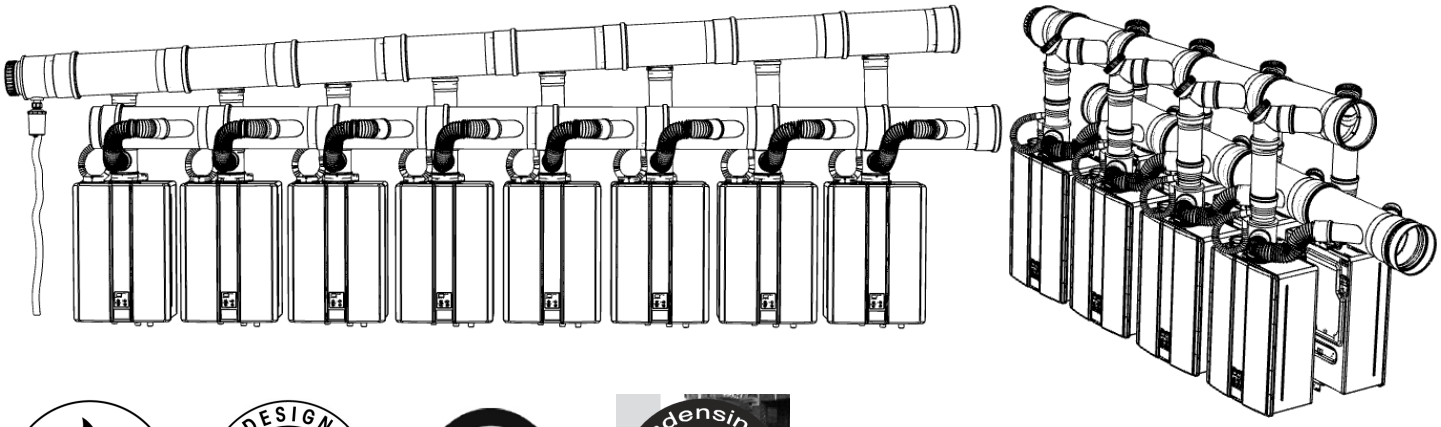
Common Vent Installation Manual

For the RU98i (REU-KB3237FFUD-US), RUC98i (REU-KBD3237FFUD-US), and C199i (REU-KBD3237FFUDC-US) Condensing Water Heaters

This manual is a supplement to the appliance manual.

Additional information can be obtained from the Rinnai Water Heater Installation and Operation Manual.



Certified to ANSI Z21.10.3 - CSA 4.3
For U.S. and Canadian Installations

⚠ WARNING **If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.**

— **Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**

— **WHAT TO DO IF YOU SMELL GAS**

- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

— **Installation and service must be performed by a licensed professional.**

This entire manual must be left for the consumer. The consumer must read and refer to this manual for proper operation and maintenance of the common vent system.

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Installer Qualifications

⚠ WARNING Improper installation of the vent system and components, or failure to follow all installation instructions, can result in serious injury.

A licensed professional must install the common venting.

The installer should have skills such as

- connecting gas lines, water lines, valves, and electricity
- knowledge of applicable national, state, and local codes

If you lack these skills, contact a licensed professional.

Description

The CVent Common Venting system provides longer vent lengths and fewer wall or roof penetrations than conventional single-unit venting. For the exhaust flue, CVent utilizes a CSA certified and tested venting (PPTL) and for Canada ULC-S636-certified and tested venting (PPS) material from Ubbink, the same supplier for Rinnai's innovative line of concentric venting. The various sections are self locking and sealing and can be pushed together without use of cement or glue.

CVent is for use in U.S. and Canada only. PPTL components are certified for U.S. installations whereas PPS components are certified for Canadian installations.

Installation is certified for up to 10,200 feet. Refer to the Installation and Operation Manual for the tankless water heater (RU98i, RUC98i or C199i) for appropriate dip switch selection. Refer to High Altitude Installation section in this manual for appropriate de-rate values.

Model Applicability

The common vent system is CSA certified (ANSI Z21.10.3, Gas Water Heaters Standards) for use with the following Rinnai tankless condensing water heaters only: **RU98i (REU-KB3237FFUD-US), RUC98i (REU-KBD3237FFUD-US), and C199i (REU-KBD3237FFUDC-US)**

Safety Symbols

This is the safety alert symbol. This symbol alerts you to potential hazards that can kill or hurt you and others.

DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

Warranty and Liability Exclusions

Claims for personal and material damages are excluded, if they are due to any or several of the following reasons:

- Use of the Cvent system not in accordance with the regulations.
- Improper assembly and incorrect operation.
- Faulty maintenance.
- Non-compliance with the assembly and operating instructions.
- Non-approved structural changes to the unit or to the individual components.
- Installation of components which are not part of the Cvent system .
- Subsequent damage, which occurred through further use of the Cvent system despite known defects.
- Intentional damage.
- Force Majeure.

Specifications

The RU98i and RUC98i units are certified for direct vent only. The C199i is certified for both direct vent and exhaust only with room air when installed in a commercial common vent application only. Water heaters using CVent will automatically de-rate according to the table below. Use the table below for calculating your total Btu for multiple water heaters using CVent.

RU98i (REU-KB3237FFUD-US), RUC98i (REU-KBD3237FFUD-US), and C199i (REU-KBD3237FFUDC-US)

Altitude: 0-2,000 feet

Natural and propane gas

Number of water heaters*	Percent De-rated	Total Btu Rate	Btu at Minimum Rate (without MSB)	Btu at Minimum Rate (with MSB)
1	0%	199,000	15,200	15,200
2	1%	394,000	30,400	
3	1.5%	588,000	45,600	
4	2%	780,000	60,800	
5	2.5%	970,000	76,000	
6	3%	1,158,000	91,200	
7	3.5%	1,344,000	106,400	
8	4%	1,528,000	121,600	

High Altitude Installations

The Rinnai RU98i (REU-KB3237FFUD-US), RUC98i (REU-KBD3237FFUD-US), and C199i (REU-KBD3237FFUDC-US) tankless water heaters have been certified for use with the Common Vent System (CVent) at installations from 0 - 10,200 feet. (0 - 3,109 m). The Common Vent System is ANSI Z21.10.3 certified; exhaust components to be propylene (PP/PPTL) for U.S. installations and PPS for Canadian installations (all venting components used in Canada must be ULC-S636 certified). Intake components to be in accordance with national and/or local codes having jurisdiction.

For CVent installations at high altitude you must ensure that the water heaters are properly installed and setup for the altitude that they will be operating at. *For information on how to adjust altitude settings reference the respective Installation and Operation Manual for the RU98i (REU-KB3237FFUD-US), RUC98i (REU-KBD3237FFUD-US), and C199i (REU-KBD3237FFUDC-US) tankless water heaters.*

Water heaters using CVent at altitudes over 2,000ft will automatically de-rate according to the table below. Use the tables below for calculating your total Btu for multiple water heaters using CVent at elevation:

* RU98i (REU-KB3237FFUD-US), RUC98i (REU-KBD3237FFUD-US), and C199i (REU-KBD3237FFUDC-US)

Altitude: 2,001-10,200 feet

Natural and propane gas

High Altitude De-Rate plus Cvent De-Rate - Natural Gas			
Number of Water Heaters	2001-5200 Ft	5201 - 7700 Ft	7701 - 10200 Ft
1	170,000	153,000	139,000
2	336,600	302,940	275,220
3	499,800	449,820	408,660
4	659,600	593,640	539,320
5	816,000	734,400	667,200
6	969,000	872,100	792,300
7	1,118,600	1,006,740	914,620
8	1,264,800	1,138,320	1,034,160

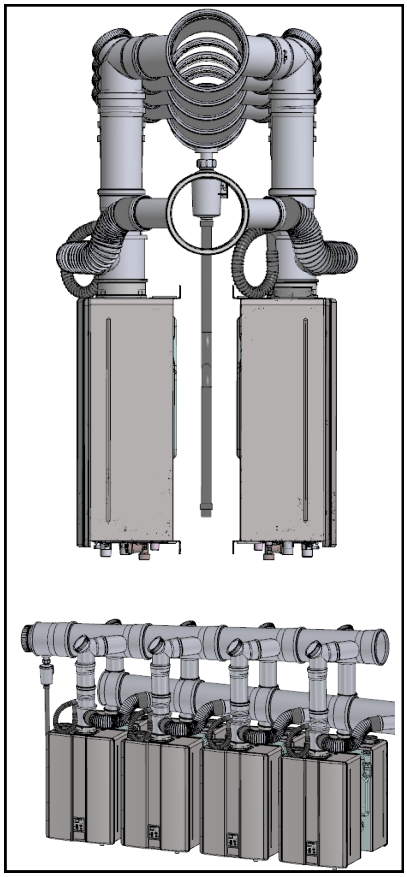
High Altitude De-Rate plus Cvent De-Rate - LP Gas			
Number of Water Heaters	2001-5200 Ft	5201 - 7700 Ft	7701 - 10200 Ft
1	168,000	151,000	120,000
2	332,640	298,980	237,600
3	493,920	443,940	352,800
4	651,840	585,880	465,600
5	806,400	724,800	576,000
6	957,600	860,700	684,000
7	1,105,440	993,580	789,600
8	1,249,920	1,123,440	892,800

Water Heater Installation

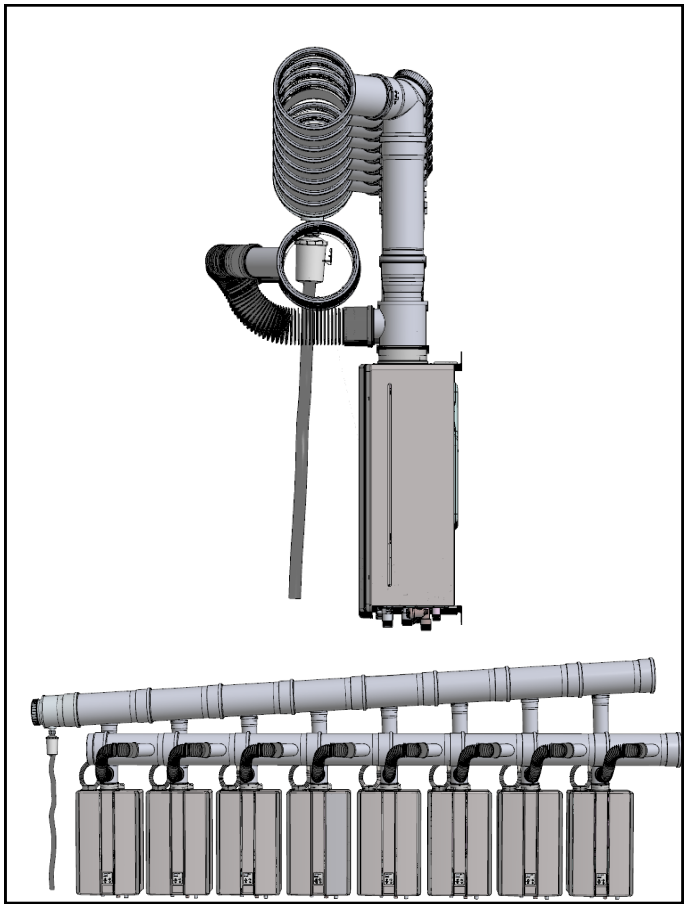
For information regarding the installation of the RU98i (REU-KB3237FFUD-US), RUC98i (REU-KBD3237FFUD-US), and C199i (REU-KBD3237FFUDC-US) tankless water heaters, please reference the Installation and Operation Manual included with the respective tankless water heater.

Set the water heater for “Long Vent” by adjusting the SW1 in DIPSW1 to the OFF Position. (Must be done on all tankless water heaters when using CVent System)

Direct Vent 8" Common Venting		
Direct Vent Common Venting Description	U.S. (PPtl)	Canada (PPs)
	Item Number	Item Number
8" back-to-back 3 unit header kit	**CV8BB3USDV**	**CV8BB3CADV**
8" back-to-back 4 unit header kit	**CV8BB4USDV**	**CV8BB4CADV**
8" back-to-back 5 unit header kit	**CV8BB5USDV**	**CV8BB5CADV**
8" back-to-back 6 unit header kit	**CV8BB6USDV**	**CV8BB6CADV**
8" back-to-back 7 unit header kit	**CV8BB7USDV**	**CV8BB7CADV**
8" back-to-back 8 unit header kit	**CV8BB8USDV**	**CV8BB8CADV**
8" in-line 3 unit header kit	**CV8IL3USDV**	**CV8IL3CADV**
8" in-line 4 unit header kit	**CV8IL4USDV**	**CV8IL4CADV**
8" in-line 5 unit header kit	**CV8IL5USDV**	**CV8IL5CADV**
8" in-line 6 unit header kit	**CV8IL6USDV**	**CV8IL6CADV**
8" in-line 7 unit header kit	**CV8IL7USDV**	**CV8IL7CADV**
8" in-line 8 unit header kit	**CV8IL8USDV**	**CV8IL8CADV**



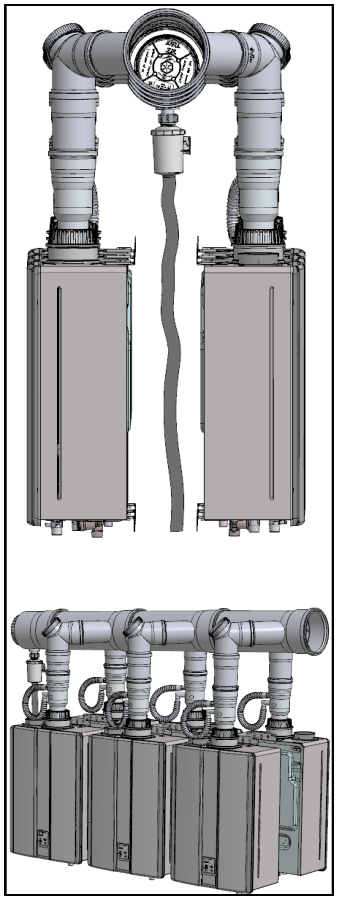
Back-to-Back
Configuration



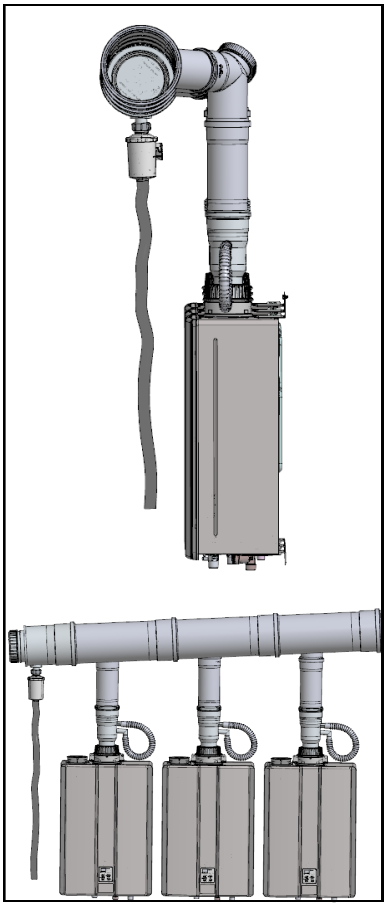
In-line
Configuration

These header kits include all of the components needed to fully assemble intake and exhaust headers. Extension kits are purchased separately.

Room Air 8" Common Venting		
Room Air Common Venting Description	U.S. (PPtl)	Canada (PPs)
	Item Number	Item Number
8" back-to-back 3 unit header kit	**CV8BB3USRA**	**CV8BB3CARA**
8" back-to-back 4 unit header kit	**CV8BB4USRA**	**CV8BB4CARA**
8" back-to-back 5 unit header kit	**CV8BB5USRA**	**CV8BB5CARA**
8" back-to-back 6 unit header kit	**CV8BB6USRA**	**CV8BB6CARA**
8" back-to-back 7 unit header kit	**CV8BB7USRA**	**CV8BB7CARA**
8" back-to-back 8 unit header kit	**CV8BB8USRA**	**CV8BB8CARA**
8" in-line 3 unit header kit	**CV8IL3USRA**	**CV8IL3CARA**
8" in-line 4 unit header kit	**CV8IL4USRA**	**CV8IL4CARA**
8" in-line 5 unit header kit	**CV8IL5USRA**	**CV8IL5CARA**
8" in-line 6 unit header kit	**CV8IL6USRA**	**CV8IL6CARA**
8" in-line 7 unit header kit	**CV8IL7USRA**	**CV8IL7CARA**
8" in-line 8 unit header kit	**CV8IL8USRA**	**CV8IL8CARA**



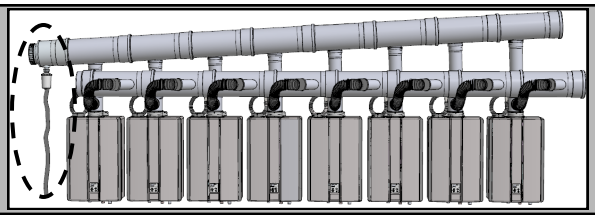
Back-to-Back
Configuration

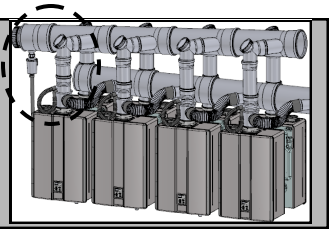


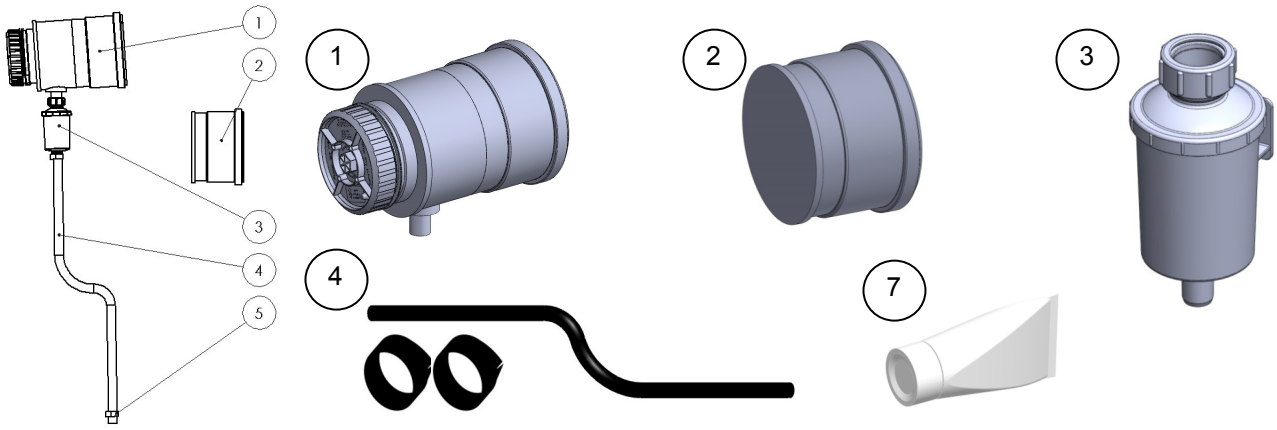
In-line
Configuration

(Room air is only for C199i in Commercial Common Vent Applications)

CVent Starter Kit
790005 / 791008PPS*
8-Inch For Back-to-Back or In-line Combustion Air & Exhaust



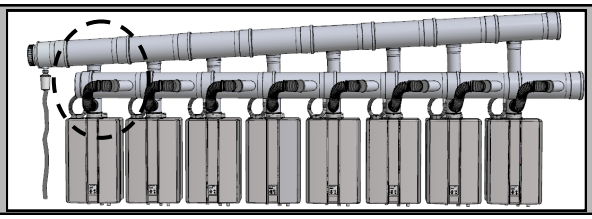


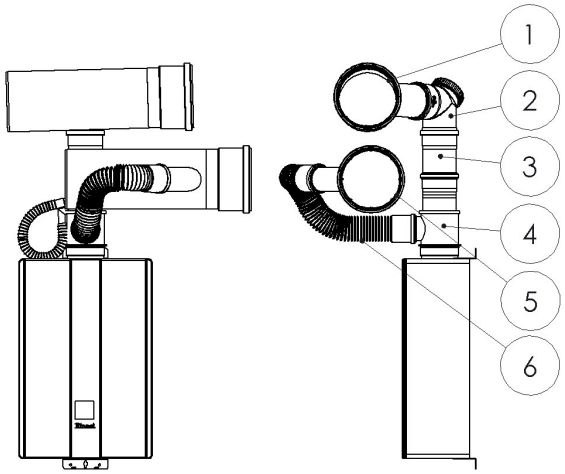


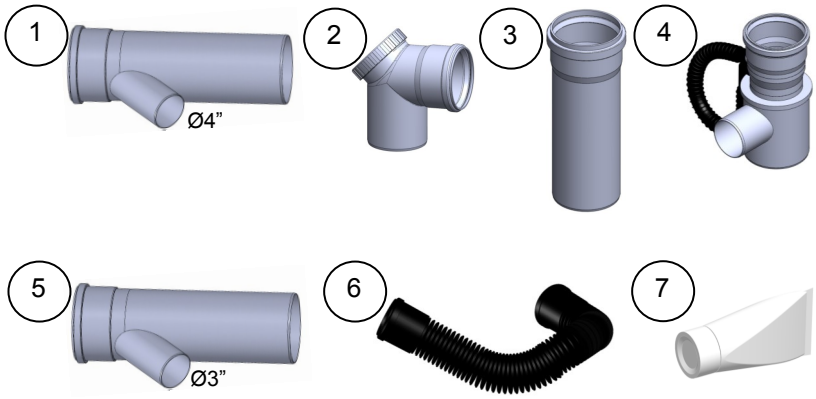
NO	QTY	DESCRIPTION	PPTL PART #'S	*PPS PART #'S
1	1	CVENT ENDPIECE (EXHAUST) W/ CLEANOUT & CONDENSATE DRAIN (32mm)	790042	NA
2	1	CVENT COMB AIR ENDPIECE D8	780046	NA
3	1	CVENT CONDENSATE TRAP (32mm Connection)	790048	NA
4	1	CVENT DRAIN HOSE AND CLAMPS	790049	NA
6	1	UBBINK INSTALLATION INSTRUCTION	NA	NA
7	1	CENTROCERIN LUBRICANT	NA	NA

*PPS kits and components are certified for use in Canada

CVent In-line Kit
790007 / 791009PPS*
8-Inch Header Kit For In-line Combustion Air & Exhaust



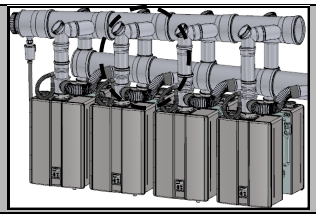


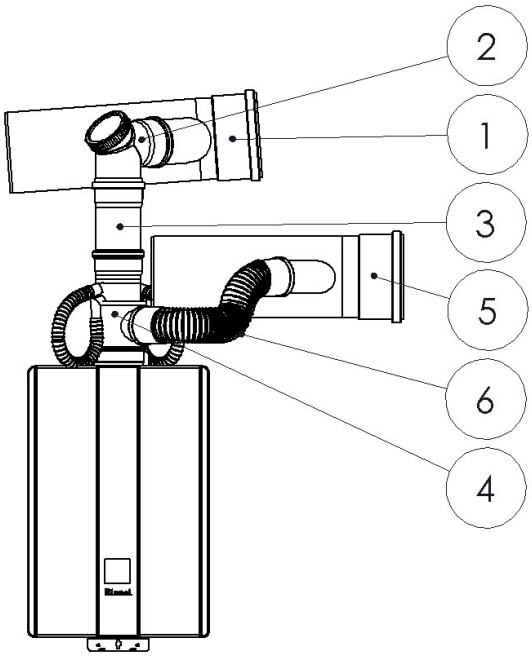


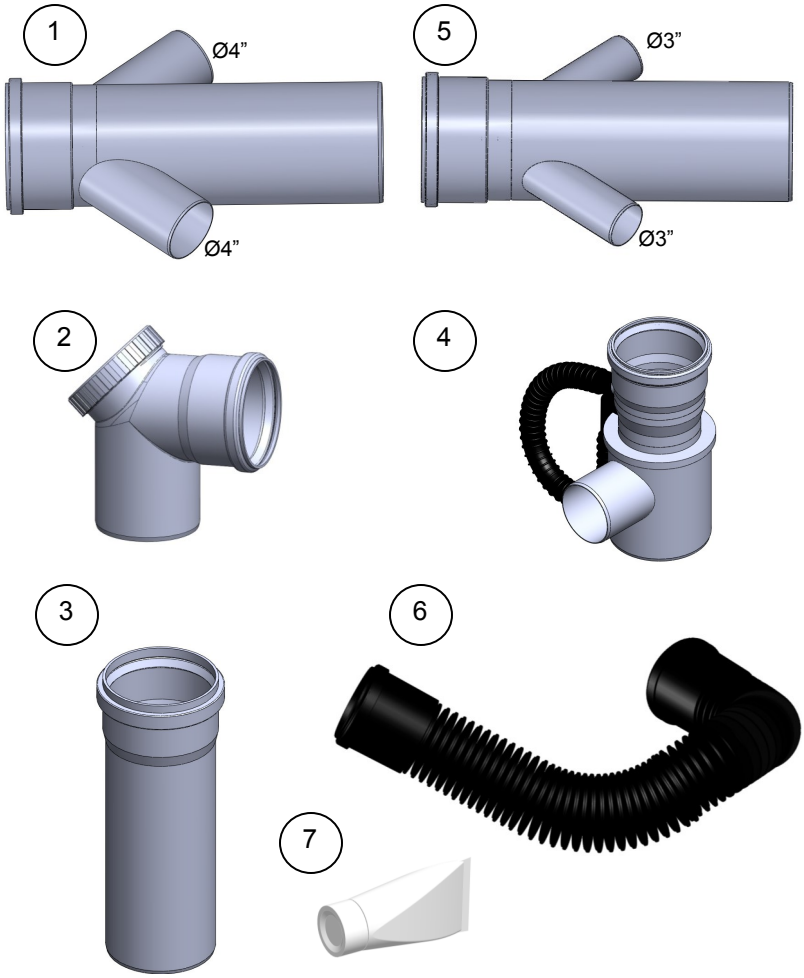
NO	QTY	DESCRIPTION	PPTL PART #'S	*PPS PART #'S
1	1	CVENT COLLECTOR, 1 CONNECTION, D8 X L20 X D4 (Exhaust)	790040	NA
2	1	CVENT ELBOW D4 X 87° WITH CLEANOUT	790039	NA
3	1	CVENT EXTENSION, D4 X L18	790035	NA
4	1	CVENT APPLIANCE ADAPTER WITH CHECK VALVE AND HOSE TRAP	790038	NA
5	1	CVENT COMB. AIR COLLECTOR, 1 CONNECTION, D8 X L20 X D3	780044	NA
6	1	CVENT COMB AIR FLEX FITTING, D3	780050	NA
7	1	CENTROCERIN LUBRICANT	NA	NA

*PPS kits and components are certified for use in Canada

CVent Back-2-Back Kit
790008 / 791010PPS
8-Inch Header Kit For Back-to-Back Combustion Air & Exhaust





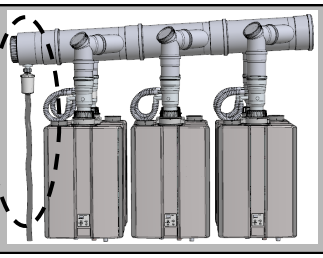


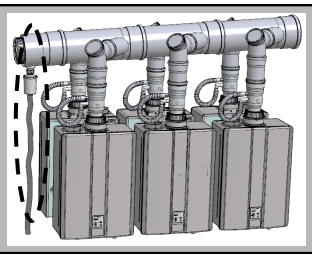
NO	QTY	DESCRIPTION	PPTL PART #'S	*PPS PART #'S
1	1	CVENT COLLECTOR, 2 CONNECTION, D8 X L20	790041	NA
2	2	CVENT ELBOW D4 X 87° WITH CLEANOUT	790039	NA
3	2	CVENT EXTENSION, D4 X L18	790035	NA
4	2	CVENT APPLIANCE ADAPTER WITH CHECK VALVE AND	790038	NA
5	1	CVENT COMB. AIR COLLECTOR, 2 CONNECTION,	780045	NA
6	2	CVENT COMB. AIR FLEX FITTING, D3	780050	NA
7	1	CENTROCERIN LUBRICANT	NA	NA

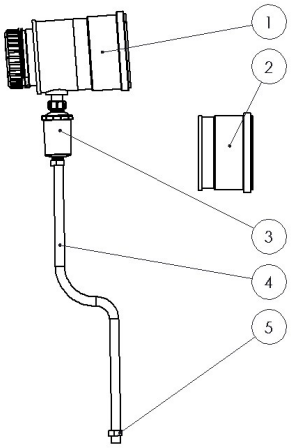
*PPS kits and components are certified for use in Canada

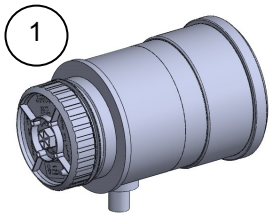
CVent Starter Kit-Room Air
790058 / 791011PPS*

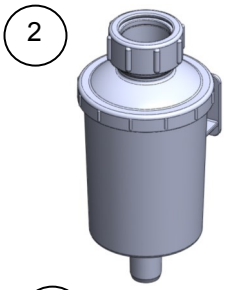
8-Inch For Back-to-Back or In-line
Combustion Air & Exhaust
(Room air is only for C199i in Commercial Common Vent Applications)

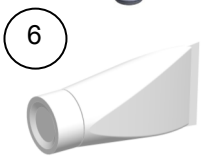










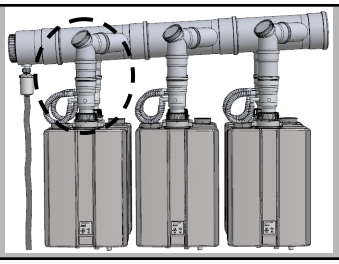


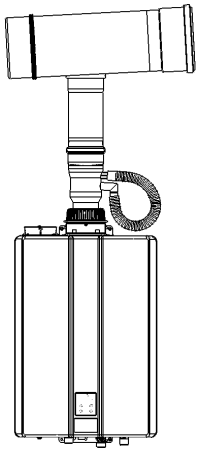
NO	QTY	DESCRIPTION	PPTL PART #'S	*PPS PART #'S
1	1	CVENT ENDPIECE (EXHAUST) W/ CLEANOUT & CONDENSATE DRAIN (32mm)	790042	NA
2	1	CVENT CONDENSATE TRAP (32mm Connection)	790048	NA
3	1	CVENT DRAIN HOSE AND CLAMPS	790049	NA
5	1	UBBINK INSTALLATION INSTRUCTION	NA	NA
6	1	CENTROCERIN LUBRICANT	NA	NA

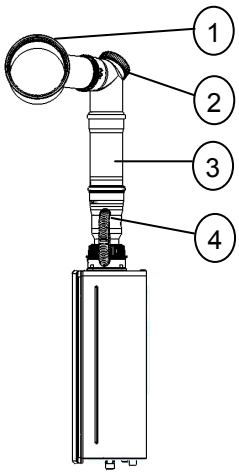
*PPS kits and components are certified for use in Canada

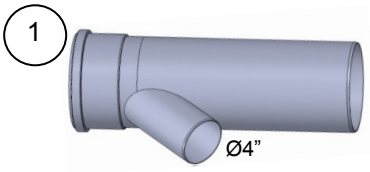
CVent In-line Kit-Room Air
790059 / 791012PPS*

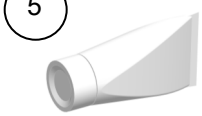
8-Inch Header Kit For In-line
Combustion Air & Exhaust
(Room air is only for C199i in Commercial Common Vent Applications)







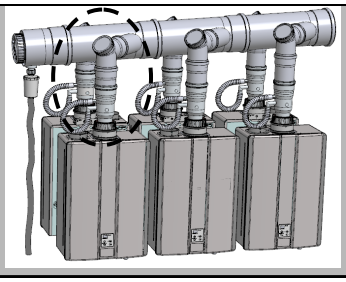


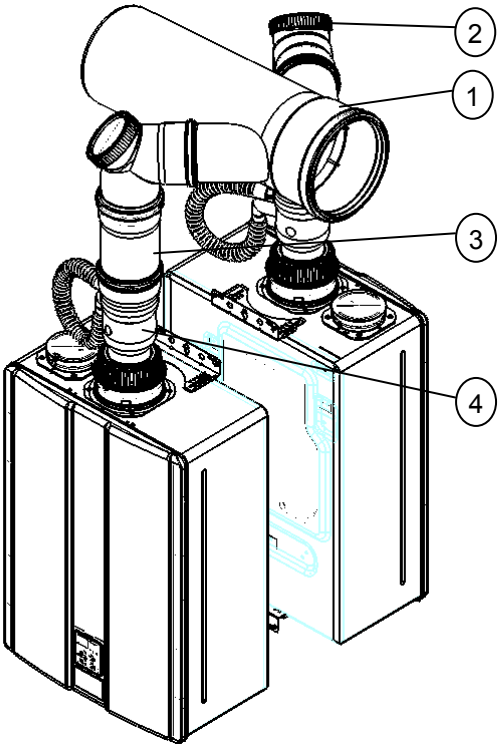


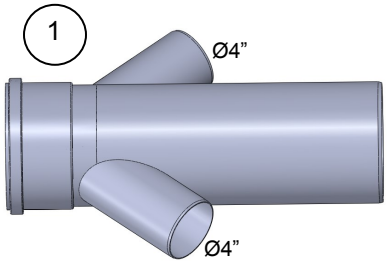
NO	QTY	DESCRIPTION	PPTL PART #'S	*PPS PART #'S
1	1	CVENT COLLECTOR, 1 CONNECTION, D8 X L20 X D4 (Exhaust)	790040	NA
2	1	CVENT ELBOW D4 X 87° WITH CLEANOUT	790039	NA
3	1	CVENT EXTENSION, D4 X L18	790035	NA
4	1	CVENT APPLIANCE ADAPTER (ROOM AIR), CHECK VALVE, HOSE TRAP	NA	NA
5	1	CENTROCERIN LUBRICANT	NA	NA

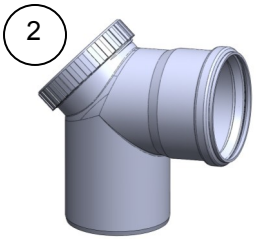
*PPS kits and components are certified for use in Canada

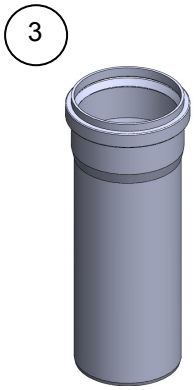
CVent Back-to-Back Kit-Room Air
790060 / 791013PPS*
8-Inch Header Kit For Back-2-Back
Combustion Air & Exhaust
(Room air is only for C199i in Commercial Common Vent Applications)

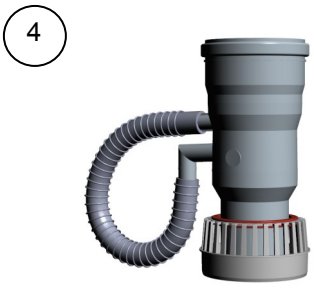


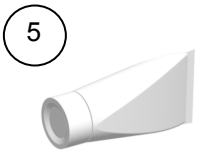












NO	QTY	DESCRIPTION	PPTL PART #'S	*PPS PART #'S
1	1	CVENT COLLECTOR, 2 CONNECTION, D8 X L20	790041	NA
2	2	CVENT ELBOW D4 X 87° WITH CLEANOUT	790039	NA
3	2	CVENT EXTENSION, D4 X L18	790035	NA
4	1	CVENT APPLIANCE ADAPTER (ROOM AIR), CHECK VALVE, HOSE TRAP	NA	NA
5	1	CENTROCERIN LUBRICANT	NA	NA

*PPS kits and components are certified for use in Canada

Termination Kits

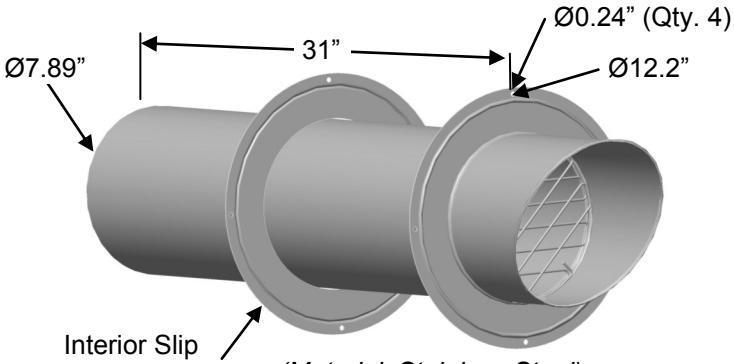
Cvent 8-in Roof Termination Kit 790057 / 791007PPS (can be used as Intake or Exhaust)

Centrocerin
Lubricant

CVent 8-in Roof Termination
(Outer shell: available in PPtl or PPS)

If roof termination is being used as intake the assembly must include the intake rain cap

Cvent 8-in Wall Termination Kit *(Combustion Air & Exhaust)* 790004 (for use with PPtl and PPS material)



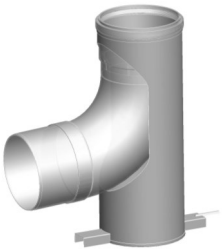
(Material: Stainless Steel)

Centrocerin lubricant

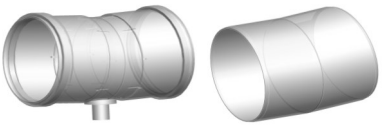
COMMON VENT COMPONENTS

CVent Elbow D8x90 degree
#790023 / 791003PPS

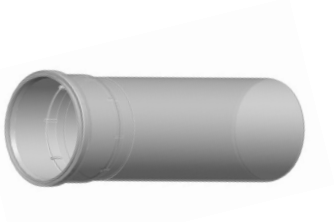
CVent Elbow D8x45 degree
#790022 / 791002PPS (Qty.2)



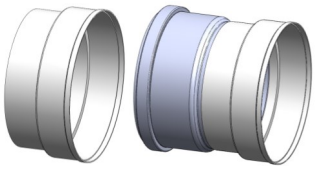
CVent Elbow D8x90 degree
Vertical Support #790029



Inverter Coupling Kit With Condensate Trap
#790032



CVent Extension
D8xL18" #790020,
D8xL39" #790021 / 791001PPS
D8xL78" #790052 / 791006PPS



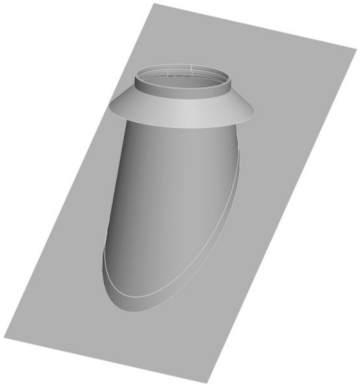
Combustion Air PVC Adapter Kit
#780037

CVent 8in Vent Rain Cap
(Intake) #780053

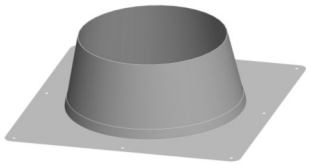
CVent 8in Vent Rain Cap
(Exhaust) #790034

CVent 8-in
Bracket #790024

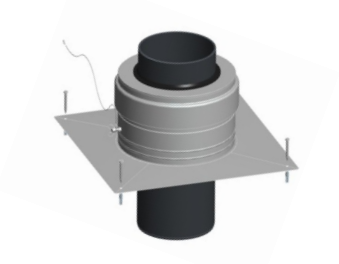
CVent 8in Vent
Distancer #790031



CVent Pitched Roof Flashing
(Including Storm Collar)
#790003



CVent Flat Roof
Flashing #790002

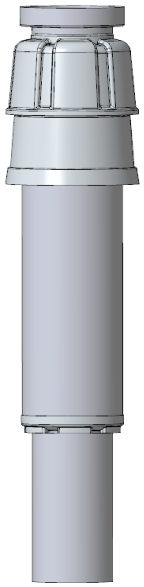


CVent 8-in Chase Cover
#790030

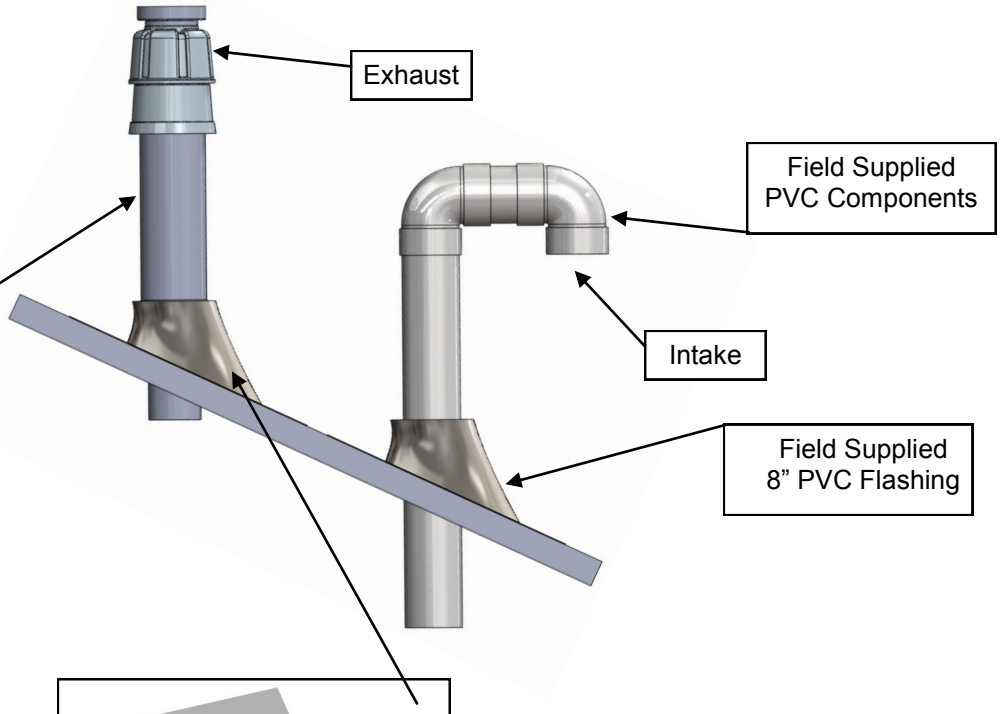
CVent Extension
D4xL18" #790035 / 791004PPS
D8xL39" #790028

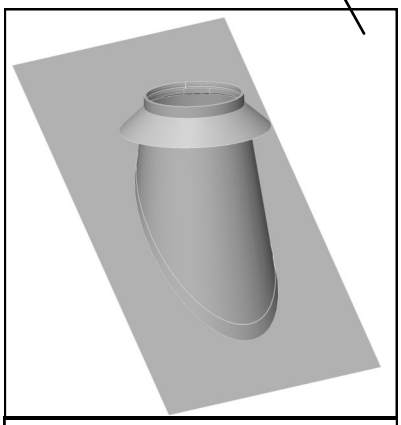
Sample Roof Assembly

CVent 8in Vent Rain Cap (Exhaust) #790034



CVent 8-in Roof Termination Kit with PVC Adapter #7900057 / 791007PPS

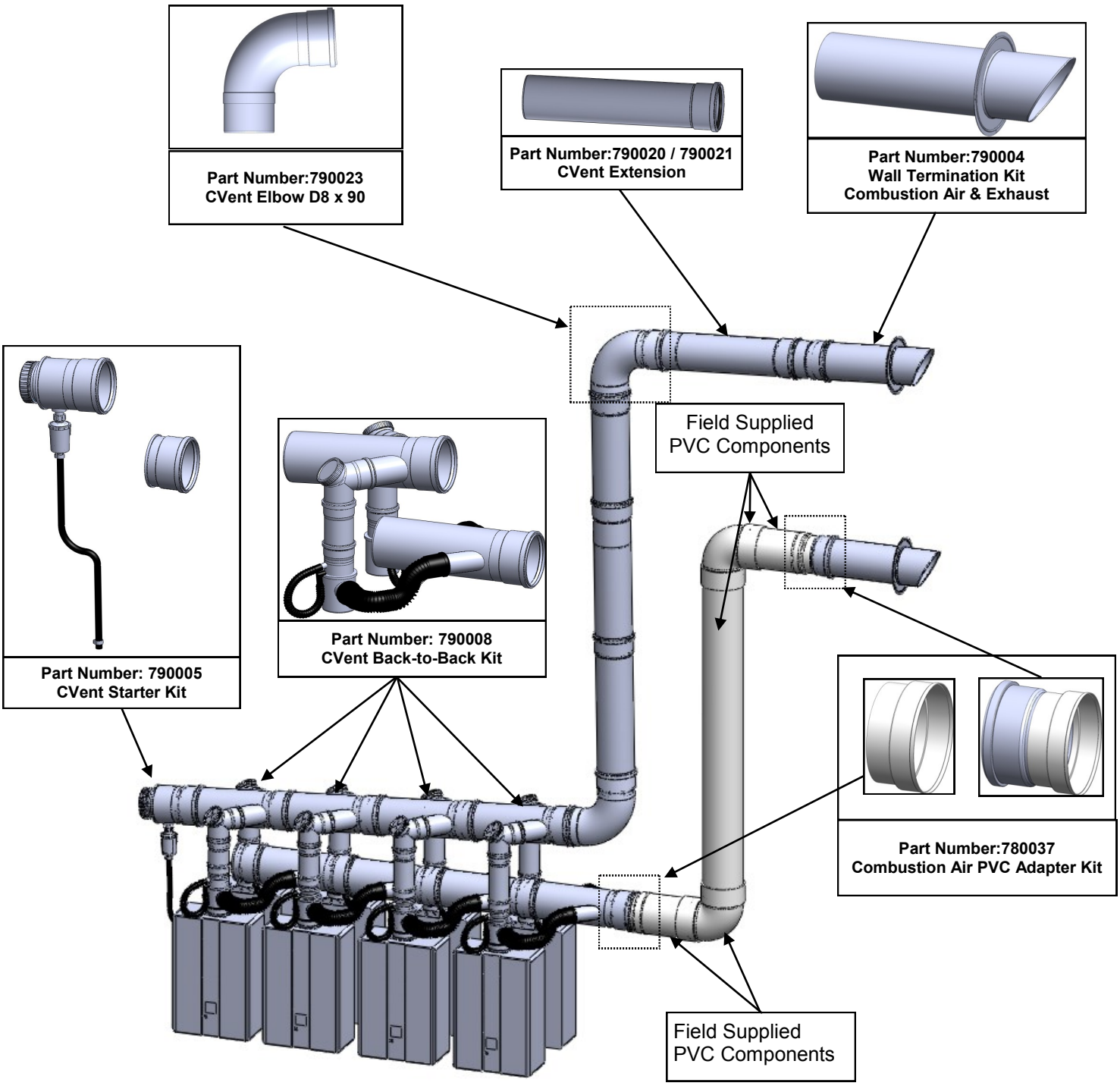




Cvent pitched roof moldable flashing #790003

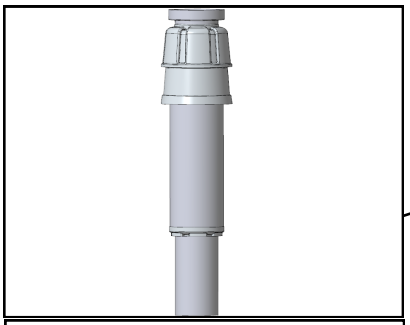
Vent termination per ANSI Z223.1/NFPA 54. For clearances not specified in ANSI Z223.1/NFPA 54, clearances are in accordance with local installation codes and the requirements of the gas supplier.

Sample Horizontal Termination Assembly

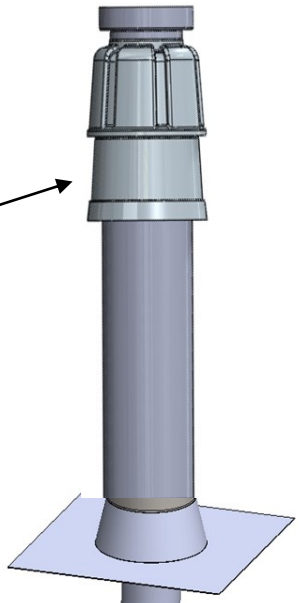


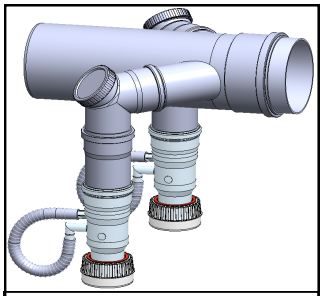
Complete Header Kit Pictured:
U.S.-CV8BB8USDV
Canada-CV8BB8CADV

Sample Vertical Termination Assembly-Room Air (C199i Only)

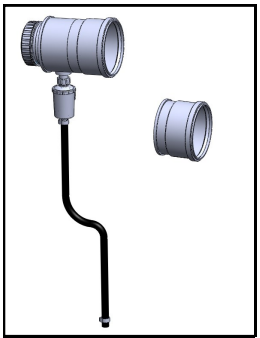


Part Number: 790057
CVent 8-in Roof Termination

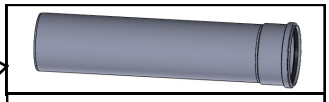




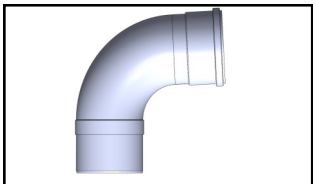
Part Number: 790060
CVent Back-2-Back Kit



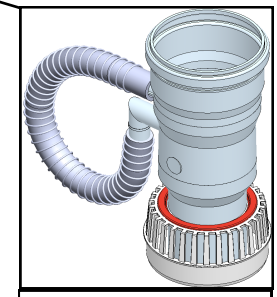
Part Number: 790005
CVent Starter Kit



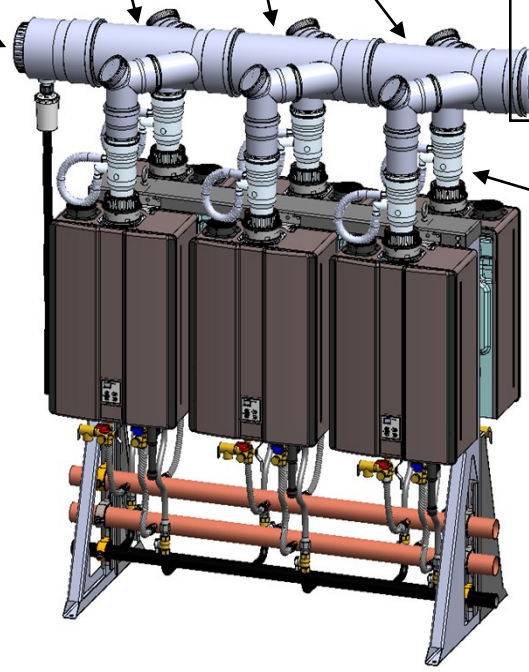
Part Number:790020 / 790021
CVent Extension



Part Number:790023
CVent Elbow D8 x 90



CVENT APPLIANCE ADAPTER WITH CHECK VALVE AND TRAP



Complete Header Kit (B-to-B):	Complete Header Kit (In-line):
U.S.-CV8BB6USRA Canada-CV8BB6CARA	U.S.-CV8IL3USRA Canada-CV8IL3CARA

Vent termination per ANSI Z223.1/NFPA 54. For clearances not specified in ANSI Z223.1/NFPA 54, clearances are in accordance with local installation codes and the requirements of the gas supplier.

Venting Guidelines

⚠ WARNING The Ubbink Polypropylene Translucent (PPTL for U.S. Applications) and/or Polypropylene S (PPS for Canadian Applications)
CVent can be used on both the combustion air and exhaust. Field supplied PVC material can only be used on the combustion air side and **MUST NOT** be used for the exhaust. For Canadian installation, all materials must be ULC-S636 approved.

DO NOT

- Do not install in separate distribution systems. All water heaters common vented must be in the same hot and cold plumbing manifolds and must not exceed 8 units.
- Do not use PVC, CPVC, ABS or galvanized material for the exhaust vent. CVent must utilize PPTL or PPS on the exhaust side of the system.
- Do not combine vent components from different manufacturers.
- Vent diameter must not be reduced.
- Do not connect the venting system with an existing vent or chimney.
- Do not common vent with the vent pipe of any other type of water heater or appliance.
- Do not install the water heater in an area of negative pressure.
- Do not install the water heater, venting, and vent termination(s) in any areas where the air may contain corrosive compounds.

MUST DO

- The water heater dip switch setting must always be set to long vent (SW1 in DIPSW1 should be set to OFF position).
- You must use vent components that are certified and listed with the water heater model.
- The vent system must vent directly to the outside of the building and use outside air or room air ***(room air is for C199i commercial water heater applications only)*** for combustion.
- Avoid dips or sags in horizontal vent runs by installing supports per the vent manufacturer's instructions.
- Support horizontal vent runs a minimum of every four feet and all vertical vent runs a minimum of every six feet.
- Venting should be as direct as possible with a minimum number of pipe fittings.
- Vent connections must be firmly pressed together so that the gaskets form an air tight seal.
- Install an appliance adapter which contains a check valve onto each water heater. Use only the check valve specified in this manual. Do not attempt to build your own system.
- The air intake appliance adapter connected to the water heater must be secured with one self-tapping screw.
- Check and clean the header check valve every 12 months according to the maintenance instructions in this manual.
- Set the temperature setting on all water heaters being common vented to the same temperature.

INFORMATION

- Unless recovering a tank, Rinnai recommends installing an MSB controller when common venting and where water heaters are in a manifold system.
- For assembly details, refer to the Ubbink Installation and Assembly Instructions located in the appendix of this manual.
- Rinnai recommends replacing the check valve when replacing the water heater.

Maximum Equivalent Vent Length

In the table below you find the maximum equivalent pipe length of the exhaust and intake venting.

When determining equivalent exhaust and intake vent lengths add:

- 6 feet for each 90° elbow
- 3 feet for each 45° elbow
- Add any vent extension lengths which are added within the header due to increased spacing of the water heaters
- Header kits have already been counted and do not need to be added.

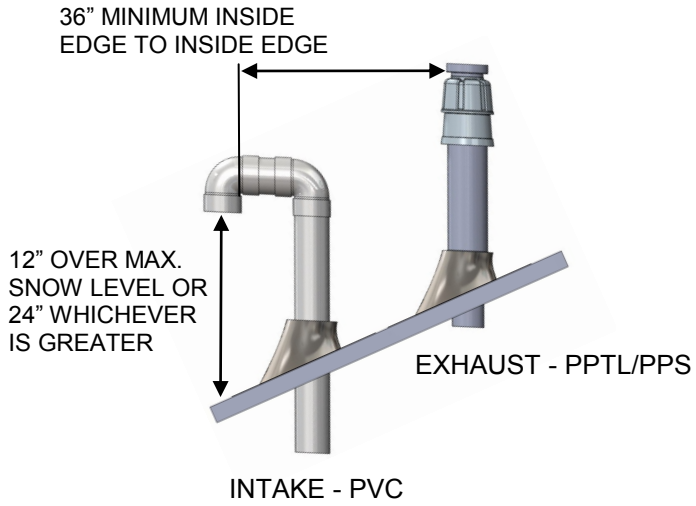
Tankless Rack System (TRS) Venting Configuration Summary (PPTL & PPS)							
TRS Configuration		**Minimum Equivalent Vent Length (Ft)**		**Maximum Equivalent Vent Length (Ft)**		**Approved C-Vent Configuration**	
Tankless Models	**# of Tankless Units**	**Exhaust***	**Intake***	**Exhaust***	**Intake***	**Vent Option**	**Exhaust Position**
C199i (REU-KBD3237FFUDC-US)	8	One Elbow + Termination	Appliance Adapter	41	Appliance Adapter	**Room Air** Configuration	Vertical Only
	7			80			
	2 to 6			100			
	8		9	41	41	Parallel Pipe Configuration **(Different Pressure Zone) (Page 23)**	
	7			80	80		
	2 to 6			100	100		
C199i (REU-KBD3237FFUDC-US); **RUC98i** (REU-KBD3237FFUD); **RU98i** (REU-KB3237FFUD-US)	8		15	41	41	Parallel Pipe Configuration **(Same Pressure Zone & Face the Same Direction) (Page 23)**	Vertical or Horizontal
	2 to 7			100	100		

*Approved exhaust and intake diameter is 8".

CVent Termination Clearances

Vertical Termination

There should be a minimum of 36" between exhaust and intake terminations.



Clearances of Brackets

All supports such as wall brackets on the external façade or spacer blocks in a shaft must be assembled in a maximum distance of 78 in (2 m). Where there is a bend, additional spacer blocks or wall brackets can be planned before and after the bend, depending on the local situation.

Freestanding Components

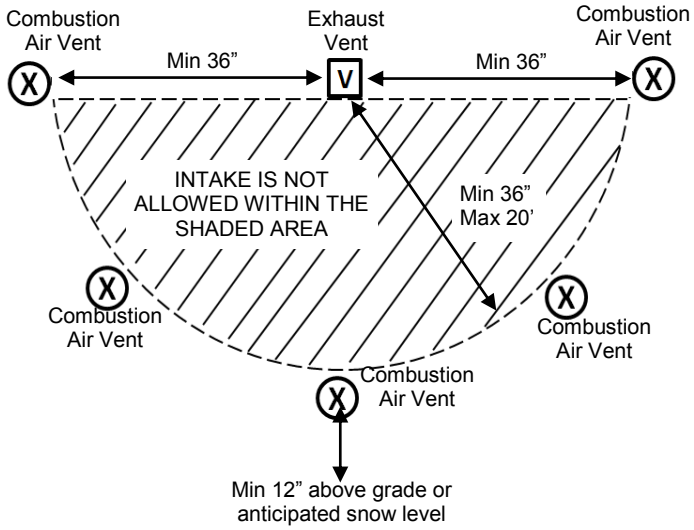
Components, which are assembled freestanding vertical (roof termination) with a length of more than 59 in (1.5 m), must, depending on the amount of wind and snow level expected, be additionally secured to the building with guys or braces.

Vent termination per ANSI Z223.1/NFPA 54. For clearances not specified in ANSI Z223.1/NFPA 54, clearances are in accordance with local installation codes and the requirements of the gas supplier.

CVent Termination Clearances

This appliance along with the CVent Common Vent System is certified with the Cvent 8-in Wall Termination Kit, (790004) mounted in the orientation shown below.

Horizontal Termination



The exhaust and combustion air terminations must follow these clearances:

[1] 12 inch minimum vertically from bottom of combustion air termination to ground or anticipated snow line.

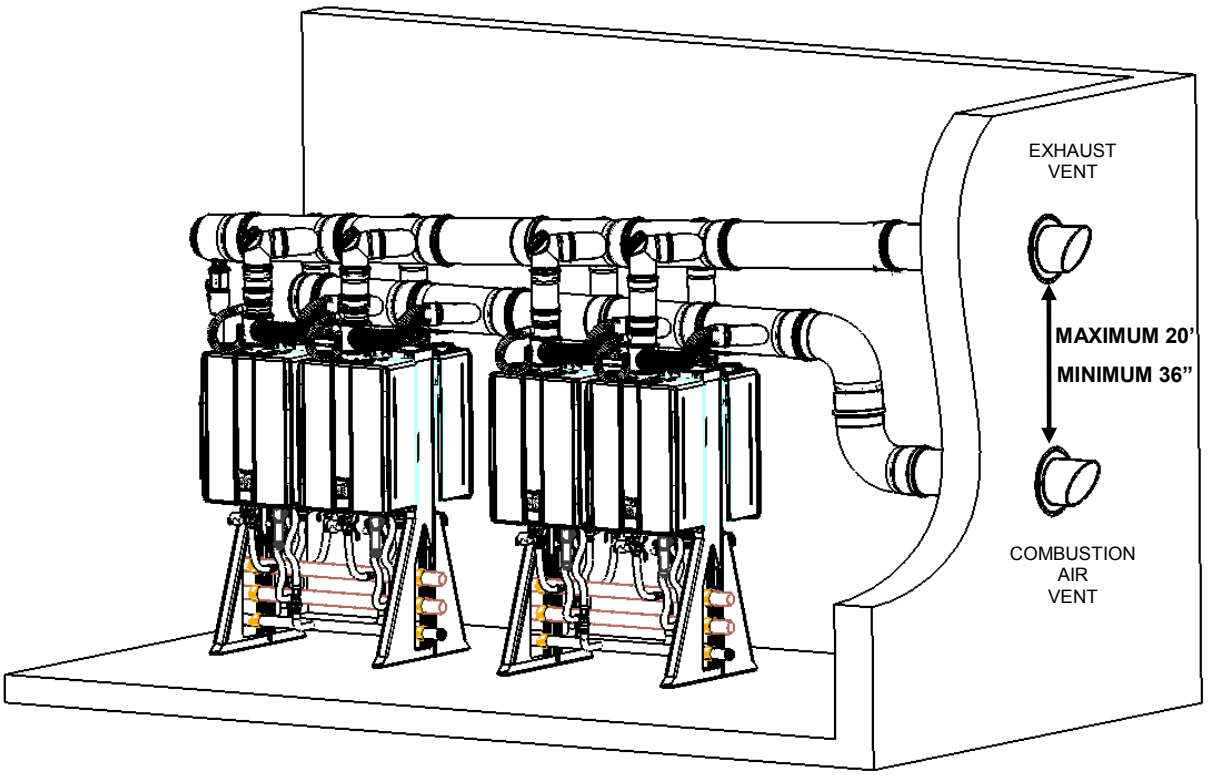
[2] From edge of exhaust termination to edge of combustion air termination:
Minimum of 36”
Maximum of 20’

[3] 36 inch minimum from multiple exhaust CVents

There should be a minimum of 36” between exhaust terminations in multiple common vent installations.

The vent (exhaust & combustion air) terminations to be as specified in table in "Maximum Equivalent Vent Length" Section above (model specific).

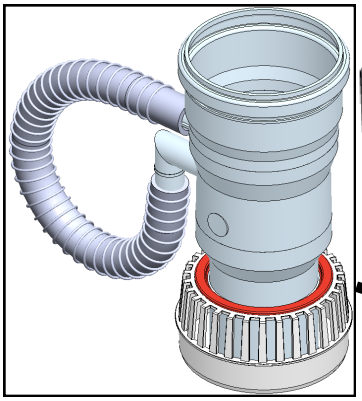
NOTE: During colder weather when the exhaust temperature is much hotter than the outside air, the exhaust fumes condense producing water vapor. As a result a plume of water vapor may be seen leaving the exhaust.



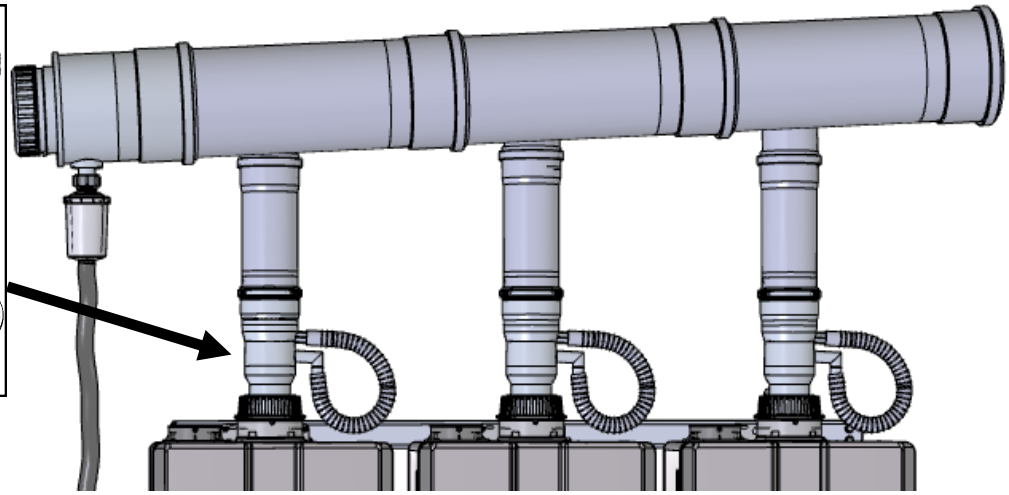
Combustion Air Requirements (Commercial Applications with C199i Only**)**

Common Vent Applications Utilizing Room Air

Only the C199i (REU-KBD3237FFUDC-US) tankless water heater is certified to utilize room air in commercial applications using Rinnai Common Vent System.



Common Vent Room Air Appliance Adapter



Combustion Air Requirements

This rack system requires adequate combustion air for ventilation and dilution of flue gases. Failure to provide adequate combustion air can result in unit failure, fire, explosion, serious bodily injury or death. Use the following methods to ensure adequate combustion air is available for correct and safe operation of this rack system.

Important: Combustion air must be free of corrosive chemicals. Do not provide combustion air from corrosive environments. System failure due to corrosive air is not covered by warranty.

Combustion air must be free of acid forming chemical such as sulfur, fluorine and chlorine. These chemicals have been found to cause rapid damage and decay and can become toxic when used as combustion air in gas appliances. Such chemicals can be found in, but not limited to bleach, ammonia, cat litter, aerosol sprays, cleaning solvents, varnish, paint and air fresheners. Do not store these products or similar products in the vicinity of the water heater system.

Unconfined Space:

An unconfined space is defined in *National Fuel Gas Code, ANSI Z223.1/NFPA 54* as “a space whose volume is not less than 50 cubic feet per 1000 Btu/hr (4.8 m3 per kW per hour) of the aggregate input rating of all appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.” If the “unconfined space” containing the system is in a building with tight construction, additional outside air may be required for proper operation. Outside air openings should be sized the same as for a confined space.

Confined Space:
(Small Room, Closet, Alcove, Utility Room, Etc.)

A confined space is defined in the *National Fuel Gas Code, ANSI Z223.1/NFPA 54* as "a space whose volume is less than 50 cubic feet per 1000 Btu/hr (4.8 m3 per kW per hour) of the aggregate input rating of the combined appliances installed in that space." A confined space must have two combustion air openings. Size the combustion air openings based on the BTU input for all gas utilization equipment in the space and the method by which combustion air is supplied.

Combustion Air Requirements (Commercial Applications with C199i Only**)**

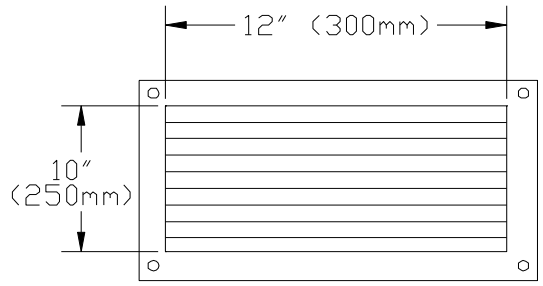
Louvers and Grills

When sizing the permanent opening consideration must be taken for the design of the louvers or grills to maintain the required free area required for all gas utilizing equipment in the space. If the free area of the louver or grill design is not available, assume wood louvers will have 25% free area and metal louvers or grills will have 75% free area. Under no circumstance should the louver, grill or screen have openings smaller than 1/4".

Example:

Wood: 10 in x 12 in x 0.25 = 30 in^2

Metal: 10 in x 12 in x 0.75 = 90 in^2

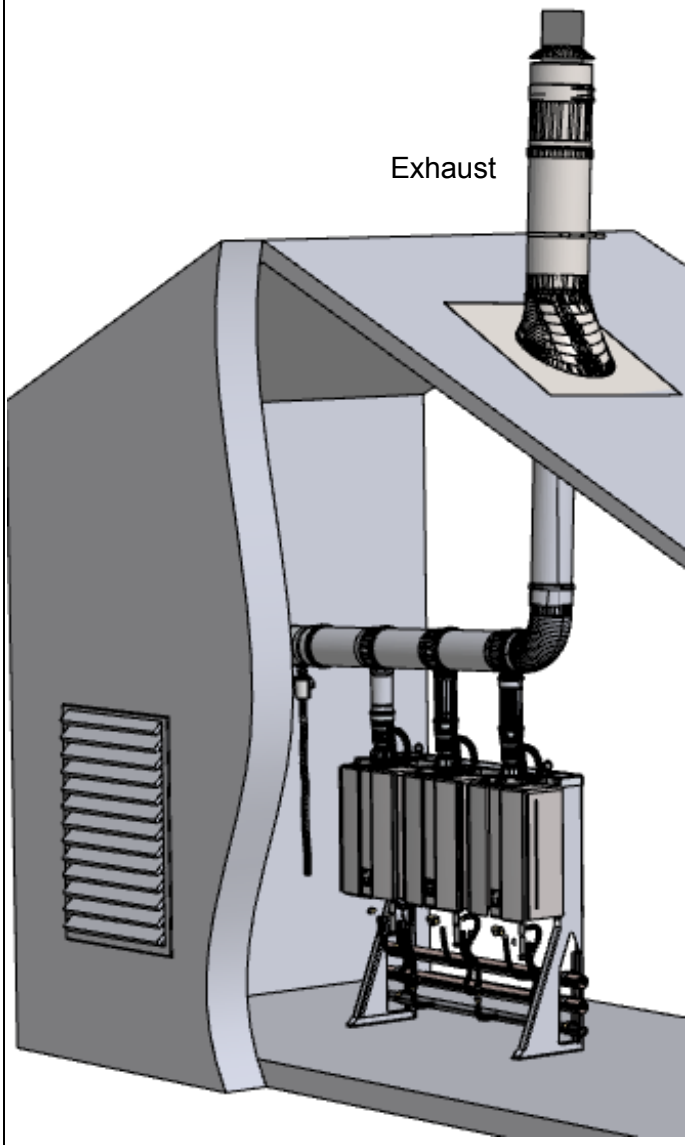


Location

To maintain proper circulation of combustion air two permanent openings (one upper, one lower) must be positioned in confined spaces. The upper shall be within 12" of the top of the confined space and the lower opening shall be within 12" of the bottom of the confined space. Openings must be positioned as to never be obstructed.

Using Outdoor Air For Combustion

Outdoor air can be provided to a confined space through two permanent openings, one commencing within 12 in. (300mm) of the top and one commencing within 12" (300mm) of the bottom, of the confined space. The openings shall communicate to the outside by one of two ways.

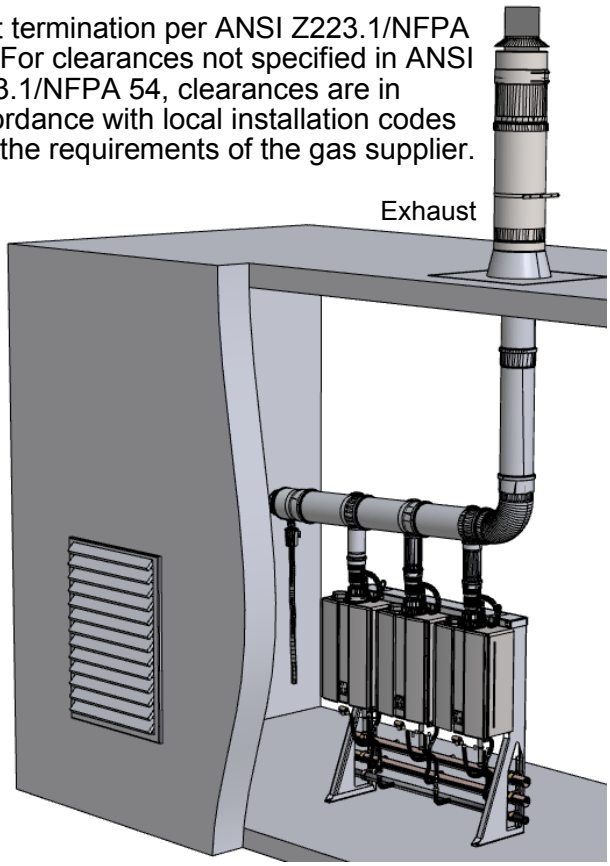


(Be sure to also maintain 12" above grade or anticipated snow level)

Vent termination per ANSI Z223.1/NFPA 54. For clearances not specified in ANSI Z223.1/NFPA 54, clearances are in accordance with local installation codes and the requirements of the gas supplier.

Combustion Air Requirements (Commercial Applications with C199i Only)

Vent termination per ANSI Z223.1/NFPA 54. For clearances not specified in ANSI Z223.1/NFPA 54, clearances are in accordance with local installation codes and the requirements of the gas supplier.



(Be sure to also maintain 12" above grade or anticipated snow level)

NOTICE

Combustion air provided to the system should not be taken from any area of the structure that may produce a negative pressure (i.e. exhaust fans, powered ventilation fans).

Using Indoor Air For Combustion

When using air from other room(s) in the building, the total volume of the room(s) must be of adequate volume (Greater than 50 cubic feet per 1000 Btu/hr). Each Combustion air opening must have **at least one square inch of free area for each 1000 Btuh**, but not less than 100 square inches each.

When communicating directly with the outdoors through horizontal ducts, each opening shall have a minimum free area of 1 in^2/2000 Btu/hr (1100 mm^2/kW) of total input rating of all appliances in the confined space.
Note: If ducts are used, the cross sectional area of the duct must be greater than or equal to the required free area of the openings to which they are connected.

When communicating indirectly with the outdoors through vertical ducts, each opening shall have a minimum free area of 1 in^2/4000 Btu/hr (550 mm^2/kW) of total input rating of all appliances in the confined space. Combustion air to the appliance can be provided from a well ventilated attic or crawl space.

⚠ WARNING

TO PREVENT POSSIBLE PERSONAL INJURY OR DEATH DUE TO ASPHYXIATION,

COMMON VENTING WITH OTHER MANUFACTURER'S INDUCED DRAFT APPLIANCES IS NOT ALLOWED.

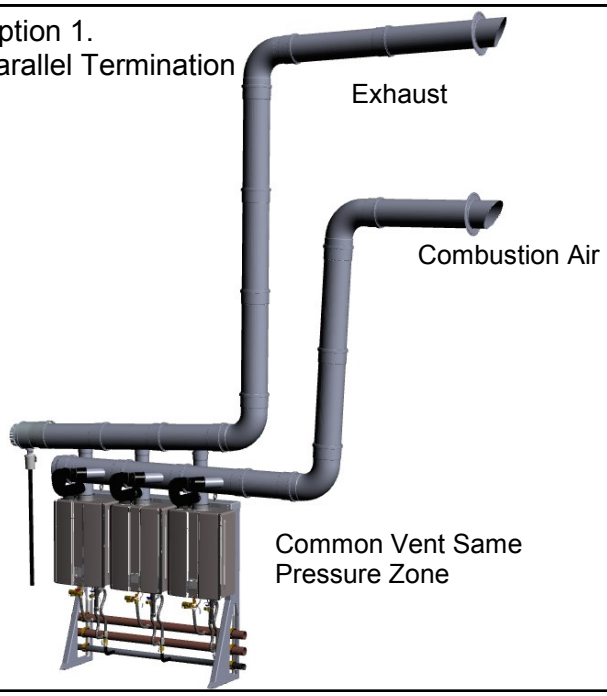
Checklist for Combustion Air and Venting Requirements

- ☐ Verify proper clearances around the vents .
- ☐ Ensure that the Combustion Air Requirements are followed that will provide sufficient combustion air for the appliance.
- ☐ Ensure approved venting components have been used.
- ☐ All horizontal vent runs must be sloped up away from the water heater a minimum of 1/4 " (6 mm) per foot.
- ☐ Verify that there is adequate combustion air.
- ☐ Ensure that room air is only utilized in common vented applications.
- ☐ Ensure if installed in common vent application utilizing room air that exhaust is terminating vertically only. (Reference Common Vent manual for further details.)
- ☐ Installation complies with *National Fuel Gas Code, ANSI Z223.1/NFPA 54* as well as local and state regulations therein.

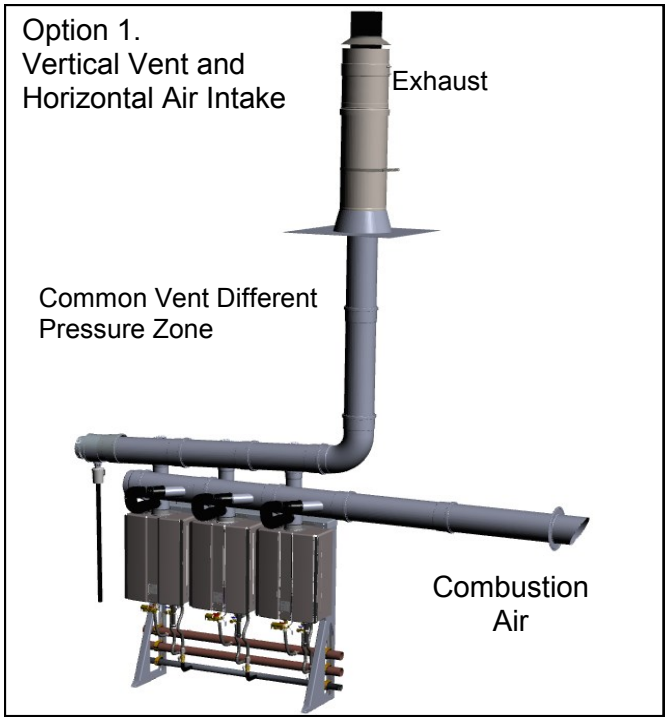
Common Venting (indoor commercial applications only)

There are two option in which Indoor units can be common vented:
Option 1. Direct Common Vent
Option 2. Common Vent with Room air for combustion (must terminate vertically)
(For information regarding parts and installation information **refer to Common Vent Manual**)

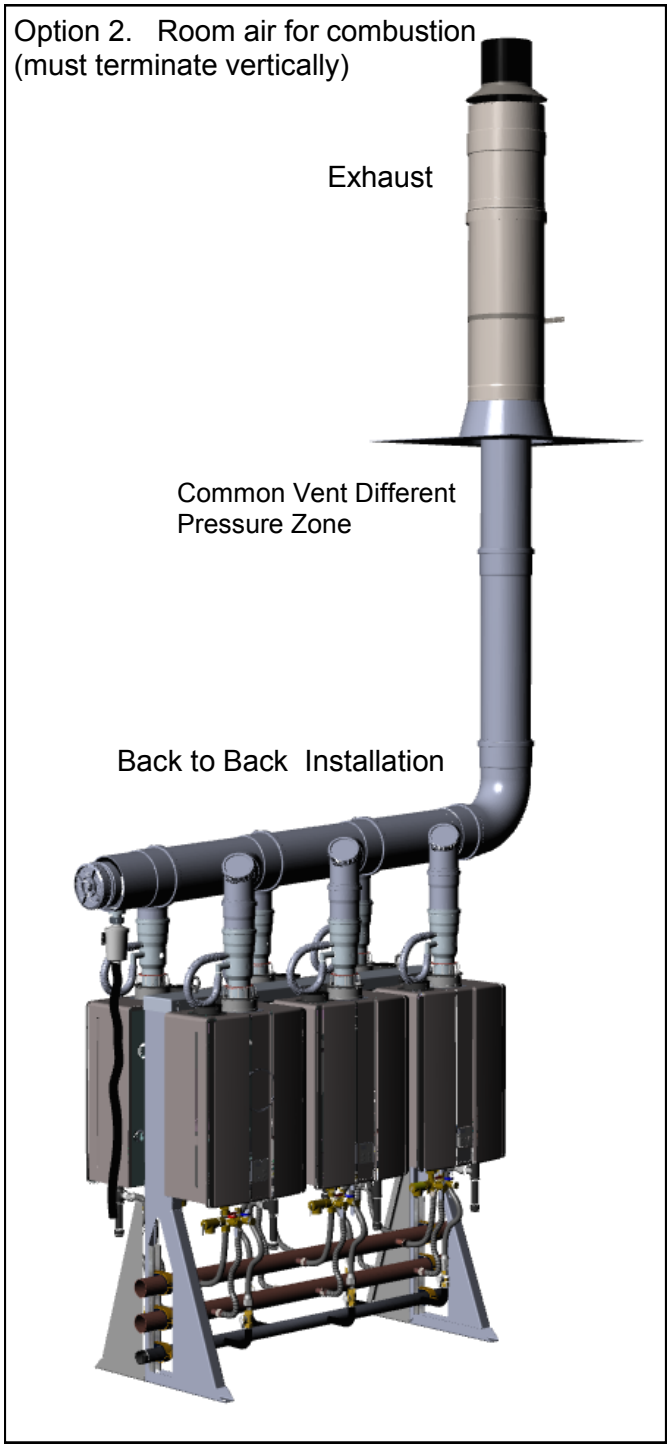
Option 1.
Parallel Termination



Option 1.
Vertical Vent and
Horizontal Air Intake



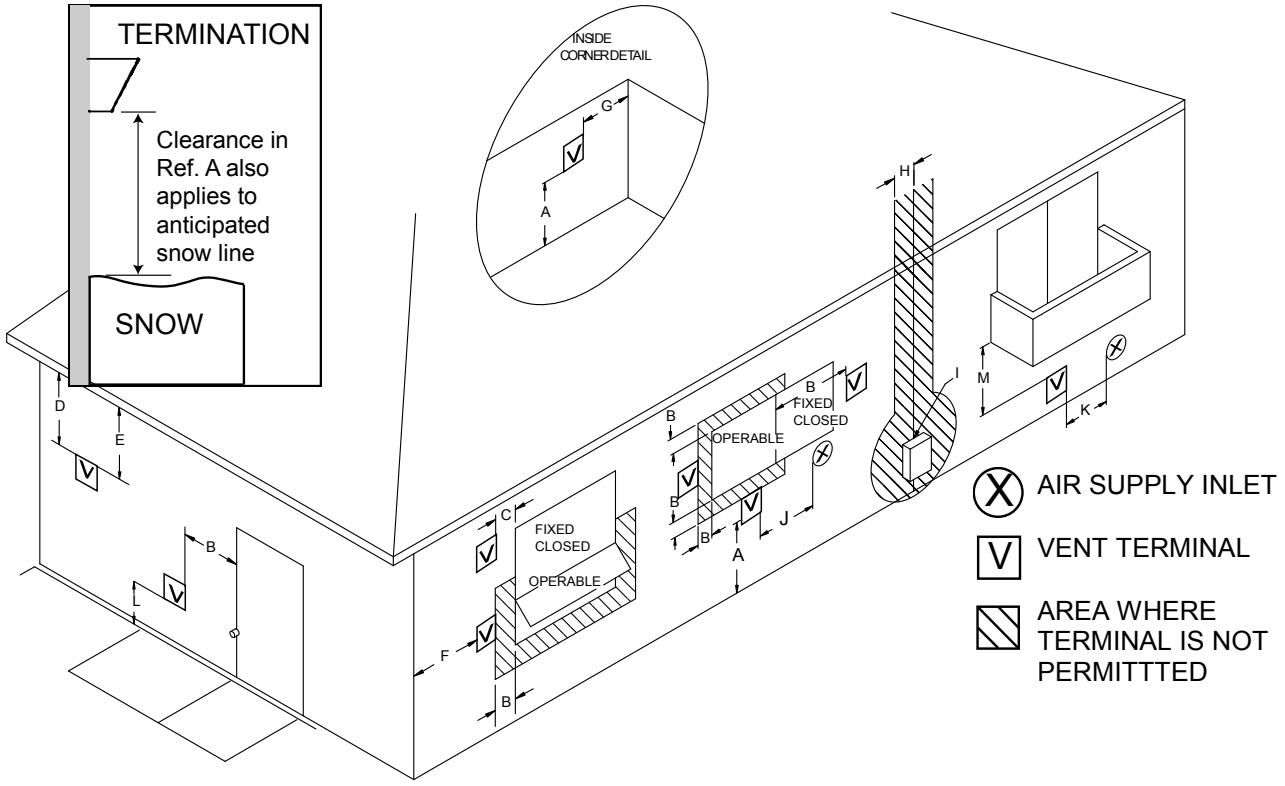
Option 2. Room air for combustion
(must terminate vertically)



ATTENTION In common vent configurations utilizing different pressure zones, (roof-exhaust with sidewall-inlet or room air) exhaust MUST terminate vertically.

Exhaust Vent Termination Clearances

Direct Vent for indoor models, you must install terminations to bring in combustion air and expel exhaust.



Ref	Description	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	36 inches (91 cm)	12 inches (30 cm)
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) within a height 15 feet (4.5 m) above the meter/regulator assembly	*
I	Clearance to service regulator vent outlet	36 inches (91 cm)	*
J	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	36 inches (91 cm)	12 inches (30 cm)
K	Clearance to a mechanical air supply inlet	6 feet (1.83 m)	3 feet (91 cm) above if within 10 feet (3 m) horizontally
L	Clearance above paved sidewalk or paved driveway located on public property	7 feet (2.13 m) ①	*
M	Clearance under veranda, porch, deck, or balcony	12 inches (30 cm) ②	*

[1] A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

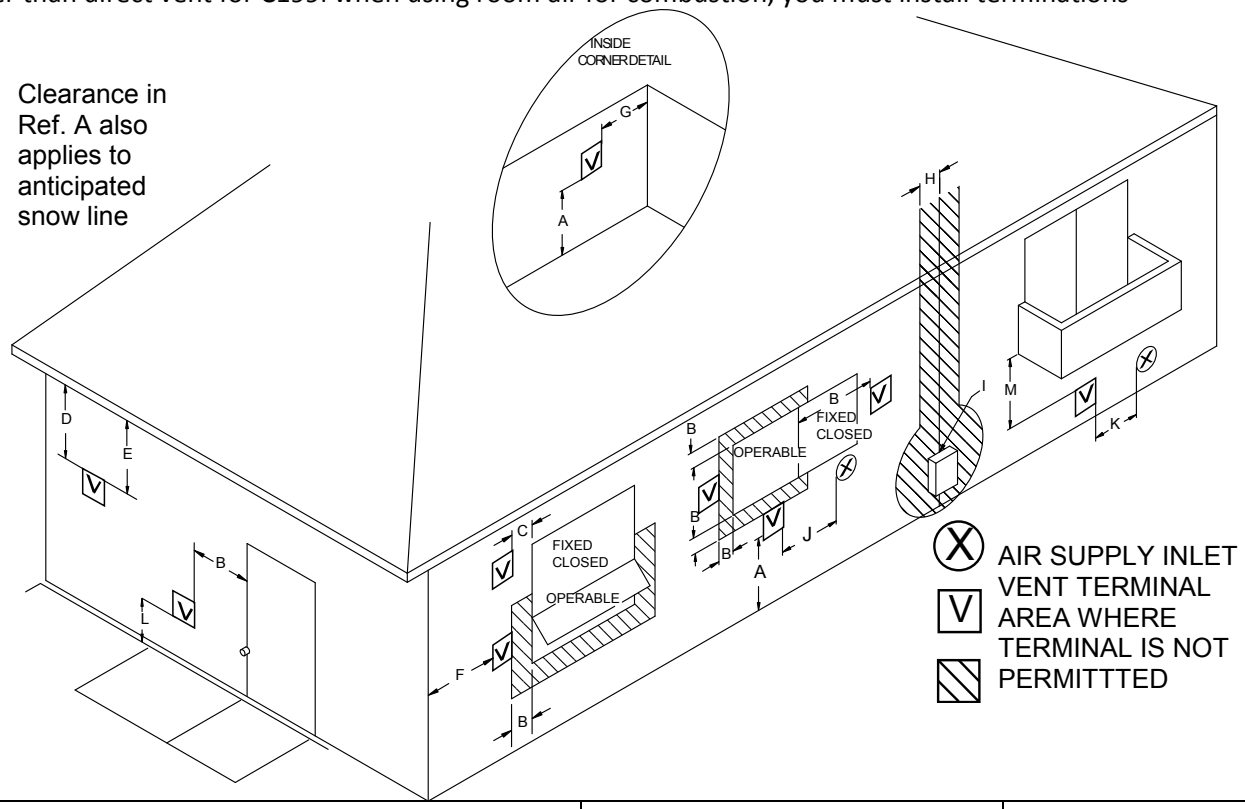
[2] Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

* For clearances not specified in *ANSI Z223.1/NFPA 54*, clearances are in accordance with local installation codes and the requirements of the gas supplier.

Clearance to opposite wall is 24 inches (60 cm).

Exhaust Vent Termination Clearances

Other than direct vent for C199i when using room air for combustion, you must install terminations



Ref	Description	Canadian Installations (CSA B149.1)	US Installations (ANSI Z223.1 / NFPA 54)
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 in (15 cm) for appliances ≤ 10,000 Btuh (3 kW), 12 in (30 cm) for appliances > 10,000 Btuh (3 kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances >100,000 Btuh (30 kW)	4 ft (1.2 m) below or to side of opening; 1 ft (300 mm) 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) within a height 15 feet (4.5 m) above the meter/regulator assembly	*
I	Clearance to service regulator vent outlet	36 inches (91 cm)	*
J	Clearance to non-mechanical air supply inlet to building or the combustion air inlet to any other appliance	6 in (15 cm) for appliances ≤ 10,000 Btuh (3 kW), 12 in (30 cm) for appliances > 10,000 Btuh (3 kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances >100,000 Btuh (30 kW)	4 ft (1.2 m) below or to side of opening; 1 ft (300 mm) above opening
K	Clearance to a mechanical air supply inlet	6 feet (1.83 m)	3 feet (91 cm) above if within 10 feet (3 m) horizontally
L	Clearance above paved sidewalk or paved driveway located on public property	7 feet (2.13 m) ①	*
M	Clearance under veranda, porch, deck, or balcony	12 inches (30 cm) ②	*

[1] A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

[2] Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

* For clearances not specified in *ANSI Z223.1/NFPA 54*, clearances are in accordance with local installation codes and the requirements of the gas supplier.

Clearance to opposite wall is 24 inches (60 cm).

Additional clearances

Check on whether local codes supersede these clearances.

- Avoid termination locations near a dryer vent.
- Avoid termination locations near commercial cooking exhaust.
- You must install a vent termination at least 12” above grade or snow line.

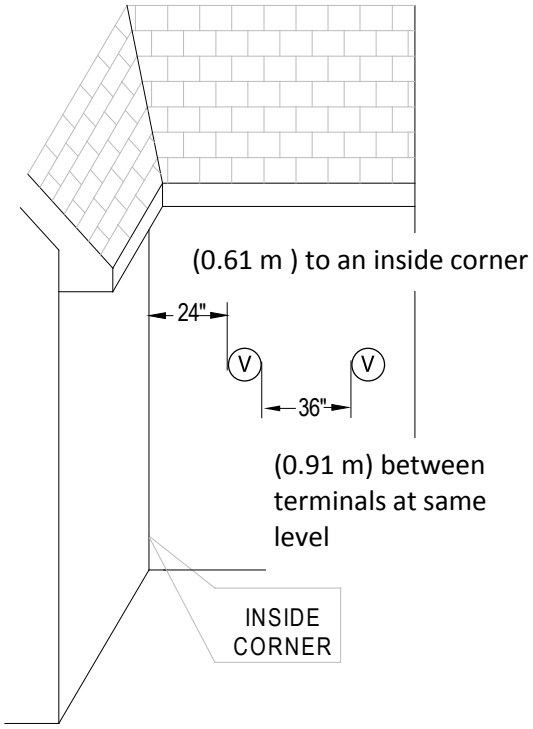
The vent for this appliance shall not terminate

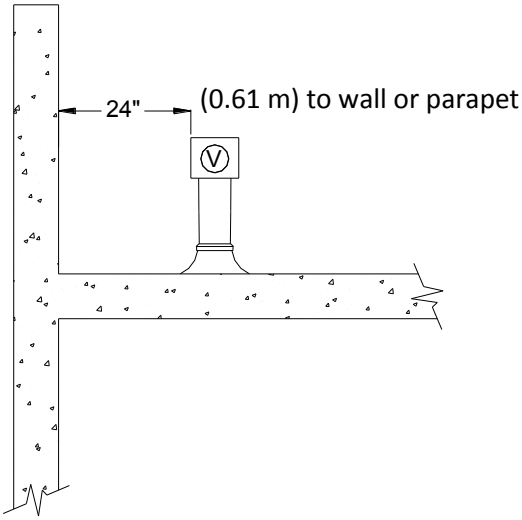
- Over public walkways; or
- Near soffit vents or crawl space vents or other area where condensate or vapor could create a nuisance or hazard or cause property damage; or
- Where condensate or vapor could cause damage or could be detrimental to the operation of regulators, relief valves, or other equipment.

Important considerations for locating vent termination under a soffit (ventilated or unventilated or eave vent; or to a deck or porch)

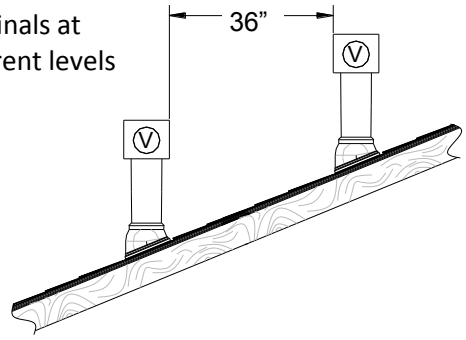
- Do not install vent termination under a soffit vent such that exhaust can enter the soffit vent
- Install vent termination such that exhaust and rising moisture will not collect under eaves. Discoloration to the exterior of the building could occur if installed too close.
- Do not install the vent termination too close under the soffit where it could present recirculation of exhaust gases back into the combustion air intake part of the termination.

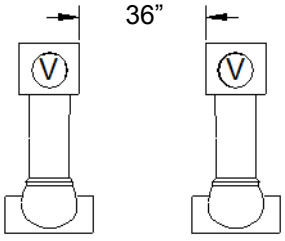
Ⓥ Represents the exhaust vent of CVent common venting.





(0.91 m) between terminals at different levels





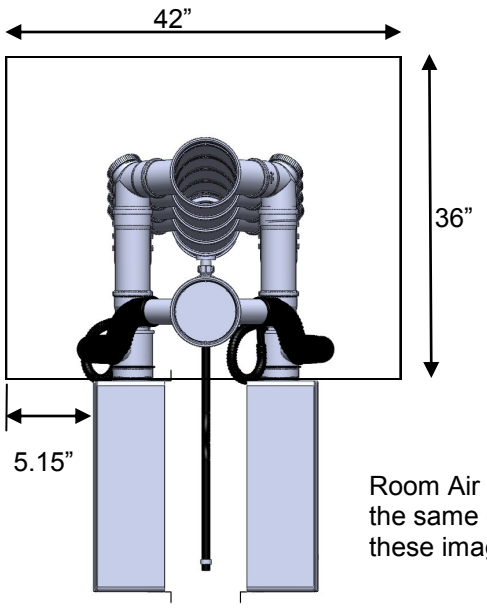
(0.91 m) between terminals at same level

Maintenance Clearances

Follow the recommended minimum service clearances below for maintenance access to the header above the water heater.

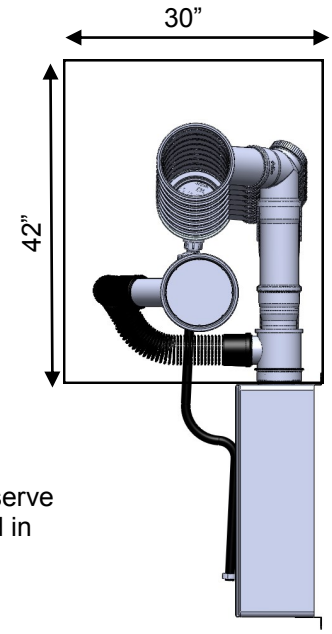
If the vent system is to be enclosed, it is suggested that the design of the enclosure shall permit inspection of the vent system. The design of such enclosure shall be deemed acceptable by the installer or the local inspector.

Back to Back Configuration



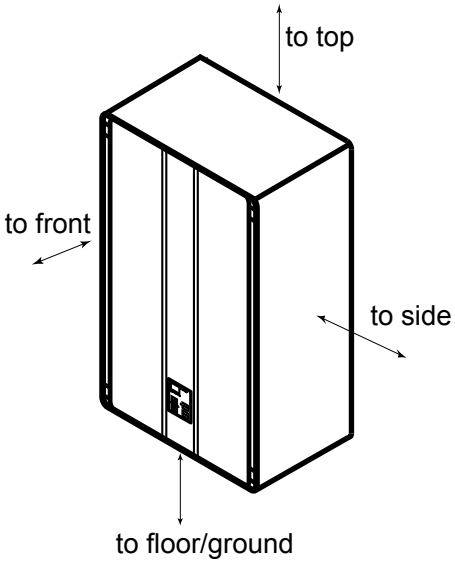
Room Air configurations will observe the same clearances referenced in these images

In Line Configuration



Water Heater Clearances

Follow the minimum clearances from the water heater.



Indoor model RU98i, RUC98i, C199i	to Combustibles inches (mm)	to Non-Combustibles inches (mm)
Top of Heater	6 * (152)	2 *(51)
Back of Heater	0 (zero)	0 (zero)
Front of Heater	6 (152)	6 (152)
Sides of Heater	2 (51)	1/2 (13)
Ground/Bottom	12 (305)	12 (305)
Vent	0 (zero)	0 (zero)

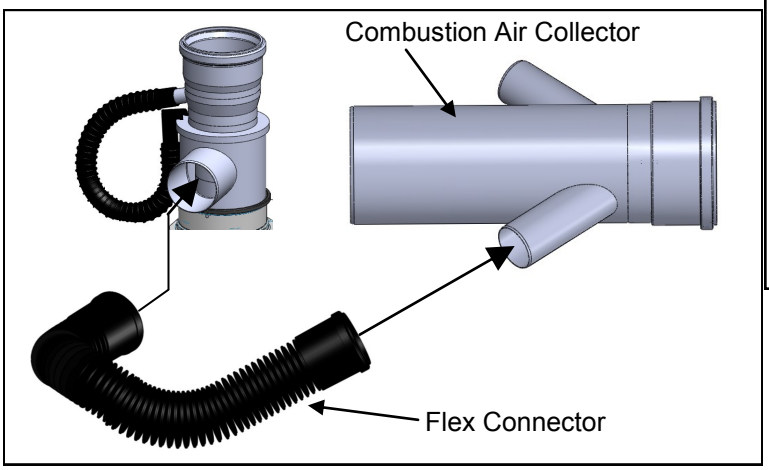
* 0” from vent components and condensate drain line.

The clearance for servicing is 24” in front of the water heater.

Installation Instructions

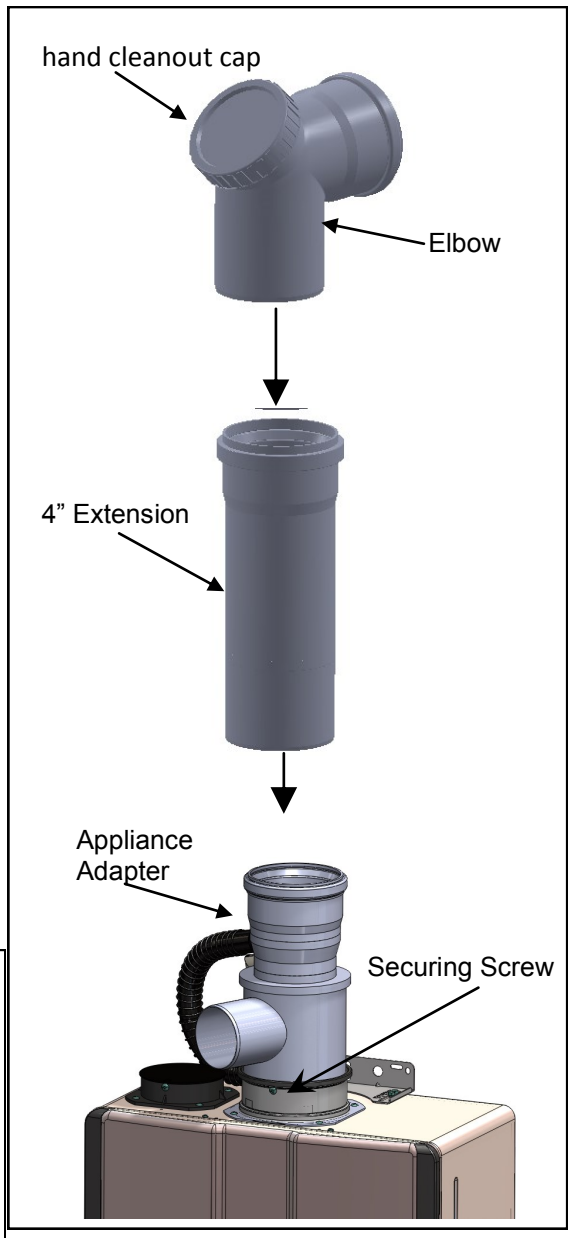
Exhaust Vent Installation Procedures:

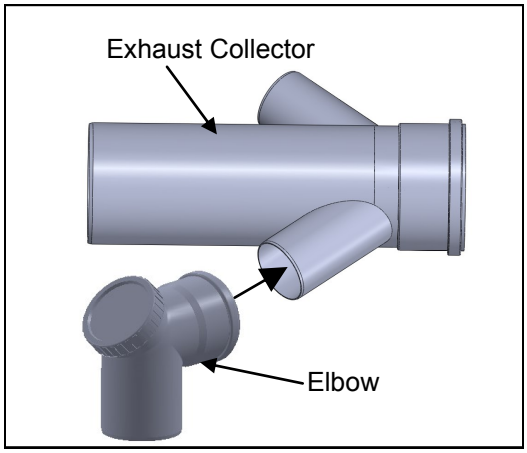
- After ensuring the water heaters are mounted securely and spaced 20.5” apart, install the appliance adapter on top of the water heaters.
- Exhaust Venting is designed for a 3° rise. When the water heaters are mounted at 20.5” spacing, the height increase is 1” per water heater. A 4” diameter extension pipe is included with the kit that must be cut to length to account for the rise from unit to unit. After cutting, always deburr and bevel the end of the vent piece so the sealing gaskets are not damaged and operation of the vent system is not compromised.
- Install the elbows with hand cleanout cap to the 4” diameter extension pipe. Do not cut or modify the elbow. Cleanout cap should remain accessible for periodic inspection and access for service when needed.
- After combustion air and exhaust vent components are appropriately positioned, securely fasten the “CVent Appliance Adapter with Check Valve and Trap” to the top of the water heater with a self tapping screw.
- Connect the combustion air opening of the appliance adapter to one end of the flex connector and the other end of the flex connector to the Combustion Air Collector.



- Connect the open end of the elbow to the exhaust header.

The same procedure may be used when substituting the room air adapter with the only exception being no flex connector or combustion air collector to connect when installing a C199I in a commercial common vent applications.





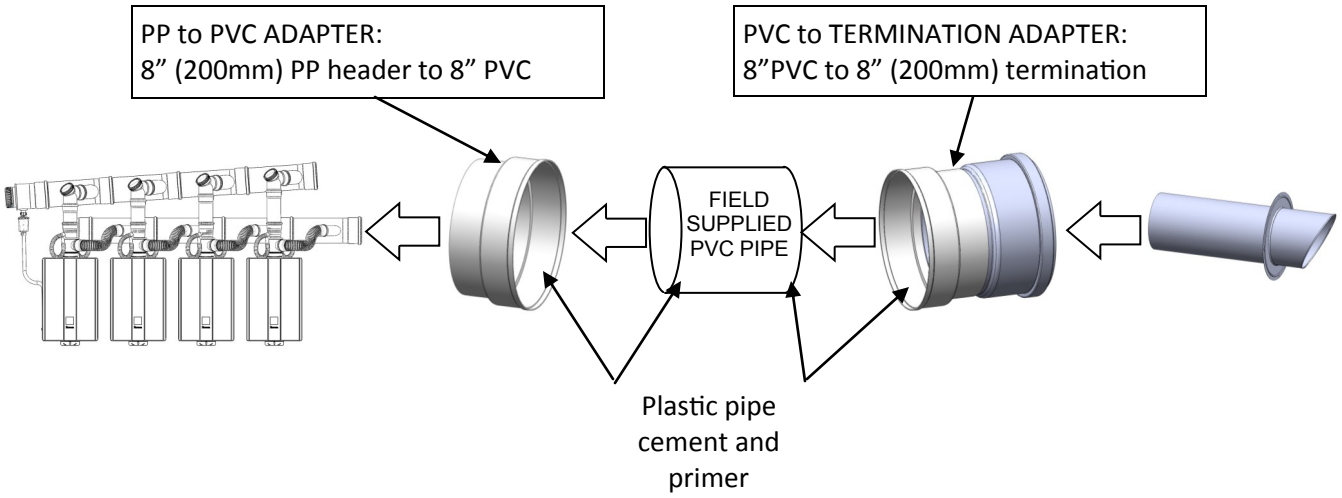
Options for Combustion Air Vent:

- For extended Intake pipe runs, PVC can be used between the Intake Header and Termination.
- Use the PVC adapter (described below) when transitioning from the PPTL/PPS intake header to the stainless steel Combustion Air Termination.

WARNING The materials described below can only be used on the combustion air vent. The Ubbink Polypropylene CVent can be used on both the combustion air and exhaust. Field supplied PVC material can only be used on the combustion air side and **MUST NOT** be used for the exhaust.

		Approval Codes for In-stallation
Item Description	Flue Material	United States
Plastic Vent and/or combustion air components	PVC Schedule 40	ANSI/ASTM D1785
	PVC - DWV	ANSI/ASTM D2665
	CPVC Schedule 40	ANSI/ASTM F441
Plastic pipe cement and primer	PVC	ANSI/ASTM D2564
	CPVC	ANSI/ASTM F493

- Combustion Air PVC Adapter Kit (Part #: 790037) includes both a transition from the 8" (200mm) PP header to 8" PVC and an 8"PVC to 8" (200mm) termination



- Fasten, secure, and support all vent materials using manufacturer and industry standards to avoid potential intake air leaks or blockage. Support horizontal vent runs a minimum of every 4 feet and all vertical vent runs a minimum of every 6 feet.

Installation Instructions

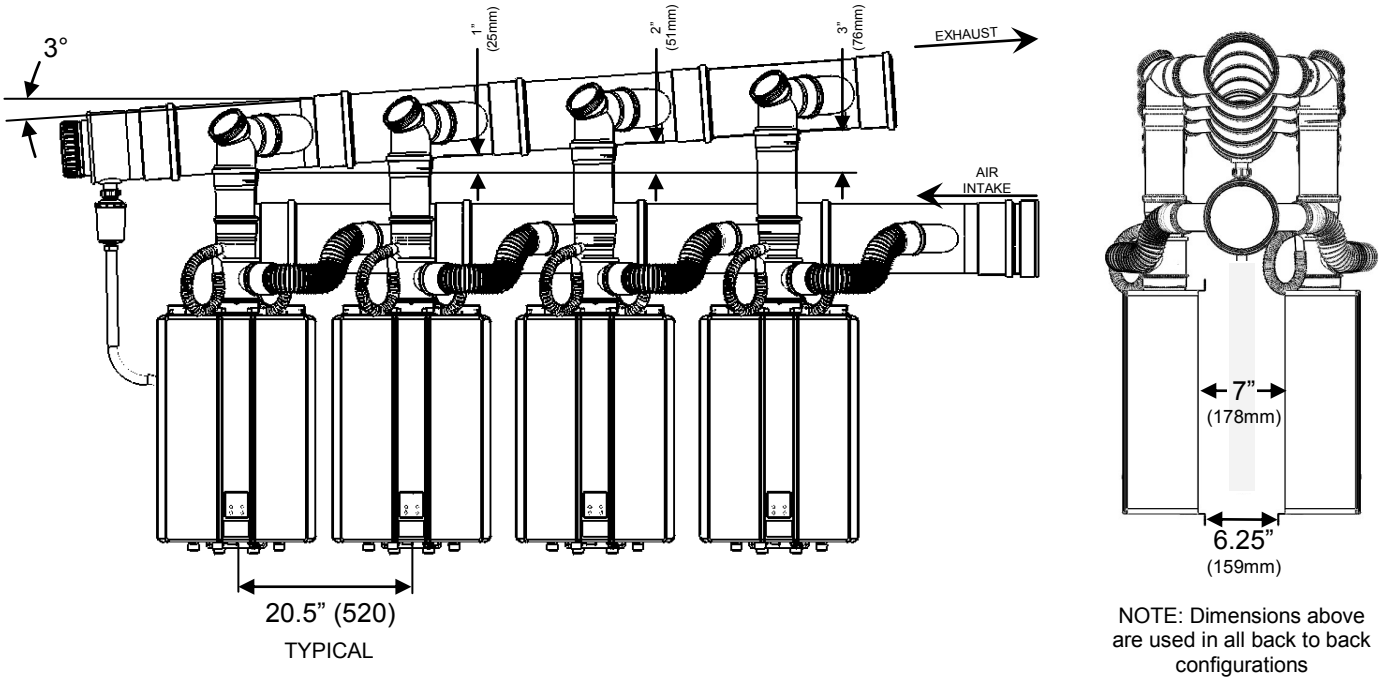
Refer to the Ubbink appendix of this manual for the vent system assembly instructions.

Follow these Rinnai installation instructions in this manual in addition to the Ubbink vent system assembly instructions.

Install the venting according to one of the 2 configurations below. Do not locate the common vent remotely from the water heaters. (Room air configurations follow the same instructions excluding information regarding air intake.)

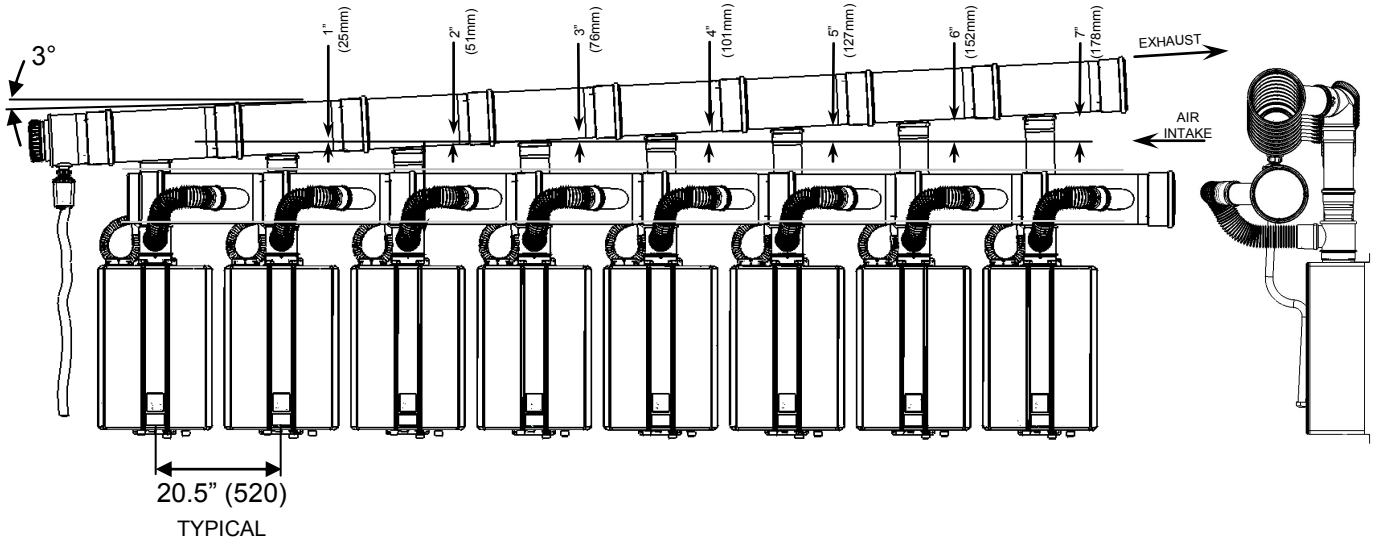
The installation area should be measured to make sure that adequate space is available to install the water heaters and venting system.

Back to back Configuration (2 to 8 water heaters)



NOTE: Dimensions above are used in all back to back configurations

In Line Configuration (2 to 8 water heaters)

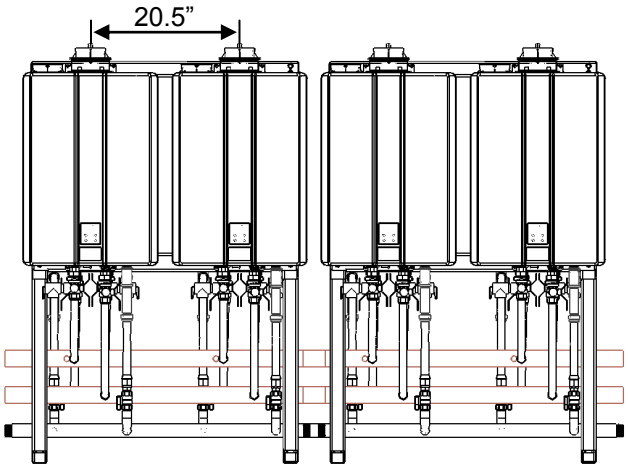


Note: If water heaters are mounted directly on a wall, air intake piping will need to be in front of the appliance adapters. The intake header in the drawing above has been removed for illustration purposes.

Installation Instructions

Recommended Spacing of Water Heaters

Spacing of the water heaters is critical for the common vent system to mounting easily and securely. The collectors are made for 20.5” spacing (center line to center line) between water heaters. If a different spacing is needed, please contact Rinnai concerning your application. Rinnai recommends using our Tankless Rack System (TRS) which is designed for 20.5” spacing. Our engineered system is designed to make installation simple which greatly reduces labor time and the chance of miscalculations.



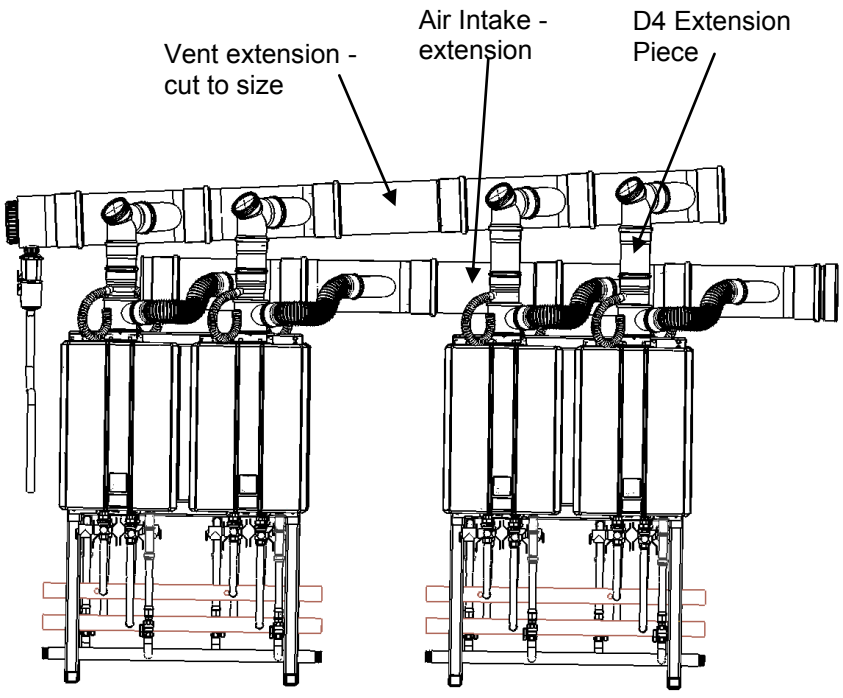
Custom Water Heater Spacing

<u>If common venting with **LESS** than 20.5” between water heaters:</u>

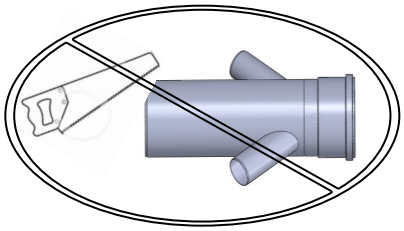
- The installer assumes all responsibility of following local codes. Inspectors can reject the installation if the rating plate cannot be seen for all water heaters.
- D4 Extension Pieces must be cut appropriately to maintain the required 3° slope.

<u>If common venting with **GREATER** than 20.5” between water heaters:</u>

- The installer must purchase a vent extension cut to the appropriate length between the collectors.
- The length of each additional vent extension must be considered in the maximum allowable vent length.
- D4 Extension Pieces must be cut appropriately to maintain the required 3° slope.



NOTE: Never attempt to cut or modify the collectors.



To maintain a 3° slope, use the following formula to calculate D4 Extension Piece length (L):

(L) = (water heater spacing) X 0.05

Example: if the adjacent water heater is 20.5” away

Length (L) = 20.5” x 0.05 = <u>1.02”</u>

Example: if the adjacent water heater is 26” away

Length (L) = 26.0” x 0.05 = <u>1.30”</u>

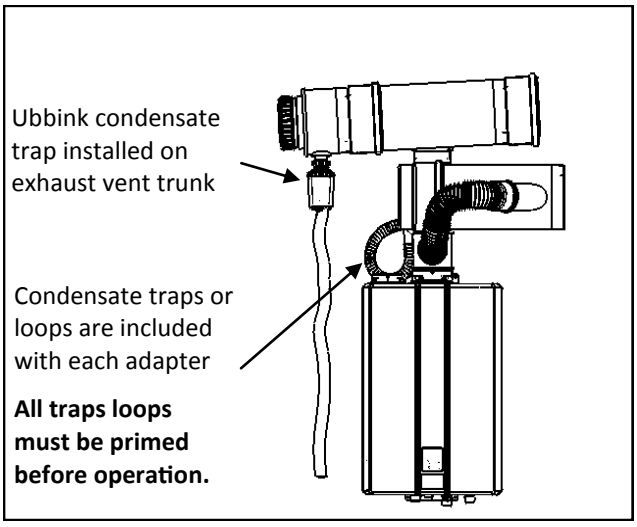
Installation Instructions

Install the Condensate Trap and Drain Pipe

The CVent exhaust header collects condensate. A collector and self-priming trap is included with each starter kit.

Additional condensate trap loop assemblies are provided with each appliance adapter. Condensate loops must be primed before operation per the instructions provided below.

Condensate must be drained to prevent the malfunction, diagnostic code failures, or property damage. Condensate should be disposed according to local codes. Refer to the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1* condensate disposal.



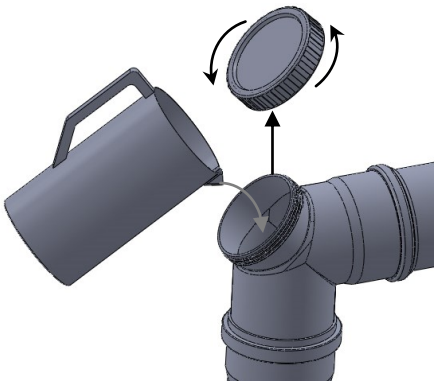
A condensate pump must be used if the condensate outlet is lower than the public sewage system.

Rinnai recommends installing a condensate neutralizer which allows condensate to flow through neutralizing media to raise the pH of the condensate to a level that will help prevent corrosion of the drain and public sewer system.

Ensure that the condensate drain does not freeze.

Priming Trap Loops

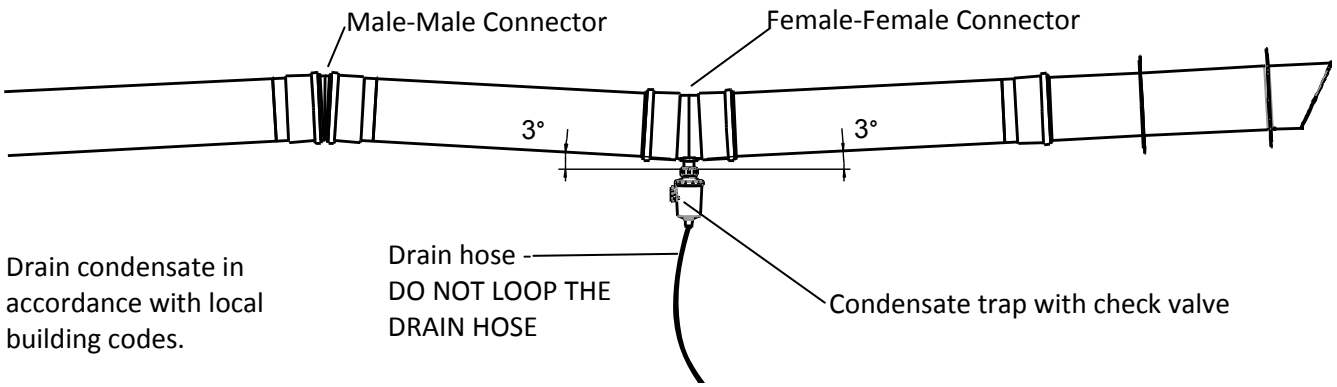
- Unthread and remove the cap located at the top of each Inspection Elbow.
- Pour clean water into the inspection elbow until fluid is visible in the drain tube of the adapter or until fluid exits the condensate outlet on the bottom of the tankless water heater.
- Thread the cap back onto the inspection elbow.



Long Vent Run or Restricted Rise (Applicable where allowed by code)

An inverter coupling kit with a condensate trap is available to reduce the rise of the exhaust vent. A diagram of its installation is shown below.

The male-male and female-female connectors must be used so that the venting is oriented correctly (condensate runs down vent in the correct direction).

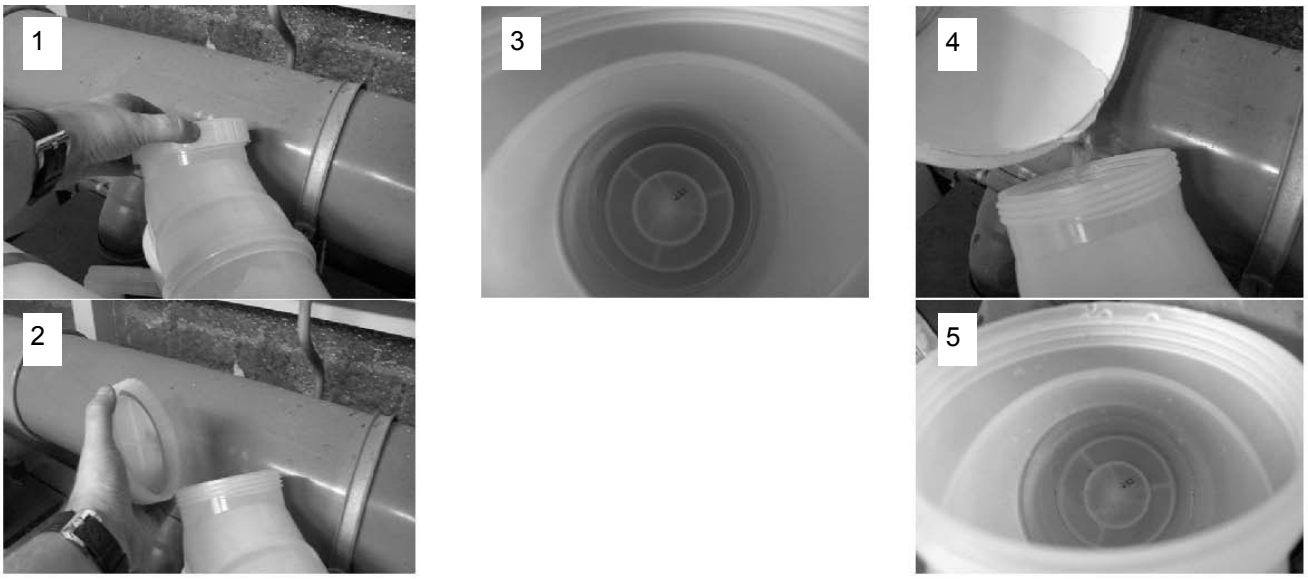


Common Header Check Valve Maintenance

Visually inspect the check valve annually (or after 4000 operation hours) for obstructions, proper operation , large and small particles of debris, according to the instructions below. Operation hours can be obtained on the controller by pressing and holding the down button for 2 seconds and without releasing the down button, press the ON/OFF button. The third number to cycle through will be the operating hours in units of a hundred hours. For example, “40” means 4000 hours.

1. Shut the electrical power off, for the appliances before inspecting the common header, otherwise flue gasses can emerge uncontrolled into the appliance room.
2. Over the check valves an elbow is installed with an inspection lid, the lid must be twisted off for inspection and maintenance of the check valve.
3. Restore the electric power for the inspected appliance and manually fire the appliance and check if the check valve opens fully and is free of obstructions.
4. In case debris is noticed , for the cleaning of the check valve of large particles (over 1 mm) we advise to use a vacuum cleaner for removal of the large particles. The vacuum cleaner should be used at either low power, and/or with an adapter small enough to clean the check valve out. For smaller particles (under 1mm) we advise to use a sufficient amount of luke-warm water to flush the adapter. **Do not use detergents or solvents for cleaning the check valve!!** When applicable the small check valve can be removed and re-installed for inspection by pulling it out of position. We do not advise to do this frequently. When re-installed, the check valve must be inspected again for proper operation by operating the appliance.

   Note: When an in-line condensate trap is installed (optional component) this must be removed and a hose should be connected for the correct disposal of the flushing water. Protect the building structure for the water emerging from this hose and dispose the water with debris in a way acceptable to the local codes. Be aware that condensate is a corrosive substance that could affect metals, brick etc.
5. Re-assemble the components after the cleaning procedure in reverse order. Check the correct installation of the rubber seals. Power the appliances again and let them run for 30 minutes minimum. While running, check the common header system visually for condensate leaks caused by the inspection. In case leaks are sighted these must be solved before the installation is released. When seal rings are damaged by the inspection these must be replaced, they cannot be repaired by using a silicon sealant or other.

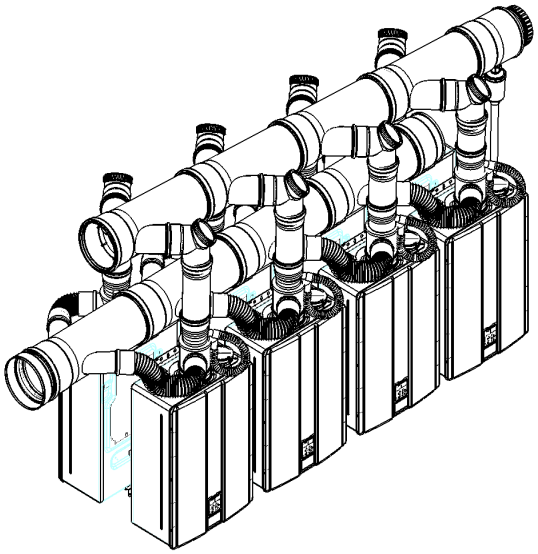


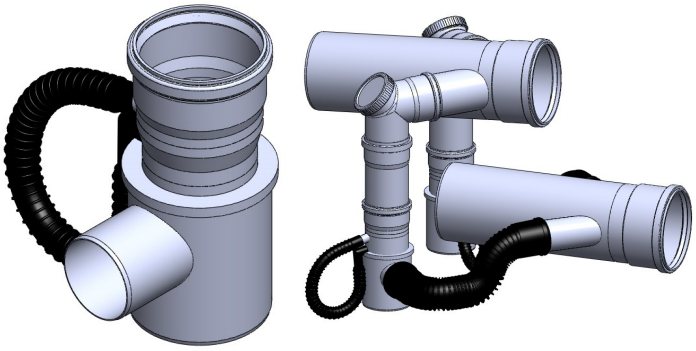
Note: Rinnai recommends replacing the check valve when replacing the water heater.

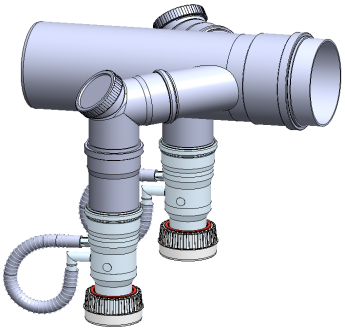
Final Checklist

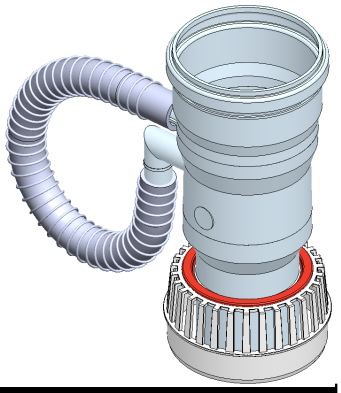
- ☐ Reference the Rinnai Water Heater Installation and Operation Manual for proper installation of the Rinnai water heaters.
- ☐ Clearances from the water heater unit are met.
- ☐ Clearances from the exhaust termination(s) and the combustion air termination(s) are met.
- ☐ Ensure you have used the correct venting products and that you have completely followed the venting manufacturer's installation instructions and these installation instructions.
- ☐ Verify that the vent system does not exceed the maximum equivalent length allowed.
- ☐ Verify that dip switch SW1 in DIPSW1 (tan switches) has been adjusted to OFF position in each water heater.
- ☐ Explain to the customer the importance of not blocking the vent termination or air intake.
- ☐ Explain to the customer the operation of the water heater, safety guidelines, maintenance, and warranty.
- ☐ The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1*.
- ☐ Inform the consumer if the isolation valves are not installed or if a water softening system is not installed.
- ☐ Verify that only models RU98i (REU-KB3237FFUD-US), RUC98i (REU-KBD3237FFUD-US), or C199i (REU-KBD3237FFUDC-US) are using the common vent system.
- ☐ If an MSB system is present verify that it is properly installed per the Rinnai installations and that all cables are connected and dip switches are appropriately set.
- ☐ Verify that the appropriate amount of combustion air has been provided.
- ☐ Verify the appropriate dip switch settings are selected for the altitude/elevation of the installation location.
- ☐ Verify that in room air applications that exhaust is terminating vertically
- ☐ **Room air is only for C199i in Commercial Common Vent Applications**
- ☐ **Leave this manual taped to one of the water heaters or give the entire manual directly to the consumer.**

Appendix A
Ubbink CVent Condensing Common Vent System
Installation and Assembly Instructions









Warranty and Liability

Claims for personal and material damages are excluded, if they are due to any or several of the following reasons:
- Use of the CVent system not in accordance with the regulations.
- Improper assembly and incorrect operation.
- Faulty maintenance.
- Non-compliance with the assembly and operating instructions.
- Non-approved structural changes to the unit or to the individual components.
- Installation of components which are not part of the CVent system.
- Subsequent damage, which occurred through further use of the CVent system despite known defects.
- Intentional damage.

These installation instructions should be kept with the appliances for maintenance

List of Contents

WARNING

Improper installation of vent system and components, or failure to follow all installation instructions, can result in property damage or serious injury.

A1 Preface

These installation instructions were compiled in accordance with the current state of technology and with the greatest care. They serve as a general guideline for the construction and operation of the CVent Common Vent System as supplied by Rinnai US, manufactured by Ubbink.

If you have any further questions please contact our experts .

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A2 General and Local standards information

When installing and operating the CVent Common Vent System, the following valid standards and regulations must be complied with and adhered to:

- Local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1*.
- Appliance Manufacturers Installation Instructions
- Regulations on supervision of construction
- Statutory provisions
- Work must only be carried out by a licensed professional.

Fill out spec table at the back of this manual and keep this manual with the system after completion of the installation.

A3 Risk guidelines

- All components of the CVent Common Vent System are produced and built in accordance with valid standards, regulations and safety engineering rules.
- Risks to life and limb of the user or of the third party or impairments or damages to property can arise in the case of improper assembly or handling.
- To avoid such risks, the CVent Common Vent System must be installed and used only for the designated intent as described in this manual.
- Deficiencies or damage of the CVent Common Vent System must be addressed and repaired immediately.
- For roof or chimneys modifications, we refer you to the valid industrial safety regulations.
- These must especially be complied with, unconditionally and at any time, when working on roofs and façades.

A4 Transport and storage

When transporting CVent Common Vent System components the following points must be complied with:

- Transport CVent Common Vent System components in a clean dry environment and only in its original packaging.
- If stored or transported at temperatures below 32 F (0°C), the CVent Common Vent System components must be warmed up to 60F (15°C), before the start of assembly.
- Components must be protected from solar emission. The CVent Common Vent System components must be stored in a non UV-charged environment.(i.e. do not store outdoors!)
- The CVent Common Vent System components must be stored in original packaging.

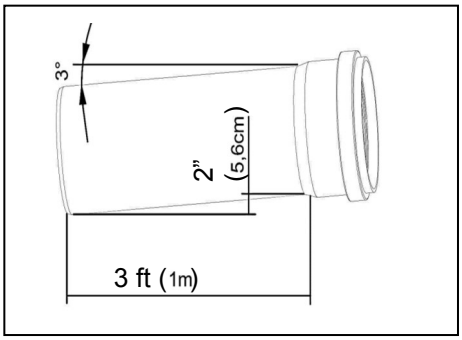
A5 Tools and workmanship

Standard trade tools are sufficient for cutting and assembly of the CVent Common Vent System components.
Following is a list of tools or equipment that may be necessary:

- Safety Glasses
- Screw Driver
- File or Sandpaper
- Gloves
- Fine Tooth Saw
- Weather Proof Sealant

Workmanship shall include the following:

- When cutting vent components, the cut must be straight. Cut edge shall be chamfered and all burrs removed before installation.
- All vent joints shall fully engage the male / female socket assembly
- Installed vent system shall be clean and free of any foreign debris before operation.
- Vent system shall be rigidly supported as instructed in this manual and include the appropriate 3° slope.

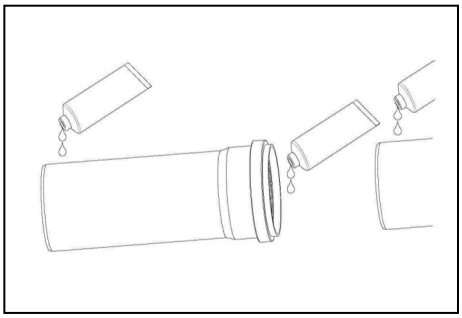


A6 General Assembly Instructions

Correct Pitch

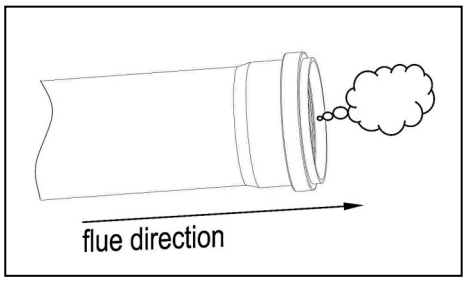
The pipes and formed parts must be installed at an angle of 3° incline towards the heating appliance, to allow the condensate to dispose in accordance with regulations.

Note: 3° Pitch equals a height difference of 2" per 3 ft (5.6 cm/meter)



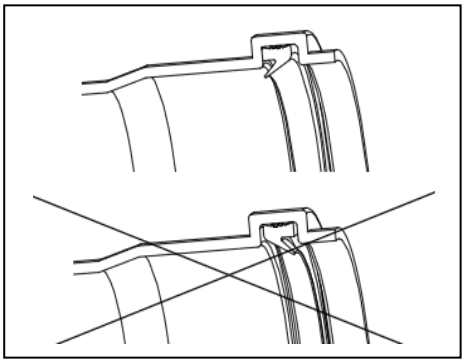
Lubricant

- The seals and male ends of all CVent common vent components must be lubricated before assembly. Use **ONLY** CENTROCERIN© lubricant or water to aid in the assembly of these vent components.
- Apply a thin layer of CENTROCERIN© lubricant to each seal before assembly.
- A tube CENTROCERIN© lubricant is packed with every kit assembly and available for separate purchase.
- 1 tube of CENTROCERIN© lubricant is sufficient for a 100ft common header installation



Flow Direction

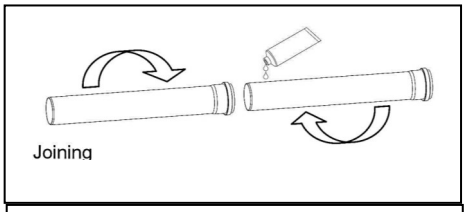
- The female end of the components in contact with the flue gasses must always point in the direction of the termination.
- It is imperative to maintain this flow direction for proper condensate flow and integrity of the seal/gasket.



Seal Direction and Assembly of Seals

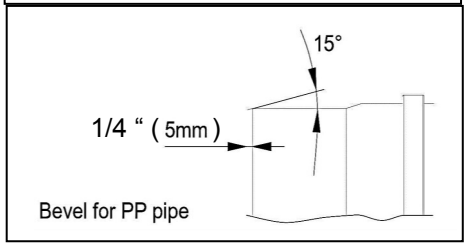
Seals are pre-assembled in the vent components. If a seal is missing or damaged, this component should not be used or an appropriate seal must be installed.

- Use ONLY CVent original seals. NEVER use fabricated or non CVent seals.
- Use only the appropriate nominal width and diameter seals.
- Confirm seal is installed in the appropriate direct (see figure)
- Seal and Seal Chamfer must remain clean and free of foreign debris before assembly.



Joining, Disconnecting, Shortening and Chamfering

For measuring purposes the seals can be removed from their chamber.
Note: always reassemble the seals in the right direction, as indicated in the illustration.

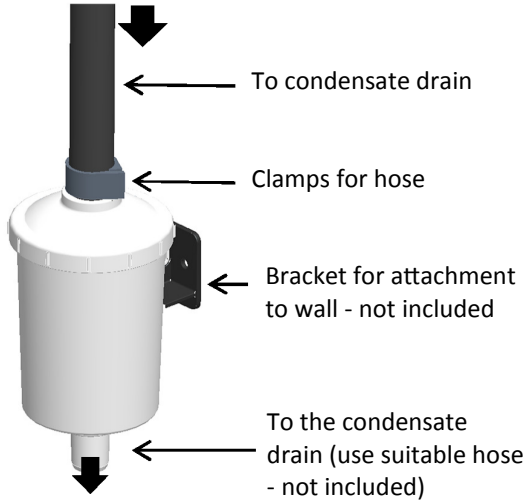


- Lubricate the seals and/or male ends of the components with CENTROCERIN© lubricant or water and assemble the components using light rotational movements. Entirely insert the male end into the female end.
- Inspect immediately the correct position of the seal as the system is produced out of translucent material
- Pipes are always shortened on the male end. Never cut or modify formed vent components such as elbows or collectors.
- Cut straight ,perpendicular to the tube and chamfer the edges approximately 15° at 1/4".

A7 Condensate and condensate drain

- Condensate is produced in the CVent Common Vent System when appliances are operating.
- Condensate must be drained to prevent the malfunction, equipment failure, or property damage. Condensate should be disposed according to local codes. Refer to the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1* condensate disposal.
- The disposal for the condensate can be accommodated via the appliances and / or separate condensate outlets in the CVent Common Vent System.
- A condensate trap must be installed at any drain point to prevent flue gasses from exiting.
- The condensate trap provided with the header (illustrated below) has an integrated valve that temporarily blocks condensate flow if high (wind) pressures cause a pressure rise in the vent system.
- The condensate trap integrated valve will also prevent trap from drying out if the system is off for a long period of time.
- The Ubbink condensate trap illustrated below does NOT require priming.
- 3rd party condensate valves (or a hose loop) DO need priming to be effective. Do not fire the appliances before the condensate traps are inspected and/or primed, otherwise flue gasses can escape form the common vent system.
- All subsequent drains must have a minimum diameter of 1/2" (12mm) and must be protected (if applicable) from freezing.

A8 Instructions to be complied with



Annual inspection and cleaning

1- Remove top cap (twist left)
2- Remove debris container from top cap (gently twist and pull) Carefully take out the valve (ball) **Note: If any component is damaged the entire trap has to be replaced!**
3-Remove debris and clean components with water **only** do **not** use detergents or solvents.
4- Re-assemble components in reverse order. Assure that the valve (ball) is placed in position

When assembling the CVent Common Vent System, the following points must be complied with:

- Correct fit of the seals
- Complete use of the insertion depth of the pipes and formed parts
- Assembly must be carried out with an incline of at least 3° (3/4inch per foot or 5.6 cm/m), so that the condensate produced can flow away from the appliances in accordance with the regulations.
- Conversions or change to the system components are not permissible without approval by Rinnai.
- After assembly of the CVent Common Vent System a visual inspection of all seals must be completed.
- Fill in the last page of this manual with the required data, and leave this manual for review with the end user and store it with the common header installation.

WARNING

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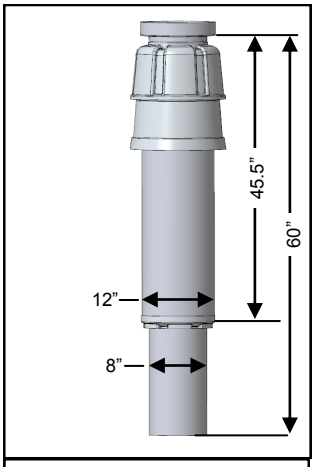
A9 Vertical Termination Assembly

⚠ WARNING

Improper installation of vent system and components, or failure to follow all installation instructions, can result in property damage or serious injury.

Item	Description	Material	Qty.
1	Storm Collar (8in)	Stainless	1
2	Terminal Cap	Stainless	1
3	8” Exhaust Extension (Black)	Plastic	1
4	8” Inner Exhaust Assembly (With (2) 8” CVent Distancers)	Plastic	1
5	Terminal Clamp Ring	Stainless	1
6	Terminal Outer Shell	Stainless	1
7	Terminal Base	Stainless	1
8	Termination Clamp	Galvanized	1

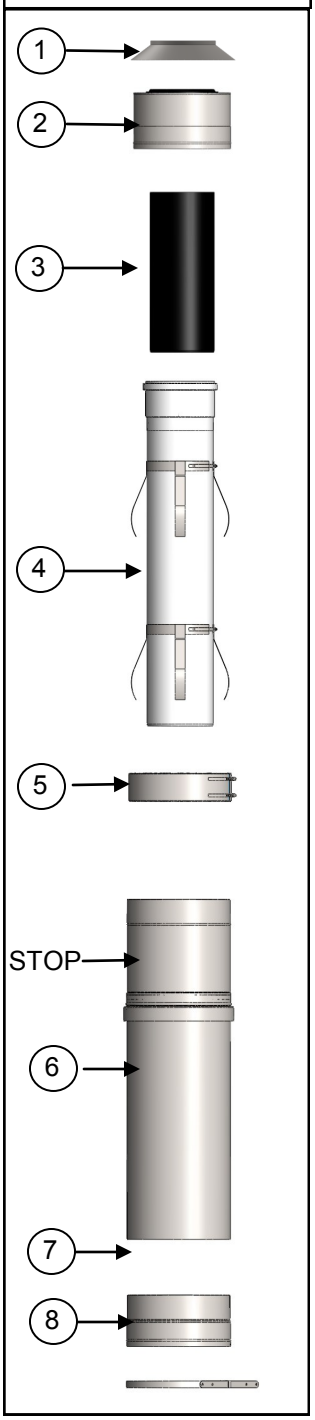


General Requirements ,Remarks and Tools:

- Confirm that the box contents match the above Parts list.
- Use suitable tools, beware components might have sharp edges
- Assure that the roof is suitable to support the load of the terminal, and that the flashing is installed in the roof according to local codes.
- (Flat roof) The flashing is made of galvanized steel and can be fixed to the roof with suitable sealing material, please refer to the installation instructions of the specific roofer material supplier for further instructions.
- (Pitched roof) The moldable flashing can be installed in a 3/12 to 12/12 roof pitch using standard fixing devices, please refer to the installation instructions of the specific roof material supplier for additional info and instructions
- The vertical termination should be last component installed in the CVent common vent system. The remaining components in vent system must be appropriately supported and assembled before installation of the termination
- The termination must be securely fastened/strapped to the building structure with the provided (Termination Clamp) beneath the roof flashing. The roof flashing must be installed per local codes and/or the installation instructions of the roof material manufacturer.
- The termination must be located on the roof per the appliance manufacturers installation instructions and in accordance with local codes.

Assembly of terminal

1. Lubricate seal in item 3 (8” Inner Exhaust Assembly) and slide in item 2 (8” Exhaust Extension (Black)) . Confirm full engagement before proceeding.
2. Assemble item 1 (Terminal Cap) to item 5 (Terminal Outer Shell). Confirm full engagement before proceeding.
3. Position item 4 (Terminal Clamp Ring) over the joint between items 1 &5. With the terminal clamp ring in place tighten the clamps with a flathead screwdriver. Do not over-tighten the clamps as this could cause damage of the termination components.
4. Insert the items 2&3 assembled in step 1 into the outer shell assembly (items 1,4 & 5). Widen the stainless steel spacers as needed, to ensure the centering of the vent pipe. The black portion must protrude minimum 4 inch over the Terminal Cap.
5. Assemble the Storm Collar above the Terminal Cap and below the exhaust outlet. Use weather proof sealant between the storm collar and black vent extension.
6. (Pitched Roof Installation) slide storm collar [provided with roof flashing] over the terminal to the stop. With a flathead screwdriver, firmly secure the storm collar to the termination shell. Use of weather proof sealant may be applied at this position.
7. Lubricate the mating seal below the roof. Insert the termination into the roof flashing opening and assemble the termination assembly into the socket end of the vent system below the roof. If needed, the 8”transparent vent pipe can be shortened using a fine tooth saw. Always deburr the edges.
8. Confirm the termination is in the vertical position then install item 7 (Termination Clamp) to the structure beneath the roof flashing.



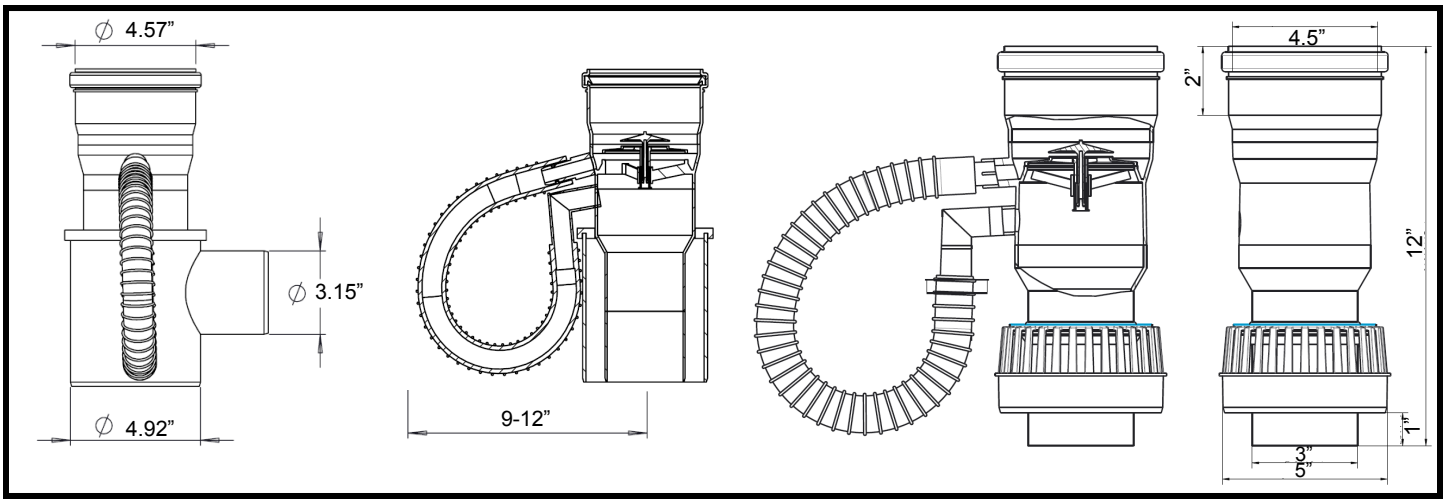
A10 Final Installation Check List

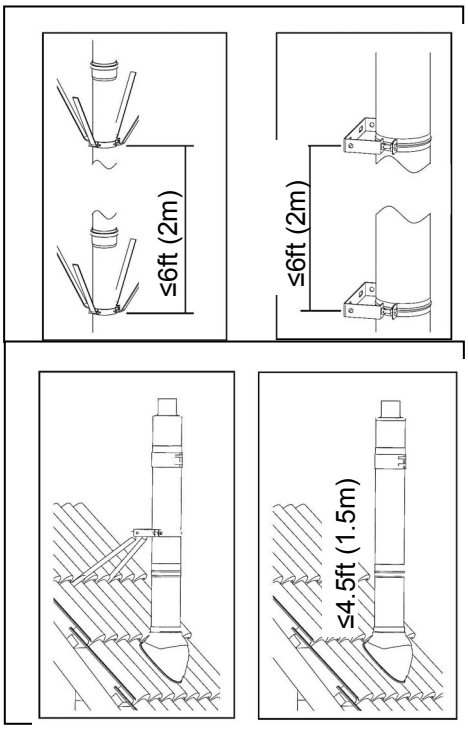
- ☐ All vent components are secure and fully engaged.
- ☐ All seals are correctly positioned and included at every joint.
- ☐ All exhaust vent runs include a minimum of a 3° incline (3/4” per ft or 5.6cm/m)
- ☐ All Condensate drains tubes are connected to a drain and comply with local code.
- ☐ All condensate traps have been primed.
- ☐ There are no obstructions in the combustion air or exhaust vent runs.
- ☐ Both intake and exhaust terminations are appropriately positioned and comply with the manufacturers installation instructions and local codes.
- ☐ The CVent Common Vent System Installation Instructions and the Appliance Installation Instructions have been secured to the system or provided to the end user.

A11 Installation and maintenance of the check valves

- The Check Valves must be Installed vertically as first component over the appliance, and are part of the installation kit.
- For B-type installations (room air dependent) the air intake spigot can be protected for debris with a grid, for C-type appliances (closed system) the air inlet system can be connected to the spigot.
- The valves must be inspected and checked **annually, or after 4000 operation hours**.
- Rinse the valves with lukewarm water, using the condensate outlet to flush.

Do not use aggressive or abrasive cleaning agents, as these can affect the functionality of the valves





A12 Clearances of brackets

All supports such as e.g. wall brackets on the external façade or spacer blocks in a shaft must be assembled in a maximum distance of 6ft (2m). Where there is an bend, additional spacer blocks or wall brackets can be planned before and after the bend, depending on the local situation.

A13 Inspection after assembly

After assembly of a system chimney the following points must be noted inspected

- Carry out a visual seal inspection of the whole flue gas tract.
- The chimney is put into operation together with the heating appliance.
- Regular cleaning and maintenance in accordance with valid country-specific regulations

Note

The check valves must be inspected for debris and checked annually, or after 4000 operation hours.

A14 Application Manufacturer's Information

The manufacturer's identification information as displayed below must be filled out and kept with the system chimney.

The following points must be filled out below by the installer after release of the system:

Installation date of the system chimney:

(YYYY/MM/DD)

Number of entries (appliances)

Nominal diameter of the selected system chimney:

Constructor of the chimney with full name ((Stamp) legible and with signature):

(Name)

(Street address)

(Signature)

OEM Manufacturer identification

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Mail: rolux@ubbink.nl

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