



PSG
250, de Copenhague,
St-Augustin-de-Desmaures (Quebec)
CANADA G3A 2H3

Installation and operating instructions for the **CADDY FURNACE- PF01010**

FURNACE MODELS INCLUDED IN THIS MANUAL:

① WOOD ADD-ON	② WOOD ONLY	③ COMBINATION: WOOD/ÉLECTRIC (15 KW 18 KW 20 KW)	④ COMBINATION WOOD/OIL
-------------------------	-----------------------	---	----------------------------------

**Read these instructions carefully before installing
and operating your furnace.**

Please keep this document!

Verified and tested for Canada
and the United States
by an aredited laboratory.



This manual is available for free download on the manufacturer's web site. It is a copyrighted document. Re-sale is strictly prohibited. The manufacturer may update this manual from time to time and cannot be responsible for problems, injuries, or damages arising out of the use of information contained in any manual obtained from unauthorized sources.

THANK YOU FOR CHOOSING THIS PSG FURNACE

As one of the largest and most respected wood furnace manufacturer in North America, PSG prides itself in the quality and performance of all its products. This manual is intended to help you in getting the most satisfaction out of the use of this product.

In the following pages, you will be introduced to wood burning in general like starting, building and maintaining a fire. You will also find detailed installation instructions and recommendations on how to maintain your heating system in order to get the best performance out of your wood furnace.

Congratulations for the judicious choice you made in buying a quality PSG product.

Take the time to read this manual in its entirety before installing and operating your new furnace. It is important that you follow these installation instructions carefully. Failure to do so could result in a house fire, bodily injuries or even death.

You may have to get a permit from the local authorities before installing this furnace and the chimney it will be connected to. Contact you local building inspector or fire department to know the particular requirements in your area. We also recommend that you contact your household insurance company to verify if the installation will have an incidence on your policy.

REGISTER YOUR WARRANTY ONLINE

To receive full warranty coverage, you will need to show evidence of the date you purchased your furnace. Keep your sales invoice. We also recommend that you register your warranty online at <http://www.psg-distribution.com/warranty-registration.aspx> Registering your warranty online will help us track rapidly the information we need on your furnace.

Table des matières

1.1	INTRODUCTION	7
1.2	CHIMNEY AND DRAFT.....	8
2	PART A - SAFETY RULES	9
2.1	GENERAL REQUIREMENTS.....	9
2.2	ODOUR FROM THE PAINT	9
2.3	ASH DISPOSAL.....	9
2.4	CREOSOTE BUILD-UP AND REMOVAL.....	9
2.5	SMOKE DETECTOR.....	10
2.6	DOOR GLASS	10
2.7	GLASS CHARACTERISTICS.....	11
2.8	ASH DRAWER.....	11
2.9	ASH GRATE.....	11
2.10	FLUE AND BAROMETRIC DRAFT CONTROL CONNECTION	11
2.11	DAMPER.....	12
2.12	FRESH AIR INTAKE.....	13
2.13	FILTERS	14
2.14	SETTING UP THE UNIT.....	14
3	PART B - INSTALLATION.....	15
3.1	CADDY WOOD ADD-ON	17
3.1.1	NECESSARY COMPONENTS FOR CADDY WOOD ADD-ON.....	17
3.1.2	SAFETY PRECAUTION	17
3.1.3	INTRODUCTION.....	17
3.1.4	BLOWER OF THE EXISTING FURNACE	17
3.1.5	APPLIANCE INSTALLATION	18
3.1.5.1	UNIT LOCATION	18
3.1.5.2	MATCHING THE TRANSFER DUCT BETWEEN THE TWO HEAT GENERATORS	19
3.1.5.3	MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS FOR CADDY WOOD ADD-ON	23
3.1.5.4	INSTALLING THE CONNECTING DUCT FROM THE EXISTING FURNACE	25
3.1.5.5	PIPE CONNECTOR AND DAMPER.....	28
3.1.6	ELECTRICAL CONNECTIONS	28
3.1.6.1	INSTALLATION OF THE FAN LIMIT CONTROL AND WIRING WITH AN EXISTING OIL FURNACE	29
3.1.6.2	SERVOMOTOR INSTALLATION	33
3.1.6.3	THERMOSTAT INSTALLATION	33

3.1.6.4	WIRING DIAGRAM FOR CONNECTION OF THE CADDY ADD-ON WITH AN EXISTING OIL FURNACE	34
3.1.6.5	WIRING DIAGRAM FOR CONNECTION OF THE CADDY ADD-ON WITH AN EXISTING GAS OR ELECTRIC FURNACE	36
3.1.7	OPERATING INSTRUCTIONS.....	38
3.1.8	TECHNICAL DATA CADDY ADD-ON	39
3.2	CADDY WOOD ONLY FURNACE	41
3.2.1	NECESSARY COMPONENTS FOR CADDY WOOD ONLY FURNACE 41	
3.2.2	APPLIANCE INSTALLATION	41
3.2.2.1	UNIT LOCATION	41
3.2.2.2	PARALLEL INSTALLATION.....	41
3.2.2.3	MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS	43
3.2.2.4	CONNECTING PIPE AND MANUAL DAMPER.....	45
3.2.3	ELECTRICAL CONNECTIONS	46
3.2.3.1	INSTALLATION OF THE FAN LIMIT CONTROL.....	46
3.2.3.2	SERVOMOTOR INSTALLATION	46
3.2.3.3	THERMOSTAT INSTALLATION	47
3.2.3.4	WIRING DIAGRAM	48
3.2.4	OPERATING INSTRUCTIONS.....	50
3.2.4.1	CONTROL SYSTEM	50
3.2.4.2	FAN LIMIT CONTROL.....	50
3.2.5	TECHNICAL DATA CADDY	51
3.2.5.1	GENERAL TECHNICAL DATA.....	51
3.3	CADDY WOOD/ELECTRIC COMBINATION FURNACE.....	53
3.3.1	NECESSARY COMPONENTS FOR CADDY WOOD/ELECTRIC COMBINATION FURNACE	53
3.3.2	INTRODUCTION.....	53
3.3.3	APPLIANCE INSTALLATION	53
3.3.3.1	UNIT LOCATION	53
3.3.3.2	PARALLEL INSTALLATION.....	54
3.3.3.3	MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS	54
3.3.3.4	CONNECTING PIPE AND MANUAL DAMPER.....	56
3.3.4	ELECTRICAL CONNECTIONS	56
3.3.4.1	SERVOMOTOR INSTALLATION	56
3.3.4.2	THERMOSTAT INSTALLATION	56
3.3.4.3	ELECTRIC UNIT	57

3.3.4.4	OPTIONAL ELECTRIC ELEMENT AND FAN LIMIT CONTROL INSTALLATION	59
3.3.4.5	WIRING DIAGRAM	65
3.3.4.6	TECHNICAL DATA – ELECTRIC MODE	67
3.3.5	OPERATING INSTRUCTIONS.....	67
3.3.5.1	FAN LIMIT CONTROL.....	67
3.3.6	TECHNICAL DATA.....	67
3.4	CADDY WOOD/OIL COMBINATION FURNACE	69
3.4.1	NECESSARY COMPONENTS FOR CADDY WOOD/OIL COMBINATION FURNACE	69
3.4.2	INTRODUCTION.....	69
3.4.3	GENERAL INFORMATION FOR OIL FURNACE.....	69
3.4.3.1	DRAFT AND CHIMNEY.....	70
3.4.3.2	OIL TANK AND PIPING.....	70
3.4.3.3	BURNER PUMP	71
3.4.4	APPLIANCE INSTALLATION	71
3.4.4.1	UNIT LOCATION	71
3.4.4.2	PARALLEL INSTALLATION.....	71
3.4.4.3	MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS	71
3.4.4.4	CONNECTING PIPE AND MANUAL DAMPER.....	73
3.4.5	ELECTRICAL CONNECTIONS	75
3.4.5.1	INSTALLATION OF THE FAN LIMIT CONTROL.....	75
3.4.5.2	SERVOMOTOR INSTALLATION	75
3.4.5.3	THERMOSTAT INSTALLATION	75
3.4.5.4	WIRING DIAGRAM	76
3.4.6	OPERATING INSTRUCTIONS.....	80
3.4.6.1	FAN LIMIT CONTROL.....	80
3.4.6.2	COMBUSTION SAFETY CONTROL.....	80
3.4.6.3	PRE-PURGE	80
3.4.6.4	SAFE OPERATION.....	80
3.4.6.5	TEMPORARY DISENGAGEMENT OF THE BURNER	81
3.4.6.6	COMBUSTION ADJUSTMENT AND VERIFICATION	81
3.4.6.7	COMBUSTION VERIFICATION PROCEDURE:	82
3.4.6.8	ELECTRODES SETTING.....	83
3.4.6.9	ELECTRODE SETTING FOR "F" HEAD	83
3.4.6.10	APPLIANCE START-UP	84
3.4.6.11	PROLONGED CLOSING	84

3.4.7	OIL UNIT MAINTENANCE.....	85
3.4.7.1	MAINTENANCE AND CLEANING	85
3.4.8	CADDY TECHNICAL DATA	86
4	PART C – OPERATION	87
4.1	LIGHTING OF THE WOOD FURNACE.....	87
4.2	PREHEATING	87
4.3	HEATING	88
4.4	FIRST SIGNS OF AN OVERHEATING FURNACE ARE:	88
4.5	WOOD AS A COMBUSTIBLE	88
4.6	CHIMNEY FIRE.....	89
4.7	LOCAL FIRE DEPARTMENT	90
4.8	PROLONGED POWER OUTAGE	90
5	PART D - MAINTENANCE.....	91
5.1	HEAT EXCHANGERS CARE	91
5.2	CHIMNEY MAINTENANCE	93
5.3	SMOKE PIPE INSPECTION	93
5.4	BLOWER MOTOR MAINTENANCE	93
5.5	FILTERS	93
5.6	DOOR GASKET RELACEMENT	94
6	PART E – REPLACEMENT PARTS.....	95
6.1	THE GLASS	95
6.2	THE DOOR GASKET.....	95
6.3	CADDY BRICK LAYOUT.....	96
7	PART F - DUCTS AND DAMPERS DIMENSIONS.....	98
7.1	DUCTS AND DAMPERS DIMENSIONS (EXAMPLES OF CALCULATION).....	98
8	PART G - TROUBLESHOOTING.....	99
9	PART H - SPECIFICATIONS	100
	WHY PURCHASE THROUGH AN AUTHORIZED PSG DEALER?	102
	PSG LIMITED LIFETIME WARRANTY (REGULAR)	103
	PSG LIMITED LIFETIME WARRANTY (PRIVILEGE).....	104

1.1 INTRODUCTION

Take note that this furnace uses the same wood burning technology as a high efficiency EPA certified wood burning stove. This applies to the lighting, the ember bed, and the minimum combustion air intake which was calibrated to burn good seasoned cordwood.

This model line is certified as meeting the emissions limits in 40 C.F.R. part 60, section 60.532 (B) per EPA methods 28 and 5G-3, February 1988.

Emissions: 6.6 g/h or 0.229 g/MJ Average efficiency: 76 % (LHV) / 71% (HHV)
--

To optimize the efficiency of your furnace, here is some advice that you should follow when installing or operating your CADDY furnace:

- Respect the local codes (when in doubt, consult your local dealer);
- Verify the specifications on the certification plate concerning the clearances to combustibles making sure that they correspond to the ones included in this instruction manual.
- Make sure your furnace is installed according to the instructions on the certification label;
- All controls and adjustments must be performed by a qualified technician. The blower speed must conform to the recommendations of the Warm Air Heating and Air Conditioning National Association and should respect the static pressure ranges in the warm air plenum of the furnace (see **section 3.1.7**, General technical data, static pressure).
- We recommend that our woodburning hearth products be installed and serviced by professionals who are certified in the United States by NFI (National Fireplace Institute®) or in Canada by WETT (Wood Energy Technical Training) or in Quebec by APC (Association des Professionnels du Chauffage).

1.2 CHIMNEY AND DRAFT

This furnace must be connected to a chimney certified for wood burning heating appliances; a 6" connector and chimney is mandatory. When connected to an oil heating system, the smoke pipe must have a 5" diameter.

If the chimney draft exceeds -0.06" w.c, a barometric draft control should be installed on the smoke pipe. Never install a manual damper.

The barometric control must be adjusted so that the maximum draft measured at the furnace outlet does not exceed -0.06" w.c. Please note that a draft exceeding -0.06" w.c. will reduce the efficiency and could produce an uncontrollable fire. **On the other hand, the minimum draft required is 0.04" w.c. in the evacuation pipe on the wood side, no matter what type of furnace.**

2 PART A - SAFETY RULES

2.1 GENERAL REQUIREMENTS

- Make sure the chimney outlet and the pipes are clean and in good condition.
- DO NOT USE CHEMICAL PRODUCTS OR LIQUIDS TO LIGHT THE FIRE.
- DO NOT BURN WASTES OR FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPHTHA, MOTOR OIL, OR OTHER UNSUITABLE MATTERS.
- Do not install an automatic feeder on this furnace.
- Do not store wood in the vicinity of the furnace. Respect the required clearances between combustible materials and the source of heat.

<p><u>WARNING</u> THE ASH DRAWER AND EXCHANGERS ACCESS PANEL GET VERY HOT. DO NOT MANIPULATE WITH BARE HANDS.</p>

2.2 ODOUR FROM THE PAINT

It is normal that smoke and odours emanate from the unit when you first light it. It is recommended to burn it at high rate and ventilate the building until the odours disappear. The smoke is not toxic.

2.3 ASH DISPOSAL

Ashes must be placed in a metal container with a tight fitting lid. The container should be stored outdoors, well away from combustible materials. This container should not receive any other type of waste. If the ashes are meant to be buried in soil, wait until all embers have thoroughly cooled before burying.

2.4 CREOSOTE BUILD-UP AND REMOVAL

When wood is burned slowly, it produces tar and other organic vapours which, when combined with moisture, form creosote. The creosote vapours condensate in a relatively cool chimney flue. As a result, creosote residues accumulate inside the flue lining and the exchangers.

N.B.: To minimize the frequency of chimney cleaning, it is strongly recommended you buy your firewood at least one year before using it to let it dry properly. Store your wood at least six month ahead in a place where it is exposed to sun and open air but protected from precipitations. Then store it in a dry place in order to obtain the minimum moisture rate and optimize the efficiency. Do not store wood or combustible materials within the installation minimum clearances or the space required to reload the appliance and remove ashes.

When ignited, creosote produces an extremely hot fire inside the chimney. To avoid this situation, it is important to do the rotation of wood away from heating appliances and lighting products. Inspect the chimney system at regular intervals to determine a cleaning cycle. A weekly cleaning might be required during mild temperature periods but a monthly cleaning should be sufficient during cold periods.

If a significant layer of creosote has accumulated, it must be removed immediately to eliminate the risk of chimney fire

WARNING
IT IS RECOMMENDED TO CLEAN THE HEAT EXCHANGERS THOROUGHLY AT THE END OF SEASON IN ORDER TO PREVENT CORROSION).

Remember that a small, hot fire is preferable to a large smouldering one to prevent creosote build-ups within the system. Prepare an emergency procedure in case of a chimney fire (see **Section 4.6**, Chimney fire.)

2.5 SMOKE DETECTOR

We highly recommend the use of a smoke detector. It must be installed at least 15 feet (4.57 m) from the appliance in order to prevent undue triggering of the detector when reloading.

2.6 DOOR GLASS

To maintain a clean and safe installation, do not build your fire too close to the glass or allow logs to lean on the glass. Do not operate your furnace at too low a setting. Keep the air inlet opened long enough during the fire start-up to prevent the fire from smouldering, which could stain the glass.

An intense fire will help keep the glass clean. However, in the event that your glass gets stained, which should not occur under normal operating conditions, you will have to clean it using a wet cloth and a wood stove glass cleaner. Clean the glass **ONLY** when the unit has cooled down. Do not use an abrasive cleanser. Wood stove glass cleaners are available in most home centers and specialty hearth retailers.

WARNING
AVOID KNOCKING OR SCRATCHING THE GLASS. IT COULD CRACK OR BREAK.

2.7 GLASS CHARACTERISTICS

The glass is made of 3/16" (5 mm) thick ceramic glass.

Do not operate your wood furnace with a broken glass, as this could seriously damage your furnace. You can purchase a replacement glass from your PSG dealer.

2.8 ASH DRAWER

Your furnace is equipped with an ash drawer to collect ashes produced by the combustion of wood. This drawer must not be left open during combustion as this may cause over firing and serious damages to the furnace. **The drawer must be emptied regularly.**

WARNING

IT IS IMPORTANT THAT THE DOOR AND THE ASH DRAWER BE KEPT CLOSED WHILE THE APPLIANCE IS IN USE. MAINTAIN ALL GASKETS IN GOOD CONDITION; IN CASE OF DETERIORATION, CONTACT YOUR DEALER FOR A GENUINE REPLACEMENT GASKET.

2.9 ASH GRATE

You must replace the ash grate if it is damaged and a replacement may be obtained from your dealer. The steel cover on the ash grate is meant to optimize the temperature inside the combustion chamber and should only be removed to empty the ashes.

2.10 FLUE AND BAROMETRIC DRAFT CONTROL CONNECTION

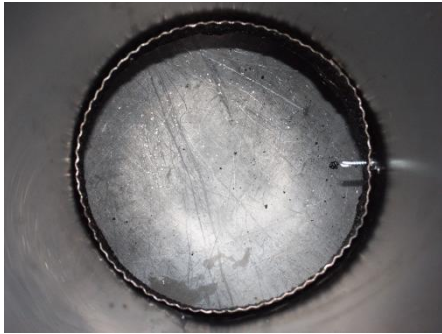
WARNING

BEFORE CONNECTING THE STOVE PIPE, MAKE SURE YOU HAVE REMOVED THE SCRAPER FROM THE FLUE PIPE.

For a proper installation, follow the advice below:

- 1- All the exhaust pipe joints must be secured with three screws.

Make sure that each screw goes through the inner wall of both connectors (male and female). See pictures below showing a male-female coupling.



PROPER INSTALLATION



**CAUSES
RESTRICTION**

IMPROPER INSTALLATION

2- A minimum rise of $\frac{1}{4}$ " per horizontal foot must be respected.

2.11 DAMPER

The barometric damper must be adjusted so that the maximum draft measured at the furnace outlet is limited to -0.06 in. w.c. **However, the minimum draft to be respected at all times is -0.04 in. w.c. in the evacuation pipe.**

WARNING
DRAFT HIGHER THAN -0.06" W.C. MAY CAUSE AN UNCONTROLLABLE FIRE.

2.12 FRESH AIR INTAKE

When the furnace and the chimney are completely cold, it may be necessary to provide fresh air by opening a door or a window for a few minutes while lighting the fire.

Take note that a house constructed or renovated in order to be airtight may lack the volume of fresh air necessary for the proper combustion of a solid-fuel heating appliance.

In such a case, when starting up the fire, do not operate appliances that evacuate air outside the house, such as:

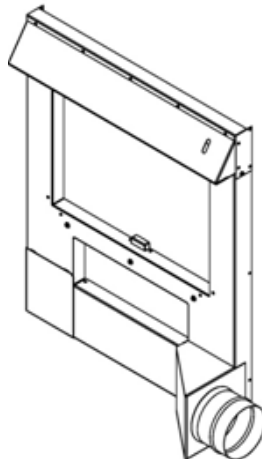
- Range hood
- Air exchanger
- Clothes dryer
- Bathroom fan
- Ventilated central vacuum system

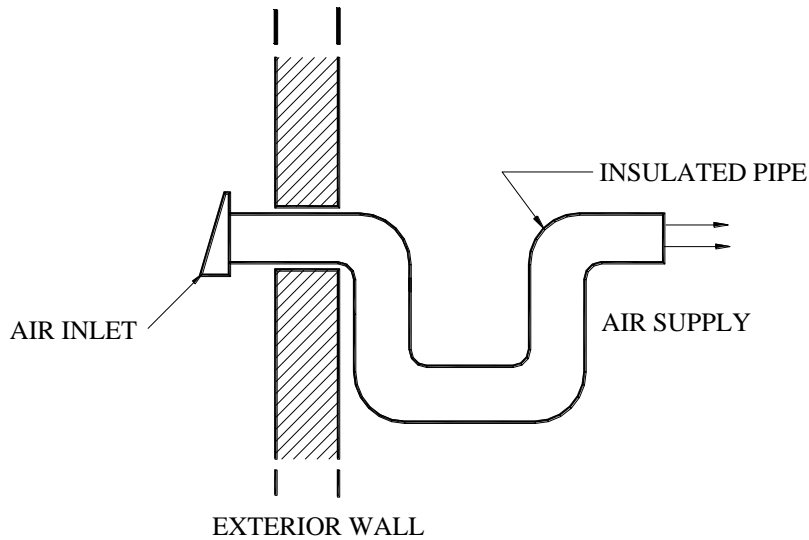
WARNING
**SUFFICIENT COMBUSTION AIR MUST BE AVAILABLE AT ALL TIMES;
LACK OF COMBUSTION AIR CONSTITUTES A DANGER.**

NOTE:

It is recommended to install an outside air inlet with a diameter of at least 4 inches in the room where the heating appliance is installed (see drawing next page). It is preferable to choose a wall which is not exposed to dominant winds, depending on the conditions surrounding your house.

The fresh air intake adapter (PA08562) helps to have a sufficient air supply to the unit for airtight houses or for houses to meet the certain local standards. The assembly instructions are in the instruction manual supplied with the fresh air intake adapter assembly kit.





2.13 FILTERS

WARNING

THE FURNACE SHOULD NEVER BE OPERATED WITHOUT FILTERS. THIS APPLIES ESPECIALLY TO TEMPORARY HEATING DURING CONSTRUCTION PERIOD. OPERATING THE FURNACE WITHOUT FILTERS WOULD ALLOW DUST AND OTHER PARTICLES IN THE AIR TO CIRCULATE FREELY AND TO PENETRATE INTO THE FAN AND MOTOR CARTERS, CAUSING SOME DEFECTS.

Clean and replace filters as often as required.

Note : The operation cost is higher when using a dirty filter.

N.B.: THE OWNER OF THE FURNACE IS RESPONSIBLE FOR THE ROOM'S AIR QUALITY IN CASE OF NEGATIVE PRESSURE OR TEMPORARY NEGATIVE PRESSURE.

2.14 SETTING UP THE UNIT

For a safe and quiet operation, the furnace must be level in both directions and supported evenly to ensure stability.

3 PART B - INSTALLATION

WARNING
RESPECT THE LOCAL CODES (WHEN IN DOUBT, CONSULT YOUR LOCAL DEALER).

Before installation, please read the instructions carefully and make sure you understand them:

Installation must be made in accordance with the CSA B.365 « Installation code for solid-fuel-burning appliances and equipment » standard in Canada and NFPA 90B « Standard for the installation of warm air heating and air conditioning system » in the United States. Moreover, for all electrical connection, the Canadian standard CSA C22.1 « Canadian electrical code » and in the United-States NFPA 70 standard « National Electrical Code » must be followed.

Inspect the furnace to make sure that nothing has been damaged in the shipping. Pull out the wiring kit and the instructions manual from the firebox of the furnace and the accessories from the flue pipe.

All controls and adjustments must be performed by a qualified technician. The blower speed must conform to the recommendations of the Warm Air Heating and Air Conditioning National Association and should respect the static pressure ranges in the warm air plenum of the furnace (see table, *General technical data, static pressure* of the chosen configuration).

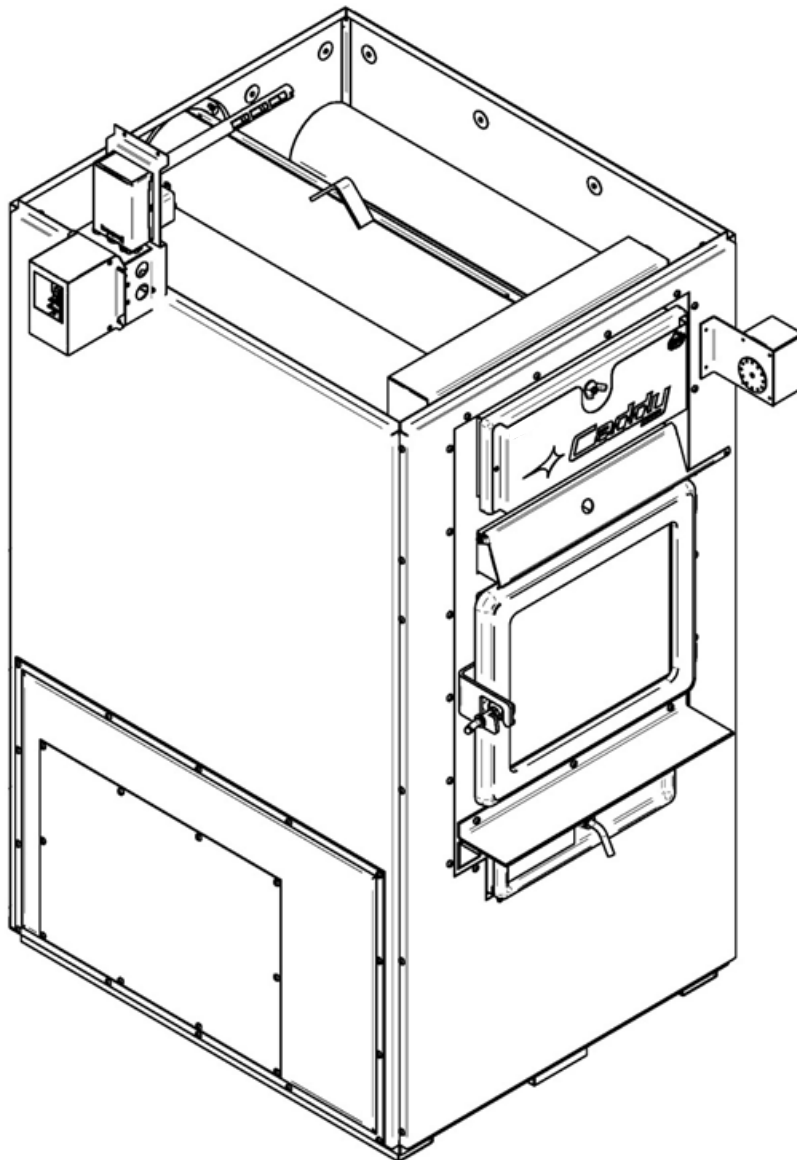
PART B of this manual contains installation instructions for the three different configuration of the Caddy furnace. For installation information, you can consult only the section that applies to the configuration you have chosen.

① CADDY WOOD ADD-ON	16
② CADDY WOOD ONLY	38
③ CADDY WOOD/ELECTRIC COMBINATION	49
④ CADDY WOOD/OIL COMBINATION	64

Installation Instructions

①

CADDY WOOD ADD-ON PF01010 + PA08522



① CADDY ADD-ON

3.1 ① CADDY WOOD ADD-ON

3.1.1 NECESSARY COMPONENTS FOR CADDY WOOD ADD-ON

The fan limit control assembly PA08522 is necessary for the Caddy wood Add-on, but it is not provided with the furnace and has to be purchased separately.

3.1.2 SAFETY PRECAUTION

CAUTION
THE OPERATION OF A GAS FURNACE MUST BE VERIFIED FOR ACCEPTABLE OPERATION BEFORE AND AFTER INSTALLATION OF THE MINI-CADDY ADD-ON APPLIANCE BY A GAS FITTER WHO IS RECOGNIZED BY THE REGULATORY AUTHORITY.

CAUTION
DO NOT CONNECT TO ANY GAS FURNACE THAT HAS NOT BEEN CERTIFIED INITIALLY AS COMPLYING WITH CGA STANDARD CAN/CGA-2.3 OR ITS PRECEDENTS.

3.1.3 INTRODUCTION

The wood burning Caddy Add-on furnace is approved for in-line connection to an existing oil furnace or any gas or electric furnace with a maximum heating capacity of 35.17 kW (120,000 BTU/h.)

3.1.4 BLOWER OF THE EXISTING FURNACE

The blower of the existing furnace shall produce an average air flow in the plenum in between 1,150 to 2,000 cfm when the external static pressure is adjusted to 0,2" and to 0,5" of water column.

Some adjustment on the motor and blower of the existing furnace may be necessary. In this case, the following rules apply:

- On a belt-driven system, blower pulleys and motor pulleys may be changed to do the adjustment.
- On a direct-drive system, the motor shall not be changed; however, the speed of the motor may be increased or decreased.

CAUTION
THE BLOWER OF THE EXISTING FURNACE ITSELF SHALL NOT BE CHANGED.

WARNING
THE ELECTRICAL CURRENT FLOWING THROUGH THE BLOWER MOTOR SHALL NOT EXCEED THE NAMEPLATE RATING.

3.1.5 APPLIANCE INSTALLATION

If the existing furnace must be modified, the following standards must be respected:

Wood-oil

- NFPA 31: *Standard for the installation of oil-burning equipment.*
- CSA B.139: *Installation code for oil-burning equipment.*

Wood-gas

- CSA B.139: *Installation code for oil-burning equipment.*
- CAN/CGA-B149.1 & CAN/CGA-B149.2 : *Natural Gas & Propane Installation Code et Propane Storage & Handling Code.*

3.1.5.1 UNIT LOCATION

The furnace must be installed where outside air supply will be sufficient for proper combustion. In airtight houses, it might be necessary to install an outside air inlet (see la **Section 2.12**, Fresh air intake.)

The furnace must be positioned so that the connector is as short as possible. Minimize the use of 90° elbows.

The owner must ensure a proper installation to allow a safe operation of the appliance.

3.1.5.2 MATCHING THE TRANSFER DUCT BETWEEN THE TWO HEAT GENERATORS

Install the plenum and heating ducts in line as in **OPTION 1 and 2** of this section. Configurations shown in **Examples 1, 2 and 3** of this same section are prohibited.

Install the plenum and heating ducts in line as in **OPTION 1** of this section. Only series connection (**OPTION 2**) should be considered if in line connection (**OPTION 1**) is not possible.

If the ducts are installed in series (**OPTION 2**) and the existing furnace's fan limit control is mounted on the plenum, the divider in the plenum must be installed at least 5" (127 mm) above the fan limit control casing. This divider must be air tight.

Do not install connecting ducts in a way that would allow inversion of the air flow (see **example 1 and 3**).

The transfer duct between the existing furnace and the add-on must be at least 320 square inches (0.20 m²) and deviations radius must be at least 6" (153 mm). (See **OPTION 1 and 2**).

WARNING
DO NOT CONNECT TO A DOWN FLOW FURNACE.

WARNING
DO NOT REMOVE, RELOCATE OR BYPASS ANY OF THE SAFETY CONTROLS IN THE ORIGINAL FURNACE INSTALLATION.

You must determine the air flow through the existing furnace before installing the Caddy wood add-on:

1. Run the furnace to which the Caddy add-on is connected until it reaches its regular heating temperature.
2. With a thermometer, measure the temperature of the cold air entering the furnace and that of the air exiting the furnace in the hot air plenum.

Note: There can be a large lag in the readings of many commercially available thermometers. Give them adequate time to stabilize when taking temperatures.

The temperature rise is obtained by subtracting the cold air return temperature from that of the air exiting in the hot air plenum. The result (*t*) will be needed for next step.

3. Make the following verifications:

a) Oil furnace:

$$CFM = \frac{\text{orifice size (SI)}(\text{liter/hour}) \times 39\,023 \times E}{1.21 \times t}$$

$$CFM = \frac{\text{orifice size (Imperial)}(\text{gallon/hour}) \times 140\,000 \times E}{1.1 \times t}$$

E : Average heat generator efficiency (0.75)

t: Temperature rise (°C)

b) Electric furnace:

$$CFM = \frac{Re}{1.21 \times t}$$

Re = Electrical energy input rate, kW

t = Temperature rise (°C)

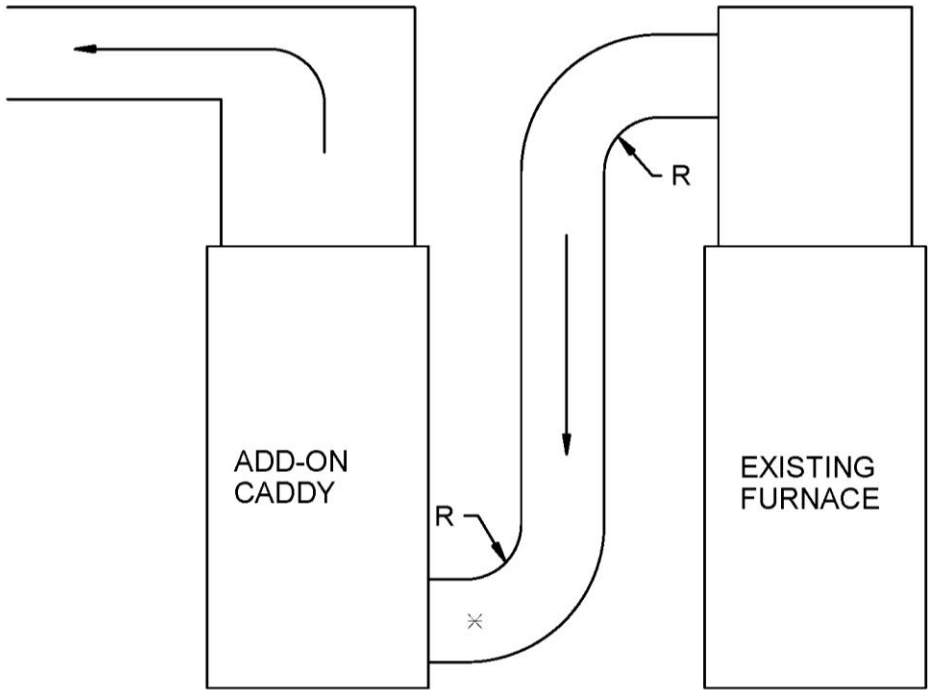
c) Gas furnace:

$$CFM = \frac{Rg \times Eg}{1.21 \times t}$$

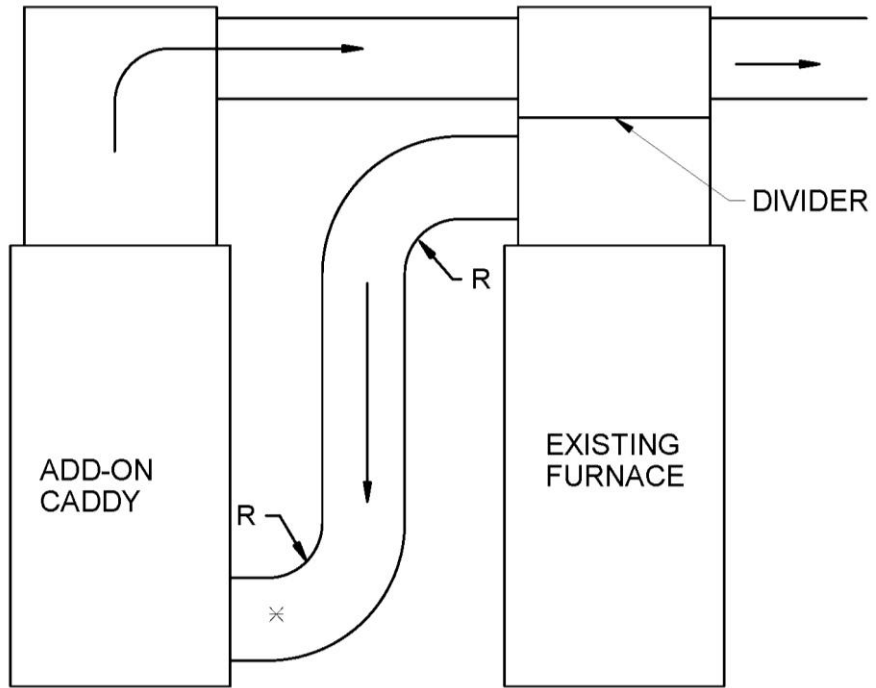
Rg = Gas input rate, kW

Eg = Efficiency of a typical atmospheric gas furnace (0.7)

4. After the installation of the add-on, the original numbers must be restored in order to maintain a constant air flow through the furnace.



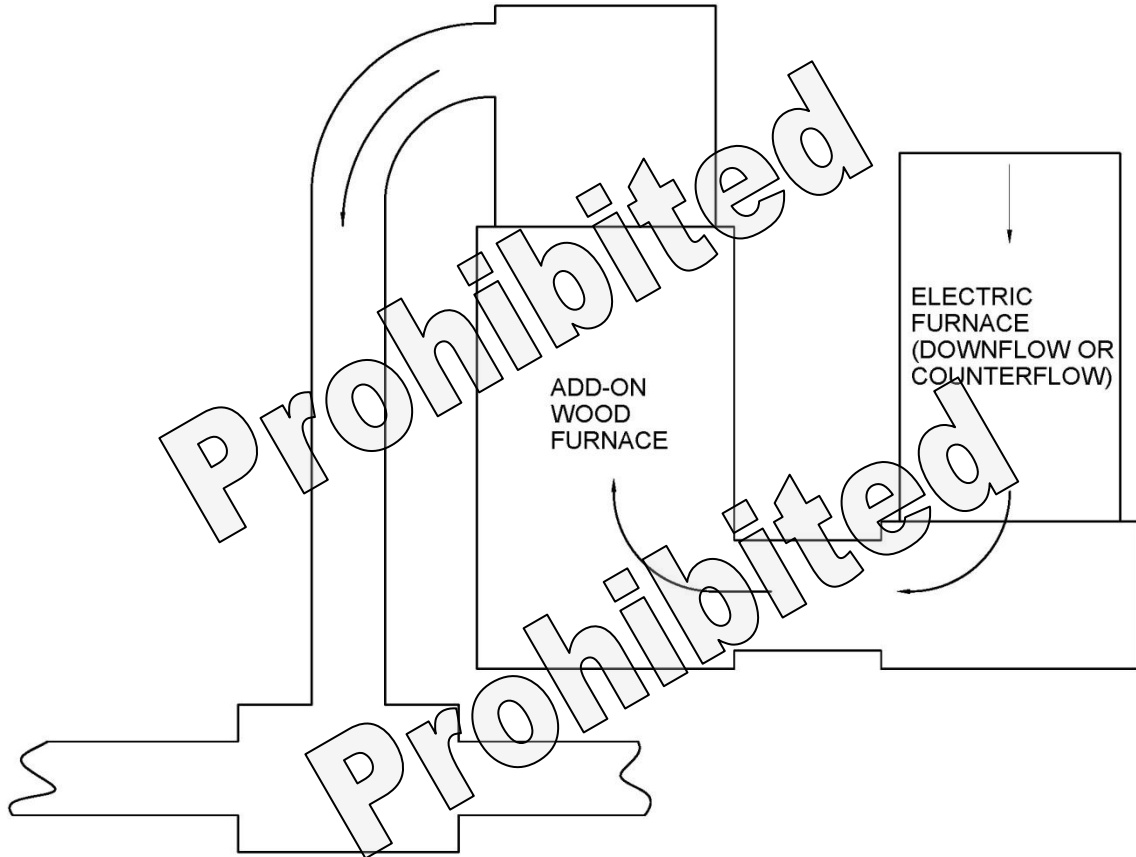
Option 1



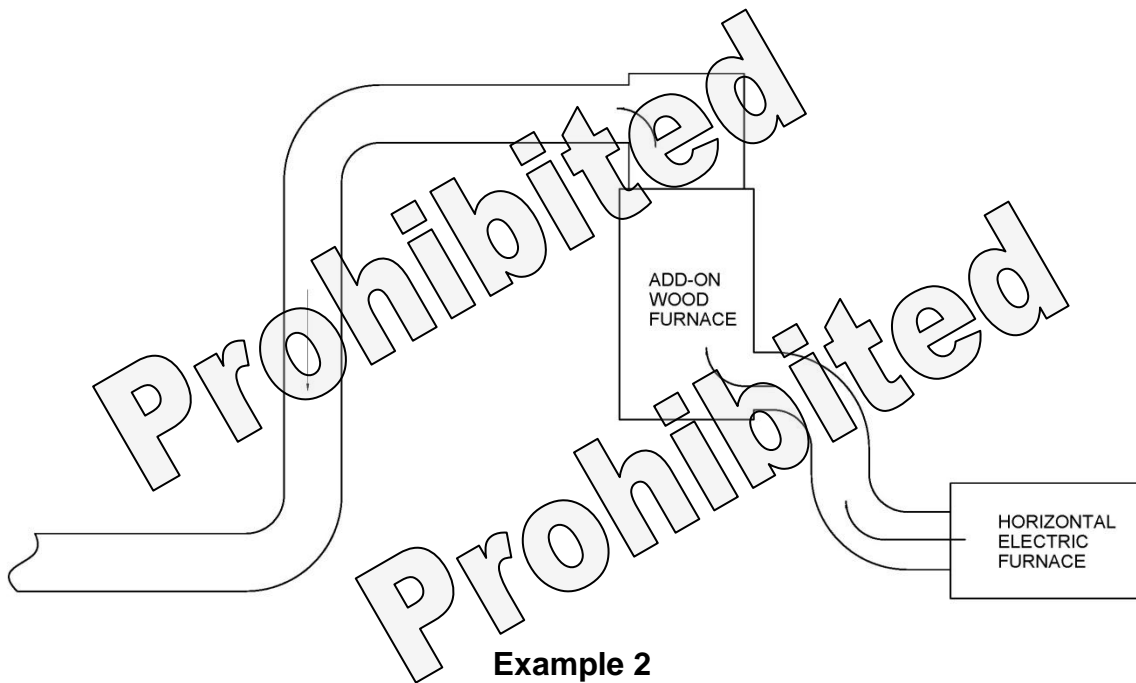
Option 2

***Minimum duct size 260 square inches**

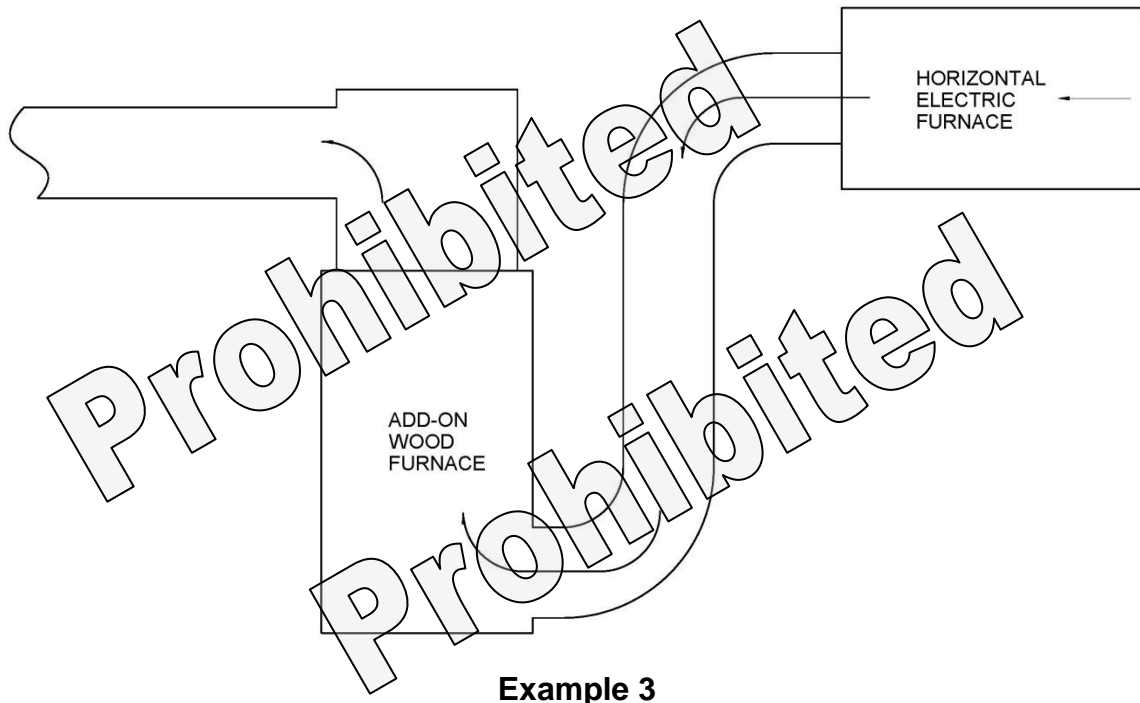
*** R = Minimum radius 6 inches**



Example 1



Example 2



Example 3

3.1.5.3 MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS FOR CADDY WOOD ADD-ON

N.B.: THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS ON THE CERTIFICATION PLATE APPLIED ON THE UNIT.

The floor on which the furnace is installed may be combustible. On a combustible floor, use a protective plate exceeding 8 inches on each side of the unit, 16 inches from the front of the door in the United States and 18 inches from the front of the door in Canada is required.

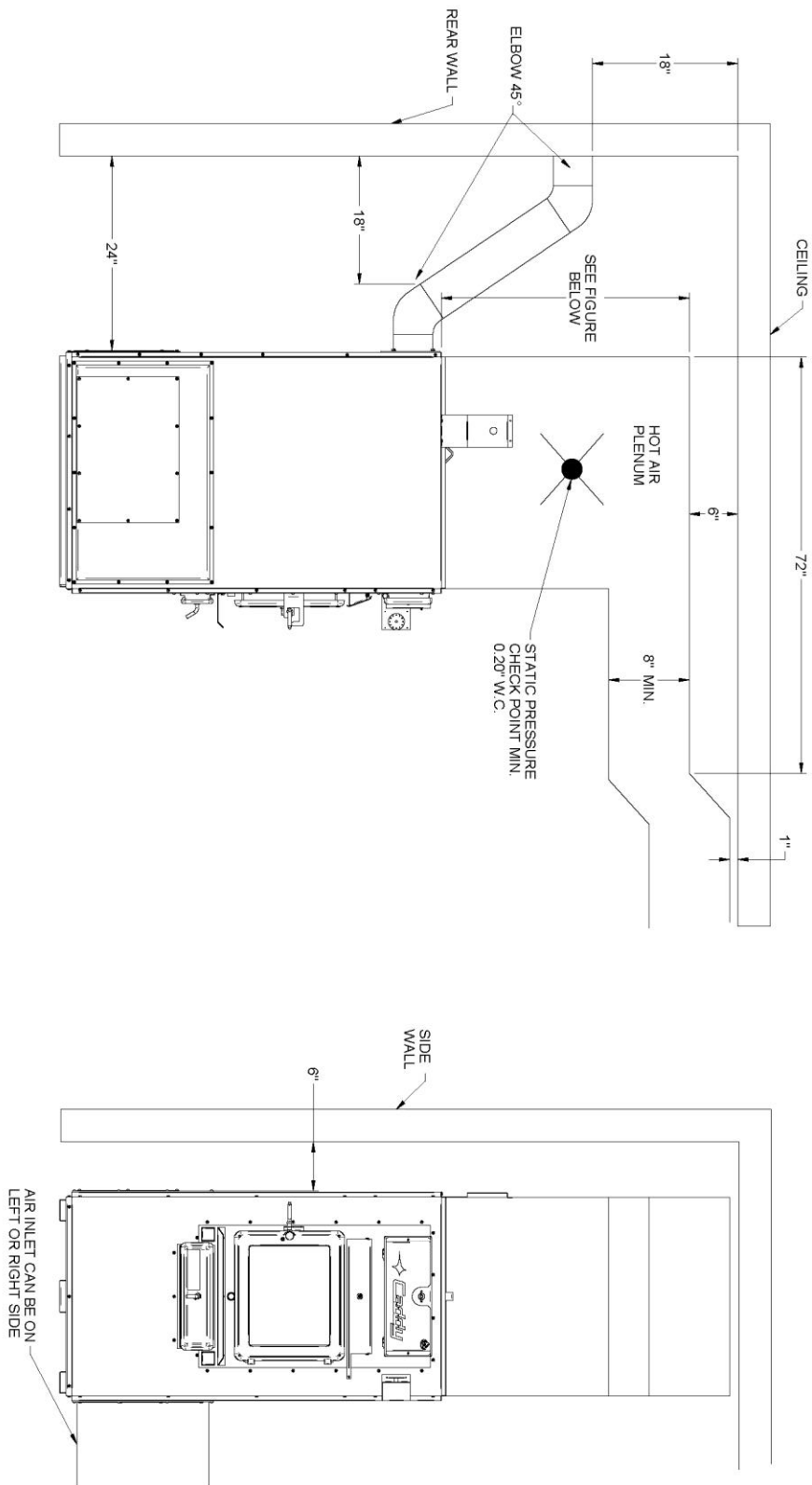


Figure 3.1.4.3 a

N.B.: TO ENSURE ADEQUATE STATIC PRESSURE, THE SYSTEM SHOULD BE BUILT IN A WAY THAT THE VOLUME OF COLD AIR RETURN IS AT LEAST EQUAL OR SLIGHTLY HIGHER THAN THE VOLUME OF THE HOT AIR DISTRIBUTION.

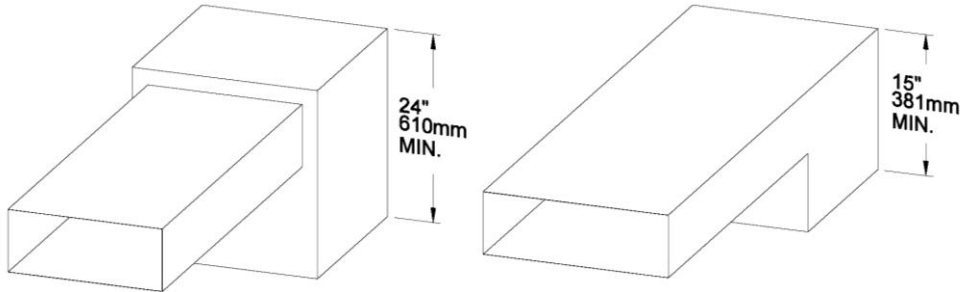
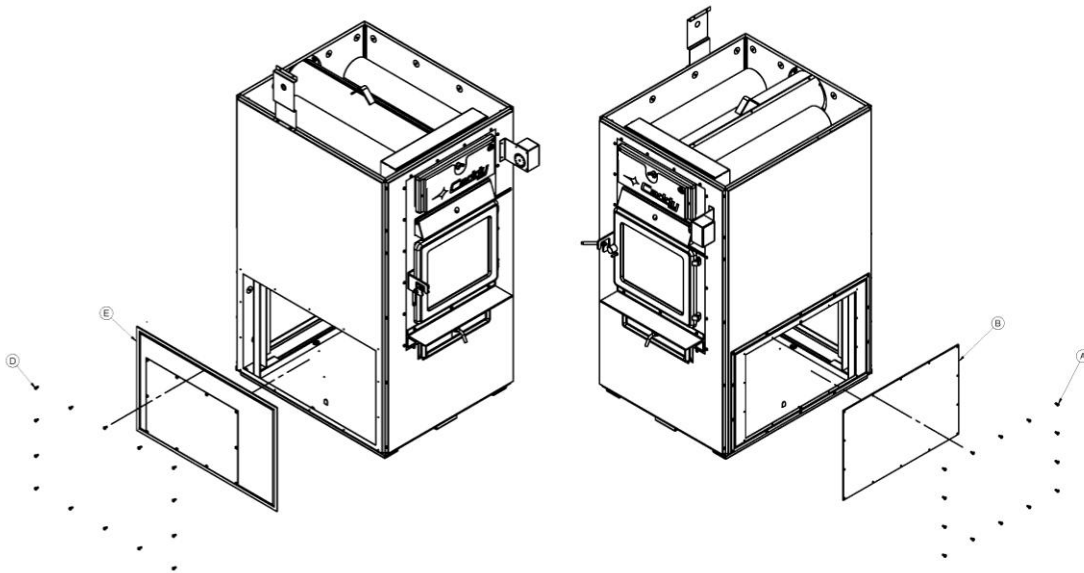


Figure 3.1.4.3 b - Hot air plenum minimal height.

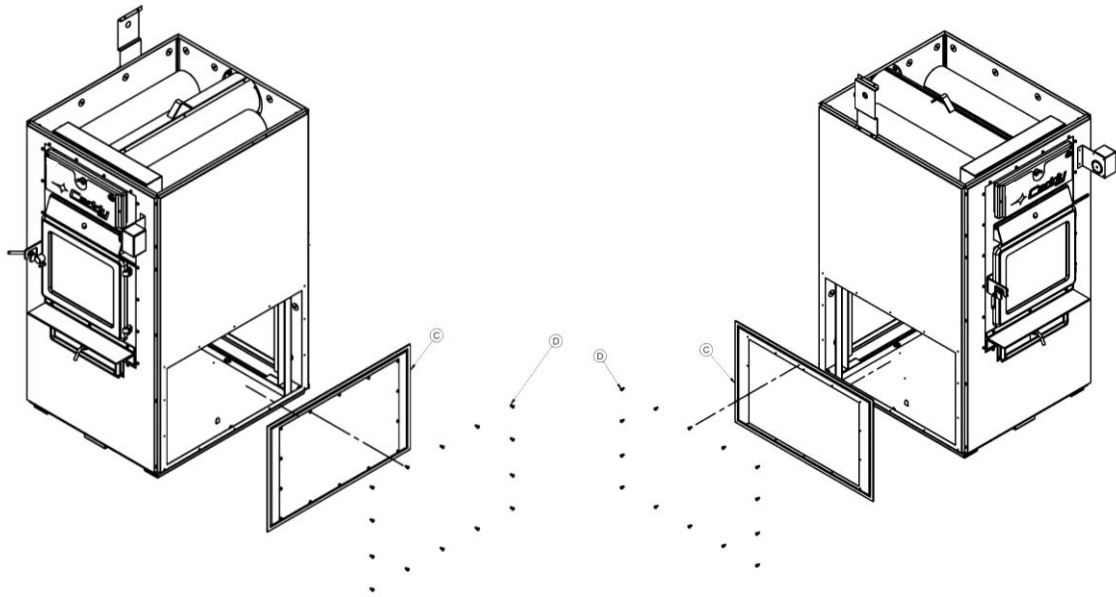
The hot air plenum coming out of the furnace is to have a minimum height of 24" (610 mm) if the top of the first vertical section is not flush with the first horizontal section (see **Figure 3.1.4.3 b**). Otherwise, the minimum height is 15" (381 mm). These dimensions for all hot air furnaces are in accordance with the standards CSA B140.4, UL 391 and UL 727.

3.1.5.4 INSTALLING THE CONNECTING DUCT FROM THE EXISTING FURNACE

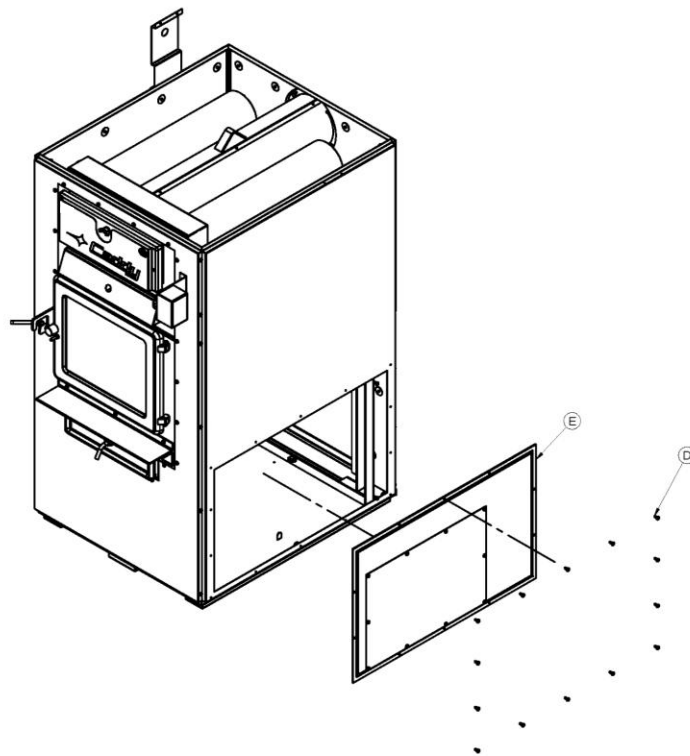
To install the connecting duct from the existing furnace on the left side of your CADDY Add-on furnace, remove the screws (D) securing the large panel (E) on the left side of the furnace (keep the screws and the panel; they will be installed later on the right side). Remove the screws (A) securing the small panel (B) located in the large panel that is on the right side of the furnace (you can dispose of the panel).



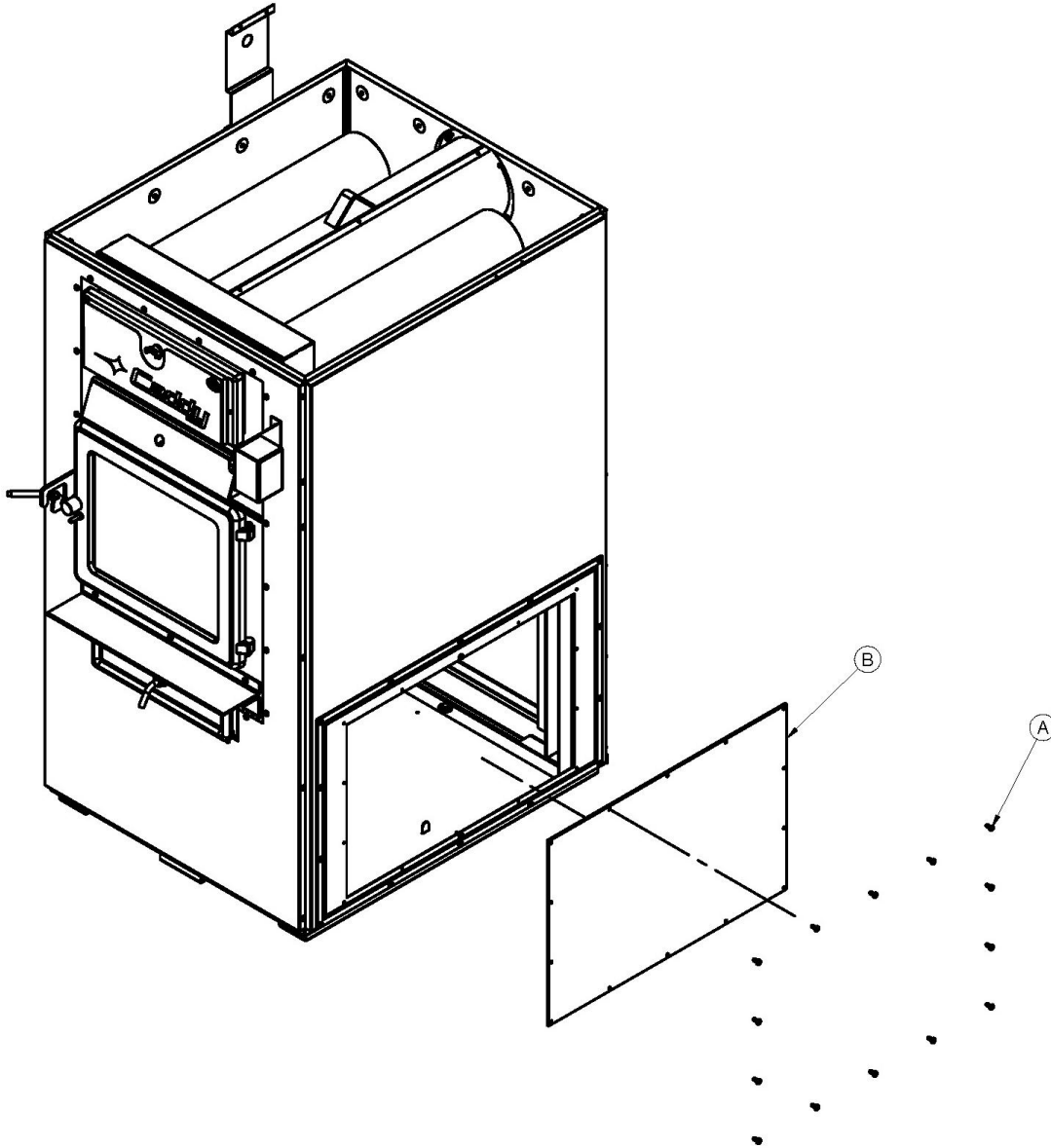
Remove the screws (D) securing the large panel on the right side of the furnace (C) and secure it to the left side.



Secure the panel that was on the left side of the furnace (E) to the right side with the screws kept (D). Connect the duct.



To install the connecting duct from the existing furnace on the right side of your CADDY Add-on furnace, unscrew the screws (A) securing the smallest panel (B) on right side of the furnace (you can dispose of the panel). Connect the duct.

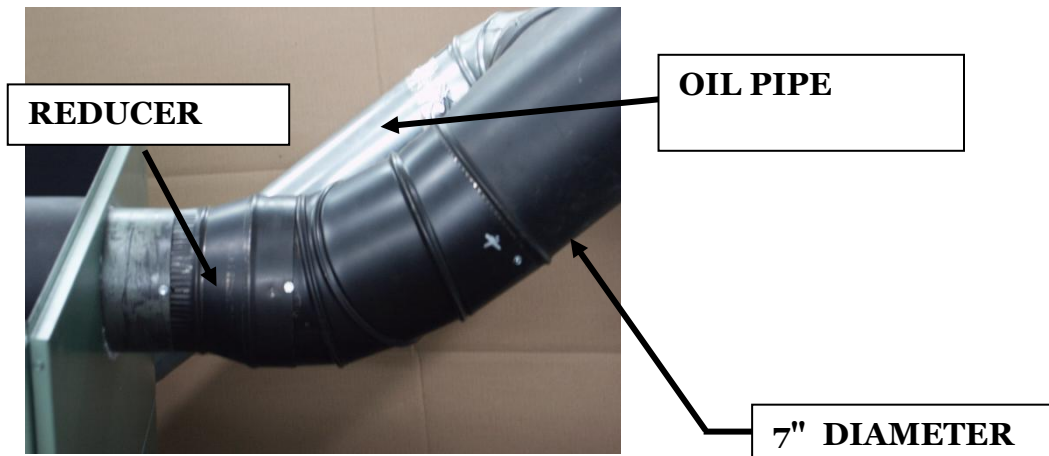


3.1.5.5 PIPE CONNECTOR AND DAMPER

The Caddy wood Add-on furnace must be connected to a duct system and a chimney that are in good condition; even if it is allowed, **the use of separate chimneys is recommended.**

If the furnace is connected to an oil furnace and both appliances must share the same chimney, the chimney and smoke connector must be 7" in diameter and approved for use with wood-burning appliances. The use of 6" connector and chimney is permitted if the wood furnace evacuates into a separate chimney. **It's strictly forbidden to connect a solid fuel burning appliance to a chimney already connected to a propane or natural gas appliance. Regulation CAN-CSA-B365.1.**

WARNING
DO NOT INSTALL A MANUAL DAMPER.



3.1.6 ELECTRICAL CONNECTIONS

The following instructions do not replace those of the local code.

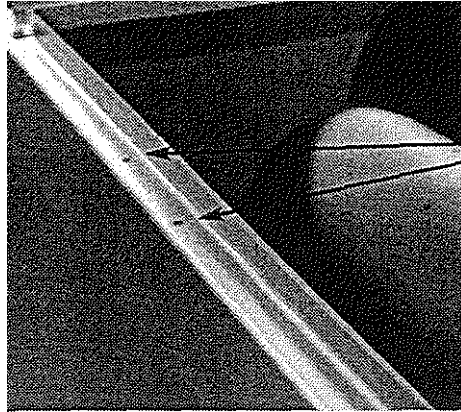
Installation and verification of this appliance must be done by a qualified service man.

All wiring from the service panel to the heating unit must comply with the electrical code in force and all local regulations. It is recommended to feed the furnace with its own electrical circuit of 15 amps at 120 volts with a breaker (see wiring diagram).

3.1.6.1 INSTALLATION OF THE FAN LIMIT CONTROL AND WIRING WITH AN EXISTING OIL FURNACE

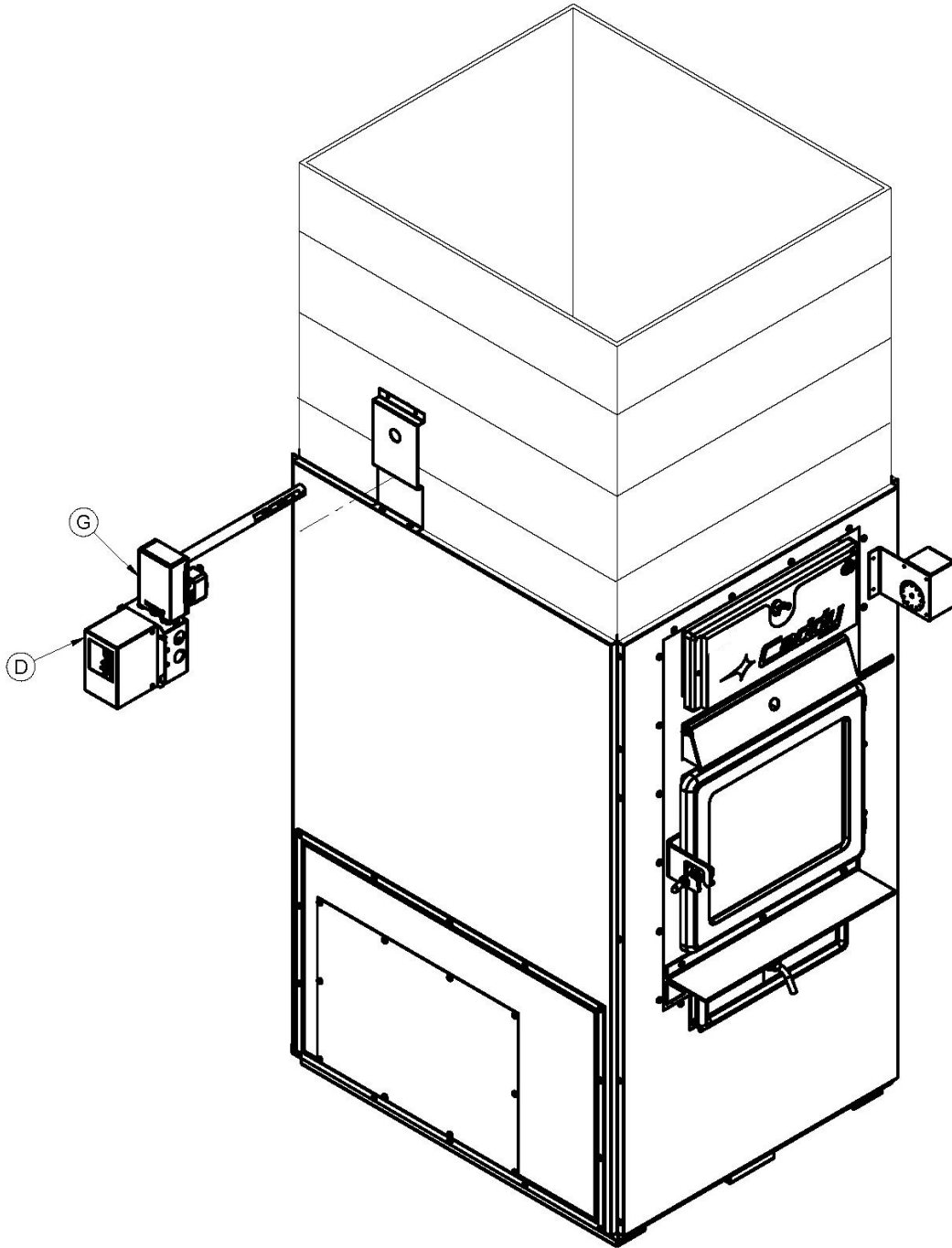
Note: the fan limit control PA08522 (G) is not provided with the furnace and has to be purchased separately.

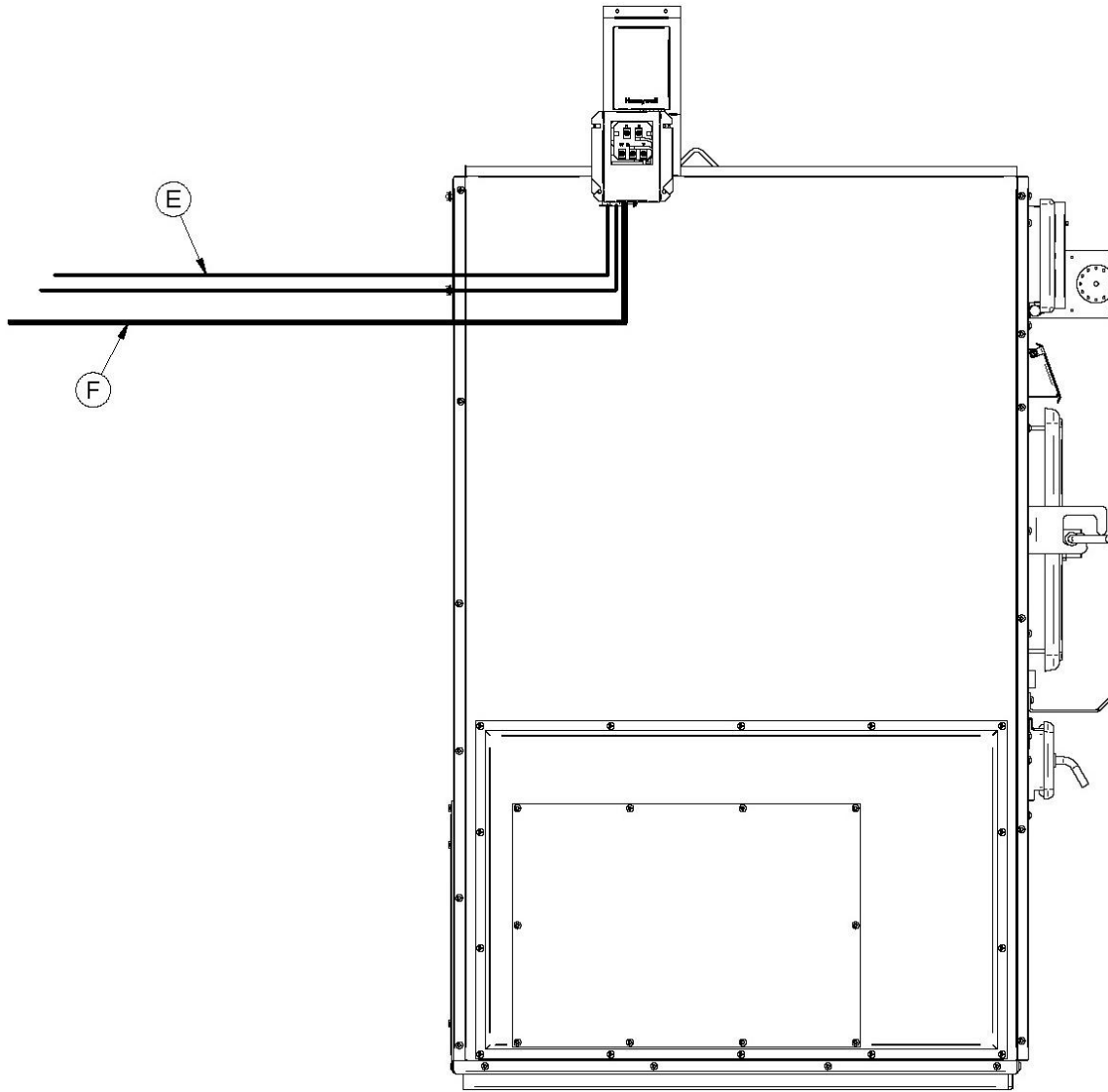
To install the fan limit control assembly PA08522, (not included with the furnace), remove the cover on the fan limit control (G) and the cover on the junction box (D). Secure the fan limit control bracket provided with your furnace, on the top edge of the left or right side of the unit (*two holes on each side have already been drilled on the edges of the furnace*). Drill a hole in the plenum, across from the hole in the support bracket. Slide the fan limit control's probe in the opening on the support bracket and into the plenum. Secure the fan limit control (G) on the support bracket with self-taping screws, not provided.



HOLES FOR
SUPPORT
BRACKET

① CADDY ADD-ON

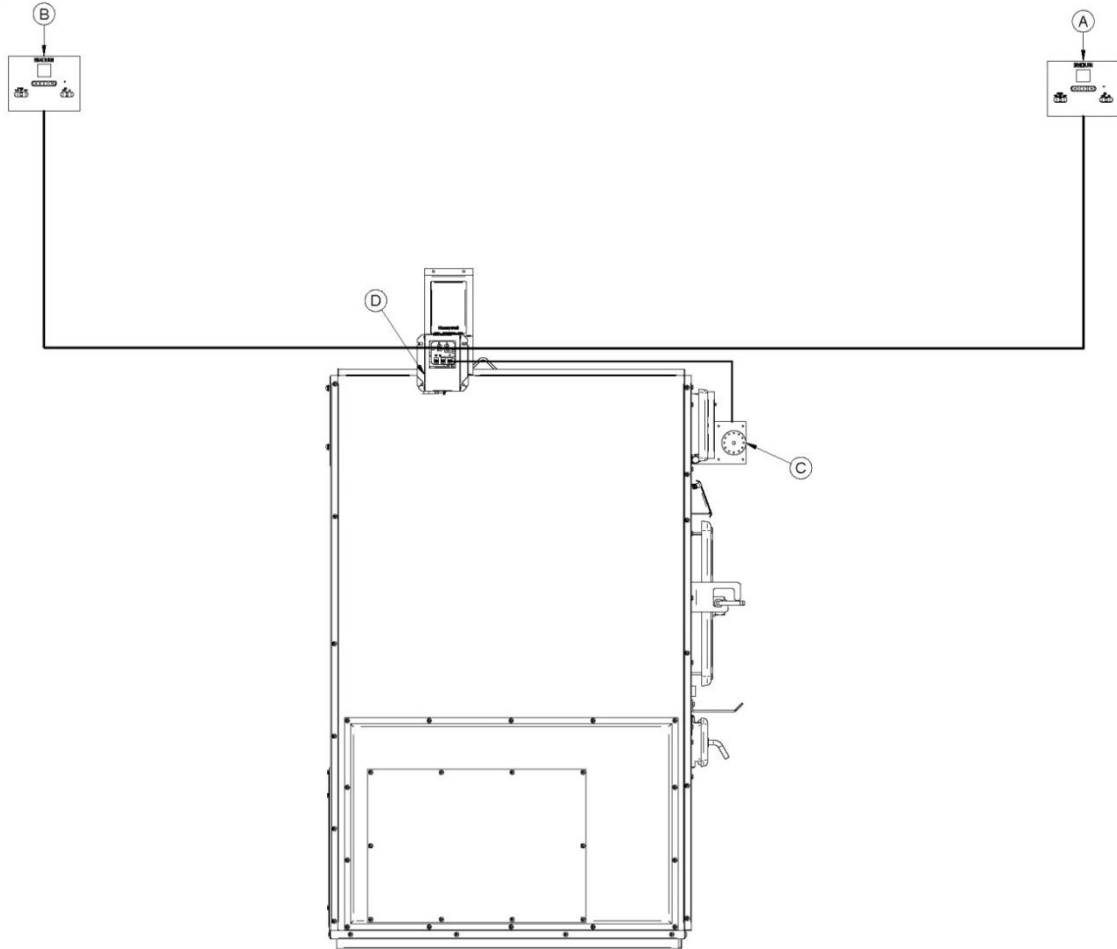




- Run a cable (F) from your house electrical entrance to the fan limit control's junction box.

Note: It is recommended to connect the Caddy Add-on on the same circuit as the existing furnace.

- Pull the red and black wires (E) out of the junction box through the wire grommet.



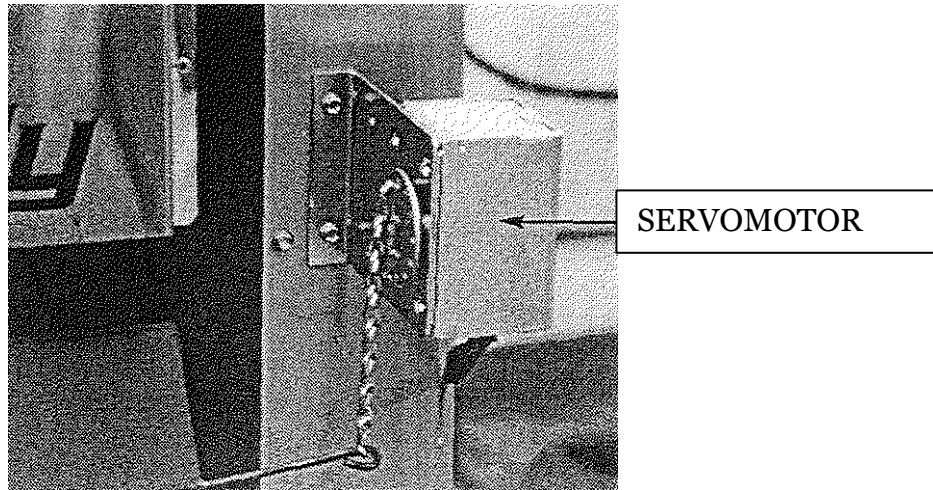
- Run an 18-2 cable from the thermostat (A) of the Add-on to the fan limit assembly's junction box (D).
- Run an 18-2 cable from the thermostat (B) of the existing oil furnace to the fan limit assembly's junction box (D).
- Run an 18-2 cable from the servomotor (C) of the Add-on to the fan limit assembly's junction box (D).

Note: To perform the wiring, see WIRING DIAGRAM FOR CONNECTION OF THE CADDY ADD-ON WITH AN EXISTING OIL FURNACE (**Section 3.1.6.4**)

Note: For connection with an existing gas or electric furnace, remove the fan limit control (D) from the assembly and use it for low voltage wiring. Connection with a gas or electric furnace will require the use of a SPDT 24 volt relay (White-Rogers 90-370 or the equivalent) not included. See WIRING DIAGRAM FOR CONNECTION OF THE CADDY ADD-ON WITH AN EXISTING GAS OR ELECTRIC FURNACE (see **section 3.1.6.5**).

3.1.6.2 SERVOMOTOR INSTALLATION

Install the servomotor on the right side of the front of the furnace; above the door (use the pre-drilled holes). The chain that links the air inlet damper to the motor must have a play of 1/8". When there is no call for heat, the air inlet damper must be completely closed and the chain must be hooked to the servomotor at the "8 o'clock" position.



If the ducts are connected in series (See **section 3.1.5.2, option 2**) and the fan limit control of the existing furnace is located in the plenum, the divider must be installed at least 5" (127 mm) above the fan limit casing. This divider must be airtight.

All wiring and connections must be done according to the diagram. The controls of the two furnaces must be interconnected.

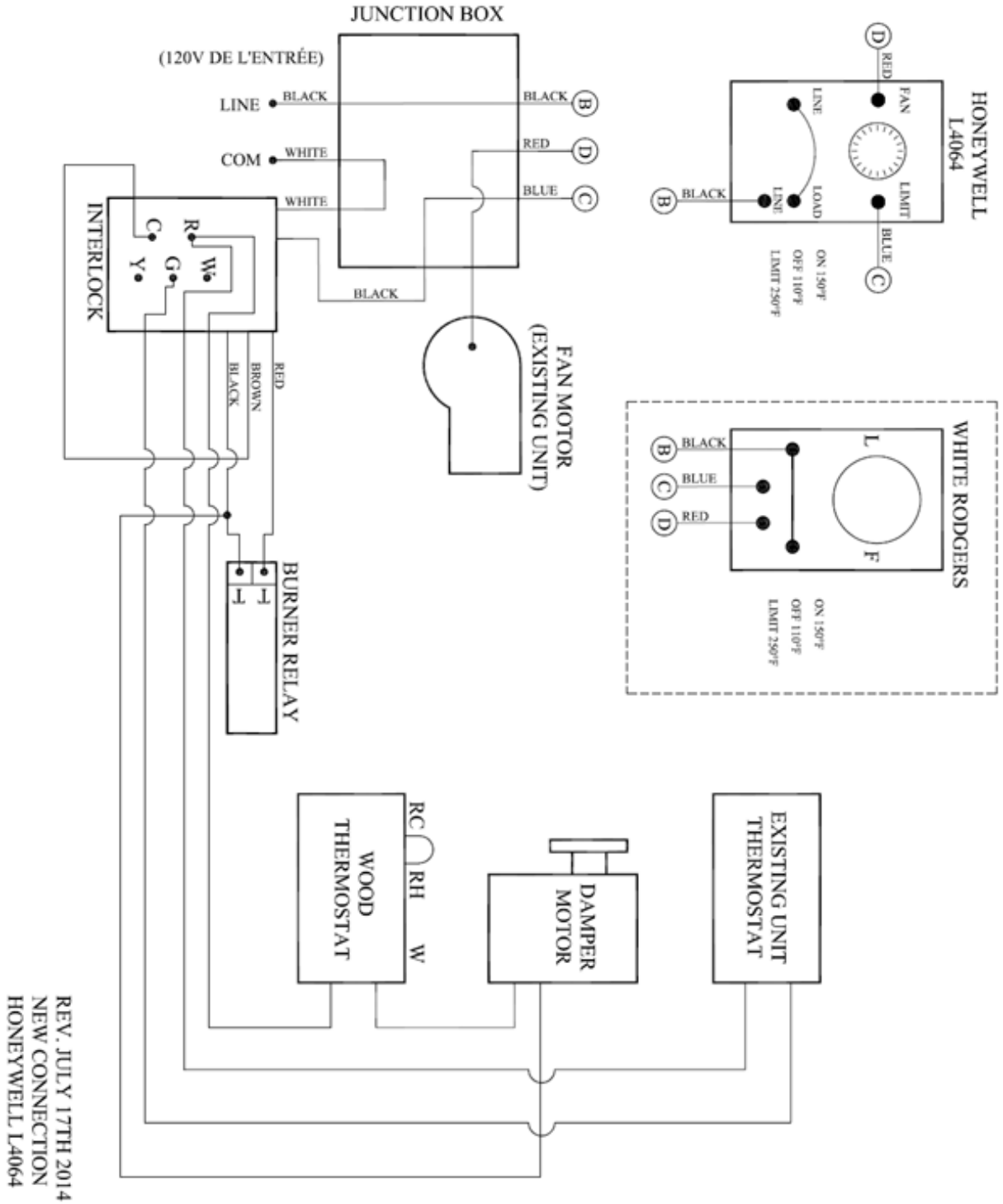
WARNING
ONLY USE WIRES SUITABLE FOR 75°C (167°F).

3.1.6.3 THERMOSTAT INSTALLATION

The thermostat must be installed on an inside wall in a location where it is not likely to be affected by the draft coming from an air outlet. It must be installed at a minimum of 55 inches above the floor. The Caddy wood Add-on furnace's thermostat must be set to a temperature slightly higher (3°C to 5°C) than the existing furnace. It controls the opening or closing of the air intake of the wood Add-on furnace.

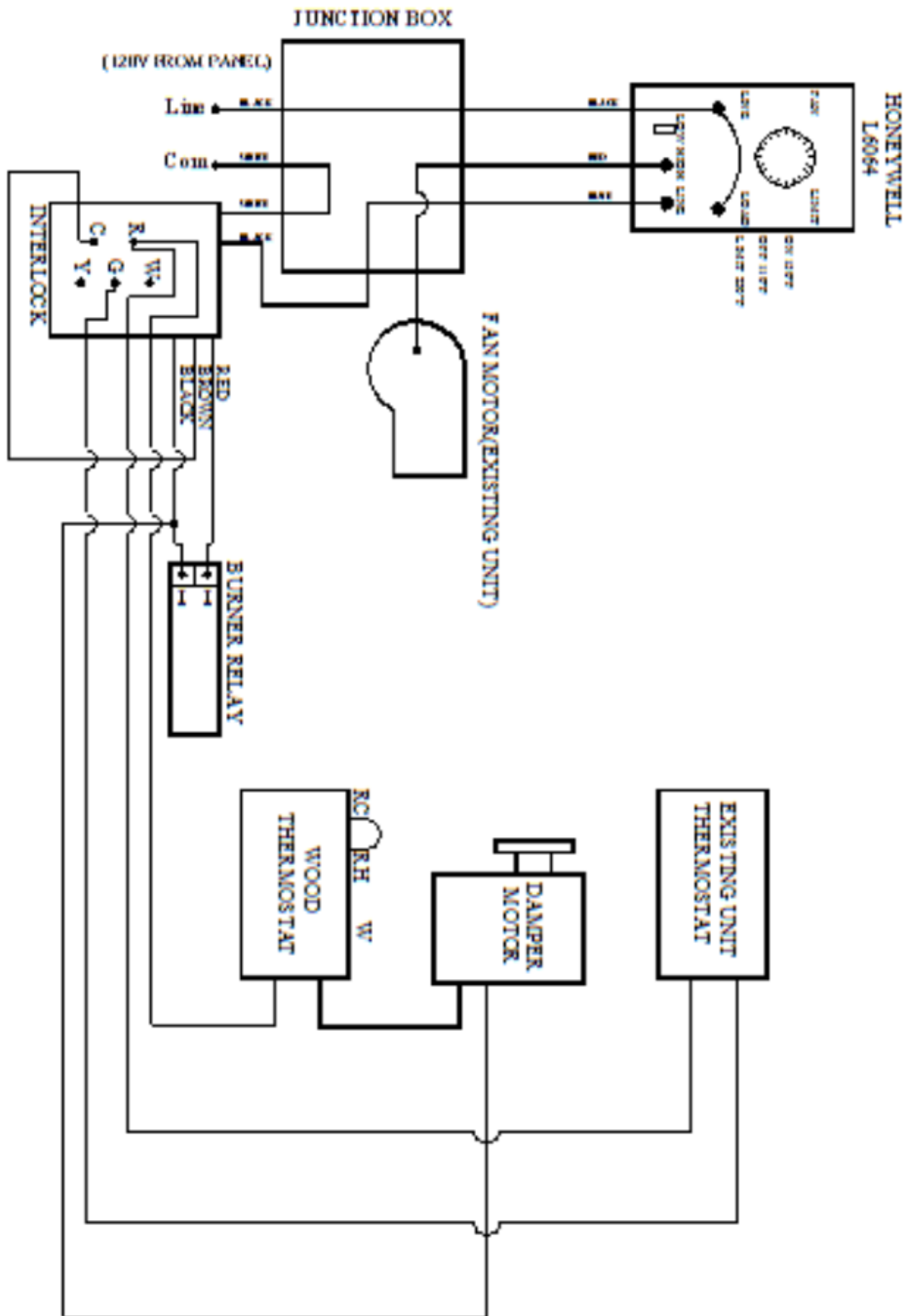
3.1.6.4 WIRING DIAGRAM FOR CONNECTION OF THE CADDY ADD-ON WITH AN EXISTING OIL FURNACE

Caddy add-on with an existing oil furnace (fan limit L4064)



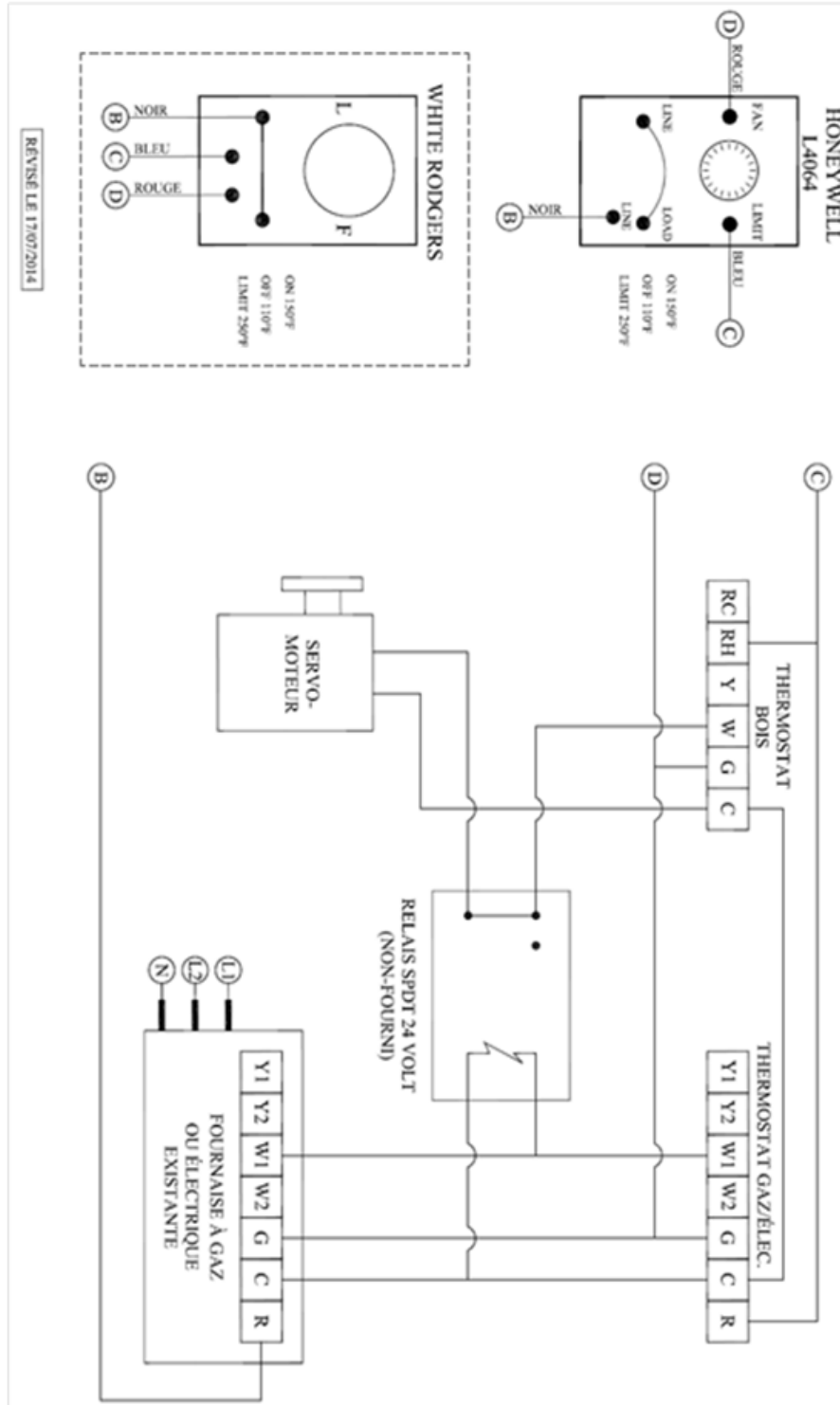
Refer to electric diagram included with the fan limit for wood add-on furnace.

Caddy add-on with an existing oil furnace (fan limit L6064)



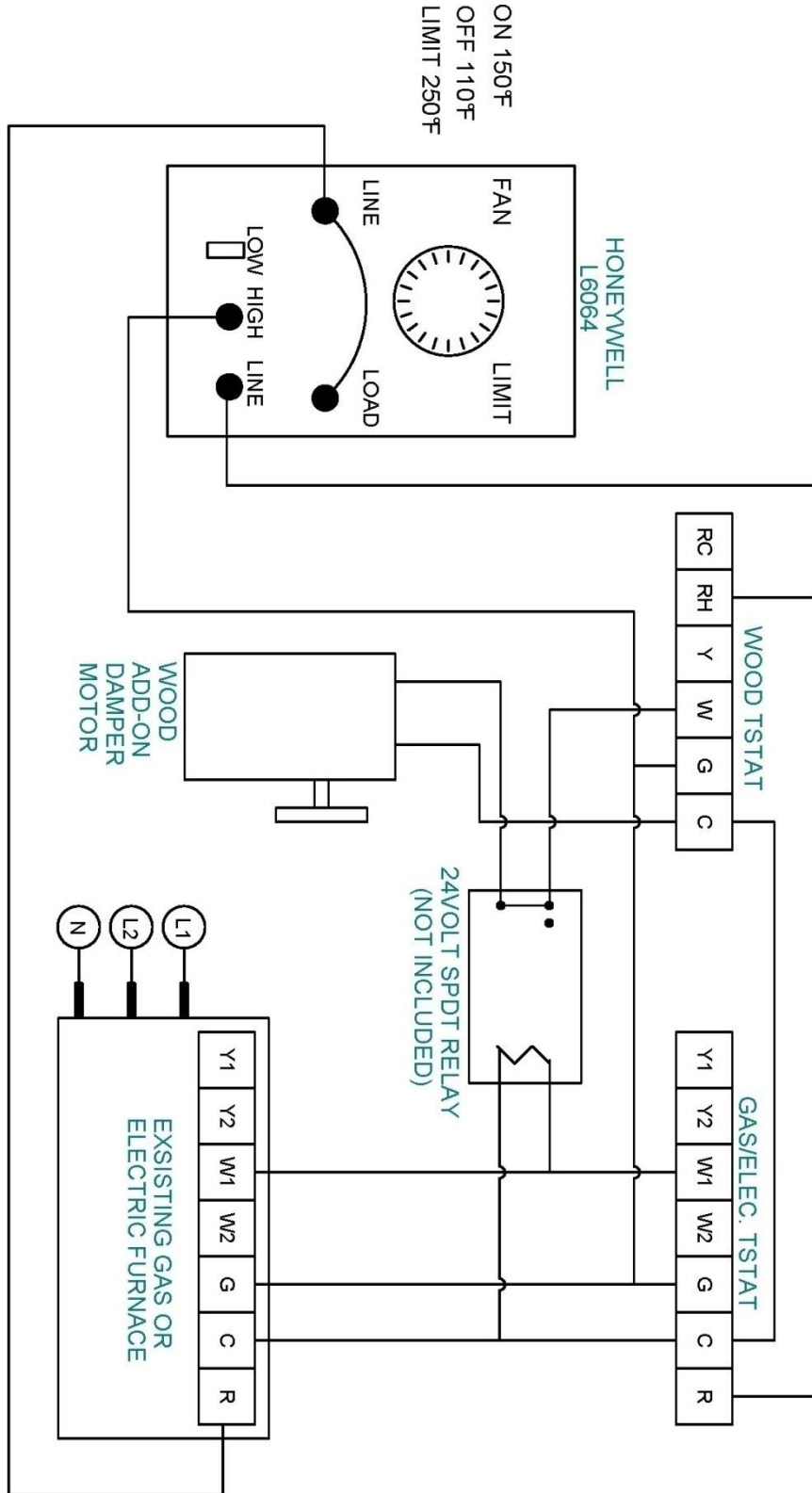
3.1.6.5 WIRING DIAGRAM FOR CONNECTION OF THE CADDY ADD-ON WITH AN EXISTING GAS OR ELECTRIC FURNACE

Caddy add-on with an existing gas or electric furnace (fan limit L4064)



Refer to electric diagram included with the fan limit for wood add-on furnace.

Caddy add-on with an existing gas or electric furnace (fan limit L6064)



3.1.7 OPERATING INSTRUCTIONS

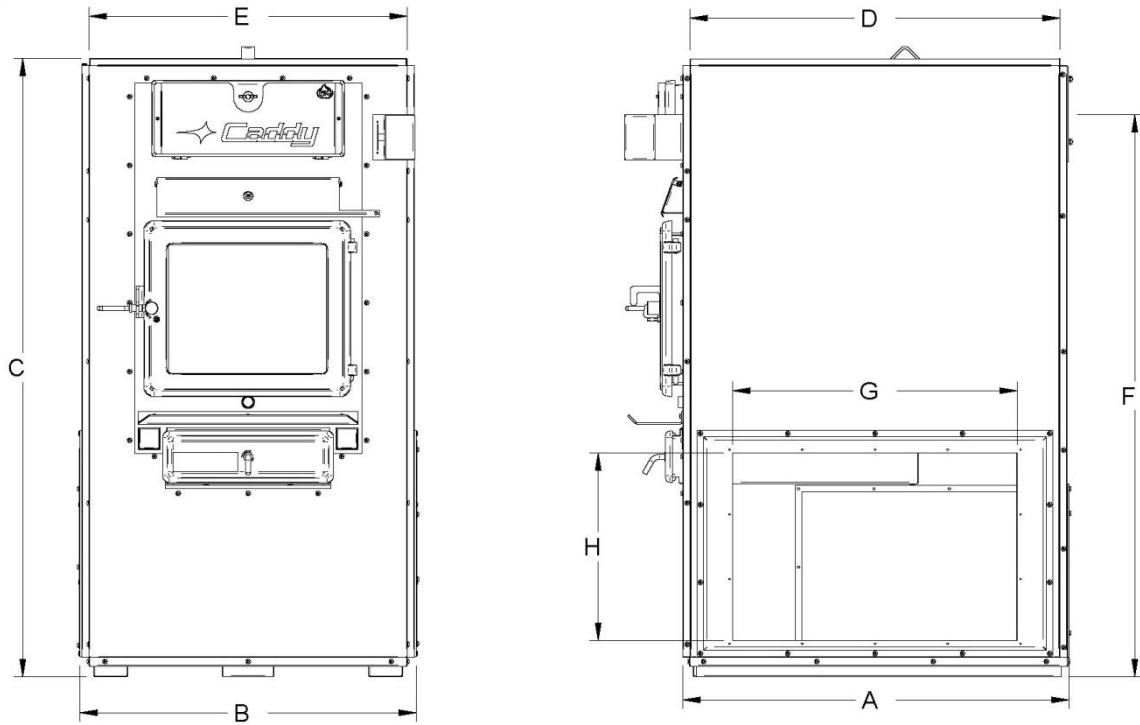
Operate the existing furnace periodically to ensure that it will operate satisfactorily when needed.

On the wood furnace, the thermostat controls the air inlet damper. When the thermostat calls for heat, the damper opens and the combustion is stirred up. When the furnace gets hot enough, the fan limit control activates the blower motor at the speed selected for wood heating.

When there is no call for heat, the air inlet damper must be completely closed and the chain must be affixed to the damper motor at the “8 o’clock” position. *

*(With all reserve on the minimum air to be increased depending on the type and quality of the combustible)

3.1.8 TECHNICAL DATA CADDY ADD-ON



	ADD-ON
A	29 7/8"
B	26"
C	47 7/8"
D	28 3/4"
E	24 9/16"

	ADD-ON
F	43 1/2"
G	22"
H	14 1/2"
FLUE	6"
WEIGHT	510 Lb

GÉNÉRAL TECHNICAL DATA

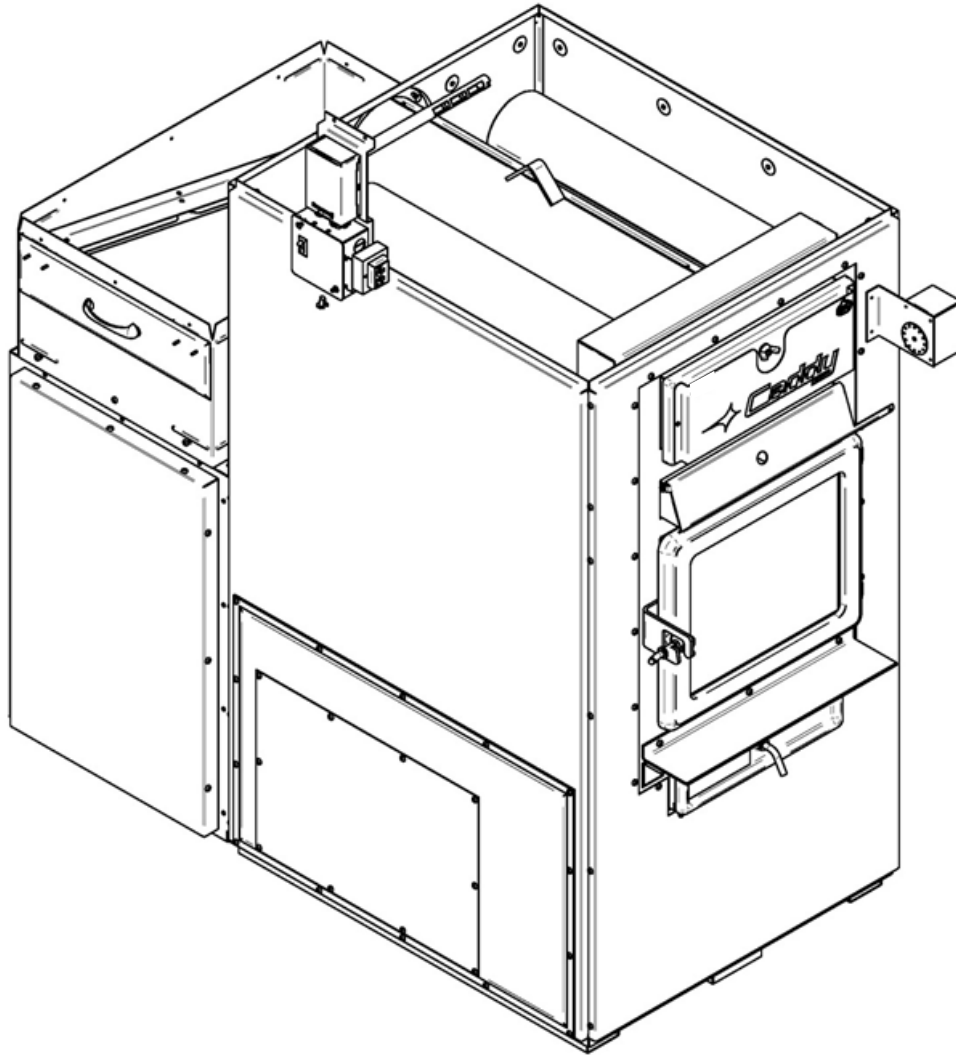
MODELE	TEMP. VARIABLE (°F)	BTU/HR (WOOD)	STATIC PRESSURE	
			MIN.	MAX. H ₂ O
CADDY ADD-ON	78	140 000	0,2	0,5

① CADDY ADD-ON

Installation instructions for

①

CADDY WOOD ONLY FURNACE PF01010 + PA08568 + PA00500



② CADDY WOOD ONLY

3.2 ② CADDY WOOD ONLY FURNACE

3.2.1 NECESSARY COMPONENTS FOR CADDY WOOD ONLY FURNACE

To use the configuration of the Caddy wood only furnace you have to assemble the blower assembly and fan limit control (PA08568), sold separately. The assembly instructions are in the instruction manual supplied with the blower assembly kit.

3.2.2 APPLIANCE INSTALLATION

3.2.2.1 UNIT LOCATION

The furnace must be installed where outside air supply will be sufficient for proper combustion. In airtight houses, it might be necessary to install an outside air inlet (see details in **Section 2.12.**)

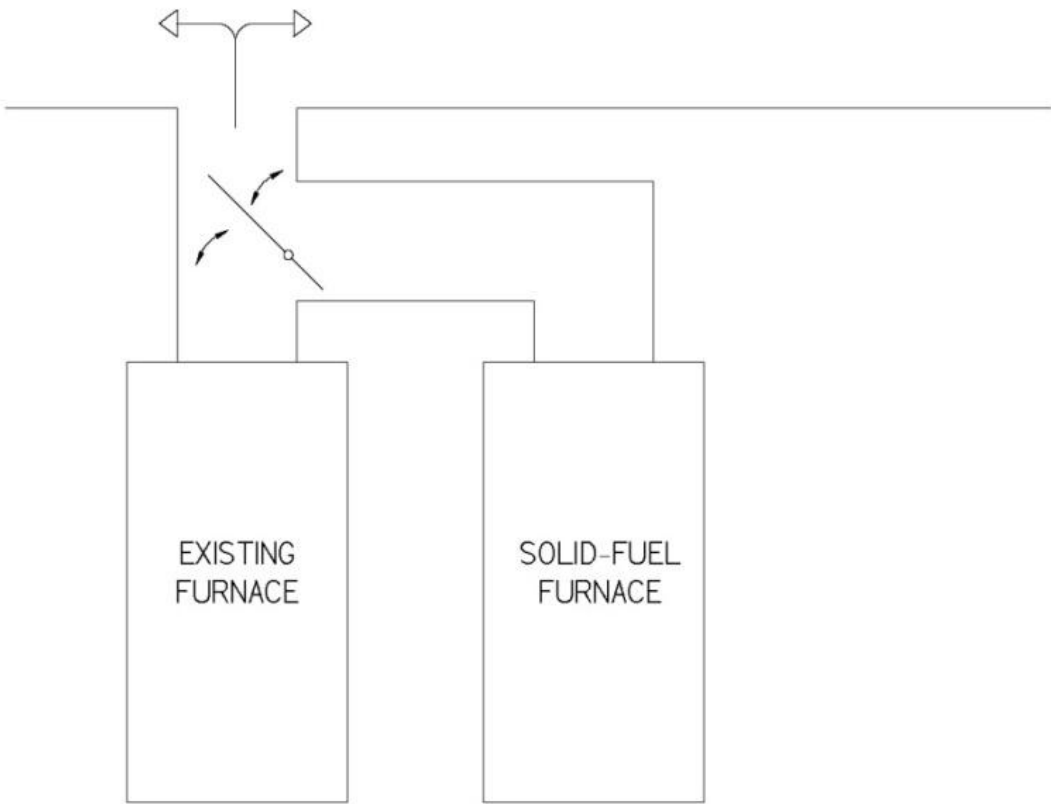
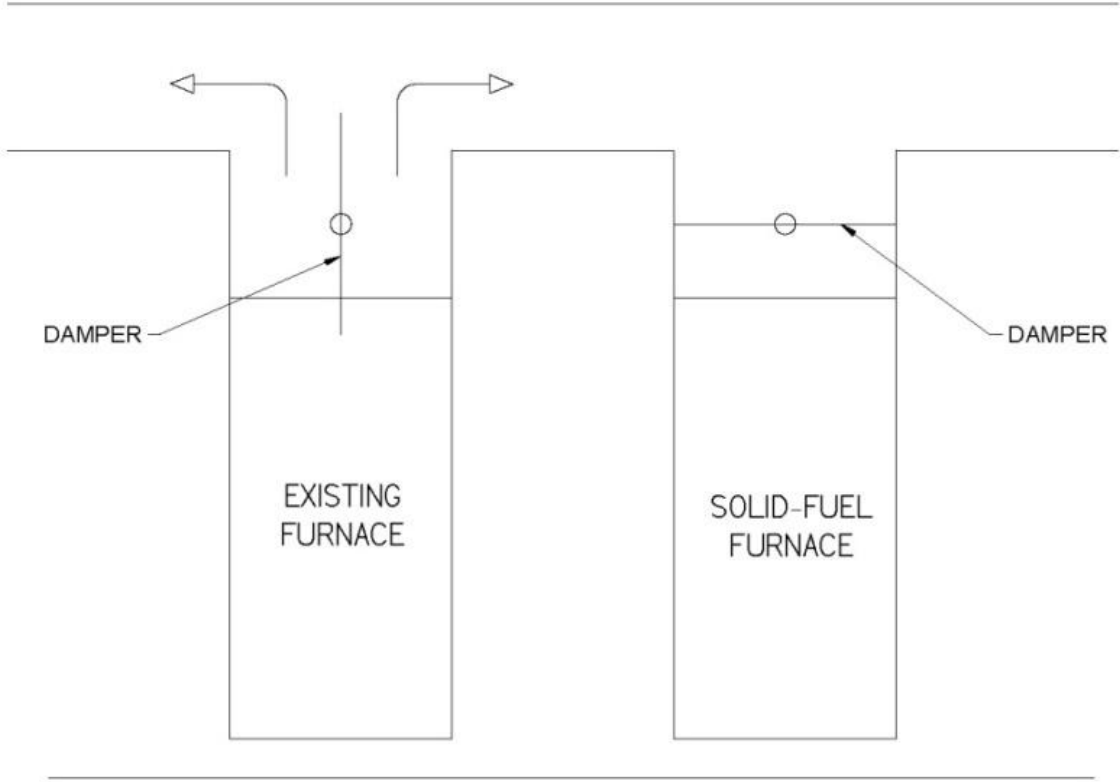
The furnace must be positioned so that the connector is as short as possible. Minimize the use of 90° elbows.

The owner must ensure a proper installation to allow a safe operation of the appliance.

3.2.2.2 PARALLEL INSTALLATION

Parallel installation with another furnace that shares the same ducts system is **not permitted in Canada**. That type of installation is **permitted in the USA only**. In parallel installation, the maximum heat input of the existing gas, oil or electric furnace should be equal or superior to that of the wood furnace. Duct clearances must be respected as if the wood furnace was installed by itself. Necessary adjustments must be made to the distribution ducts so as to maintain static pressure between 0.20 and 0.05 in W.C. A back flow damper must be installed in order to make sure that the hot air circulates to the house and does not flow back through the plenum of the unused furnace. Depending on the type of installation, a damper may have to be installed in the plenum of both furnaces.

② CADDY WOOD ONLY



3.2.2.3 MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

N.B.: THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS ON THE CERTIFICATION PLATE APPLIED ON THE UNIT.

The floor on which the furnace is installed may be combustible. On a combustible floor, use a protective plate exceeding 8 inches on each side of the unit, 16 inches from the front of the door in the United States and 18 inches from the front of the door in Canada is required.

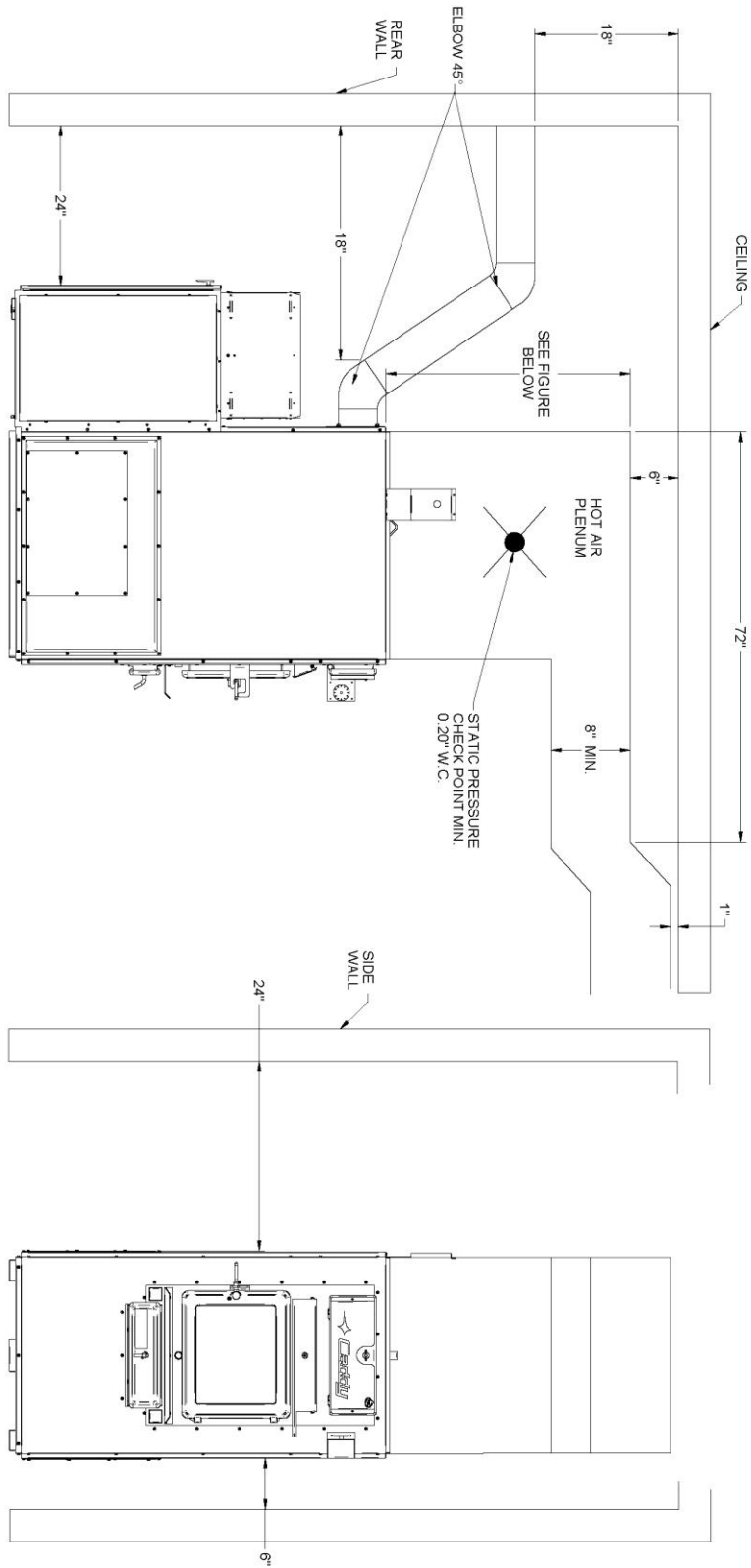


Figure 3.2.2.3 a

② CADDY WOOD ONLY

N.B.: TO ENSURE ADEQUATE STATIC PRESSURE, THE SYSTEM SHOULD BE BUILT IN A WAY THAT THE VOLUME OF COLD AIR RETURN IS AT LEAST EQUAL OR SLIGHTLY HIGHER THAN THE VOLUME OF THE HOT AIR DISTRIBUTION.

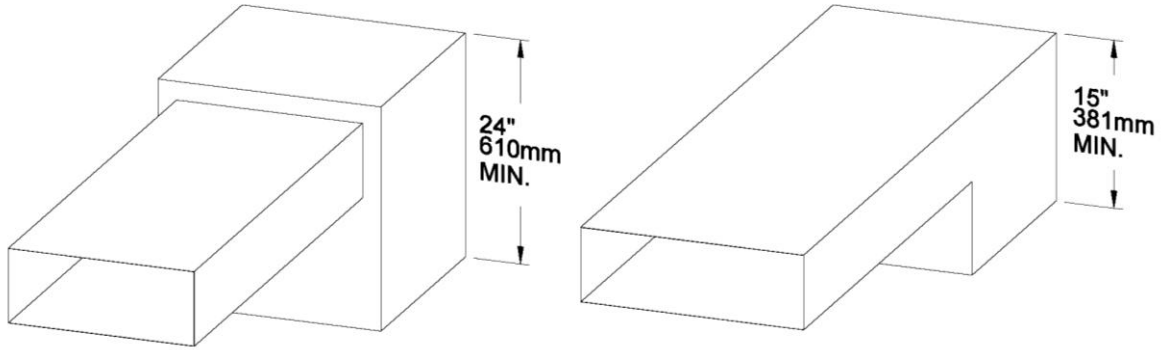


Figure 3.2.2.3 b - Hot air plenum minimal height.

The hot air plenum coming out of the furnace is to have a minimum height of 24" (610 mm) if the top of the first vertical section is not flush with the first horizontal section (see **Figure 3.2.2.3 b**). Otherwise, the minimum height is 15" (381 mm). These dimensions for all hot air furnaces are in accordance with the standards CSA B140.4, UL 391 and UL 727.

3.2.2.4 CONNECTING PIPE AND MANUAL DAMPER

The flue outlet on the Caddy wood only furnace is 6 inch inside diameter. In case of excessive draft, a barometric draft control must be installed. The barometric drafty control must be set so that the draft measured at the furnace outlet does not exceed -.06 in. W.C. Draft above -.06 in W.C. could result in an uncontrollable fire and furnace overheats. However, draft should not drop below -.04 in W.C. in the smoke pipe.

WARNING
DO NOT INSTALL A MANUAL DAMPER ON THIS FURNACE.

3.2.3 ELECTRICAL CONNECTIONS

The following instructions do not replace those of the local code.

Installation and verification of this appliance must be done by a qualified service man.

All wiring from the service panel to the heating unit must comply with the electrical code in force and all local regulations. It is recommended to feed the furnace with its own electrical circuit of 15 amps at 120 volts with a breaker (see wiring diagram).

Installation of the Caddy wood only furnace requires the use of the fan limit assembly for wood only option (PA00500) which must be purchased separately.

<u>WARNING</u> ONLY USE WIRES SUITABLE FOR 75°C (167°F).

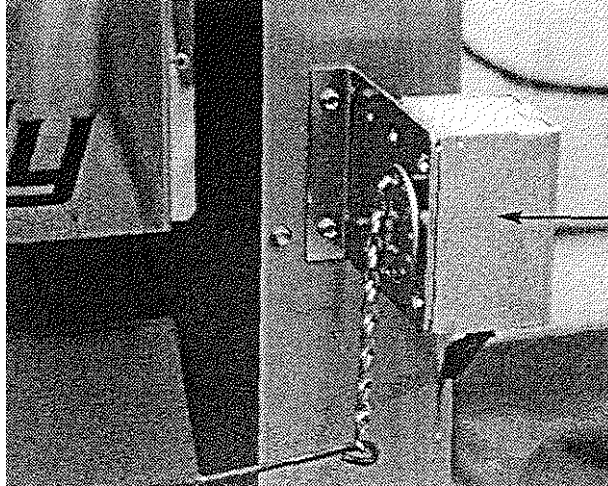
3.2.3.1 INSTALLATION OF THE FAN LIMIT CONTROL

To install the fan limit control, refer to the assembly manual supplied with the blower assembly (PA08568), sold separately.

3.2.3.2 SERVOMOTOR INSTALLATION

Install the servomotor on the right side of the front of the furnace; above the door (use the pre-drilled holes). The chain that links the air inlet damper to the motor must have a play of 1/8". When there is no call for heat, the air inlet damper must be completely closed and the chain must be hooked to the servomotor at the "8 o'clock" position*.

*(With all reserve on the minimum air to be increased depending on the type and quality of the combustible)



SERVOMOTOR

Plastic grommets are installed on the upper edge of the blower box through which the blower cable (prewired 14-3 BX) will run before reaching the junction box located next to the blower where it will be connected.

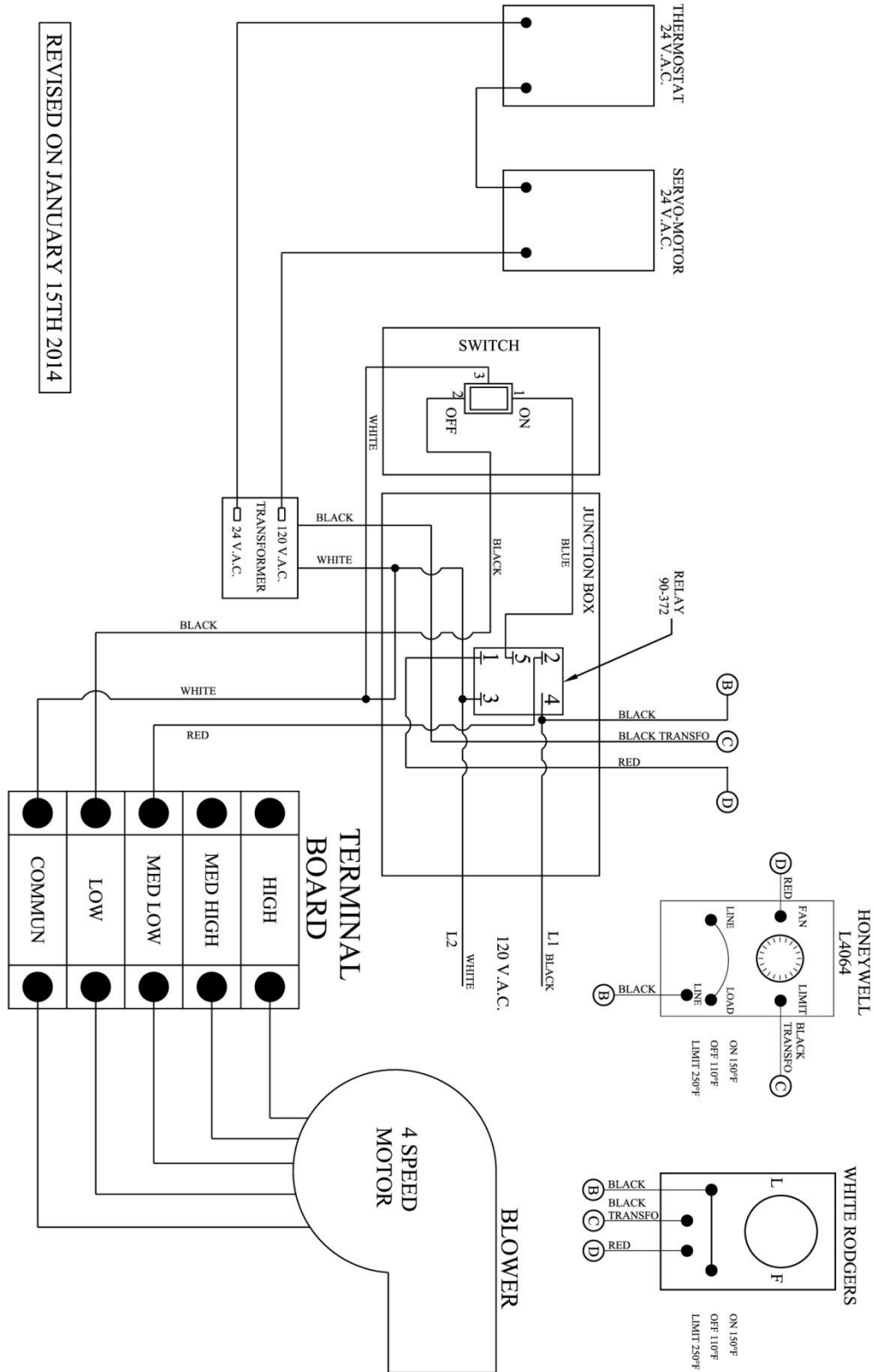
The low voltage control circuit will be fed from the transformer attached to the junction box of the fan limit assembly and the 120 volts circuit from the house electrical entrance will also be connected to that junction box as per the wiring diagram

3.2.3.3 THERMOSTAT INSTALLATION

The thermostat must be installed on an inside wall in a location where it is not likely to be affected by the draft coming from an air outlet. It must be installed at a minimum of 55 inches above the floor

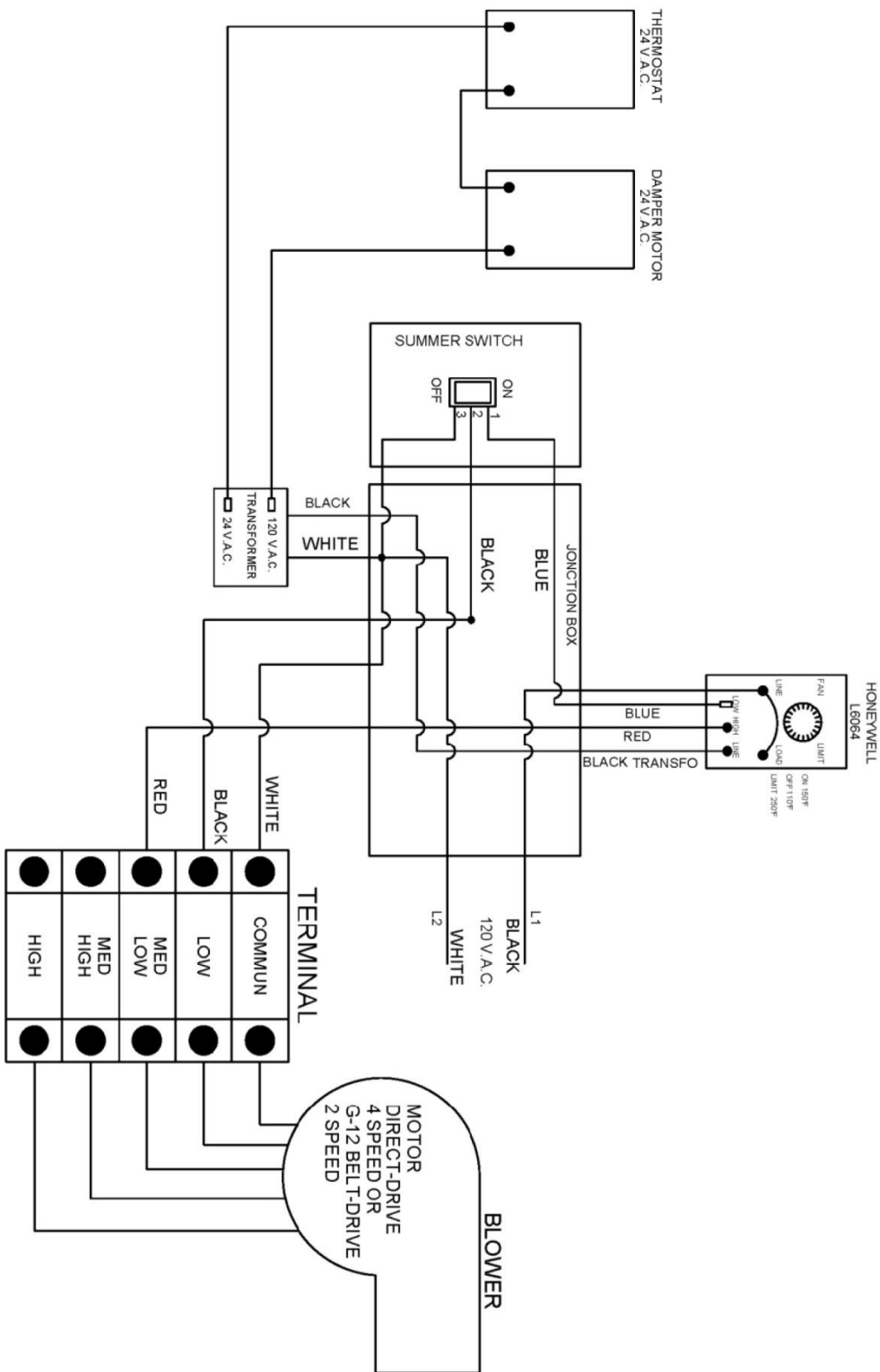
3.2.3.4 WIRING DIAGRAM

Combined wood only furnace (fan limit L4064)



Refer to electric diagram included with the fan limit for wood only furnace.

Combined wood only furnace (fan limit L6064)



② CADDY WOOD ONLY

3.2.4 OPERATING INSTRUCTIONS

3.2.4.1 CONTROL SYSTEM

On wood only furnaces, when the thermostat calls for heat, the air inlet damper opens and the fire stirs-up; when the temperature inside the furnace is sufficient, the fan limit control will turn the blower on at the speed selected for wood heating and this one will stay on until the temperature drops down to the fan OFF setting.

3.2.4.2 FAN LIMIT CONTROL

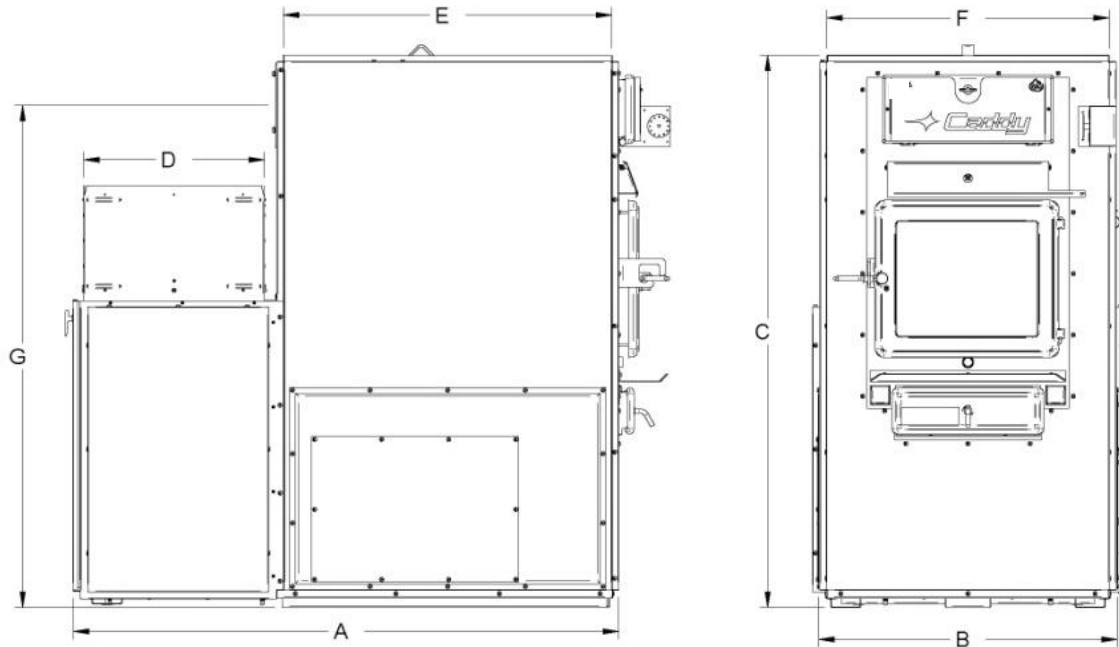
The fan limit control settings may need to be adjusted depending on the installation. They are set at 110 °F (fan OFF) and 150 °F (Fan ON) at the factory and these settings will work best in most installations.

For continuous operation of the blower, use the switch located below the fan limit control which controls the low speed either at the “on” position or the “off” position.

It is not recommended to let the blower run on continuous mode when heating with wood since the wood furnace must reach a certain temperature before the blower starts in order to operate efficiently.



3.2.5 TECHNICAL DATA CADDY



	CADDY
A	48"
B	26"
C	47 13/16"
D	15 3/4" X 24 3/4"
E	28 3/4"

	CADDY
F	24 9/16"
G	43 1/2"
FLUE	* 6"
WEIGHT	590 lb

* If desired, to allow the retrofit to wood/oil configuration, we suggest the use of a 7" chimney, this way you wouldn't have to change the chimney. In that case, a 6" to 7" reducer must be installed at the flue outlet of the furnace.

3.2.5.1 GENERAL TECHNICAL DATA

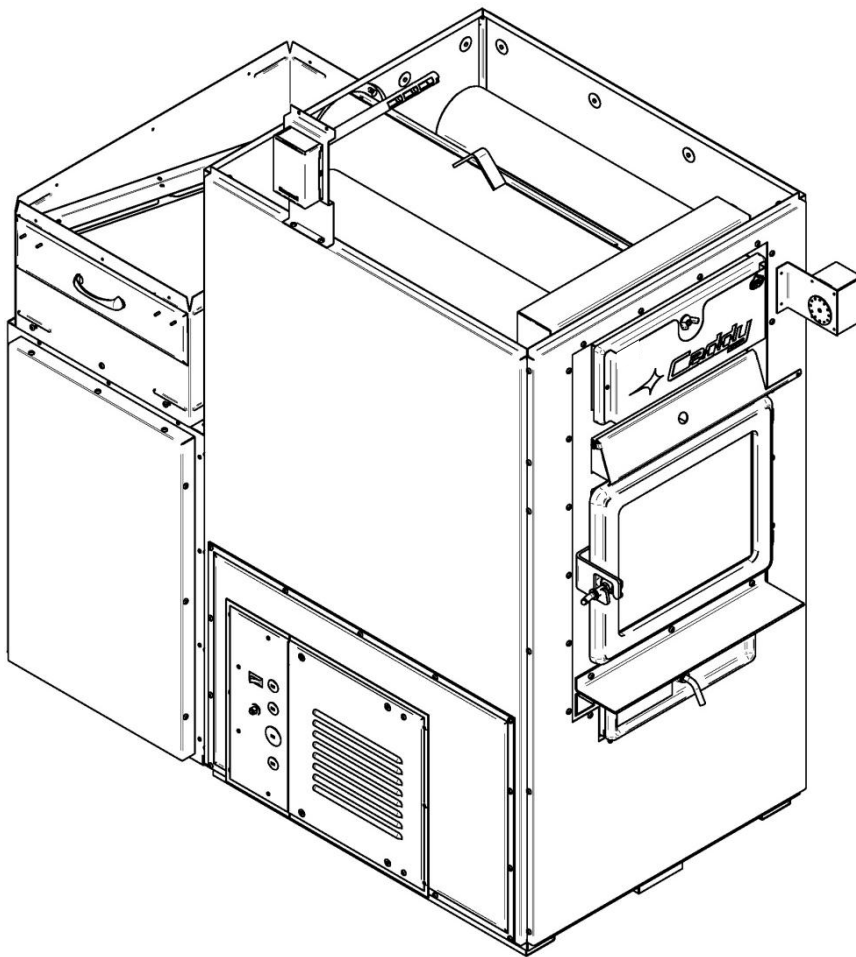
MODEL	(DIRECT DRIVE)			DEBIT (CFM)	TEMP VAR. (OF)	BTU/ H (BOIS)	STATIC PRESSURE		FILTER (2)
	VENT	MOT.	VIT.				MIN.	MAX.	
CADDY	DD-10	1/3	4	1300	78	140000	H2O 0,2 0,5		25" x 14" x 1"

② CADDY WOOD ONLY

Installation instructions for

③

CADDY WOOD/ELECTRIC COMBINATION FURNACE PF01010 + PA08568 + PA01000, PA01050 ou PA01100



③

CADDY WOOD/ELECTRIC

3.3 ③ CADDY WOOD/ELECTRIC COMBINATION FURNACE

3.3.1 NECESSARY COMPONENTS FOR CADDY WOOD/ELECTRIC COMBINATION FURNACE

To use the configuration of the Caddy wood/electric furnace you have to assemble the blower assembly (PA08568), sold separately. The assembly instructions are in the instruction manual (**Step 1 to 5**) supplied with the blower assembly kit.

3.3.2 INTRODUCTION

The optional “electric element 15, 18 or 20 kW (PA01000 – PA01050 and PA01100)” contain all the necessary components to assemble this configuration.

WARNING
USE WIRES SUITABLE FOR 75 °C OR MORE.

Your electric unit includes a protection device against overheating; that is a manual reset L-170 disc control.

In some first generation furnaces, the L-200 automatic reset heat sensor is absent and a second fan limit control is included that is used for the same purpose. Remove the knock-out located on the left side of the furnace near the electric unit, insert the probe in the hole, secure the fan limit control to the furnace and connect the cable (14-2) inside the electric unit at the same location as the L-200 on the diagram.

3.3.3 APPLIANCE INSTALLATION

3.3.3.1 UNIT LOCATION

The furnace must be installed where outside air supply will be sufficient for proper combustion. In airtight houses, it might be necessary to install an outside air inlet (see details in **Section 2.12.**)

The furnace must be positioned so that the connector is as short as possible. Minimize the use of 90° elbows.

The owner must ensure a proper installation to allow a safe operation of the appliance.

3.3.3.2 PARALLEL INSTALLATION

See **Section 3.2.2.2**, in Caddy wood only furnace.

3.3.3.3 MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

N.B.: THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS ON THE CERTIFICATION PLATE APPLIED ON THE UNIT.

The floor on which the furnace is installed may be combustible. On a combustible floor, use a protective plate exceeding 8 inches on each side of the unit, 16 inches from the front of the door in the United States and 18 inches from the front of the door in Canada is required.



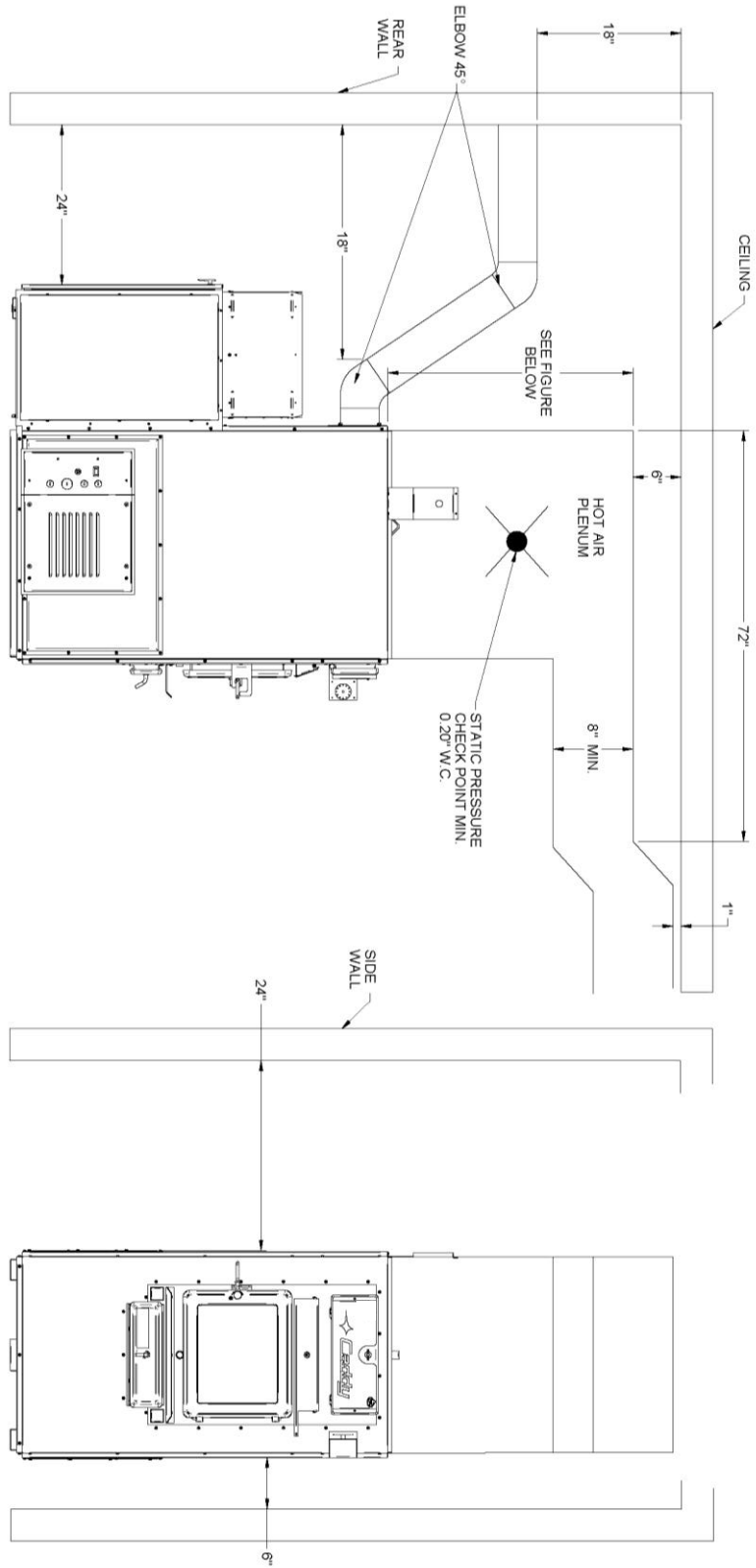


Figure 3.3.3.3 a

N.B.: TO ENSURE ADEQUATE STATIC PRESSURE, THE SYSTEM SHOULD BE BUILT IN A WAY THAT THE VOLUME OF COLD AIR RETURN IS AT LEAST EQUAL OR SLIGHTLY HIGHER THAN THE VOLUME OF THE HOT AIR DISTRIBUTION.

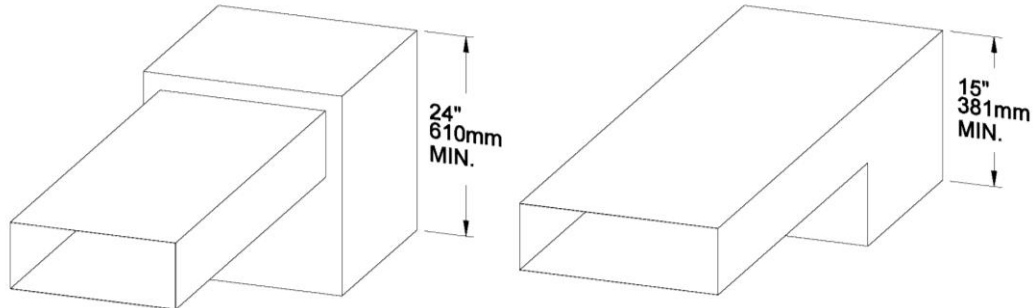


Figure 3.3.3.3 b - Hot air plenum minimal height.

The hot air plenum coming out of the furnace is to have a minimum height of 24" (610 mm) if the top of the first vertical section is not flush with the first horizontal section (see **Figure 3.3.3.3 b**). Otherwise, the minimum height is 15" (381 mm). These dimensions for all hot air furnaces are in accordance with the standards CSA B140.4, UL 391 and UL 727.

3.3.3.4 CONNECTING PIPE AND MANUAL DAMPER

See **Section 3.2.2.4**, in Caddy wood only furnace.

3.3.4 ELECTRICAL CONNECTIONS

The following instructions do not replace those of the local code.

Installation and verification of this appliance must be done by a qualified service man.

All wiring from the service panel to the heating unit must comply with the electrical code in force and all local regulations. It is recommended to feed the furnace with its own electrical circuit of 15 amps at 120 volts with a breaker (see wiring diagram).

3.3.4.1 SERVOMOTOR INSTALLATION

See **Section 3.2.3.2**, in Caddy wood only furnace.

3.3.4.2 THERMOSTAT INSTALLATION

N.B.: THE WOOD/ELECTRIC USES TWO THERMOSTATS INSTALLED AT THE SAME HEIGHT FROM THE FLOOR.

See **Section 3.2.3.3**, in Caddy wood only furnace.

3.3.4.3 ELECTRIC UNIT

The wood/electric combination model uses two wall thermostats; one controls the electric heat and the other one the wood heat. In this configuration, the electric heat has priority over the wood.

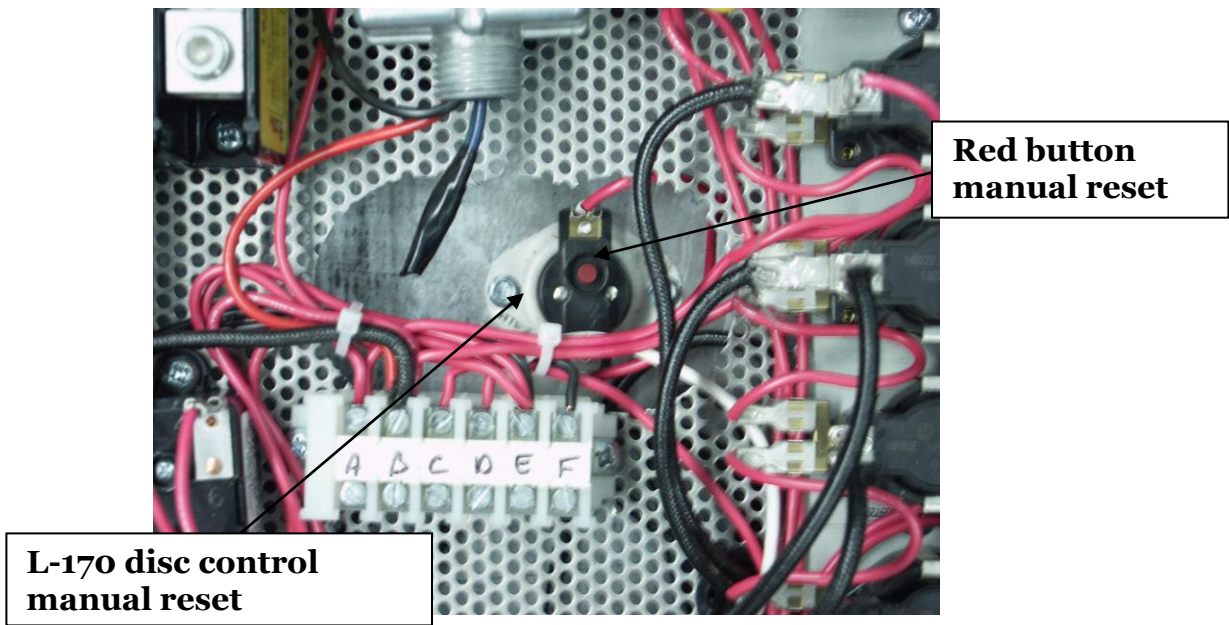
Whenever there is a call for heat from the electric thermostat, the air intake damper closes, the blower kicks on and the electric elements turn on in sequence of 4 to 5 kW at a time.

When the demand for electric heat is satisfied, the wood system will be reactivated if the wood thermostat is set higher than the electric thermostat.

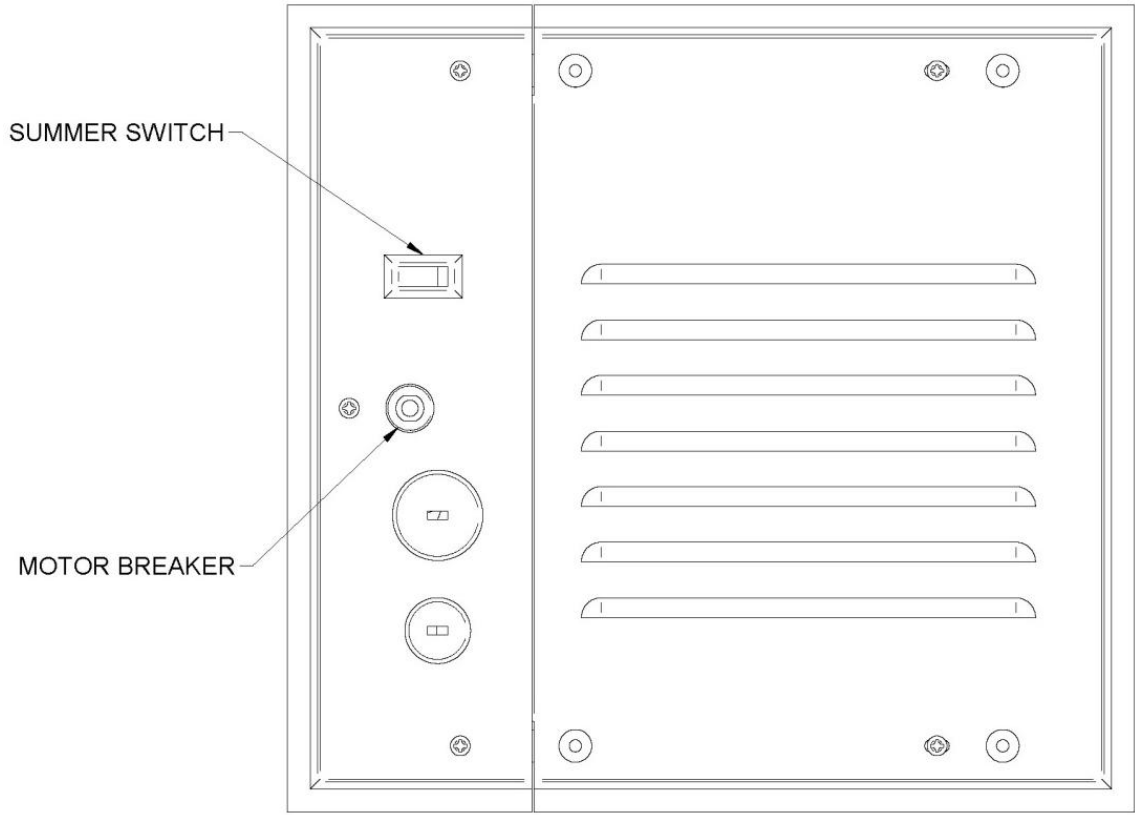
In normal wood/electric operation, the wood thermostat should be set slightly higher (3°C or 5°F) than the electric thermostat to allow the wood furnace to stabilize the temperature before the electric thermostat calls for heat. The bigger the increment, the more wood will contribute to the global heating needs.

This furnace's blower uses a four speed motor; one speed (LOW) is controlled by the manual switch for summer operation. Three heating speeds are available (MED-LOW, MED-HIGH AND HIGH) and will be selected according to the duct size and the needs for ventilation.

If the temperature in the electric unit reaches 170°F, the L-170 disc control will cut the power to the elements and it will have to be reset manually. Find and correct the cause of overheating before reactivating the unit.



INSIDE VIEW OF THE ELECTRIC UNIT



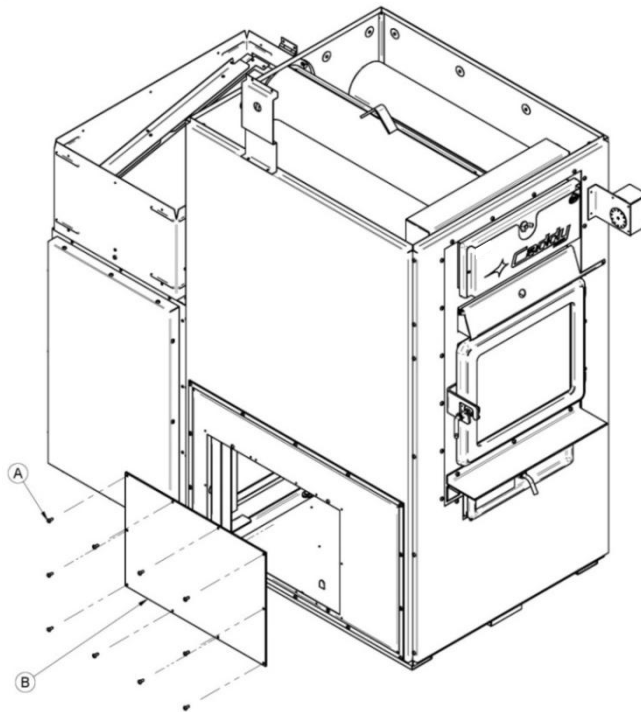
OUTSIDE VIEW OF THE ELECTRIC UNIT

3.3.4.4 OPTIONAL ELECTRIC ELEMENT AND FAN LIMIT CONTROL INSTALLATION

Your Caddy furnace can be installed with an optional electric element (15, 18 or 20 kW). The installation must be performed by a qualified professional.

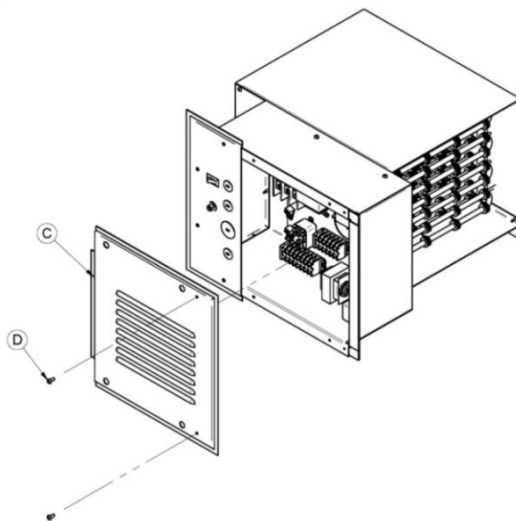
1

Remove the screws (A) securing the electric unit access panel (B) to the left side of the furnace. Keep the screws, but you may dispose of the cover.



2

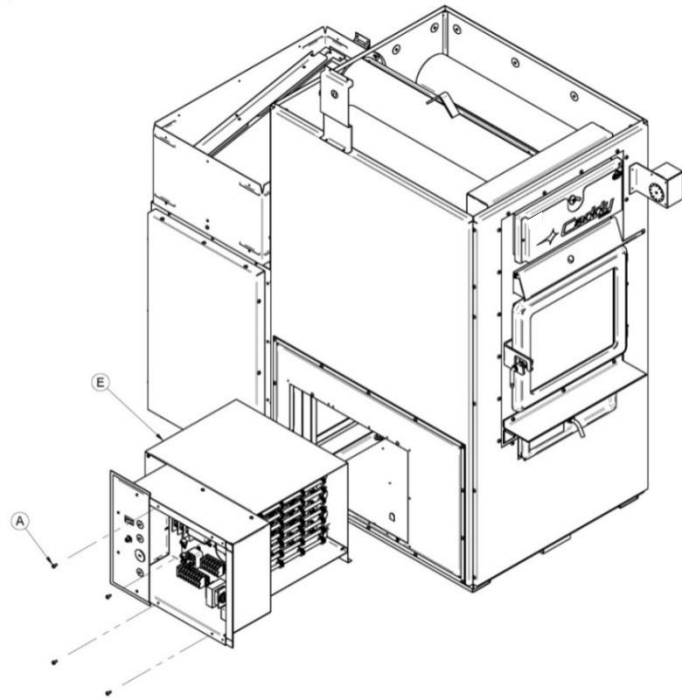
Remove the panel (C) from the electric element option. Keep the screws (D).



3

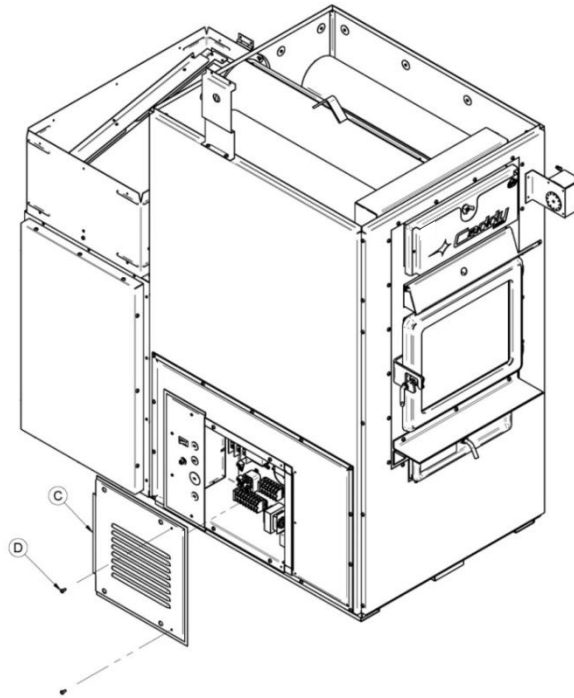
Once the wiring as per the wiring diagram in this section is completed, slide the electric element assembly (E) into the left hand side opening in the furnace cabinet.

To secure the electric element box to the furnace, use four of the eight screws (A) kept in **Step 1**. You may dispose of the remaining screws.



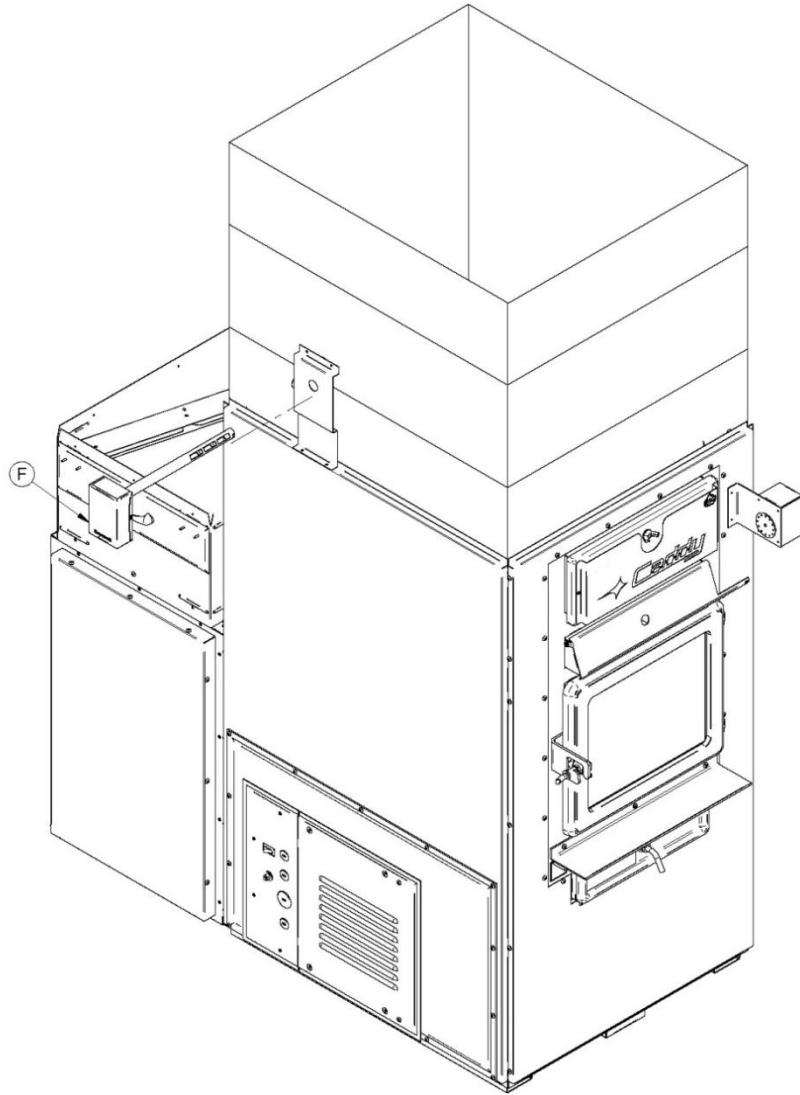
4

Secure the electric element panel (C) with the screws kept in **Step 2**.



5

Remove the fan limit control's cover (F). Secure the fan limit control bracket provided with your furnace, on the top edge of the left or right side of the unit (*two holes on each side have already been drilled on the edges of the furnace*). Drill a hole in the plenum, across from the hole in the support bracket. Slide the fan limit control's probe in the opening on the support bracket and into the plenum. Secure the fan limit control (G) on the support bracket with self-taping screws, not provided.

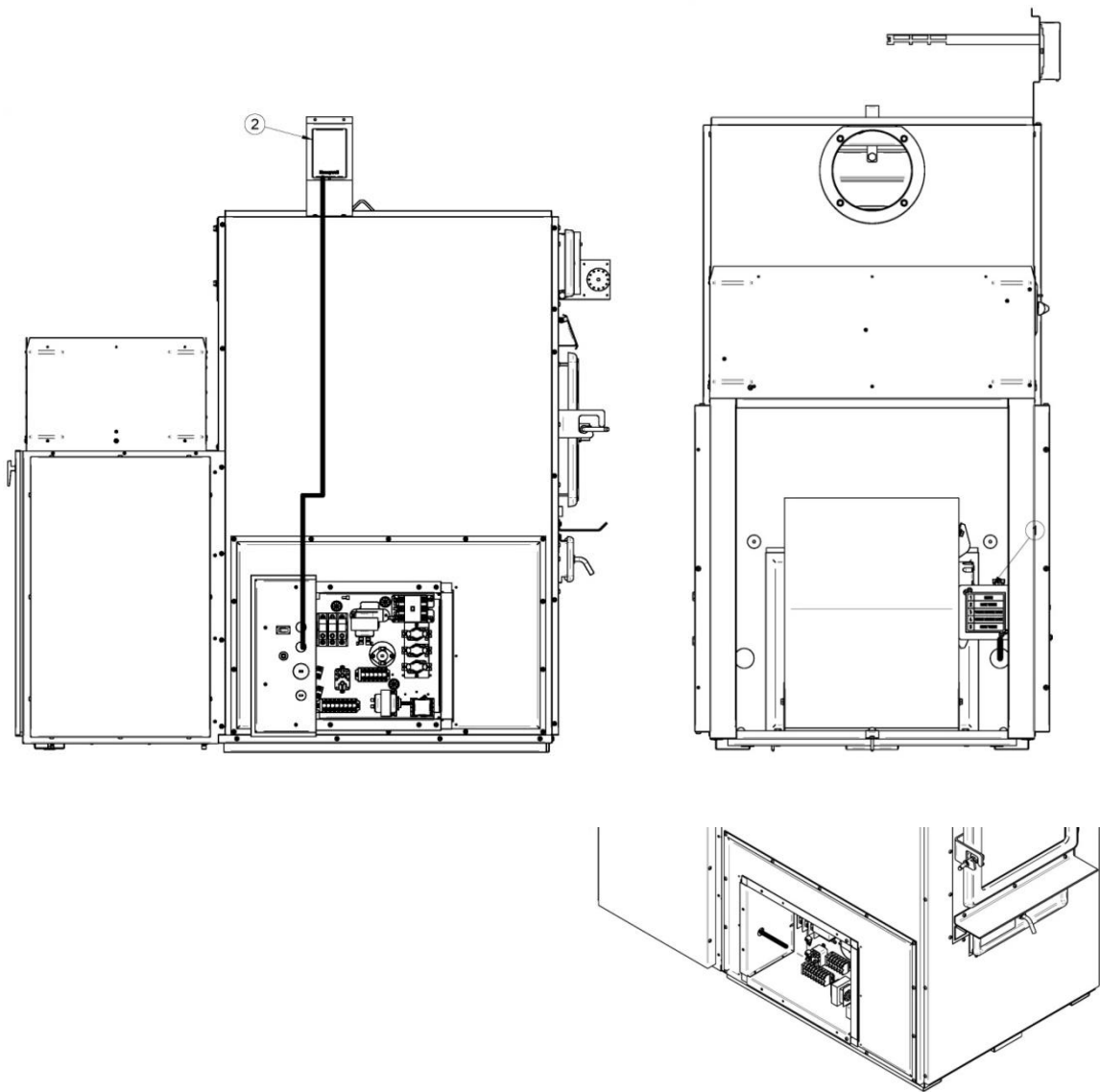


6

Using a flat screwdriver, remove the three knockouts located on the left electric element panel. Remove also the knockout on the right lower corner on the back of the furnace.

Run the long “BX” cable from the fan limit control (2) through the **middle** opening made on the electric element panel.

Run the short “BX” cable from the blower (1) through the opening made on the right lower corner on the back of the furnace to the electric element, as illustrated below.

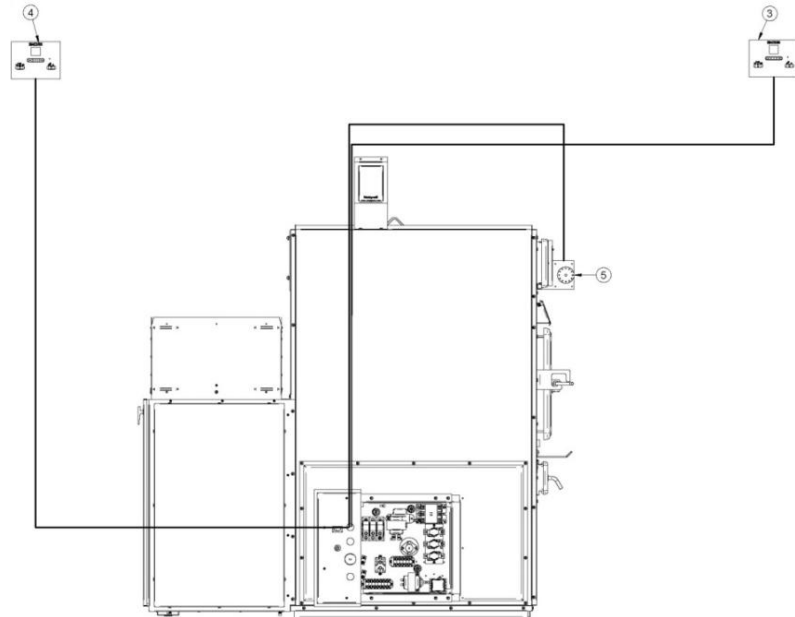


7

Run an 18-2 cable (not supplied) from the thermostat (3) included with your furnace through the **top** opening made in **Step 6**.

Run an 18-2 cable (not supplied) from the thermostat (4) included with your electric element through the **top** opening made in **Step 6**.

Run an 18-2 cable (not supplied) from the servomotor (5) through the **top** opening made in **Step 6**.



Here's where the cables from **Steps 6** and **7** should go through the left electric element access panel.

Top knockout:

Cables coming from both thermostats and from the servomotor.

Middle knockout:

Cable coming from the fan limit control.

Bottom knockout:

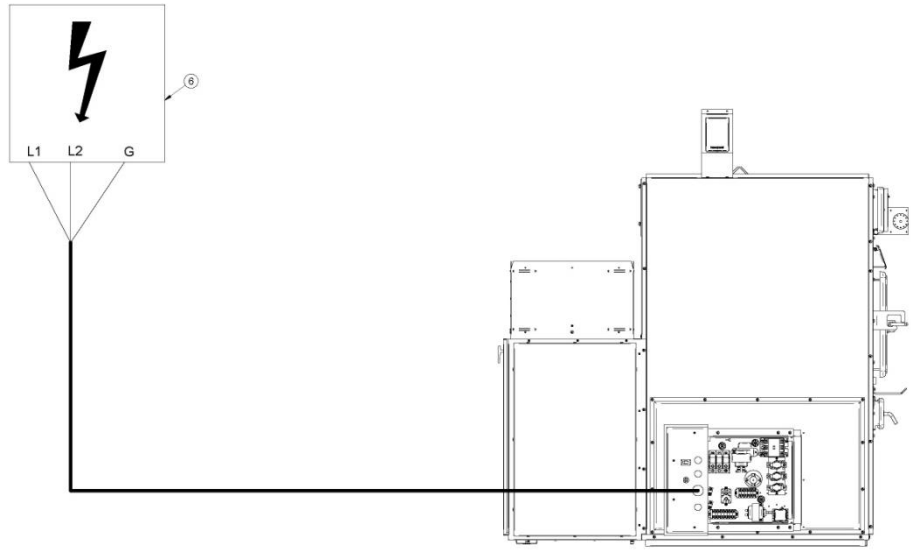
Cable coming from the blower.

The short "BX" cable from the blower will come from inside the blower box through the opening made on the right lower corner on the back of the furnace to the electric element (see **Step 6**).

8

Using a flat screwdriver, remove the largest knockout located on the left access panel of the electric element.

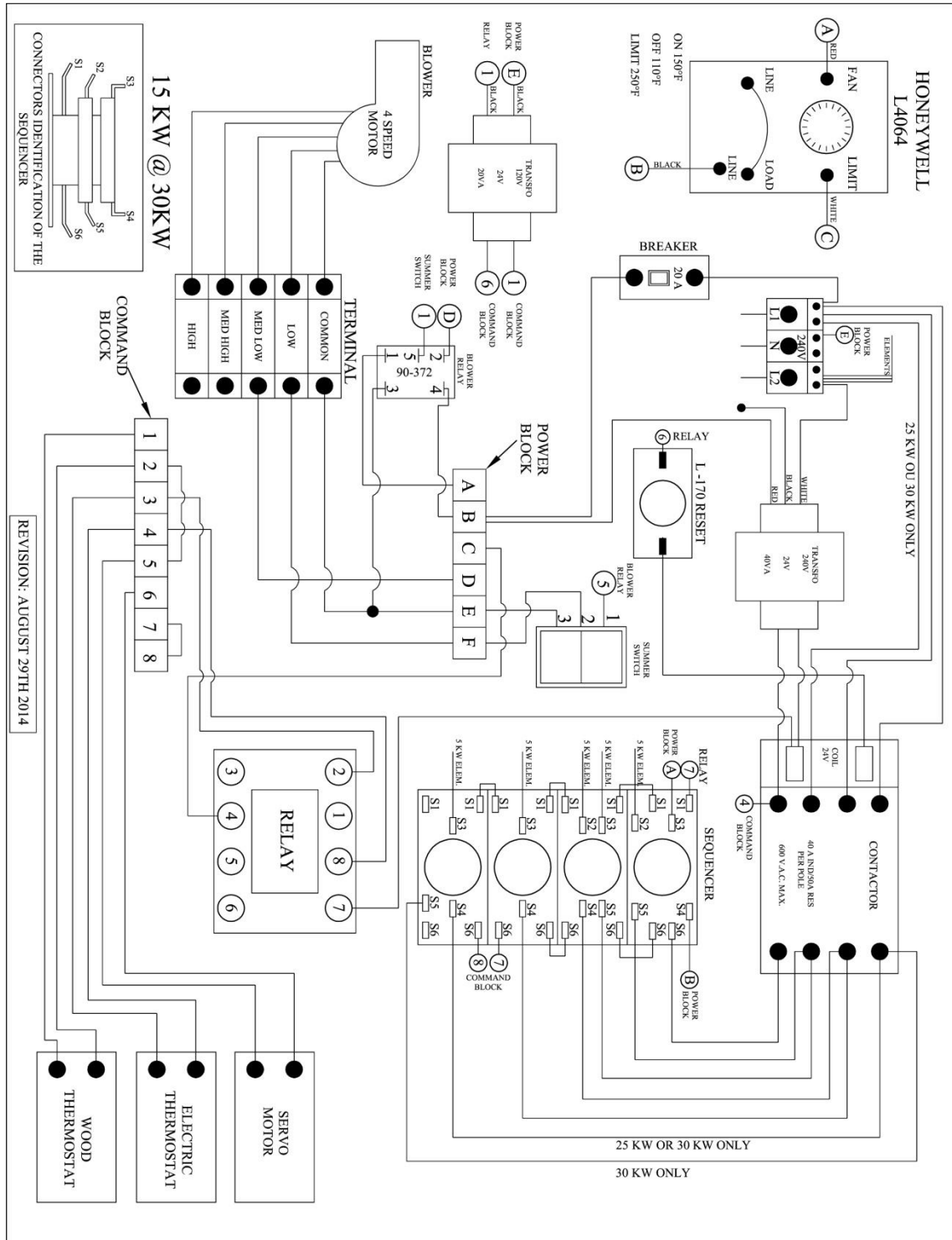
Run the feeder cable (not supplied) from the house main entrance (6) through the opening made in the left access panel.



Note: Refer to electrical diagram included with the electrical element for wiring.

3.3.4.5 WIRING DIAGRAM

Combined wood/electric furnace (fan limit L4064)



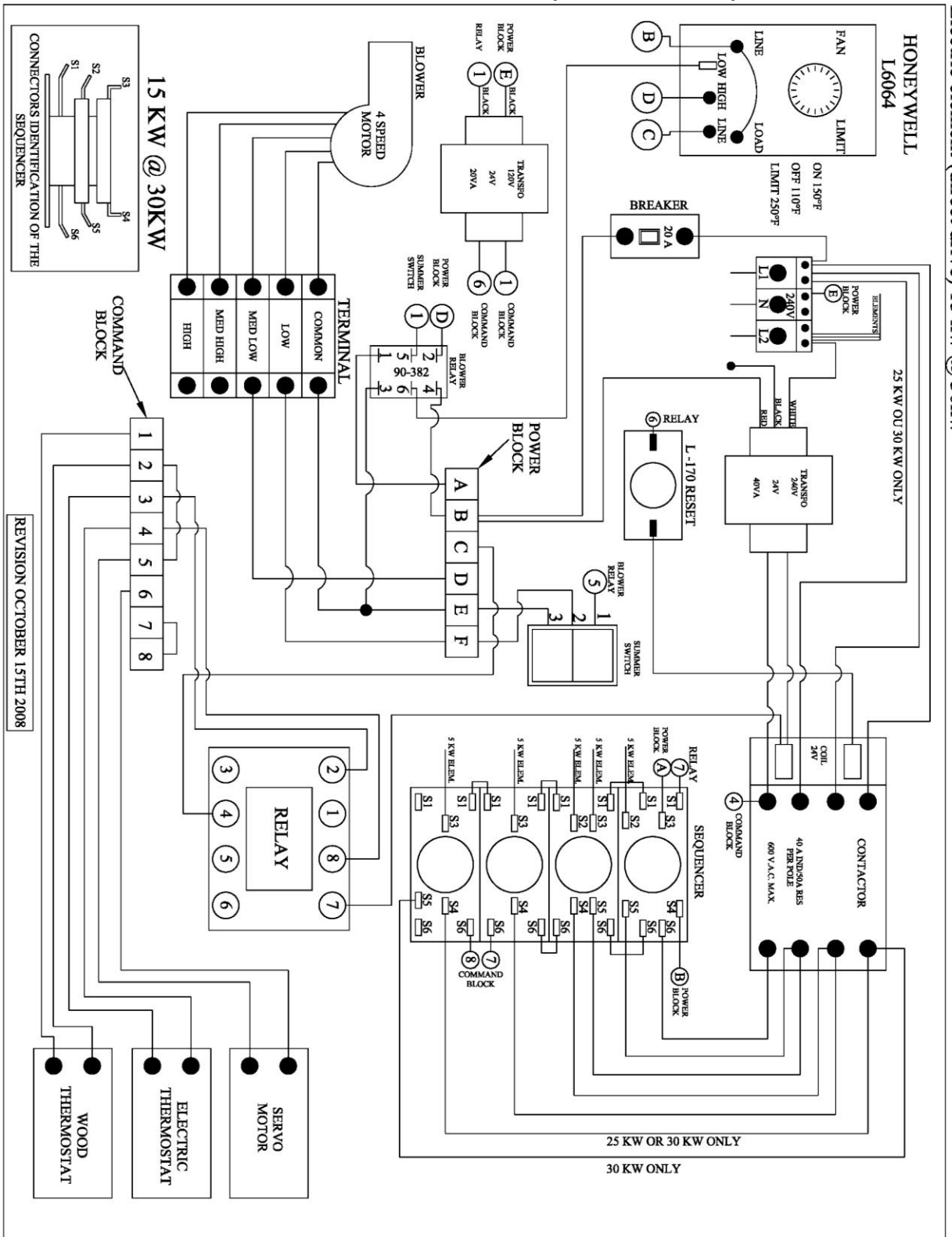
To control 5 kW bank with an outdoor sensor, remove the jumper between terminals 7 and 8 of the command block and connect N/O sensor to those terminals.

Refer to electric diagram included with the electrical unit.



Combined wood/electric furnace (fan limit L6064)

Electric element (direct drive) 15 kw @ 30kw



Refer to electric diagram included with the electrical unit.

3.3.4.6 TECHNICAL DATA – ELECTRIC MODE

MODEL	OUTPUT (CFM)	TEMP. VAR. (OF)	BTU/H	TOTAL AMPERAGE	BREAKER	ALIMENT. CALIBRE	VOLTAGE 1 PHASE	# OF ÉLÉMENTS
15 KW	950 1300	50 36	51195	75	100	4	120/240	3 – 5 KW
18 KW	950 1300	60 44	61434	87	125	4	120/240	2 – 5 KW, 2 – 4 KW
20 KW	950 1300	67 49	68260	95	125	3	120/240	4 – 5 KW
25 KW	950 1300 1800	83 61 44	85325	115	150	2	120/240	5 – 5 KW
WOOD				15			120	

3.3.5 OPERATING INSTRUCTIONS

3.3.5.1 FAN LIMIT CONTROL

The fan limit control settings may need to be adjusted depending on the installation, but they are set at 110 °F (fan OFF) and 150 °F. (Fan ON) at the factory and these settings will work best in most installations.

For continuous operation of the blower, use the switch located below the fan limit control which controls the low speed either at the “ON” position or the “OFF” position.

It is not recommended to let the blower run on continuous mode when heating with wood since the wood furnace must reach a certain temperature before the blower starts in order to operate efficiently.

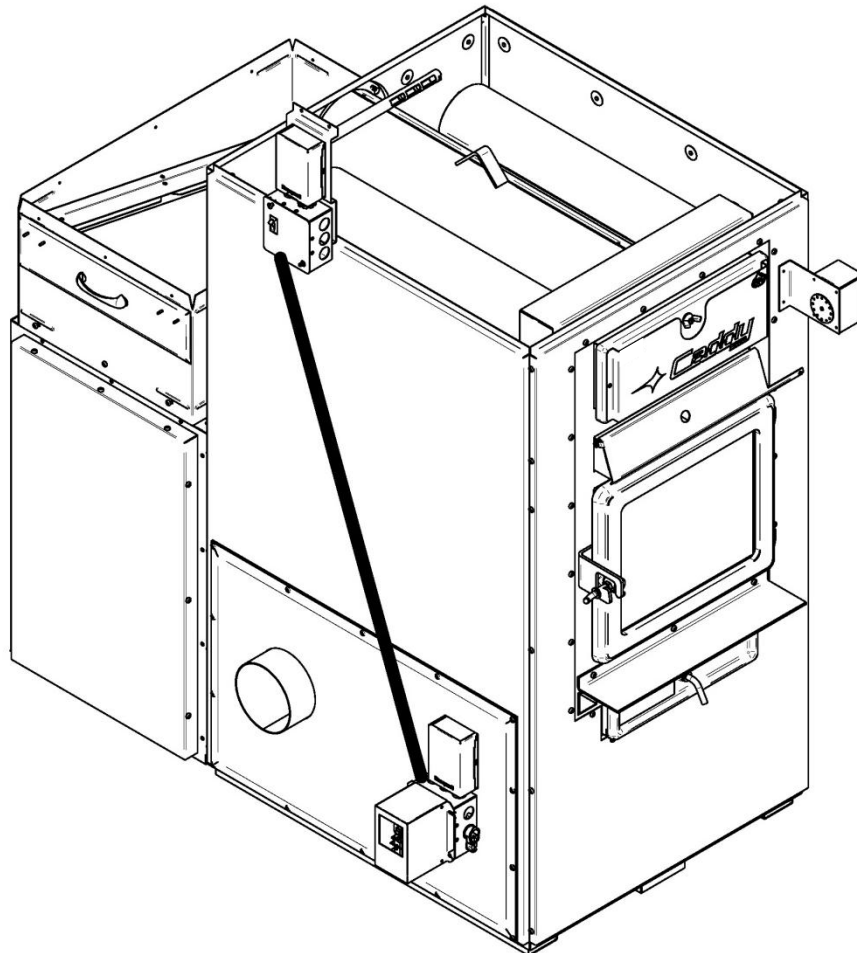
3.3.6 TECHNICAL DATA

See Section **3.2.5**, in Caddy wood only furnace.

Installation instructions for

④

CADDY WOOD/OIL COMBINATION FURNACE PF01010 + PA08568 + PA03050 or PA03100



④

CADDY WOOD/OIL

3.4 ④ CADDY WOOD/OIL COMBINATION FURNACE

3.4.1 NECESSARY COMPONENTS FOR CADDY WOOD/OIL COMBINATION FURNACE

To use the configuration of the Caddy wood/oil furnace you have to assemble the blower assembly (PA08568), sold separately. The assembly instructions are in the instruction manual supplied with the blower assembly kit (follow **steps 1 to 5**).

You must also assemble the oil assembly kit, the fan limit controls for wood and for oil as well as the burner. The assembly instructions are in the instruction manual supplied with the oil assembly kit (PA03050 or PA03100) sold separately.

WARNING: INSTALL THE NOZZLE. ADJUST THE ELECTRODES. ADJUST PRESSION.

NOTE: IF A PROBLEM RESULTS FROM IMPROPER INSTALLATION, NO PRODUCT WARRANTY WILL BE VALID.

3.4.2 INTRODUCTION

READ THESE INSTRUCTIONS CAREFULLY BEFORE OPERATING YOUR FURNACE.

CERTIFIED BY INTERTEK ACCORDING TO CAN/CSA B366.1-M91, UL391 3rd EDITION 1995 rev. 1999 & CAN/CSA B212-93 (JUNE 2000)

CAUTION
EXPLOSION OR FIRE HAZARD. FOR YOUR SAFETY:

DO NOT STORE OR USE GASOLINE OR ANY FLAMMABLE LIQUIDS OR VAPORS IN THE VICINITY OF THIS HEATING UNIT.

DO NOT ATTEMPT TO LIGHT THE BURNER WHEN EXCESS OIL HAS ACCUMULATED, WHEN THE APPLIANCE IS FULL OF VAPOR, OR WHEN THE COMBUSTION CHAMBER IS VERY HOT.

DO NOT BURN WASTE OR PAPER IN THE APPLIANCE AND DO NOT LEAVE PAPER OR ANY COMBUSTIBLE MATERIAL AROUND THE APPLIANCE.

3.4.3 GENERAL INFORMATION FOR OIL FURNACE

To obtain the maximum efficiency out of your furnace, follow the advice below regarding the installation and operation of your WOOD/OIL combination furnace.

WARNING

THE INSTALLATION OF THE WOOD/OIL COMBINATION FURNACE MUST BE DONE IN ACCORDANCE WITH THE RULES OF THE AUTHORITIES HAVING JURISDICTION AND THE CAN/CSA B-139 M-91 STANDARD FOR OIL BURNING HEATING APPLIANCES.

WARNING

OIL BURNING FURNACES ARE NOT APPROVED FOR USE WITH COMBUSTIBLE HEAVIER THAN NO.2 OIL (FURNACE OIL). DO NOT USE GASOLINE, TRANSMISSION OIL, OR OTHER TYPE OF OIL CONTAINING GASOLINE.

WARNING

FOR INSTALLATION IN WOOD/OIL CONFIGURATION, YOU MUST USE OF A 7" CHIMNEY. A 7" TO 6" REDUCER MUST BE INSTALLED AT THE FLUE OUTLET OF THE FURNACE

3.4.3.1 DRAFT AND CHIMNEY

The chimney must conform to the rules of the authorities having jurisdiction and the CAN/CSA B139 & NFPA 31 standard regarding installation of oil burning heating appliances. The installation of the connecting pipes to the oil unit must be done and approved by a professional.

NOTE: The barometric damper provided with the appliance must be properly installed on the flue pipe of the oil burning unit. The purpose of the damper is to adjust the draft in the evacuation pipe of the oil burning unit to the recommended level. Since the evacuation pipe of the oil burning unit is connected on the evacuation pipe of the wood burning furnace, the minimum draft to be respected is 0.04 IN.W.C. in the evacuation pipe of the wood burning side, at all times. In fact, a barometric damper that would be opened too wide could cause an important loss of draft in the evacuation pipe of the wood burning furnace.

3.4.3.2 OIL TANK AND PIPING

The maximum capacity of the tank must not exceed 200 imperial gallons and the tank must be located at least 6 inches from the burner (a 24-inche distance is however recommended for maintenance). Local codes will govern the size of the air inlets and filling openings as well as the type of plugs to be used. 1 1/4" IPS and 2" IPS are usually accepted as minimum dimensions for the air intake pipes and fill pipes, respectively. The oil line to the burner must be a 3/8" outside diameter copper tubing for runs up to 50 feet and 1/2" o.d. for longer runs. A manual shut-off valve and an oil filter shall follow in sequence on the oil line between the oil tank and the burner. The oil line must be buried or protected adequately to avoid any damage.

3.4.3.3 BURNER PUMP

When the tank is located below the unit, the basic single course pump, powered by a single duct, can compensate for a drop of 8 feet (244 cm) measured between tank outlet and the height of entry into the burner.

When the rise is more than 8 feet (244 cm) and not exceeding 10 feet (305 cm), a by-pass plug (provided with the burner) must be inserted in the pump and an oil return pipe must be installed. ***For more details, see "INSTALLATION INFORMATION", Part No. 21844 on the burner pump.***

If the rise is higher than 10 feet (305 cm), a two stage pump may be required along with an oil return pipe.

3.4.4 APPLIANCE INSTALLATION

3.4.4.1 UNIT LOCATION

The furnace must be installed where outside air supply will be sufficient for proper combustion. In airtight houses, it might be necessary to install an outside air inlet (see details in **Section 2.12.**)

The furnace must be positioned so that the connector is as short as possible. Minimize the use of 90° elbows.

The owner must ensure a proper installation to allow a safe operation of the appliance.

Allow enough space for easy cleaning of the furnace and replacement of filters, blower, motors, controls and pipe fittings.

3.4.4.2 PARALLEL INSTALLATION

See **Section 3.2.2.2**, in Caddy wood only furnace.

3.4.4.3 MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

N.B.: THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS ON THE CERTIFICATION PLATE APPLIED ON THE UNIT.

The floor on which the furnace is installed may be combustible. On a combustible floor, use a protective plate exceeding 8 inches on each side of the unit, 16 inches from the front of the door in the United States and 18 inches from the front of the door in Canada is required.

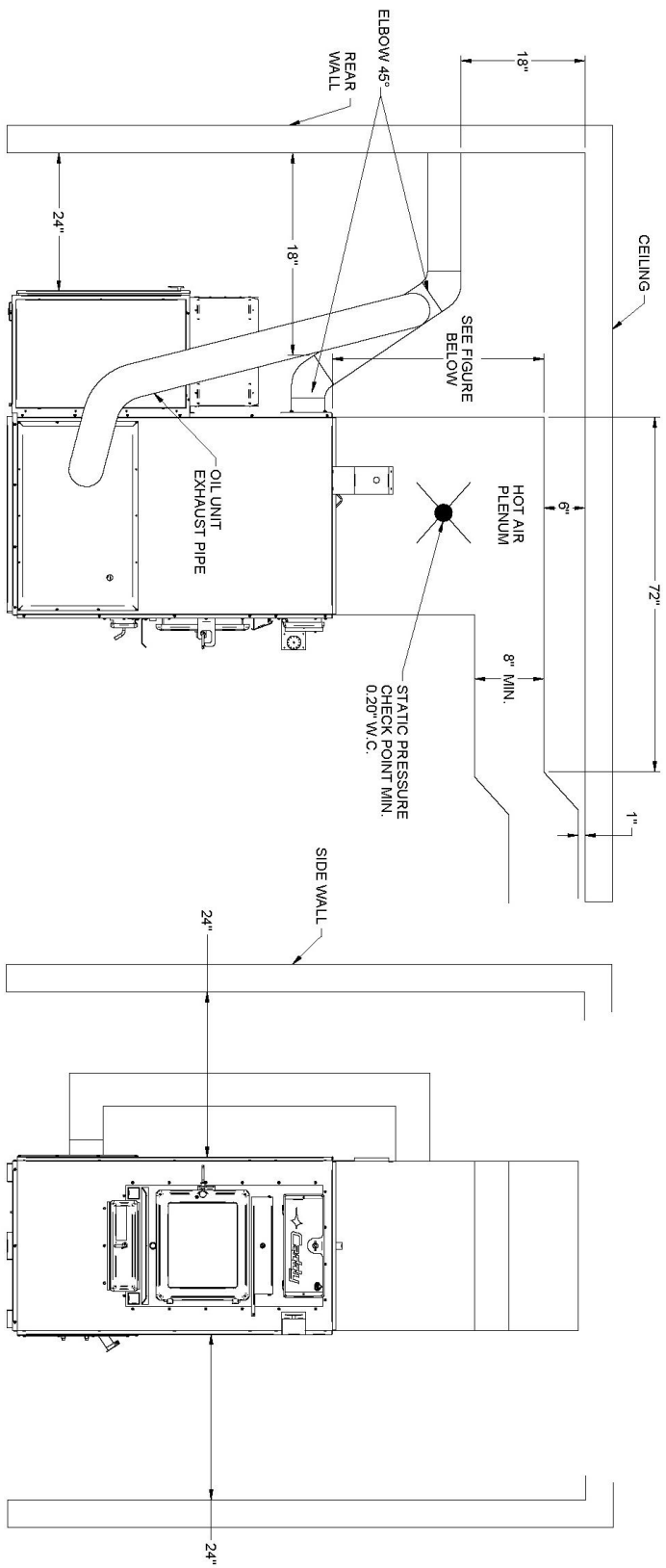


Figure 3.4.4.3 a

N.B.: TO ENSURE ADEQUATE STATIC PRESSURE, THE SYSTEM SHOULD BE BUILT IN A WAY THAT THE VOLUME OF COLD AIR RETURN IS AT LEAST EQUAL OR SLIGHTLY HIGHER THAN THE VOLUME OF THE HOT AIR DISTRIBUTION.

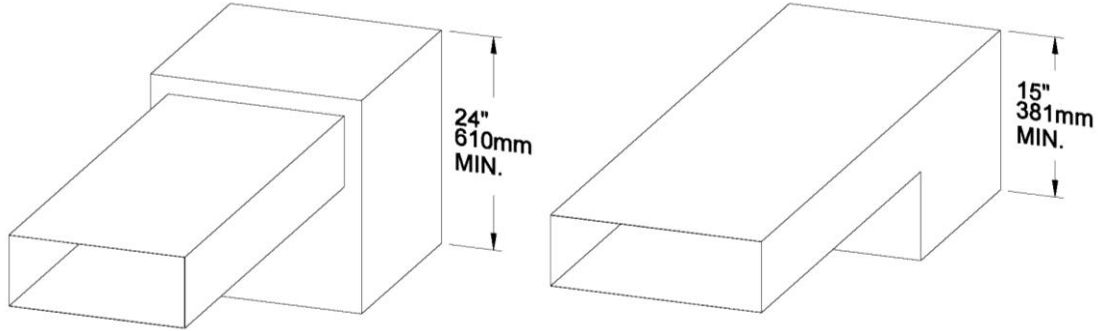


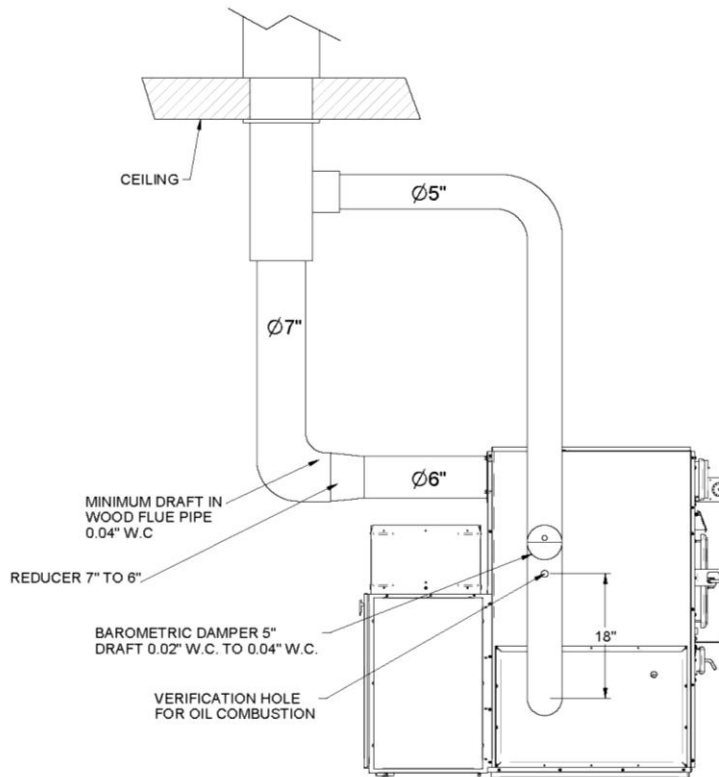
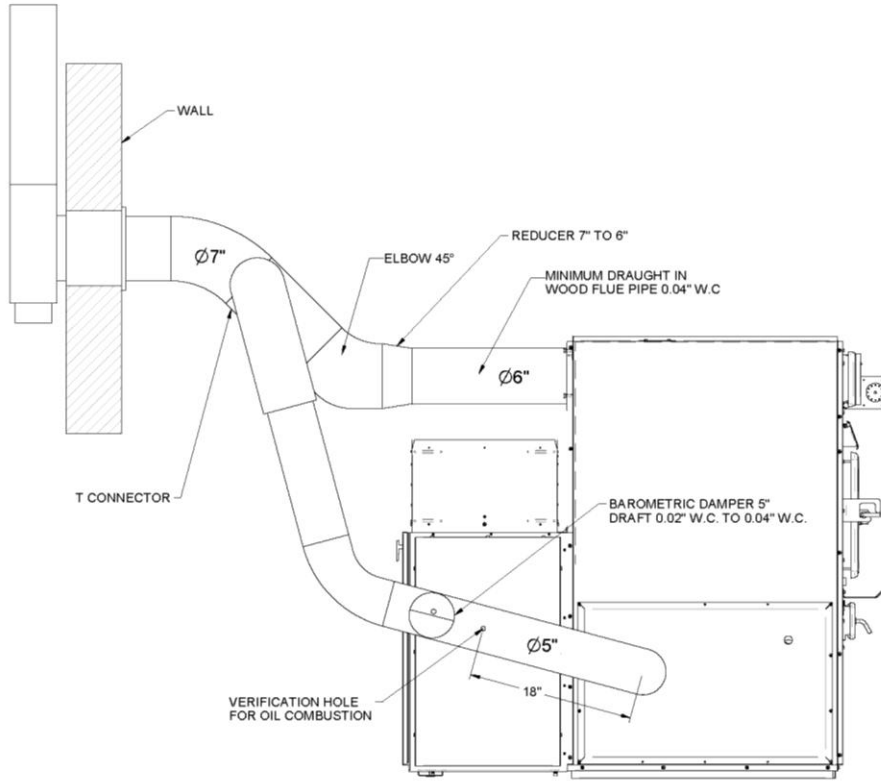
Figure 3.4.4.3 b - Hot air plenum minimal height.

The hot air plenum coming out of the furnace is to have a minimum height of 24" (610 mm) if the top of the first vertical section is not flush with the first horizontal section (see **Figure 3.4.4.3 b**). Otherwise, the minimum height is 15" (381 mm). These dimensions for all hot air furnaces are in accordance with the standards CSA B140.4, UL 391 and UL 727.

3.4.4.4 CONNECTING PIPE AND MANUAL DAMPER

The pipe connecting the furnace to the chimney must be as short as possible. If a deviation is required, the use of 45° elbows is highly recommended for a better evacuation of the smoke in the chimney of the wood burning furnace. The barometric damper provided with the appliance must be installed on the oil unit evacuation pipe, approximately 24" from the flue outlet of the unit.

TYPE OF FURNACE	OIL BURNING UNIT FLUE PIPE DIAMETER
CADDY	5"



3.4.5 ELECTRICAL CONNECTIONS

The following instructions do not replace those of the local code.

Installation and verification of this appliance must be done by a qualified service man.

All wiring from the service panel to the heating unit must comply with the electrical code in force and all local regulations. It is recommended to feed the furnace with its own electrical circuit of 15 amps at 120 volts with a breaker (see wiring diagram).

All wiring between electrical components must be of sufficient length. It is very important to keep away the wires from sources of intense heat.

3.4.5.1 INSTALLATION OF THE FAN LIMIT CONTROL

See **Section 3.41**, *Necessary components for caddy wood/oil combination furnace*.

3.4.5.2 SERVOMOTOR INSTALLATION

See **Section 3.2.3.2**, in Caddy wood only furnace.

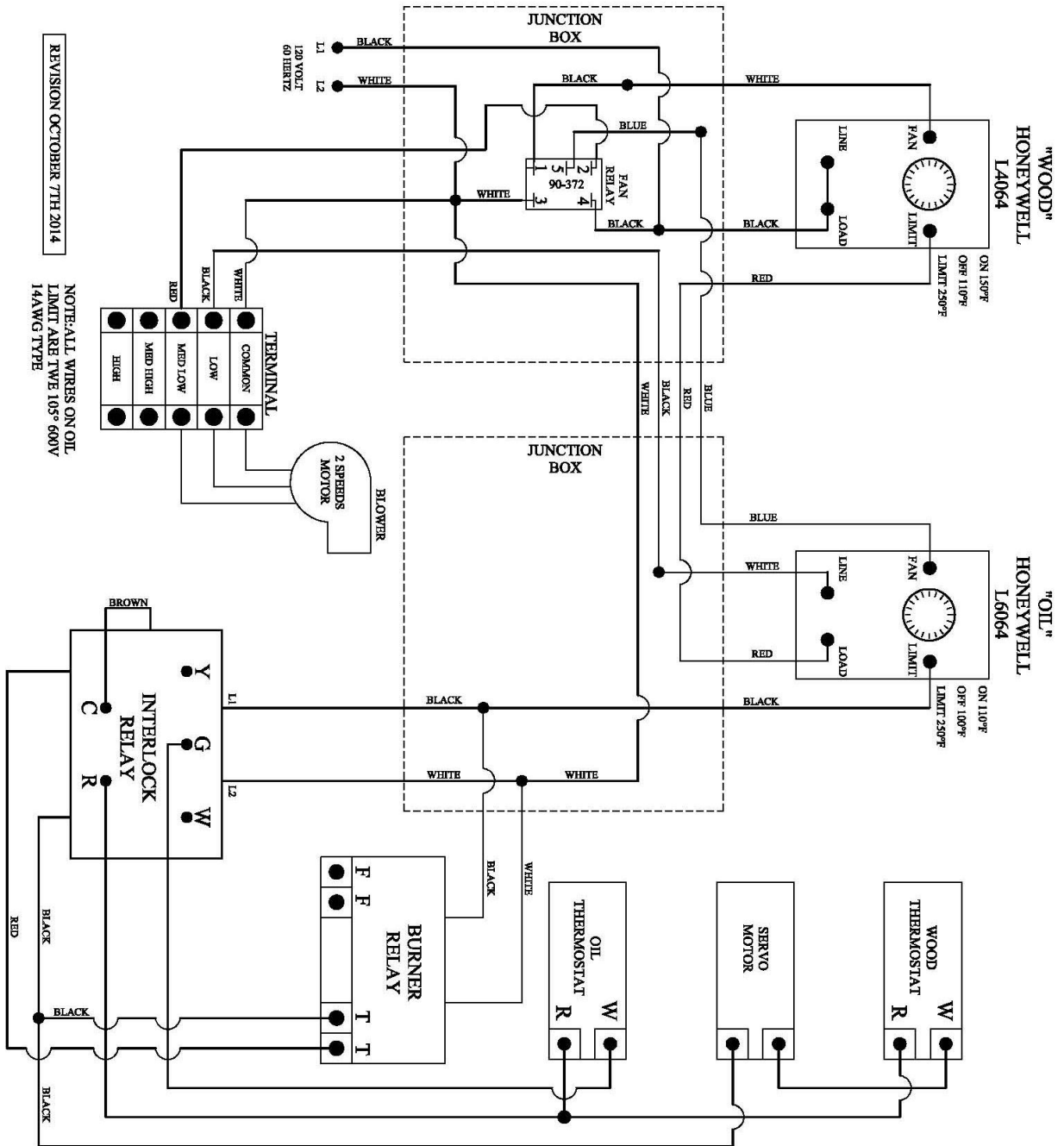
3.4.5.3 THERMOSTAT INSTALLATION

See **Section 3.2.3.3**, in Caddy wood only furnace.

3.4.5.4 WIRING DIAGRAM

(The location of the fan limit control for wood is in the plenum and the fan limit control for oil is located on the panel on the exhaust pipe side).

Combined wood/oil furnace (fan limit L4064) for Beckett Burner

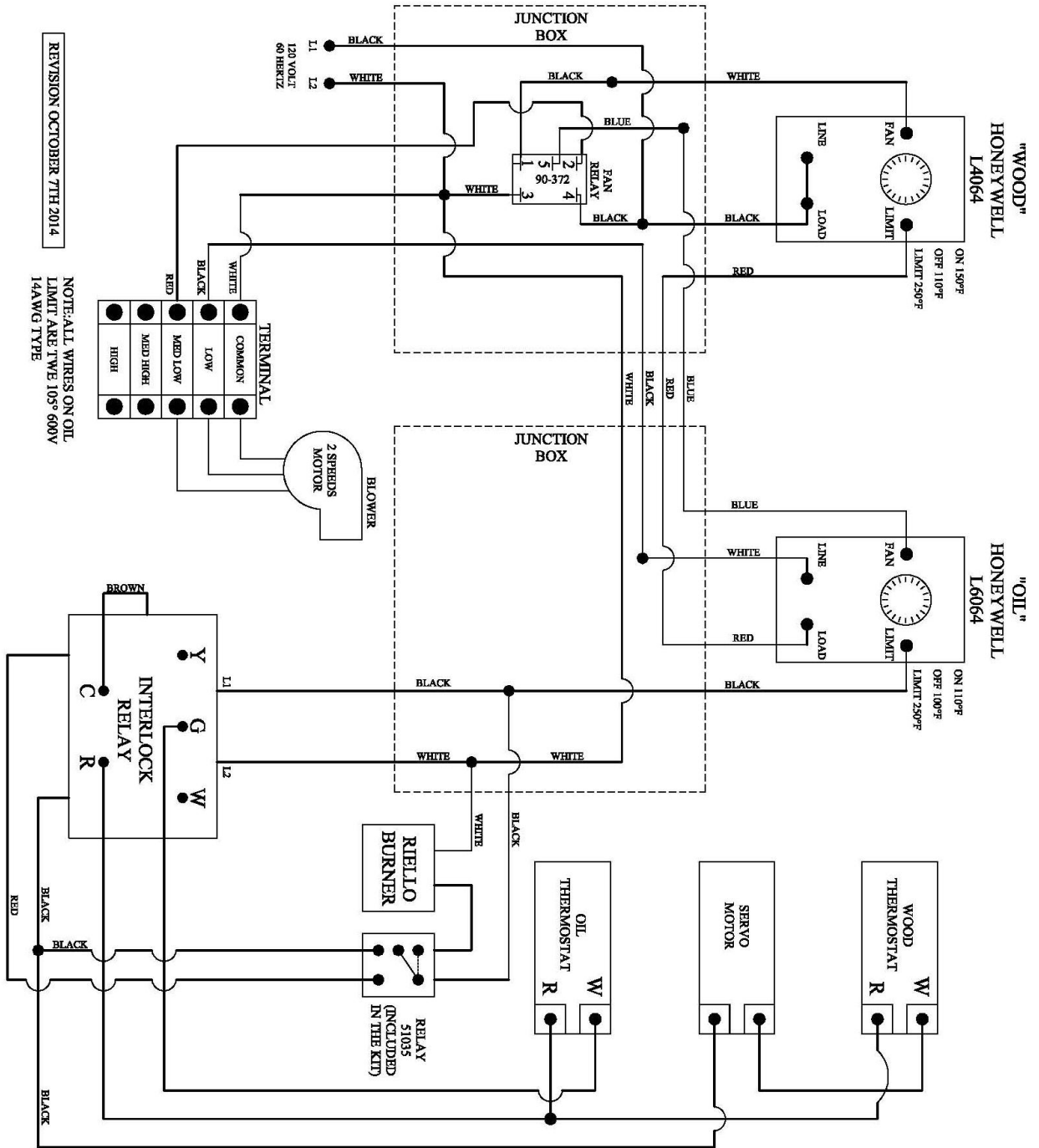


REVISION OCTOBER 7TH 2014

NOTE: ALL WIRES ON OIL LIMIT ARE TWE 105° 600V 14AWG TYPE

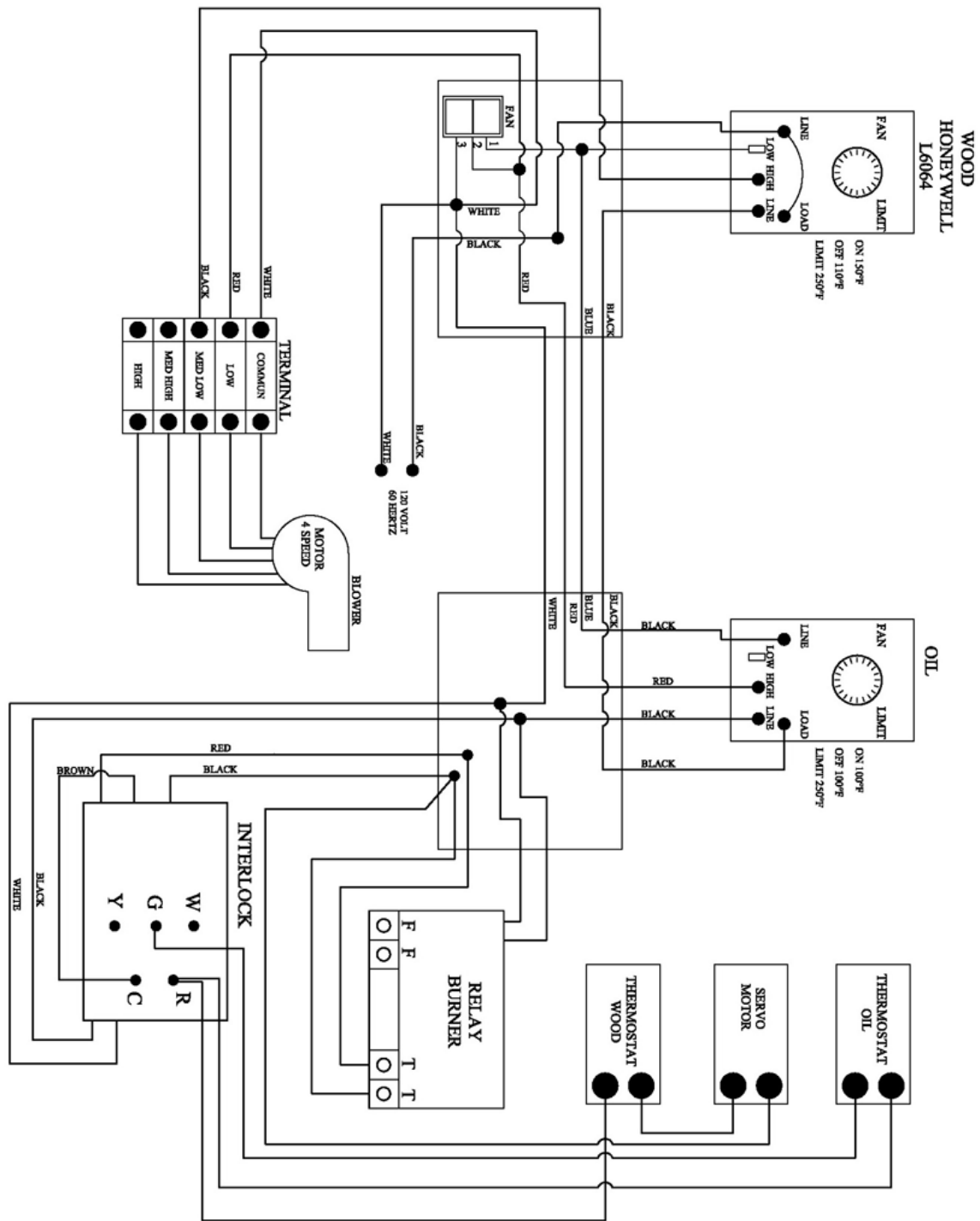
Refer to electric diagram included with the burner.

Combined wood/oil furnace (fan limit L4064) for Riello Burner



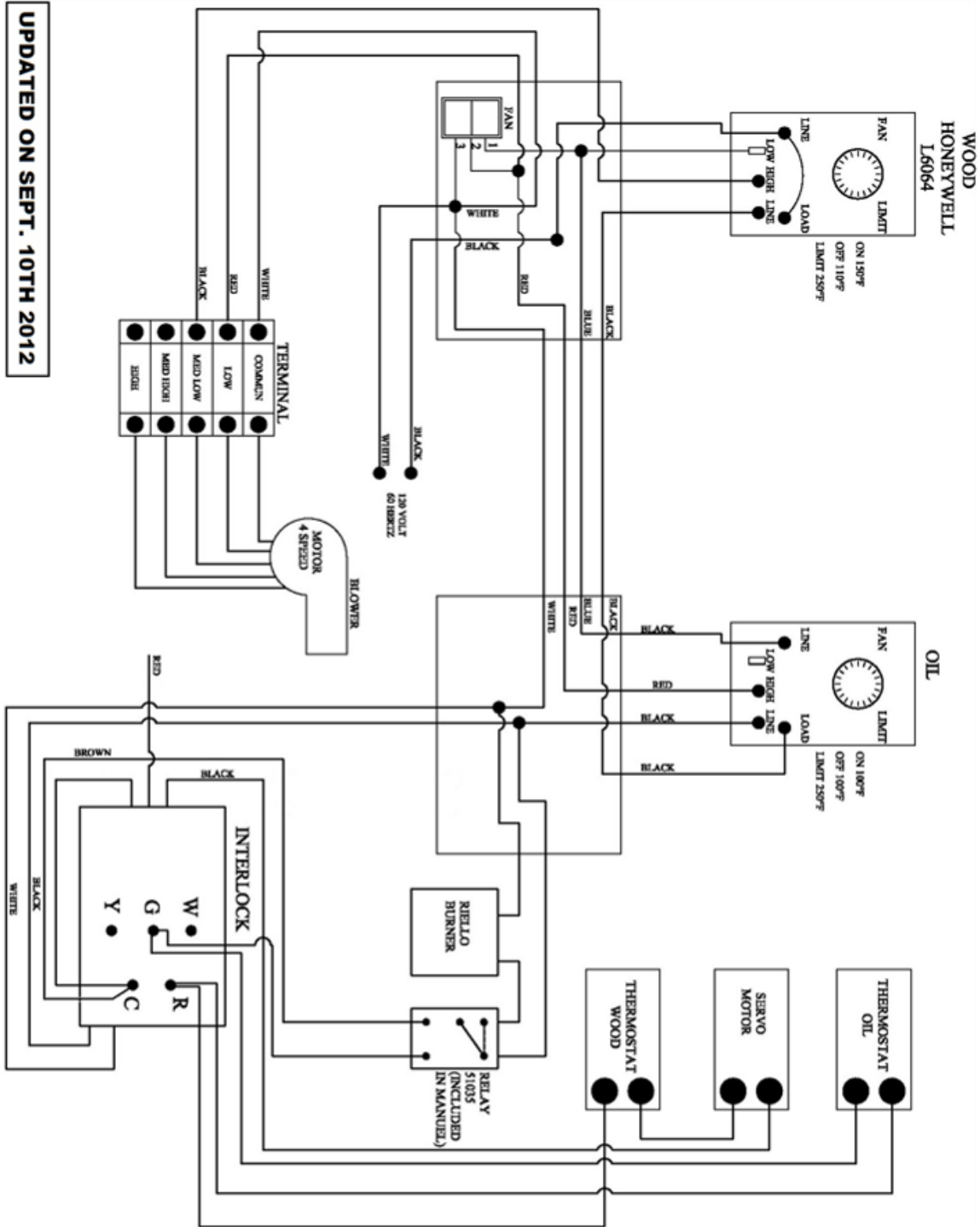
Refer to electric diagram included with the burner.

Combined wood/oil furnace (fan limit L6064) for Beckett Burner



Refer to electric diagram included with the burner.

Combined wood/oil furnace (fan limit L6064) for Riello Burner



Refer to electric diagram included with the burner.

3.4.6 OPERATING INSTRUCTIONS

3.4.6.1 FAN LIMIT CONTROL

The fan limit control settings may need to be adjusted depending on the installation, but they are set at 100 °F (Fan OFF) and 250 °F (Fan ON) at the factory and these settings will work best in most installations.

It is preferable that the setting "Fan OFF" is low enough to avoid too frequent stopping of the fan, but setting "Fan OFF" too low will result in cold air circulation, which is undesirable. To change these settings, turn the indicator to the desired position on the temperature scale of the fan limit control.

For continuous operation of the blower, use the switch located below the fan limit control which controls the low speed either at the "ON" position or the "OFF" position. It is not recommended to let the blower run on continuous mode when heating with wood since the wood furnace must reach a certain temperature before the blower starts in order to operate efficiently.

3.4.6.2 COMBUSTION SAFETY CONTROL

The AFG type oil burner is equipped with an electronic control (# R7184B1032) including a pre-purge function and a new, more durable drive motor.

3.4.6.3 PRE-PURGE

When there is a call for heat, the burner's fan will run for 15 seconds before the actual ignition takes place to vent the combustion chamber and generate a proper draft. This will result in a smoother ignition of the oil burner.

3.4.6.4 SAFE OPERATION

If the flame goes out while the burner is running, the control will then switch to the "RECYCLE" mode and cut the fuel supply to the burner for 60 seconds. After this delay, the control goes back to "IGNITION" mode. If the flame goes out 3 times in a row, the control will switch to the "LOCKOUT" mode to prevent a continuous cycling of the ignition process, which would cause a premature soot-up of the combustion chamber and smoke pipe. To deactivate the "LOCKOUT" mode, press and hold the reset button of the control for 30 seconds.



A green diagnostic light on the control has four states:

- On = Flame present
- Off = No flame
- 2 seconds On, 2 seconds Off = "Recycle" mode
- 1/2 second On, 1/2 second Off = "Lockout" mode TEMPORARY SHUT-OFF

3.4.6.5 TEMPORARY DISENGAGEMENT OF THE BURNER

By pressing and holding the reset button, the burner will shut-off until the reset button is released. When the button is released, the control will start over at the beginning of the normal cycle.

FOR ADDITIONAL INFORMATIONS ON OPERATION SEQUENCES OF THE BURNER, CONSULT THE BURNER INSTRUCTION MANUAL.

3.4.6.6 COMBUSTION ADJUSTMENT AND VERIFICATION

To enjoy the efficiency of our oil burning units, you must respect the following criterion:

CHECK LIST:

- SELECTION OF NOZZLE AND HEAD;
- NOZZLE / ELECTRODES POSITION IN RELATION TO THE HEAD AND PUMP PRESSURE;
- OIL LINE IS BLEED;
- PRESENCE OF LOW FIRE BAFFLE (INSIDE THE BURNER) MUST BE PRESENT FOR CADDY FURNACES.
- BAROMETRIC DAMPER POSITION.

TOOLS REQUIRED:

- DRAFT GAUGE
- SMOKE TESTER
- PUMP PRESSURE GAUGE
- NOZZLE AND ELECTRODES POSITION TESTER
- COMBUSTION TESTER

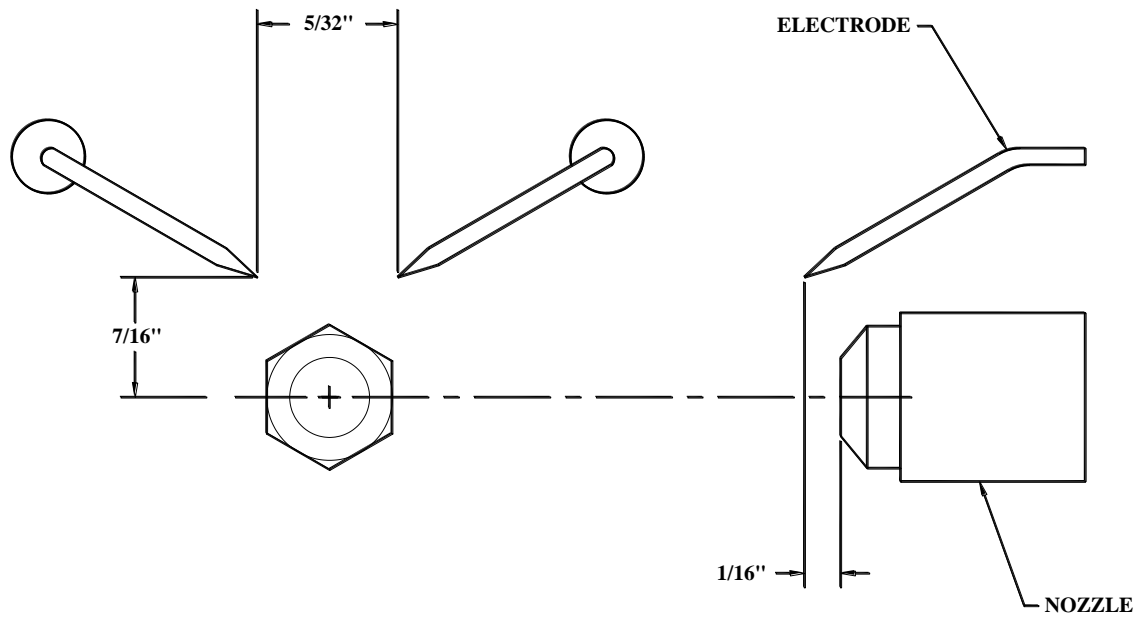
3.4.6.7 COMBUSTION VERIFICATION PROCEDURE:

- A. DRILL A 9/32" DIAMETER HOLE IN THE EVACUATION PIPE APPROXIMATELY 18" FROM THE OUTLET.
- B. CLOSE THE DOOR AND THE AIR INTAKE OF THE WOOD BURNING FURNACE.
- C. LIGHT THE BURNER FOR AT LEAST 10 TO 15 MINUTES.
- D. OVER THE FIRE DRAFT = 0.01 TO 0.02 IN.W.C. (THE DRAFT OVER THE FIRE MUST BE MEASURED IN THE OPENING OF VISION TUBE'S PULSATION TRAP.)
- E. SMOKE TEST BETWEEN 0 AND 1 ON THE SHELL BACHARACH SCALE (TRACES).
- F. DRAFT IN THE CHIMNEY = - 0.02 IN.W.C TO 0.04 IN.W.C.
- G. PERCENTAGE OF EXCESS AIR = 20 TO 40 %, 12 % CO₂, 4,6 % O₂.
- H. AVERAGE EFFICIENCY OF 80 TO 85 %.
- I. TIGHTEN ALL THE LOCKING SCREWS AFTER COMPLETING THE FINAL ADJUSTMENT.

3.4.6.8 ELECTRODES SETTING

The electrodes must be adjusted by a qualified technician. A proper positioning of the electrodes is important to get an efficient lighting of the oil and an efficient dispersion of the oil jet

3.4.6.9 ELECTRODE SETTING FOR "F" HEAD



WARNING:

1. REFER TO THE RATING PLATE FOR THE PUMP PRESSURE AND THE NOZZLE TYPE.
2. REFER TO THE OIL BURNER'S INSTRUCTIONS MANUAL FOR DETAILS ON THE PUMP.
3. FOR ELECTRODES SETTING, SEE THE OIL BURNER'S MANUAL.
4. FOR THE START-UP AND ADJUSTMENT OF THE BURNER, SEE OIL BURNER'S INSTRUCTION MANUAL.
5. THE BURNER WILL PROVIDE YEARS OF EFFICIENT OPERATION IF IT IS PROFESSIONALLY INSTALLED AND MAINTAINED BY A QUALIFIED SERVICE TECHNICIAN. IF AT ANY TIME THE BURNER DOES NOT APPEAR TO BE OPERATING PROPERLY, IMMEDIATELY CONTACT YOUR QUALIFIED SERVICE AGENCY FOR CONSULTATION.
6. FOR MORE DETAILS ABOUT THE BURNER, REFER TO THE BURNER'S MANUAL.

3.4.6.10 APPLIANCE START-UP

The start-up must be performed by a qualified technician. Make sure the installation is completed and the oil tank has been filled up. The oil line must also have been purged.

CAUTION

CLOSE THE BLOWER COMPARTMENT ACCESS PANEL BEFORE STARTING THE BURNER.

3.4.6.11 PROLONGED CLOSING

- A) Cut off the electric circuit
- B) Close the oil shut-off valve.

NOTE: The shut-off valve must be closed when the appliance is out of service for a prolonged period of time.

3.4.7 OIL UNIT MAINTENANCE

At the beginning of heating season, have the complete installation inspected by a qualified service man, especially the lighting system and the controls.

NOTE: THE UNIT'S MAINTENANCE, REPAIRS AND THE CLEANING OF THE OIL FILTER MUST BE DONE BY A QUALIFIED TECHNICIAN.

Before calling for service, first check the following:

- Fuel supply
- Electric fuses or breakers
- Thermostat setting
- Fan limit control settings
- The state of the green light on the burner control (see **section: 3.4.6.4**, Safe operation).

3.4.7.1 MAINTENANCE AND CLEANING

WARNING
TURN OFF ELECTRIC POWER SUPPLY BEFORE SERVICING THE UNIT.

1. The furnace, the burner and the flue pipe should be cleaned at least once a year.
2. The nozzle should be inspected and replaced if needed.
3. Handle with care to avoid damaging its surface.
4. The electrodes should be adjusted as indicated in the burner manual.
5. Lubricate the burner motor bearings twice a year. (2 or 3 drops of SAE 20 non detergent lubricating oil).
6. The oil filter should be verified annually and replaced if needed.

Burner no: _____ Model: _____ Date of installation: _____

Service telephone no: Day: _____ Night: _____

Dealer's name and address: _____

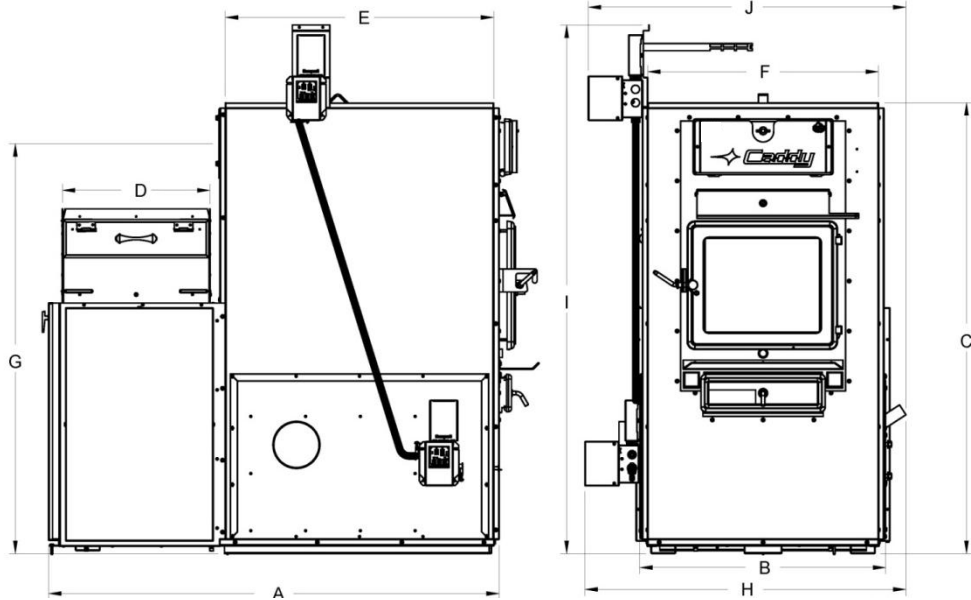
TEST REPORT:

CO₂ _____% Temp. at stack: _____ Draft at stack: _____ IN.W.C.

Nozzle output: _____ GPH Smoke colour: _____

Inspected by: _____

3.4.8 CADDY TECHNICAL DATA



	CADDY WOOD/OIL
A	48"
B	26"
C	47 13/16"
D	15 3/4" X 24 3/4"
E	28 3/4"
F	24 9/16"

	CADDY WOOD/OIL
G	43 1/2"
H	** 34 3/16"
I	56 1/16"
J	33 13/16"
FLUE	* 7"
WEIGHT	** 590 lb

* A 6" to 7" reducer must be installed at the flue outlet of the furnace.

** Does not include the oil burner (sold separately).

MODEL	BURNER TYPE	BTU INPUT	NOZZLE	HEAD	STATIC PLATE	PRESSURE AT THE PUMP	H.P. FAN MOTOR
CADDY	BECKETT AFG	91,000	0.65, 70° W (DELAVAN)	F3	2 3/4	120 PSI	1/3 H.P.
CADDY	RIELLO/F3	91,000	0.65, 70° W (DELAVAN)	---	---	120 PSI	1/3 H.P.
CADDY	AERO/FAF C-2X	91,000	0.65, 70° W (DELAVAN)	---	---	120 PSI	1/3 H.P.

For any additional information, consult the certification plate on the left hand side of the appliance.



CADDY WOOD/OIL

4 PART C – OPERATION

4.1 LIGHTING OF THE WOOD FURNACE

WARNING
NEVER USE CHEMICALS OR FLAMMABLE LIQUIDS TO LIGHT THE FIRE

1. Open the door.

Note: if there already is a bed of embers in the combustion chamber, proceed directly to the PREHEATING step.

2. Place 1 or 2 dry kindling at the front of the combustion chamber.
3. Lay a few strips of newspaper over the kindling.
4. Cover the paper with criss-crossed dry kindling.
5. Add more newspaper strips and light the paper at 2 or 3 different spots as low as possible and leave the door opened about ½ inch until the fire is burning well. If lighting fails, some smoke could spill out of the furnace through the air inlets.

4.2 PREHEATING

1. Once the kindling is burning well or the ember bed stirred up, lay 2 or 3 pieces of seasoned cordwood down in a way that the flame can circulate around the logs (split wood ignites faster than round logs with the bark) and close the door. Following this procedure will help the fire burn efficiently from the front to the back of the combustion chamber.
2. Wait 15 to 20 minutes before fully loading the furnace.

4.3 HEATING

1. Poke the fire and spread the embers evenly at the center of the combustion chamber before adding more wood.
2. Avoid overfilling the combustion chamber; air must be allowed to circulate freely through the upper portion of the chamber for the stove to perform best. Also remember that a small hot fire burns cleaner than a big smoldering one.

IMPORTANT
WHEN RELOADING, MAKE SURE YOU KEEP THE AIR INLETS LOCATED BELOW THE DOOR INSIDE THE COMBUSTION CHAMBER FREE OF ASH.

OPENING PROCEDURE FOR THE LOADING DOOR
TO MINIMISE THE RISK OF SMOKE SPILLAGE, CRACK THE DOOR OPEN ABOUT AN INCH AND WAIT ABOUT 10 SECONDS BEFORE OPENING IT WIDE TO ALLOW STABILISATION OF THE PRESSURE INSIDE THE FURNACE.

4.4 FIRST SIGNS OF AN OVERHEATING FURNACE ARE:

1. The fire rumbles.
2. The smoke pipe turns red.
3. Extreme heat emanates from the furnace. IF this happens, DO NOT OPEN THE DOOR, close the air inlet completely and wait for the fire to die down.

WARNING
ALWAYS KEEP THE DOOR AND ASH DRAWER CLOSED EXCEPT FOR LIGHTING, RELOADING AND SERVICING THE FURNACE

4.5 WOOD AS A COMBUSTIBLE

WARNING
NEVER BURN GARBAGE, GASOLINE, NAPHTA, MOTOR OIL OR ANY SIMILAR FLAMMABLE PRODUCTS IN THIS FURNACE.

We recommend that you only burn well seasoned cordwood in your furnace.

Two important factors should be considered when buying cordwood; water content and density of the wood. Hard wood like oak, maple or beech give better results given their higher density and the less tar they produce during

combustion. It is strongly recommended to let your wood dry in a place where it is exposed to sun and open air but protected from precipitations.

DO NOT BURN COAL IN THIS FURNACE.

If you notice a significant quantity of smoke in the house:

1. Open windows and doors.
2. Make sure the furnace door and the air inlet are closed (if need be, lower the thermostat setting or unhook the air intake damper connecting rod) and manually CLOSE the barometric draft damper.
3. Once the furnace has cooled down, check for possible obstructions in the exchangers, the smoke pipe and the chimney or call a specialist to determine the cause of the spillage and the way to prevent it from happening again.

WARNING
CARBON MONOXYDE IS A LETHAL GAS (ODORLESS AND COLORLESS), THAT YOU MUST FEAR.

4.6 CHIMNEY FIRE

A Chimney fire will happen when the flame from an uncontrollable fire ignites the sooth and creosote deposits in a neglected venting system. It will often happen when burning cardboard, branches or small dry pieces of wood. The first signs of a chimney fire are:

1. A rumble.
 2. Smoke pipe becomes extremely hot.
 3. Sparks or even flames shoot out of the chimney
- In the event of a chimney fire, first call your local fire department and water the roof in the vicinity of the chimney.**

Make sure that the furnace door and the air intake damper are closed (if need be, lower the thermostat setting or unhook the air intake damper connecting rod). CLOSE the barometric draft damper manually if one is installed.

In the event of uncontrollable fire (caused by wrongful operation or excessive chimney draft), follow the same procedure as in a chimney fire but you must then OPEN the barometric draft damper manually if one is installed.

4.7 LOCAL FIRE DEPARTMENT

Telephone: _____

4.8 PROLONGED POWER OUTAGE

To reduce the risk of overheating during a prolonged power outage (more than 10 minutes), it is recommended to make certain that the air intake damper is closed. Open the blower access panel and remove the air filter to improve the circulation of air around the combustion chamber of the Caddy furnace.



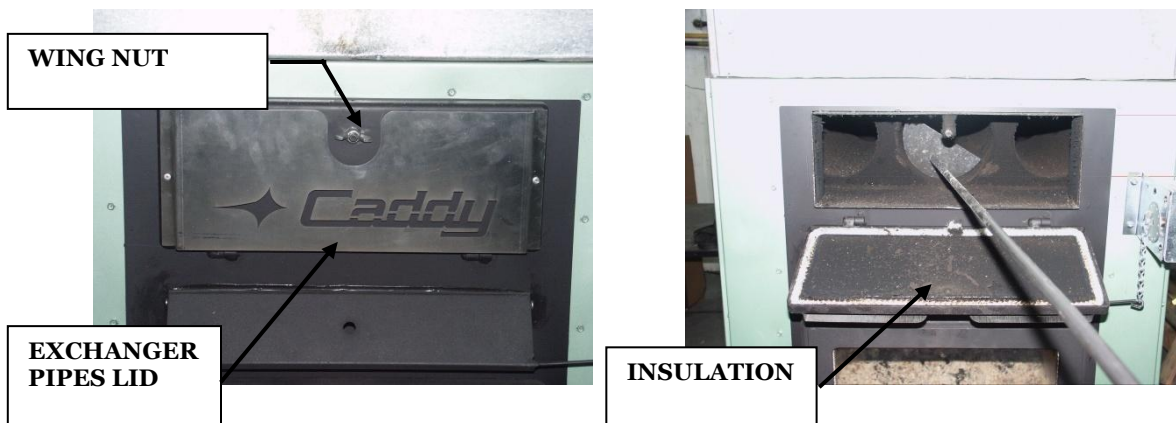
5 PART D - MAINTENANCE

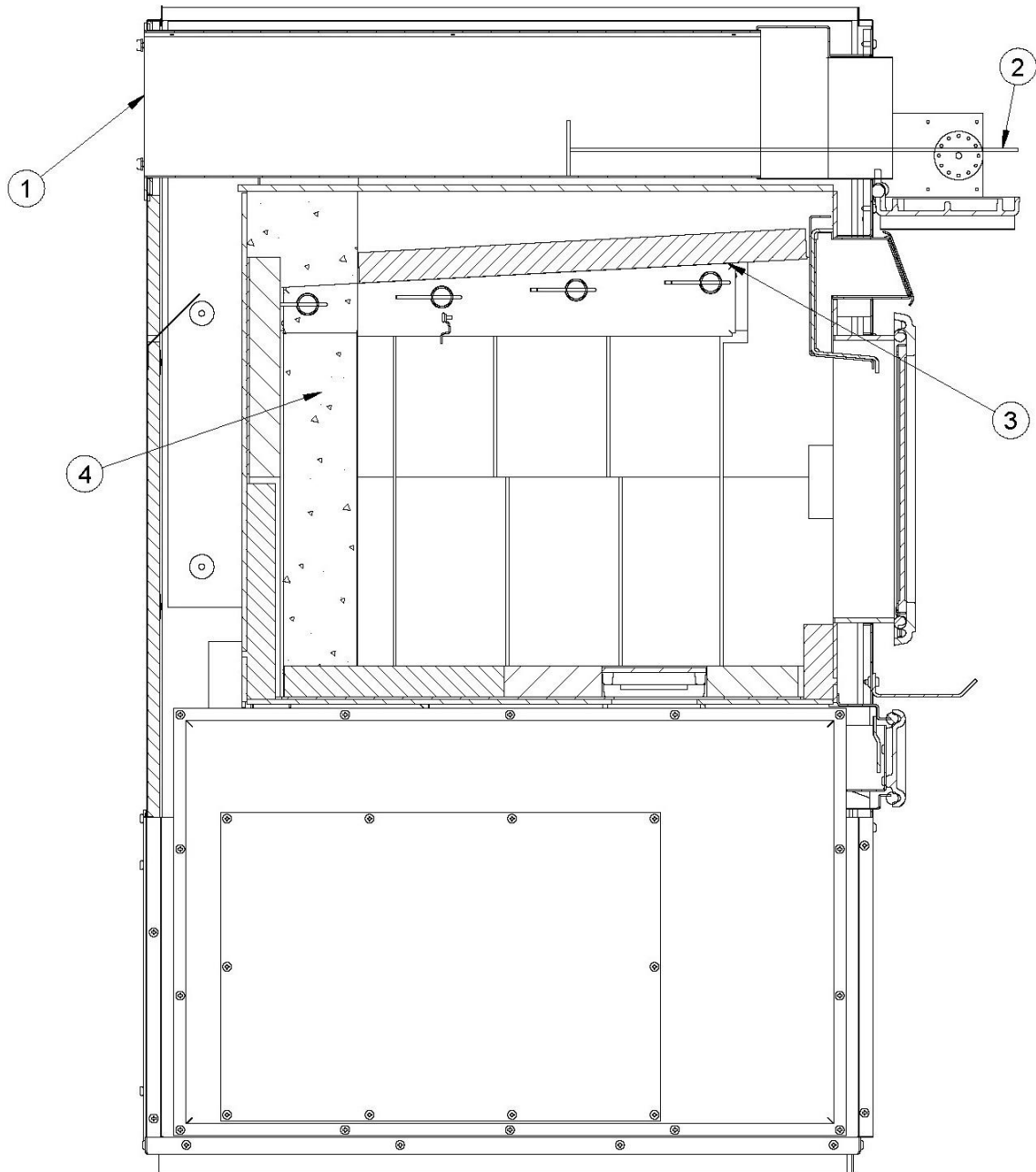
5.1 HEAT EXCHANGERS CARE

Heat exchangers must be cleaned thoroughly at the end of every heating season. During summer, the air in basements is damper and with minimal air circulation within the furnace, it can mix with creosote and/or soot deposits in the exchangers to form an acid that could accelerate the corrosion process and induce premature decay of the steel. Corrosion damages are not covered under warranty.

Smoke pipe and exchangers must be inspected regularly during the heating season. Access to the exchangers is easy and does not require tools; just remove the decorative facing by just lifting it, remove the wing nut that keeps the hinged access panel closed. (See pictures below)

Before cleaning the three exchanger pipes (1), pull the baffle forward as on the drawing below. Using the scraper (2) clean all three pipes. The dirt (4) in the lateral pipes can be pushed forward and it will fall directly into the combustion chamber while the dirt in the central pipe will have to be retrieved either from the front access panel or the rear by removing the smoke pipe. Verify that the baffle is free of deposits and do not forget to push it back to its original position. Finally, close the exchangers access panel.





Cut view of the Caddy wood only furnace



CADDY WOOD/OIL

5.2 CHIMNEY MAINTENANCE

The most efficient way to sweep a chimney is to run a hard chimney sweeping brush. Brush from the top down so soot and creosote deposits will detach from the chimney liner and fall down to the bottom of the chimney where it can be easily removed.

The chimney must be inspected regularly and any creosote build-up must be removed without delay. Monthly cleaning should be sufficient during cold winter months while more frequent cleaning could be required during milder periods.

5.3 SMOKE PIPE INSPECTION

- The smoke pipe must be inspected regularly during the heating season.
- The pipe must be examined carefully to detect any defect or damage.
- The pipe can be reassembled if no defect is detected and defective pipe must be replaced immediately.
- Burn wood only in this furnace.
- As a combustible, well seasoned hardwood in 18" logs works best.

5.4 BLOWER MOTOR MAINTENANCE

Periodic cleaning of the fan housing as well as fan and fan blades using a vacuum cleaner is necessary in order not to affect performance and cause overheating of the latter.

DO NOT OVERLUBRICATE

5.5 FILTERS

Never use the furnace without air filters. To function as expected, controlled combustion wood burning appliance must be maintained on a regular basis. This means that the chimney, the gaskets and the pipes must be kept in good working order and the air filter cleaned or replaced regularly. Use the same size and type of filter as the original.

Air filter dimensions

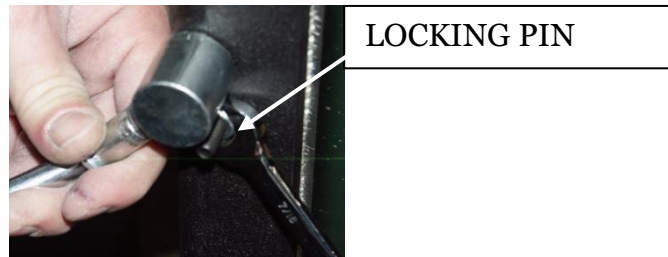
25 X 14 Filtres (Caddy) #21367

5.6 DOOR GASKET RELACEMENT

It is important to keep the door gasket in good condition. The door is adjusted at the factory to seal the door tight. After a while, the gasket could sink and the door must then be adjusted as described below. If the door still leaks after the maximum adjustment, replace the gasket (see Section 6.2, THE DOOR GASKET.)

Door adjustment procedure:

1. Unscrew completely the locking pin with its nut (see picture below).



2. To increase the pressure of the door on the gasket, turn the handle counter clockwise; to decrease the pressure of the door on the gasket, turn the handle clockwise until desired pressure is attained.
3. Then, screw back the locking pin about 1/4" deep and make sure you lock it in place with the nut.

6 PART E – REPLACEMENT PARTS

Your PSG furnace was designed to burn clean requiring minimal cleaning. It is good to visually check the furnace once a month for damaged or defective parts. Any required repair should be made without delay using genuine PSG parts. An exploded view and complete parts list is available for you on the PSG web site at www.psg-distribution.com.

6.1 THE GLASS

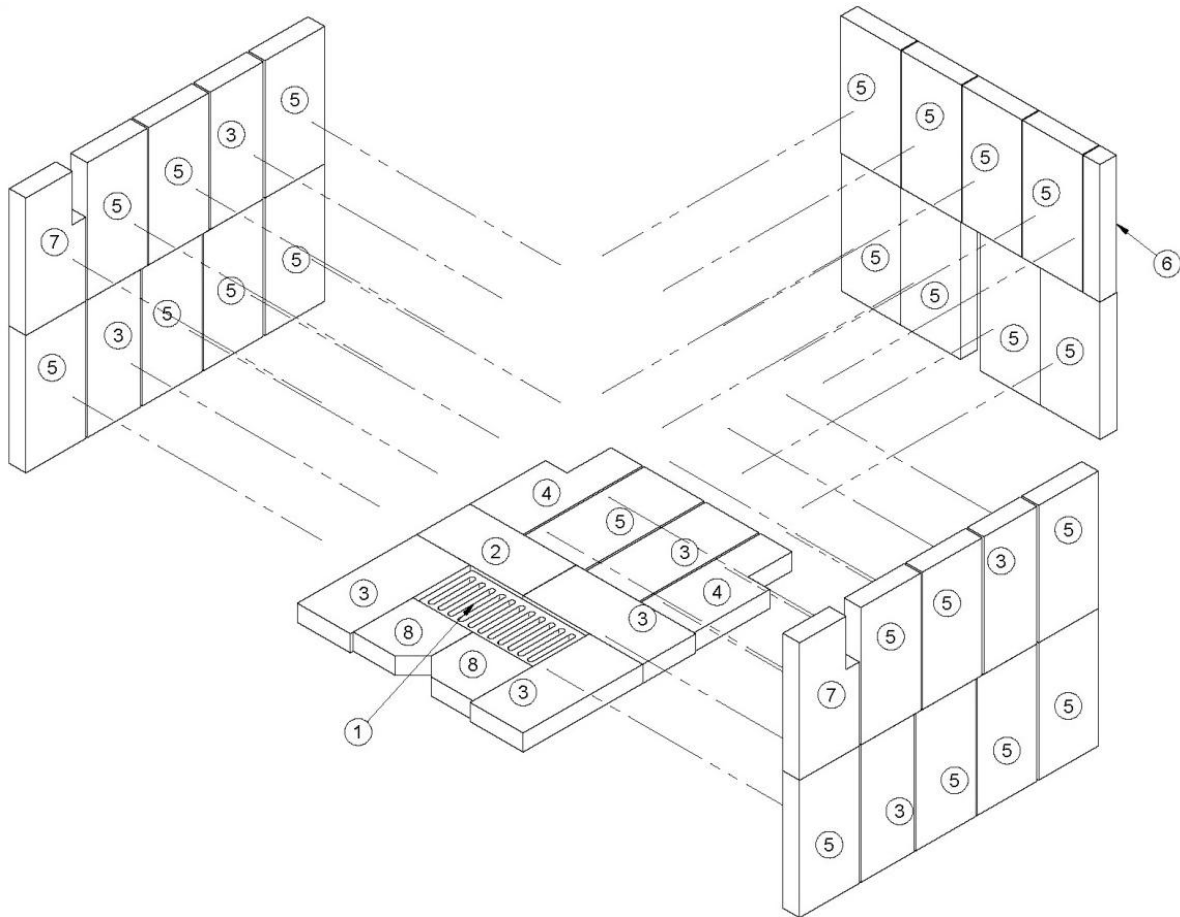
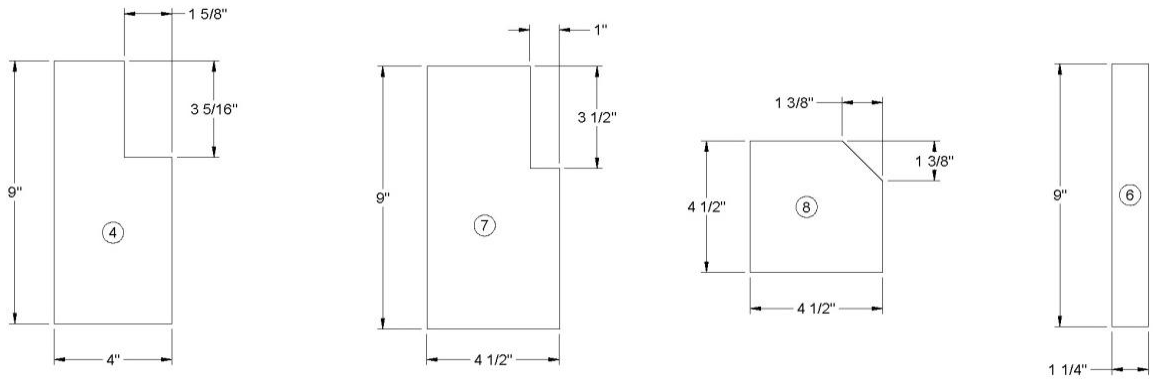
- Check the glass regularly to detect any crack or damage. Replace damaged glass immediately; do not use the furnace with a broken glass.
- The glass on your furnace is made of 5mm (3/16") thick transparent ceramic. If the glass on your furnace has to be replaced, preferably use the original glass sold by your PSG dealer or replace it with the same type of material.
- To replace the glass, remove the screws that hold the glass retainers to the door frame and remove the retainers. Replace the damaged glass by the new one and reinstall the retainers. The genuine glass sold by your dealer will have a new gasket installed on it; make sure you install a new gasket if you do not use the PSG replacement part.
- Never clean the glass with a product that could scratch it. Use a stove glass cleaner available in most stores that sell wood stoves.
- Clean the glass only when it is cold.

6.2 THE DOOR GASKET

It is recommended to replace the gasket that seals the door once a year to insure a good control of the combustion and the maximum safety and efficiency. To replace the door gasket, remove the damaged gasket and scrap the dried glue out of the groove where it layed. Apply a small amount of gasket glue or high temperature silicone in the door groove. Lay the new gasket in the groove. Wait at least 2 hours before relighting the stove.

6.3 CADDY BRICK LAYOUT

WARNING
INSTALL CERAMIC INSULATION PANELS BEFORE LAYING THE BRICKS
INSIDE COMBUSTION CHAMBER.



CADDY WOOD/OIL

#	BRICK LAYOUT	QTY
1	ASH GRATE	1
2	BRICK 4" X 8" (HD)	1
3	BRICK 4" X 9" (HD)	8
4	BRICK 4" X 8" (HD) SPECIAL	2
5	BRICK 4 1/2" X 9" (HD)	23
6	BRICK 1 1/4" X 9" (HD)	1
7	BRICK 4 1/2" X 9" (HD)	2
8	1/2" BRICK 4 1/2" X 9" (HD)	2

7 PART F - DUCTS AND DAMPERS DIMENSIONS

7.1 DUCTS AND DAMPERS DIMENSIONS (EXAMPLES OF CALCULATION)

SIMPLIFIED METHOD DISTRIBUTION SYSTEM	WARM AIR SYSTEM INSTALLATION																
<p>Ducts size (heat)</p> <p>4 inch outlet reduce by 1"</p> <p>5 inch outlet reduce by 2"</p> <p>6 inch outlet reduce by 3"</p> <p style="padding-left: 40px;">Always by 8" thick</p> <p>N.B.: The main duct must be reduced every 2 outlets.</p> <hr/> <p>Ducts specifications (heat)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Dimensions</th> <th>Length</th> <th>Elbow</th> <th>Average equivalence</th> </tr> </thead> <tbody> <tr> <td>4"</td> <td>10'</td> <td>1 x 90°</td> <td>Max 4,000 Btu</td> </tr> <tr> <td>5"</td> <td>10'</td> <td>1 x 90°</td> <td>Max 6,000 Btu</td> </tr> <tr> <td>6"</td> <td>10'</td> <td>1 x 90°</td> <td>Max 7,000 Btu</td> </tr> </tbody> </table> <hr/> <p>DAMPER</p> <p>For a 4" warm air outlet: 2" x 10" damper</p> <p>For a 5" warm air outlet: 2" x 12" damper or 4" x 10"</p> <p>For a 6" warm air outlet: 2" x 14" damper or 4" x 12"</p>	Dimensions	Length	Elbow	Average equivalence	4"	10'	1 x 90°	Max 4,000 Btu	5"	10'	1 x 90°	Max 6,000 Btu	6"	10'	1 x 90°	Max 7,000 Btu	<p>HOUSE DIMENSIONS</p> <p>Example: 28 x 40 bungalow = 1,120 sq. ft.</p> <p>28 x 40 x 8 = 8,960 sq. ft. x 1.8 Ch. air/hr: 16,128 Btu</p> <p>Exposed walls : 40 + 40 + 28 + 28 = 136 x 8 = 1,088 sq. ft. x 22 = 23,936 Btu</p> <p>Number of windows : 12 of 3 x 4 = 144 x 60 = 8,640 Btu</p> <p>Number of doors : 2 x 3' x 7' = 42 x 100 = <u>4,200 Btu</u> <u>52,904 Btu</u></p> <p>Non-insulated basement: 25 % Insulated basement: 15 % <u>7,906 Btu</u></p> <p>Or 54 Btu per sq. ft. <u>60,840 Btu</u></p> <p>FOR ELECTRIC ELEMENTS 80% = 48,672 Btu or 14,28 kW</p> <p>TO BE ADDED: House 1 1/2 floor = 25 % House 2 floors = 40 %</p> <hr/> <p>BEDROOM (for example: 12 x 12)</p> <p>12 x 12 x 8 = 1,152 sq. ft. x 1.8 Ch. air/h = 2,074 Btu</p> <p>Exposed walls: 12 + 12 x 8 : 192 x 22 = 4,224 Btu</p> <p>Windows: 3 x 4 x 60 = <u>720 Btu</u></p>
Dimensions	Length	Elbow	Average equivalence														
4"	10'	1 x 90°	Max 4,000 Btu														
5"	10'	1 x 90°	Max 6,000 Btu														
6"	10'	1 x 90°	Max 7,000 Btu														



8 PART G - TROUBLESHOOTING

PROBLEM	CAUSES	SOLUTIONS
Heating inefficient during the first combustions. Lack of draft.	Improper adjustment of the barometric damper (opened too wide). Chimney flue restriction (too long, 90° elbows)	Adjust the damper, minimize the smoke pipe length and use 45° elbows.
Furnace burns well, warm air plenum is very hot but there is not much heat coming out in the room.	Improper installation of the ducts, low static pressure, unbalanced system (too many warm air outlets and not enough cold air inlets).	Rearrange the ducting to respect the minimum static pressure of 0.20 in. w.c.
Furnace consumes a lot of wood.	The thermostat which controls the damper is continuously activated or is too close to a source of cold air. Damper not properly adjusted. House not insulated enough. Ash drawer is not tightly closed. Furnace too small for the surface to be heated. Unbalanced ventilation system, very little heat where the thermostat is located.	Relocate the thermostat. Adjust the chain that links the damper to the servomotor. Rebalance the ventilation system in order to increase the air flow in the room where the thermostat is located.
Fan start-up is too slow.	Fan "ON" setting too high. Return air is too cold (temperatures lower than 65 degrees). Limit control not well located on the furnace.	Lower the temperature starting point. Usually, the limit control is set at 150 degrees, we can under certain conditions, reduce this temperature. Reduce the fresh air flow. Relocate the limit control.
A lot of creosote, moderate heat output.	Wet wood, lack of draft. Barometric damper not properly adjusted. Sooted up chimney.	Use dry wood. Adjust the barometric damper. Clean the chimney, flue pipe and the furnace exchangers.
Furnace heats a lot but the warm air plenum does not get hot.	Wet wood or low grade wood. No static pressure. Unbalanced ventilation system.	Use dry wood. Rearrange the ventilation system correctly.

IMPORTANT NOTE

FOR, INSTALLATION OF A CENTRAL HEATING VENTILATION SYSTEM, IT IS HIGHLY RECOMMENDED TO CONSULT A HEATING SYSTEM VENTILATION SPECIALIST.

N.B.: STOVE BUILDER INTERNATIONAL INC. IS NOT RESPONSIBLE FOR POOR APPLIANCE PERFORMANCES, DUE TO IMPROPER INSTALLATION.

9 PART H - SPECIFICATIONS

Caddy wood only furnace

Combustible	Wood
Maximum heat input	140,000 BTU (41 kW)
Maximum heat output	106,400 BTU (31,2 kW)
Average heat output	69,160 BTU (20,3 kW)
Thermostatic control	Yes
Maximum efficiency	76% (LHV) / 71% (HHV)
Average emissions	6.6 grams/hr ou 0,229 g/MJ
Loading capacity	Up to 55 lb (25 kg)
Flue outlet size	6" (152 mm)
Recommended smoke pipe dimension	6" If installed in wood only and wood-electric 7" If installed in wood-oil
Recommended chimney type	2100 °F (1150 °C)
Recommended chimney size	6" If installed in wood only and wood-electric 7" If installed in wood-oil
Outside dimensions of the furnace	26"L x 47"P x 48"H
Dimensions of the firebox	17"L x 22,5"P x 16"H
Dimensions of the door opening	13,75"L x 10"H
Type of door	Cast iron with ceramic glass
Dimensions of the hot air plenum	24,562"L x 28,75"
Dimensions of the cold air plenum	24,75"L x 15,75"
Dimensions of ash drawer	12"L x 16"P x 3"H
Thickness of steel (firebox)	3/16" (5 mm)
Minimum clearance (in front of furnace)	48"
Minimum clearance (rear of furnace)	24" recommended service clearance
Minimum clearance (sides of furnace)	24" recommended service clearance
Minimum clearance (standard ducts)	6" for the first 6 feet and 1" after
Recommended service clearance	24"
Weight	590 lb (268 kg), with blower
Color	Green
Warranty	Limited lifetime
Standards – security	Can CSA B366.1-M91, CSA C22.2 No. 236, UL 1995, UL391 3rd Ed. rev. 1999
Standards – emissions / efficiency	EPA / CSA B415.1
Maximum log length	22"

Optional electric unit

Heat output – recommended electric unit	18 kW
Heat output – other optional electric unit	15, 20 kW
Unit location	Left
Unit's recommended service clearance	24"



Optional oil burner

Input capacity	91,000 BTU (27 kW)
Burner orifice at input	0,65 gal/h* (2,46 l/h)
Pump pressure at input	120 PSI
Standard burner	Beckett AFG
Other burner model approved	Riello, Aero
Efficiency	82 %
Burner location	Right
Recommended service clearance (burner)	24"
Optional insulated vestibule for burner	Yes
Recommended exhaust pipe diameter	5"
Exhaust pipe location	Left

* US Gallon (1 US Gallon = 0,83 Imperial Gallon)

Optional blower

Blower (Wood or wood/electric options only)	1/3 HP Direct drive 4 speeds, 1300 cfm
Number of filters	1
Dimensions of the filters	14"L x 25"P x 1"H

Top cold air plenum option

Material	Galvanized steel
Dimensions	24 7/8"W x 15 7/8"D x 12 7/8"H
Smoke pipe diameter	6"

Optional fresh air intake adapter

Connection location	Left or right
Color	Black
Connecting pipe diameter	6"

WHY PURCHASE THROUGH AN AUTHORIZED PSG DEALER?

To make sure your PSG furnace provides comfort and energy savings in your home for many years, your choice of installer is extremely important. An authorized PSG dealer will ensure that the system is optimized and installed according to standards. Given the importance of the installation, PSG recommends that it is carried out by a professional certified in the Building Code so that the furnace delivers its full potential. This is why PSG offers an additional warranty that covers the cost of labor if your furnace has been purchased through an authorized PSG dealer.

If you want to enjoy the best service on the market and substantial savings on heating costs, there is really only one choice: an **Authorized PSG Dealer**.





PSG LIMITED LIFETIME WARRANTY (REGULAR)

The warranty of the manufacturer extends only to the original consumer purchaser and is not transferable. This warranty covers brand new products only, which have not been altered, modified nor repaired since shipment from factory. Proof of purchase (dated bill of sale), model name and serial number must be supplied when making any warranty claim to your PSG dealer.

This warranty applies to normal residential use only. Damages caused by misuse, abuse, improper installation, lack of maintenance, over firing, negligence or accident during transportation, power failures, downdrafts, or venting problems are not covered by this warranty.

This warranty does not cover any scratch, corrosion, distortion, or discoloration. Any defect or damage caused by the use of unauthorized parts or others than original parts void this warranty. An authorized qualified technician must perform the installation in accordance with the instructions supplied with this product and all local and national building codes. Any service call related to an improper installation is not covered by this warranty.

The manufacturer may require that defective products be returned or that digital pictures be provided to support the claim. Returned products are to be shipped prepaid to the manufacturer for investigation. If a product is found to be defective, the manufacturer will repair or replace such defect. Transportation fees to ship the product back to the purchaser will be paid by the manufacturer. All parts costs covered by this warranty are limited according to the table below.

The manufacturer at its discretion may decide to repair or replace any part or unit after inspection and investigation of the defect. The manufacturer may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of any warranted but defective parts. The manufacturer shall in no event be responsible for any special, indirect, consequential damages of any nature, which are in excess of the original purchase price of the product. A one-time replacement limit applies to all parts benefiting from a lifetime coverage. This warranty applies to products purchased after April 1st, 2013.

DESCRIPTION	WARRANTY APPLICATION	
	PARTS	LABOUR
Castings, combustion chamber (welds only), castings, and heat exchanger (welds only).	Lifetime	n/a
Stainless steel firebox components, secondary air tubes*, surrounds and heat shields, ash drawer, and plating* (defective manufacture).	5 years	n/a
Carbon steel firebox components, glass retainers, handle assembly, C-Cast baffle*, and vermiculite baffle*.	3 years	n/a
Oil burner, electrical elements, blowers, heat sensors, switches, rheostat, relays, damper motor, fan limit control, PC board, wiring, and other controls.	2 years	n/a
Ceramic glass (thermal breakage only*), paint (peeling), gaskets, insulation, and ceramic fibre blankets.	1 year	n/a
Firebrick	n/a	n/a

**Pictures required*

Shall your unit or a components be defective, contact immediately your PSG dealer. Prior to your call make sure you have the following information necessary to your warranty claim treatment:

- Your name, address and telephone number;
- Bill of sale and dealer's name;
- Serial number and model name as indicated on the nameplate fixed to the back of your unit;
- Nature of the defect and any relevant information.

Before shipping your unit or defective component to our plant, you must obtain from your PSG dealer an Authorization Number. Any merchandise shipped to our plant without authorization will be refused automatically and returned to sender.



PSG LIMITED LIFETIME WARRANTY (PRIVILEGE)

The warranty of the manufacturer extends only to the original consumer purchaser and is not transferable. This warranty covers brand new products only, which have not been altered, modified nor repaired since shipment from factory and purchased through an authorised dealer. Proof of purchase (dated bill of sale), model name and serial number must be supplied when making any warranty claim to your PSG dealer.

This warranty applies to normal residential use only. Damages caused by misuse, abuse, improper installation, lack of maintenance, over firing, negligence or accident during transportation, power failures, downdrafts, or venting problems are not covered by this warranty.

This warranty does not cover any scratch, corrosion, distortion, or discoloration. Any defect or damage caused by the use of unauthorized parts or others than original parts void this warranty. An authorized qualified technician must perform the installation in accordance with the instructions supplied with this product and all local and national building codes. Any service call related to an improper installation is not covered by this warranty.

The manufacturer may require that defective products be returned or that digital pictures be provided to support the claim. Returned products are to be shipped prepaid to the manufacturer for investigation. If a product is found to be defective, the manufacturer will repair or replace such defect. Transportation fees to ship the product back to the purchaser will be paid by the manufacturer. Repair work covered by the warranty, executed at the purchaser's domicile by an authorized qualified technician requires the prior approval of the manufacturer. Labour cost and repair work to the account of the manufacturer are based on predetermined rate schedule and must not exceed the wholesale price of the replacement part. All parts and labour costs covered by this warranty are limited according to the table below.

The manufacturer at its discretion may decide to repair or replace any part or unit after inspection and investigation of the defect. The manufacturer may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of any warranted but defective parts. The manufacturer shall in no event be responsible for any special, indirect, consequential damages of any nature, which are in excess of the original purchase price of the product. A one-time replacement limit applies to all parts benefiting from a lifetime coverage. This warranty applies to products purchased after April 1st, 2013.

DESCRIPTION	WARRANTY APPLICATION	
	PARTS	LABOUR
Castings, combustion chamber (welds only), castings, and heat exchanger (welds only).	Lifetime	3 years
Stainless steel firebox components, secondary air tubes*, surrounds and heat shields, ash drawer, and plating* (defective manufacture).	5 years	3 years
Carbon steel firebox components, glass retainers, handle assembly, C-Cast baffle*, and vermiculite baffle*.	3 years	1 year
Oil burner, electrical elements, blowers, heat sensors, switches, rheostat, relays, damper motor, fan limit control, PC board, wiring, and other controls.	2 years	1 year
Ceramic glass (thermal breakage only*), paint (peeling), gaskets, insulation, and ceramic fibre blankets.	1 year	n/a
Firebrick	n/a	n/a

**Pictures required*

Shall your unit or a components be defective, contact immediately your PSG dealer. Prior to your call make sure you have the following information necessary to your warranty claim treatment:

- Your name, address and telephone number;
- Serial number and model name as indicated nameplate fixed to the back of your unit;
- Bill of sale and dealer's name;
- Nature of the defect and any relevant information.

Before shipping your unit or defective component to our plant, you must obtain from your PSG dealer an Authorization Number. Any merchandise shipped to our plant without authorization will be refused automatically and returned to sender.