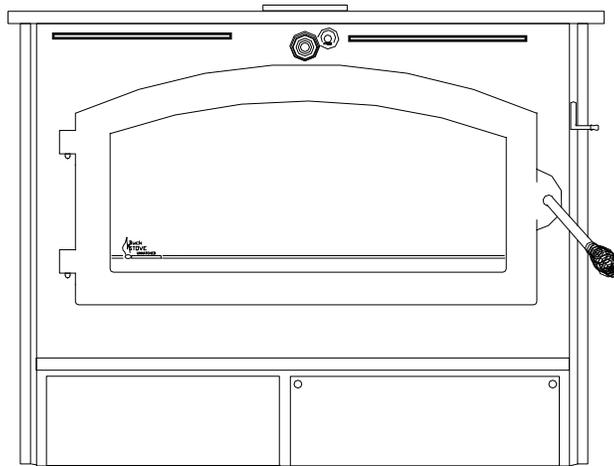




“MEETS PHASE II EPA STANDARDS”



MODEL 20 Room Heater

FEATURES

PREPARATION INSTALLATION

OPERATION MAINTENANCE SAFETY

Contact your insurance company for coverage and installation inspection

SAFETY NOTICE

If this heater is not properly installed, a house fire may result. For your safety, follow the installation directions. Contact local building or fire officials about restrictions and installation inspection requirements in your area.

This product is listed by Warnock-Hersey International, Inc. to the UL Standard No. 1482 and 127.

Manufactured by New Buck Corporation, Spruce Pine, NC 28777

Revised

Tested by ITS



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TABLE OF CONTENTS

SECTION 1:	
Room Heater Features	3
Important Statements	4
SECTION II:	
Masonry Insert Installation	6
Minimum Clearances	7
Required Fireplace Dimensions	8
Tools for Installation	8
Installation Preparation: Fireplace	8
Installation Preparation: Heater	8
Installation Procedure—Direct Connect	9
Positioning the Heater	9
Mounting the Trim Panels	9-10
Final Check	11
SECTION III:	
Freestanding Installation	12
Minimum Clearances	13
Tools for Installation	14
Installation Preparation	14
Determining the Chimney Location	15
Final Check	18
SECTION IV:	
Mobile Home Installation	19
Parts Requirements	19
Minimum Clearances	20
Tools for Installation	20
Installation Preparation	21
Determining the Chimney Location	22
Final Check	23
SECTION V:	
Zero-Clearance Installation	24
Minimum Clearances	26
SECTION VI:	
Safety	28
SECTION VII:	
Operation	29
Building a Fire	29
Operating and Safety Hints	31
Guide to Burning Qualities of Wood	31
Helpful Hints	31
SECTION VIII:	
Manufacturer's Suggested Preventive Maintenance	32
Catalytic Inspection	32
Catalyst Replacement	33
Door Gasket Replacement	34
Electrical Operation	35
SECTION IX:	
Troubleshooting Guide	36
ZERO-CLEARANCE CABINET MODEL ZC20	46
SECTION I:	
Residential Installations	47
SECTION II:	
Mobile Home Installations	54
WARRANTY—Heater	Rear Cover

SECTION I

The New Buck Corporation room heater Model 20 is one of the safest and most efficient heating systems available when installed and operated as specified in these instructions and as stipulated on the operation and installation labels affixed to the unit. The unit is designed to burn wood fuel only.

Please read this entire manual before you install and use your new room heater. Failure to follow instructions may result in property damage, bodily injury, or even death.

Throughout the manual, you will see this symbol .  This indicates areas of importance regarding safety. Please make a special note of these areas.

Install and use only in accordance with the manufacturer's installation and operating instructions. Do not connect this unit to a chimney flue serving another appliance.

ROOM HEATER FEATURES

Before attempting to install or operate your heater, it is a good idea to familiarize yourself with the features and operating controls of the unit.

OPERATING CONTROLS

 **WARNING:** Model 20 heater was not designed for fire grates.

1. **Bypass Damper:** The bypass damper control is located in the top center of the heater front just under the top. It is operated by pushing or pulling the rod. The damper is fully open when the handle is pulled out and fully closed when it is pushed in. The damper must be **open** before the door is opened.
2. **Blower Control:** The blower control switch is located behind the access door at the lower left hand side of the front of the unit. The unit has a Auto-Off-Manual manual switch. Set the switch to the Manual position and the blower will start at any temperature, set the switch to the Off position and the blower will not run at any temperature. Set the switch to the Auto position and when the stove temperature reaches 110° blower will automatically come on.
3. **Primary Air Control:** The primary air intake draft control is located on the upper portion of the unit next to the top extension. It is operated by moving up and down to control the amount of primary air entering the firebox.
4. **Warm Air Outlets:** Provides heat extraction from the top of the firebox.
5. **Baffles:** Directs air flow around the unit for maximum heat transfer.
6. **Air Inlet:** Allows cool air near the floor to be circulated through the blower and back into the warm air chamber of the heater.
7. **Stand:** Elevates heater above the floor for safety and a neat appearance.
8. **Door:** Provides an "airtight" feature. The door allows a much higher burning efficiency than can be obtained with an open firebox.
9. **Hearth Extension:** Offers protection from spilled ashes and cinders.
10. **Power Cord:** Provides electrical power to operate the blower.
11. **Chimney Connector:** Used to connect unit to chimney or direct connect kit.
12. **Catalysts:** Enables the unit to burn cleanly and efficiently.
13. **Temperature Monitor:** The location can be used for either a fireplace insert or freestanding installation. Monitor hole is located to the right of the damper rod on the front. Remove plug and insert probe provided by manufacturer.
14. **Cover Door:** Conceals blower, blower controls and ash pan.
15. **Air Wash:** Primary air is directed in such a way as to provide a "sweeping" airwash over the glass to assist in keeping it clean.
16. **Ash Pan:** Provides for easy ash removal
17. **Outside Air Control:** Allows for adjustment of the amount of outside air entering the unit (installations using outside air kit #P21B). Required in Mobile Home Installation.

EPA COMPLIANCE STATUS

This manual describes the installation and operation of the **New Buck Corporation, Model 20** wood heater. This heater meets the U.S. Environmental Protection Agency's Emission limits for wood heaters sold after July 1, 1992. Under specific test conditions this heater has been shown to deliver heat at rates ranging from approximately 10,000 to 39,000 BTU/hr.

CATALYST EQUIPPED

This wood heater contains a catalytic combustor, which needs periodic inspection and replacement for proper operation. It is against the law to operate this wood heater in a manner inconsistent with operating instructions in this manual, or if the catalytic element is deactivated or removed.

CATALYST WARRANTY

The combustor supplied with this heater is a set of (2) (2x3-5/16x7x25 cells). Consult the catalytic combustor warranty also supplied with this heater. All warranty claims should be addressed to:

Applied Ceramics
Customer Service Department
P.O. Box 29664
Atlanta, GA 30359
770-448-6888

See enclosed catalyst warranty for instructions. New Buck Corporation does not handle catalyst replacements. Customer can order direct from Applied Ceramics.

PROPER FUEL SELECTION

This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods.

DO NOT BURN:

- | | | | |
|-----------------|--------------|------------------|----------|
| 1) Treated Wood | 3) Garbage | 5) Solvents | 7) Trash |
| 2) Coal | 4) Cardboard | 6) Colored Paper | |

Burning treated wood, garbage, solvents, colored paper or trash may result in release of toxic fumes and may poison or render the catalytic combustor ineffective.

Burning coal, cardboard, or loose paper can produce soot, or large flakes of char or fly ash that can coat the combustor, causing smoke spillage into the room and rendering the combustor ineffective.

ACHIEVING CATALYTIC LIGHT-OFF

The temperature in the stove and the gases entering the combustor must be raised to between 500° F to 700° F for catalytic activity to be initiated. This can be determined with the use of a temperature monitor (TM-20). During the start up of a cold stove a medium to high firing rate must be maintained for about 20 minutes. This ensures that the stove, catalyst, and fuel are all stabilized at proper operating temperatures. Even though it is possible to have gas temperatures reach 600° F within two to three minutes after a fire is started, if the fire is allowed to die down immediately it may go out or the combustor may stop working. If this happens open the damper to raise the temperature to activate the catalyst. Once the combustor starts working, heat generated in it by burning the smoke will keep it working.

ACHIEVING CATALYTIC LIGHT-OFF WHEN REFUELING

During the refueling and rekindling of a cool fire, or a fire that has burned down to the charcoal phase, operate the stove at a medium to high firing rate for about 10 minutes to ensure that the catalyst reaches approximately 600° F.

CATALYST MONITORING

It is important to periodically monitor the operation of the catalytic combustor to ensure that it is functioning properly and to determine when it needs to be replaced. A non-functioning combustor will result in a loss of heating efficiency, and an increase in creosote and emissions. Following is a list of items that should be checked on a periodic basis.

Combustors should be visually inspected at least three times during the heating season to determine if physical degradation has occurred. Actual removal of the combustor is not recommended unless more detailed inspection is warranted because of decrease in performance. If any of these conditions exist, refer to Catalyst Troubleshooting Section of the owner's manual.

This catalytic heater is equipped with the means to install a temperature probe to monitor catalyst operation. Properly functioning combustors typically maintain temperatures in excess of 1000° F. If catalyst temperatures are not in excess of 500° F refer to Catalyst Troubleshooting section of this owner's manual. You can get an indication of whether the catalyst is working by comparing the amount of smoke leaving the chimney when the smoke is going through the combustor and catalyst light-off has been achieved to the amount of smoke leaving the chimney when the smoke is not routed through the combustor (bypass mode).

Step 1—Light stove in accordance with instructions.

Step 2—With smoke routed through the catalyst, go outside and observe the emissions leaving the chimney.

Step 3—Engage the bypass mechanism and again observe the emissions leaving the chimney.

Significantly more smoke should be seen when the exhaust is not routed through the combustor (bypass mode). Be careful not to confuse smoke with steam from wet wood.

CAUTION AGAINST OVER-FIRING

Do Not Over-fire This Heater.

Attempts to achieve heat output rates that exceed heater design specifications can result in permanent damage to the heater and to the catalytic combustor.

MAINTAIN PROPER DRAFT

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions, and other factors. Too much draft may cause excessive temperatures in the appliance and may damage the catalytic combustor. Inadequate draft may cause backpuffing into the room and “plugging” of the chimney or the catalyst.

Inadequate draft will cause the appliance to leak smoke into the room through appliance and chimney connector joints.

An uncontrollable burn or a glowing red stove part or chimney connector indicates excessive draft.

ASH REMOVAL

Whenever ashes build up in the firebox and when the fire has burned down and cooled, remove excess ashes. Leave an ash bed approximately 1 inch deep on the firebox bottom to help maintain a hot charcoal bed.

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, away from all combustible materials, pending final disposal. The ashes should be retained in the closed container until all cinders have thoroughly cooled.

SECTION II

MASONRY INSERT INSTALLATION INSTALLATION PRECAUTIONS

Extensive field and laboratory testing has shown that catalytic stoves perform best as fireplace inserts when:

1. A direct connect kit is used to connect the stove exhaust outlet directly to the masonry flue of the fireplace when flue liner size is approximately the same size as the heater flue gas exit. A rain cap is also recommended to keep flue dry thus allowing a hotter draft.

NFPA 211 CODE: The National Fire Protection Association code requires all fireplace insert heaters to be positively connected from the heater to the flue liner (subject to State and Local codes in your area).

2. An equivalent sized flue liner is installed when the flue liner size is larger than the heater flue gas exit. Connection must be from stove exhaust outlet extending the full height of the chimney and must include a rain cap.
3. Location of chimney is interior (not on an outside wall).

Satisfactory results have been reported with installations other than as listed above. However, as all chimneys draw differently, problems with performance may be encountered if steps are not taken to keep the chimney hot. A draft between .03 and .06 inches of water is recommended for proper catalytic operation.

Use the following to complete the installation of the unit as an insert:

Kit #FP20

INSTALLATION (Fireplace Insert)

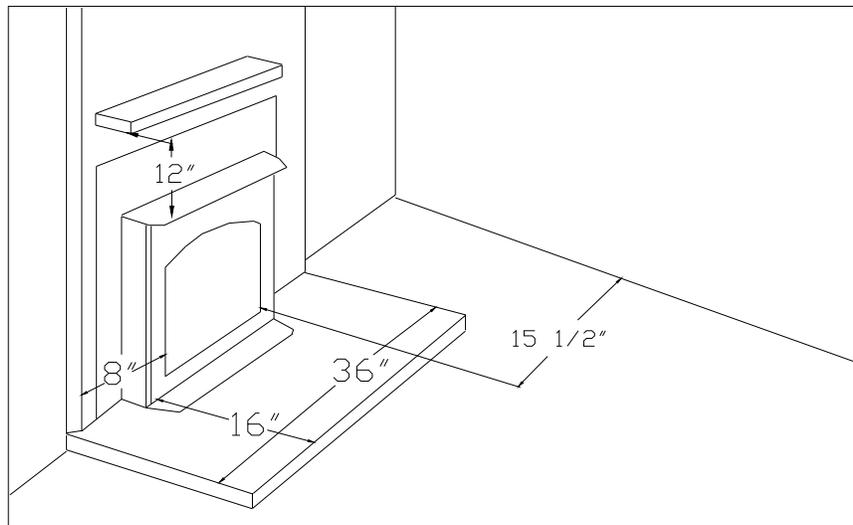


FIGURE 1

FIREPLACE INSERT

MINIMUM CLEARANCES:

The Model 20 Fireplace Insert is intended for installation in accordance with the standard for chimneys, fireplaces, vents, and solid-fuel burning appliances, **NFPA-211** Code. This model is not intended for installation into factory-built metal fireplaces or for use with a metal chimney (except as listed in Section V of this manual).

1. The hearth must be of masonry construction and must extend a minimum of 16” in front of the firebox opening and a minimum of 8” to either side of the firebox opening.
2. If there is not 16” from the front of the firebox opening and the front of the masonry hearth, a floor protector must be used in front of the hearth to protect combustible materials. 2” of brick, a listed “floor protector” or a floor protector made of non-combustible, inorganic material with a K* factor may be used as follows:

$$K = 2.5 \text{ BTU}/((\text{HR}) (\text{Ft}^2) (\text{°F}/\text{IN}))$$

ALTERNATE FLOOR PROTECTORS MATERIALS

With the floor protector or hearth extension material specified as one layer of 2” thick brick with a K* factor of 5.0, you may use alternate materials as long as the K* factor (s) is calculated as follows:

Formula: Required thickness = (K of alternate material/K of millboard) x (thickness of millboard)

Example: An alternate inorganic non-combustible millboard with a K of .9375 would require a thickness as follows:

$$\begin{aligned} \text{Required thickness} &= (.9375/5.0) \times 2 \text{ in.} \\ &= 3/8 \text{ inch} \end{aligned}$$

K Factors of Alternate Materials

Material	K	Required Thickness
Ceroform 126	.21	1/8”
Limestone	8.0	3.2”
Concrete	8.0	3.2”
Sandstone	13.0	5.2”
Marble	18.0	7.2”

Hearth extension or floor protector thickness above four (4) inches is generally not acceptable due to cost, floor load capacity, and look. The alternate we recommend is using Ceroform No. 126 millboard 1/8” thick minimum and putting any type decorative brick or stone (any thickness) on top of it.

- The K* factor represents the thermal conductivity of a material and is the time rate of heat flow through a homogeneous material under steady-state conditions, through unit area, per unit temperature gradient in the direction perpendicular to a surface.

3. If your fireplace has wood trim above it, the wood trim must be at least 8” above the top of the unit and may be a maximum of 1/2” thick.
4. If your fireplace has a wood mantel, the mantel or mantel supports must be located at a height greater than 12” above the top of the unit.

REQUIRED FIREPLACE DIMENSIONS

Minimum and/or maximum fireplace dimensions:

	Height		Width		Depth
	Min.	Max.	Min.	Max.	Min.
Model 20	22"	31"	26"	41"	16"

POSSIBLE TOOLS NEEDED FOR INSTALLATION

If you decide to install your own stove, there are several hand tools you may need to do the job. If you do not already have them, they are readily available at most hardware stores.

Caulking gun

Large adjustable wrench (may not be needed)

Drop cloths or newspapers

Vacuum cleaner or whisk broom

Flashlight

1 tube of RTV silicone, Code 103 or 106, or high temperature rubber cement rated between 450° F- 600° F

7/32" drill bit and drill

Socket/Ratchet Set

INSTALLATION PREPARATION

Fireplace:

1. Locate furniture and other materials away from the front of the fireplace to allow free access to the fireplace.
2. Cover the hearth and adjacent floor areas with the drop cloths to protect from soiling or marring the surface.
3. Remove the existing fireplace damper plate.
4. Thoroughly clean the fireplace of ashes and soot.
5. Check the chimney and smoke chamber for excessive buildup of creosote or soot. Also, check for obstructions, such as bird's nests. If the chimney is excessively dirty, clean it, or have someone clean it professionally BEFORE installing or using the room heater.
6. If the fireplace has an ash dump or outside air provision, these must be sealed off with metal or tightly packed non-combustible insulation to prevent cold air from entering the fireplace chamber.

Heater:

1. Inspect the unit for any obvious physical damage.
2. Plug the power cord into a 115V AC outlet. Set switch to "Manual" and rheostat to "High" position to ensure motor operates properly.
3. Check the primary air draft control to ensure that it operates freely.
4. Check the operations of the damper control to ensure it will open and close properly.
5. If unit is a fireplace insert remove rear side panels and place screws back in the holes before setting the unit in the fireplace opening.

NOTE: Due to the redesign for the 2002 series of the Model 20/ZC20, starting with serial number **003908** . The following steps must be followed for proper installation and operating.

INSTALLATION

MOUNTING TRIM PANELS FOR MASONRY INSTALLATION

(Changes refer to pages 9 and 10 in your owners manual)

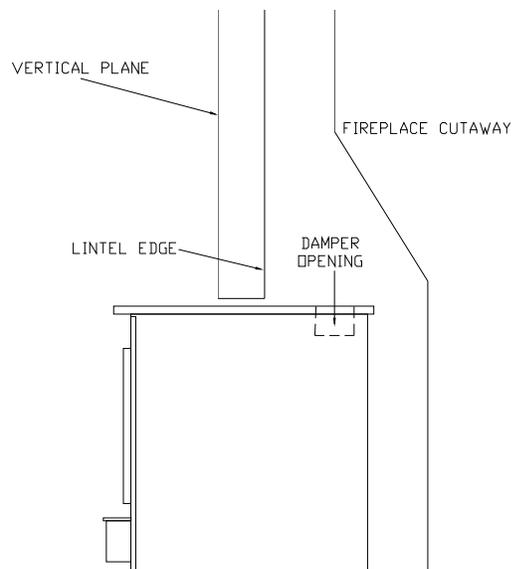


FIGURE 2 **POSITIONING**

POSITIONING THE HEATER

When positioning the heater, the following conditions **MUST** be met! (See Figure 2)

1. The front of the damper opening must be positioned **BEHIND** the rear edge of the lintel to ensure proper draft. (See Figure 2)
2. The vertical plane of the fireplace front must fall **BEHIND** the side cold air vent on top of the unit. (In other words, it is possible to have the heater too far in as well as not far enough.)
3. Center the heater in the fireplace opening.

MOUNTING THE TRIM PANELS

After the unit is positioned, as shown in Figure 2, mark the mounting position of the trim panels as follows:

1. Set the top (long) trim panel in place on top of the unit. The panel should be flat against the outside face of the fireplace, and standing vertically. Mark along the lower edge of the trim panel with a pencil to make a reference line for mounting.
2. Set the side trim panels in place behind and against the intake covers, again, flat against the face of the fireplace. Mark down the edge of the trim panel to make a vertical reference line.

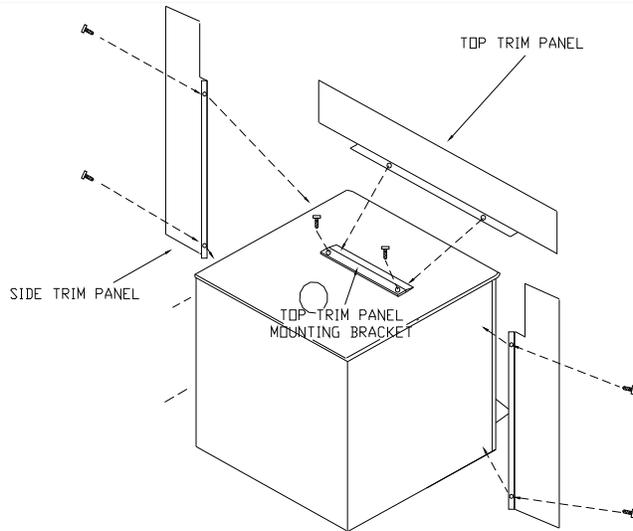
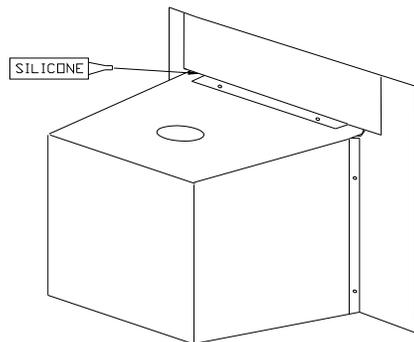


FIGURE 3 MOUNTING TRIM PANELS



3. Slide the unit out of the fireplace far enough to work behind the trim panel reference lines.
 4. Mount the side trim panels. (See Figure 3)
 - a. Position the trim panel on the reference line.
 - b. Drill mounting holes in center of trim panels mounting brackets to allow for adjustment in and out if necessary.
 - c. Mount the trim panel using the self-tapping screws provided.
 5. Place top panel back on reference mark. Take top trim panel mounting bracket supplied with unit. Position bracket so it overlaps rear lip of top trim panel. Drill mounting holes in top of stove using holes in bracket as guide. Tighten down screws. **NOTE:** The mounting Bracket is only necessary with direct connect installation.
 6. Now, follow the installation procedures in the listed direct connect or positive connect kit you are using and install the heater and connect kit in the fireplace.
 7. Slide the unit back into the fireplace. Check to be sure that the trim panels are properly positioned and lie flat against the front of the fireplace. If one or more of the panels is out of position, slide the unit out and reset by loosening the mounting screws and repositioning in the slot.
8. Reinstall the top trim panel by sliding the rear lip of the top trim panel underneath the front lip of the mounting bracket already secured to top of unit.

NOTE: Mount the top trim panel so that it sits in front of the top of the side trim panels.
 9. Obtain the brass trim kit provided with unit and slip over the top and sides of trim panels. (Top ends of brass may need to be trimmed to fit.)
 10. If direct connect or positive connect kit is not used, follow instructions in steps 1-4c on previous page.
 11. Mount top trim panel by drilling mounting holes in center of trim panel mounting brackets, with top end side of top panel overlapping side panel.
 12. Using insulation provided, peel and stick to back of panels overlapping fireplace dimensions by 1" on each side and top. (See Figure 3.)
 13. Next using high heat silicone or furnace cement run heavy bead of caulking around where panels meet the stove. (See Figure 3.)
 14. Slide the unit back into the fireplace. Check to be sure that the trim panels (and brass) are properly positioned and lie flat against the front of the fireplace. If panels are out of position, slide the unit out and reset by loosening the mounting screws and repositioning in the slot. With bar, lift stove in front. Place insulation across front and the surface of hearth or bottom of fireplace, to make complete seal.
 15. To check seal of panels, use candle flame and go around the entire area sealed by silicone and insulation. If flame leans toward inside of fireplace, add additional insulation. This ensures an airtight seal.

FINAL CHECK

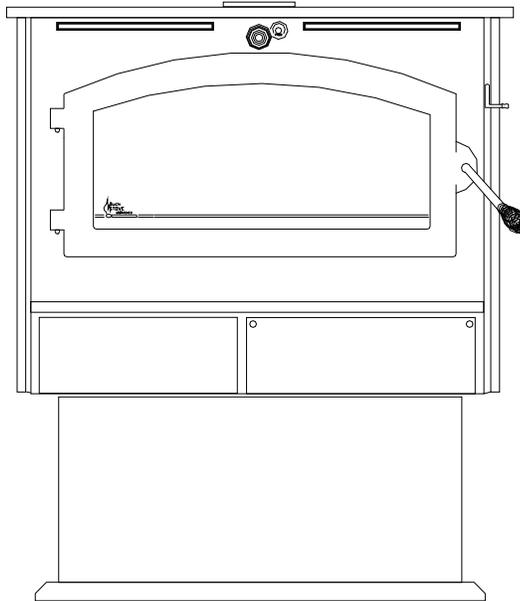
1. Recheck the specified clearances.
2. Remove all foreign material from the firebox area.
3. Open the primary air draft and damper bypass.
4. Plug the power cord into a **115V AC** outlet. Set switch to “Manual” position to ensure motor operates properly.
5. Place crumpled pieces of newspaper in the stove. Light it and close the door. Ensure that the stove draws properly through the primary drafts.
6. Check for smoke leaks around the door.
7. Open the door and check for smoke escaping from the front of the stove. Smoking usually indicates a defective or poorly positioned chimney. Some chimneys with a marginal draft can be preheated by lighting newspaper and holding it near the open damper with a poker or fire tong. Once the chimney heats up, a proper draft can usually be obtained.

If a thorough review of the Troubleshooting Guide in the rear of the manual does not reveal the problem, contact your dealer for assistance.

NOTE: The unit is painted with a specially formulated high temperature paint that cures during the first two or three firings. You may notice a slight smoking effect and an odor of burning paint when you build the first fires. This is normal and is not a cause for alarm. In some cases, these fumes will activate a smoke alarm. Opening a window near the unit will allow these fumes to escape. **DO NOT** build a large, roaring fire until this curing is complete or the heater finish may be damaged.

SECTION III

RESIDENTIAL FREESTANDING ROOM HEATER INSTALLATION



INSTALLATION PRECAUTION

Extensive field and laboratory testing has shown that catalytic stoves perform best as freestanding stoves when vented into a masonry chimney if:

1. A rain cap is installed on the chimney.
2. Height of chimney is at least 15 feet high.
3. Location of chimney is interior (not on an outside wall).

NOTE: Certain types of double wall pipe (close clearance) also cause a substantial drop in flue gas temperature. If a double wall pipe connector is being contemplated, check with the pipe manufacturer to ascertain that the use of their product will not affect the flue gas temperature. Do not use double wall pipes which reduce flue gas temperatures.

Satisfactory results have been reported with installations other than listed above. However, draft problems are possible if a hot chimney is not maintained.

Use pedestal kits as follow:

Model 20 Kit #P8 or #P21B



CAUTION: Do not connect this unit to a chimney flue serving another appliance.

MINIMUM CLEARANCES

The New Buck Corporation Model 20 must be installed in compliance with the instructions contained in this manual.

CLEARANCE FROM COMBUSTIBLE WALLS AND CEILINGS (Using single wall chimney connector)

The minimum lateral distance between any part of the room heater and combustible walls is shown in Figures 1 and 2.

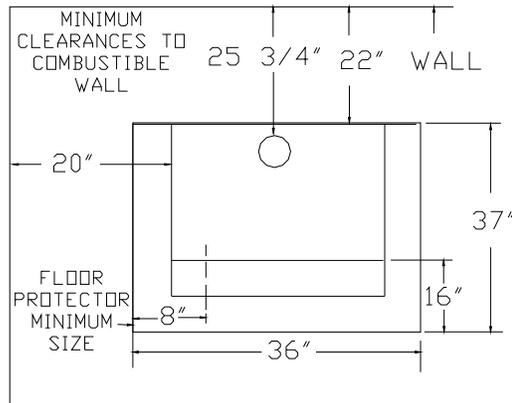


FIGURE 1 WALL INSTALLATION

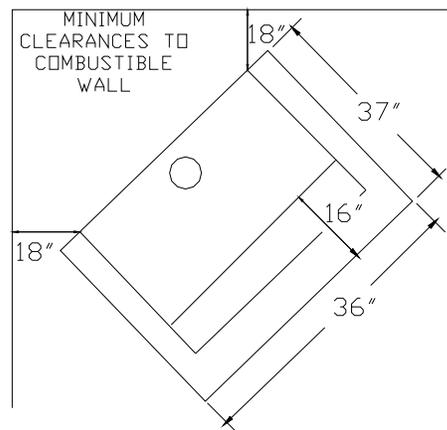


FIGURE 2 CORNER INSTALLATION

FLOOR PROTECTION

If a freestanding model is to be installed on a combustible floor, a non-combustible pad must be placed below it to protect the floor from burning material from the stove. The pad must be 36" wide by 37" deep. UL tests were conducted without a floor protector. Therefore, the protector can be of any thickness and any K* factor.

The unit must be positioned on the pad so that there is a minimum of 16" from the front of the door opening to the front of the pad, and a minimum of 8" measured horizontally from the sides of the fuel loading and ash removal openings to the sides of the pad.

NOTE: For clearance reductions using wall protectors, refer to the **NFPA -211** code.

Close clearance installations using listed Close Clearance pipe and 2100° HT chimney system from approved manufacturer's list. (See page 18)

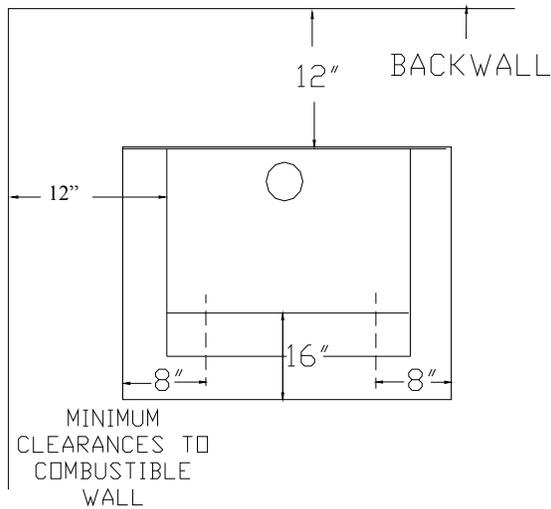


FIGURE 3 WALL INSTALLATION

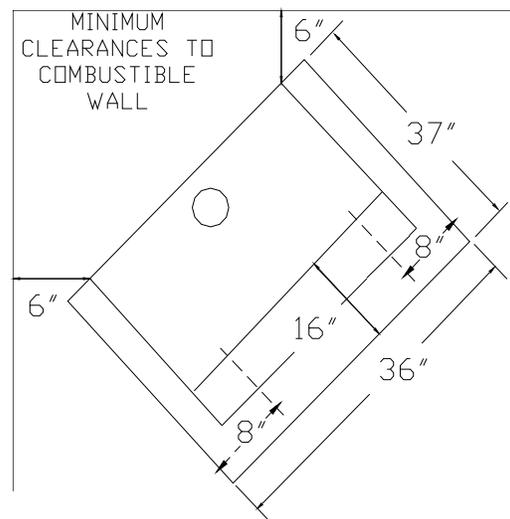


FIGURE 4 CORNER INSTALLATION

TOOLS FOR INSTALLATION

- Drop Cloth
- Electric Drill with 3/32" drill bit
- 5/16" combination wrench
- 5/16" magnetic socket chuck adapter, 5/16" wrench (box or socket) or adjustable wrench
- Socket Set
- Tape Measure
- Pencil
- Level

PREPARING THE STOVE FOR INSTALLATION

1. Inspect the unit for any obvious physical damage.
2. Plug the power cord into a **115V AC** outlet. Set switch to "Manual" and rheostat to "High" position to ensure motor operates properly.
3. Check the primary air draft control to ensure that it operates freely.
4. Check the operation of the bypass damper control to ensure that it will open and close properly.
5. Remove any items from within the firebox. Spread the drop cloth on the floor behind the heater. Next, tilt the heater so that the back is on the drop cloth.
6. Using a tape measure, make a line down 3" from the front of the heater.
7. Open the corresponding freestanding kit and obtain the stand. Place the stand against the bottom of the heater (angle side to heater) at the marked line. Center the stand left and right and mark screw locations on bottom through outer holes of stand mounting angles. Set stand aside and drill four 3/32" holes in heater bottom.
8. Obtain four 3/16" self-tapping screws and secure the stand to the heater.
9. Reposition the heater to the upright position.

PREPARING THE ROOM HEATER LOCATION

1. Select an installation location that will give the best airflow from the front of the heater to the remainder of the home.
2. Place the protective floor pad in position.
3. Place the unit on the pad making sure the minimum clearance specifications are met.
4. If connecting to an existing masonry flue, first ensure that the flue conforms to the **NFPA-211** Code and/or consult your local code for proper procedures.

CHIMNEY

This room heater must be converted to (1) a chimney complying with the requirements for Type HT chimneys in the Standard for Chimneys, Factory-Built, Residential, Type and Building Heating Appliance, UL 103, or (2) a code approved masonry chimney with a flue liner.

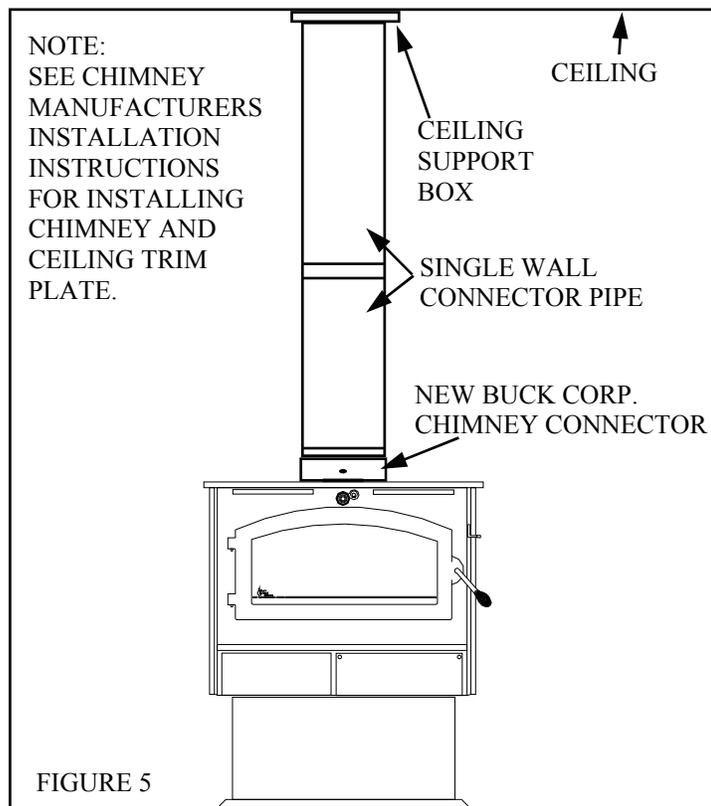


CAUTION: Certain installation types require the use of certain chimney types. Please follow these instructions exactly.

DETERMINING THE CHIMNEY LOCATION

A. Ceiling Exit (Using Single Wall Pipe)

1. Suspend a plumb bob from the ceiling above the unit so that the weight is hanging in the center of the flue exit. (A small weight on a string will serve as a plumb bob.) Mark the ceiling where the string is suspended to locate the center of the chimney.
2. After locating the center of the hole, install the ceiling support box, chimney or chimney connector, flashing, and rain cap per the chimney manufacturer's instructions, and local building codes for installation through combustible walls or ceilings.
3. Now connect the stove and ceiling support box using #24 ga. minimum blued or black steel connector pipe (DO NOT USE GALVANIZED PIPE). Connect each section so the crimped end faces downward, and secure each section to each other using at least three (3) sheet metal screws or rivets. Single wall pipe is to be connected with 3 screws or rivets to New Buck Corporation Chimney Connector after connector has been attached to stove. (See Figure 5)



B. Wall Exit into Metal Tee-Box

1. Mark the plumb line on the wall directly behind the center of the heater. (See Figure 6)
2. Place the vertical portion of the heater pipe and the elbow in position and project a point onto the plumb line level with the center of the elbow.
3. Measure up so there will be at least 1/4" rise per foot of horizontal connector pipe, maintaining clearances to the ceiling as noted in Figure 6. This will give you the center of the hole for the chimney penetration.
4. After locating the center of the penetration, install the tee-box and chimney or chimney connector as per the chimney manufacturer's specifications and local building codes for installation through combustible walls or ceilings.

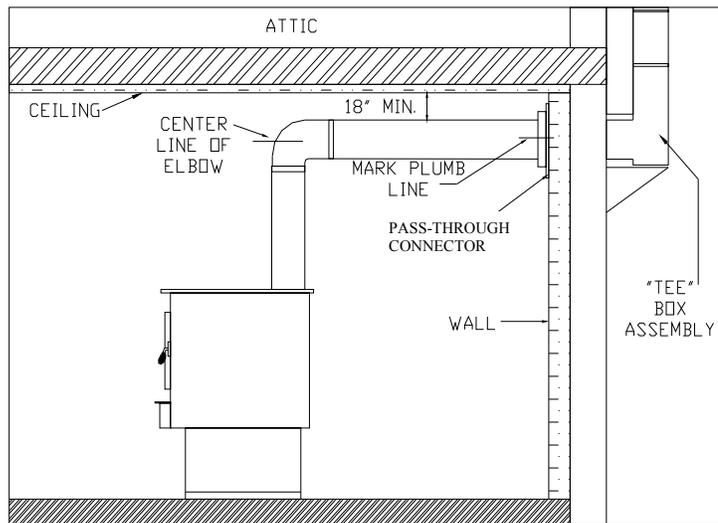


FIGURE 6 FLUE EXIT

5. Connect the chimney collar to the tee-box using #24 ga. minimum blued or black steel connector pipe. DO NOT USE GALVANIZED PIPE. Connect each section so the crimped end faces downward, and secure each section to each other using at least three (3) steel sheet metal screws or rivets.
6. After securing New Buck Corporation Chimney Connector to heater, secure pipe to connector with three (3) screws or rivets.

C. Wall Exit Into Masonry (Using Single Wall Pipe)

Before connecting the Model 20 to a masonry chimney, determine that the masonry fireplace wall pass-through connector thimble meets the NFPA-211 code and local building codes and is a minimum of 18" from the ceiling. If the connector thimble does not meet these codes, the pass-through connector must be modified. **NOTE:** Follow chimney or chimney connector manufacturer's instructions.

Connectors may pass through walls or partitions constructed of combustible material if the connector is:

- (a) Either listed for wall pass-through or is routed through a device listed for wall pass-through and is installed in accordance with the conditions of the listing

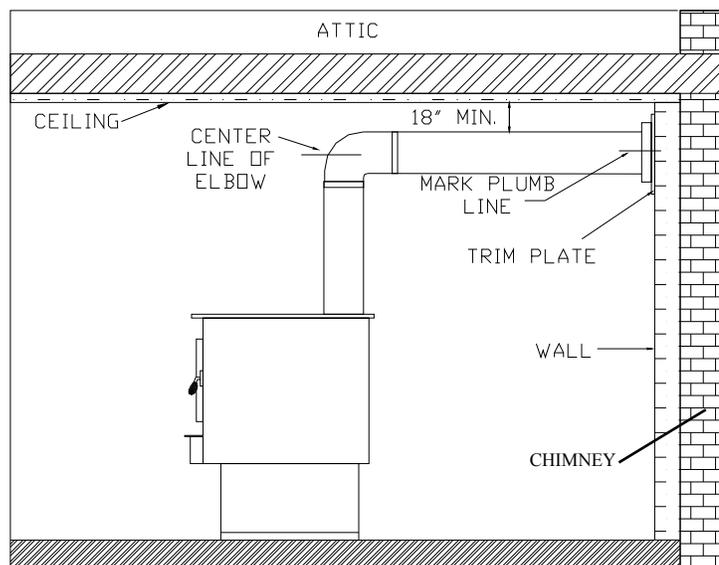


FIGURE 7 FLUE GAS EXIT INTO MASONRY CHIMNEY

- (b) Selected or fabricated in accordance with the conditions and clearances as stated in **NFPA-211** code. Any unexposed metal that is used as part of a wall pass-through system and is exposed to flue gases shall be constructed of stainless steel or other equivalent material that will resist corrosion, softening, or cracking from flue gases at temperatures up to 1800° F.

In addition, a connector to a masonry chimney shall extend through the wall to the inner face or liner but not beyond, and shall be firmly cemented to masonry.

Exception: A thimble may be used to facilitate removal of the chimney connector for cleaning, in which case the thimble shall be permanently cemented in place with high temperature cement.

- 2. Once the through-the-wall thimble codes are met, simply connect the chimney collar to the wall pass-through connector using #24 ga. minimum blued or black steel connector pipe as follows:
 - (a) Maintain 1/4" rise per foot (horizontal length) from the appliance to the chimney.
 - (b) Connect each section so the crimped end faces downward.
 - (c) Secure each section to each other using at least three (3) sheet metal screws or rivets.
 - (d) After securing New Buck Corporation Chimney Connector to heater secure pipe to connector with three (3) screws or rivets.

D. Ceiling Exit-Close Clearance (Using Listed Close Clearance Pipe and 2100° HT Chimney System From Approved Manufacturers List.) (See page 18)

- 1. Suspend a plumb bob from the ceiling above the unit so that the weight is hanging in the center of the flue exit. (A small weight on a string will serve as a plumb bob.) Mark the ceiling where the string is suspended to locate the center of the chimney hole.
- 2. After locating the center of the hole, install the ceiling support box, chimney, flashing, and rain cap.
- 3. Next, install a New Buck Corporation Chimney Connector to the flue of the heater.
- 4. Connect listed chimney to heater and follow pipe manufacturers installation instructions exactly.

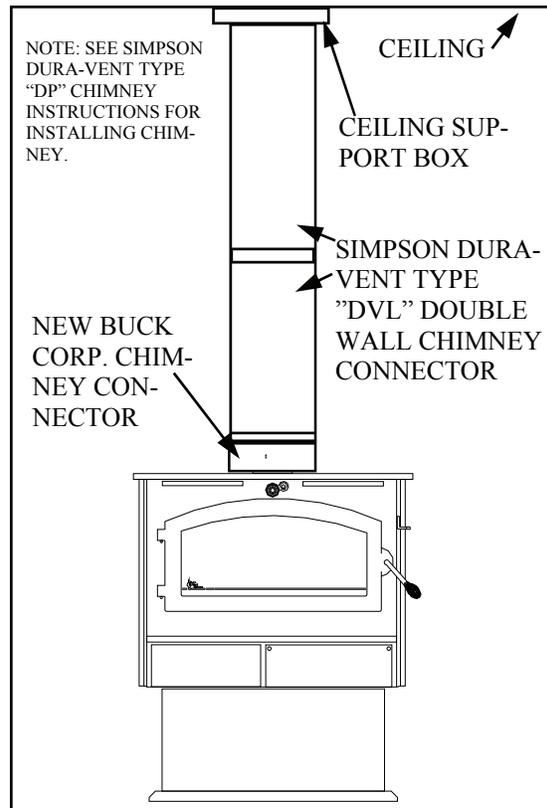


FIGURE 8

FINAL CHECK

1. Recheck the specified clearances.
2. Remove all foreign material from the firebox area.
3. Open the primary air draft and damper bypass.
4. Plug the power cord into a **115V AC** outlet. Set switch to “Manual” and rheostat to “High” position to ensure motor operates properly.
5. Place crumpled pieces of newspaper in the stove. Light it and close the door. Ensure that the stove draws properly through the primary draft.
6. Check for smoke leaks around the door.
7. Open the door and check for smoke escaping from the front of the stove. Smoking usually indicates a defective or poorly positioned chimney. Some chimneys with a marginal draft can be preheated by lighting newspaper and holding it near the open damper with a poker or fire tong. Once the chimney heats up, a proper draft can usually be obtained.

If a thorough review of the Troubleshooting Guide in the rear of the manual does not reveal the problem, contact your dealer for assistance.

NOTE: The unit is painted with a specially formulated high temperature paint that cures during the first two or three firings. You may notice a slight smoking effect and an odor of burning paint when you build the first fires. This is normal and is not a cause for alarm. In some cases, these fumes will activate a smoke alarm. Opening a window near the unit will allow these fumes to escape. **DO NOT** build a large, roaring fire until this curing is complete or the heater finish may be damaged.

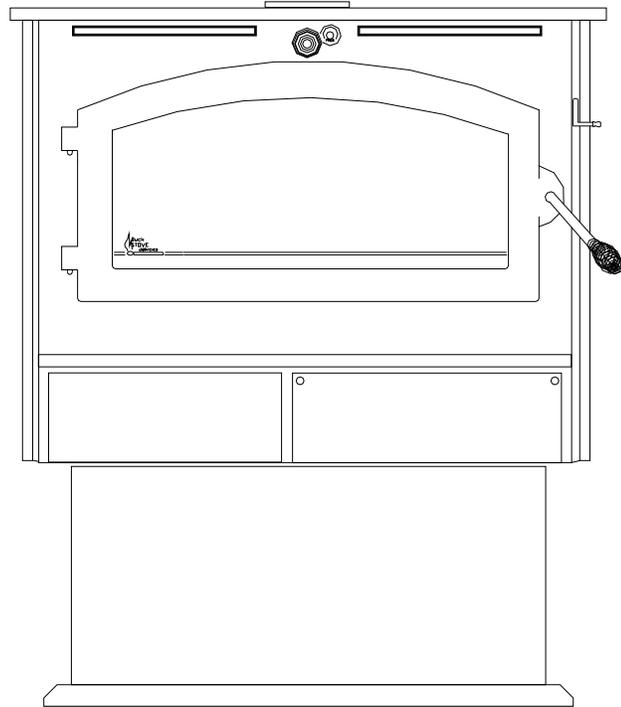
SECTION IV

MOBILE HOME ROOM HEATER INSTALLATION

WARNING: DO NOT INSTALL IN SLEEPING ROOM.



CAUTION: The structural integrity of the mobile home floor, wall, and ceiling/roof must be maintained.



Parts Requirements:

MODEL 20

New Buck Corporation
New Buck Corporation
New Buck Corporation

UL Listed and factory approved Chimney Systems:

Simpson Dura-Vent
Simpson Dura-Vent
Security
Security
Selkirk Metal Bestos
Selkirk Metal Bestos
Metal Fab
Metal Fab

Part Description / Part -

- Model 20 Room Heater
- Outside air pedestal kit #P21B
- 6" Chimney Connector #MA-6CHIMCNB

- 6" Double wall chimney connector type DVL
- 6" 2100° HT Type "DP" Chimney
- 6" Type DL Double wall connector
- 6" Security type "ASHT" high temp chimney
- 6" Model DS Double wall connector
- 6" Model SSII Type HT chimney system
- 6" Type DW Double wall connector
- 6" 2100° HT chimney

Clearance from combustible walls using listed Close Clearance pipe and 2100° HT chimney system from approved manufacturer's list. (See page 18)

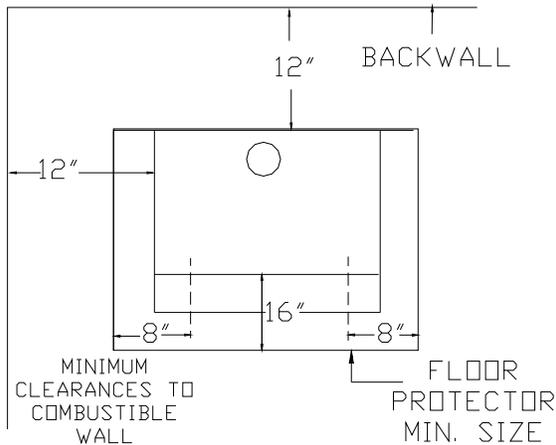


FIGURE 1 WALL INSTALLATION

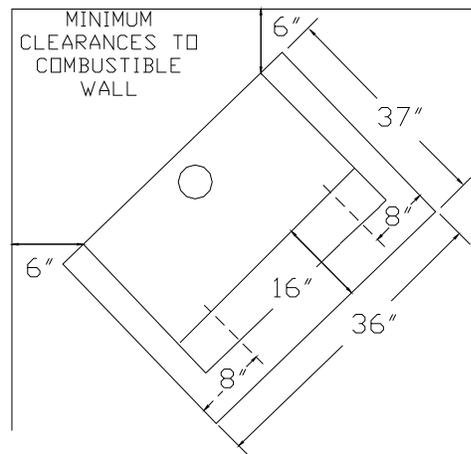


FIGURE 2 CORNER INSTALLATION

FLOOR PROTECTION

If the room heater is to be installed on a combustible floor, a non-combustible pad must be placed below it to protect the floor from burning material from the stove. The pad must be 36" wide by 37" deep for the Model 20. Tests were conducted without a floor protector. Therefore, the protector can be of any thickness and any K* factor.

The unit must be positioned on the pad so that there is a minimum of 16" from the front of the door opening to the front of the pad, and a minimum of 8" measured horizontally from the sides of the fuel loading and ash removal openings to the sides of the pad.

TOOLS FOR INSTALLATION

Drop cloth

3/32" Metal drill bit

5/16" magnetic socket chuck adapter, 5/16" wrench (box or socket) or adjustable wrench

Jigsaw with masonry, metal and wood blades

PREPARING THE HEATER FOR INSTALLATION

1. Inspect the unit for any obvious physical damage.
2. Plug the power cord into a **115V AC** outlet. Set switch to “Manual” and rheostat to “High” position to ensure motor operates properly.
3. Check the primary air draft control to ensure that it operates freely.
4. Check the operation of the damper bypass control to ensure that it will open and close properly.
5. Remove any items from within the firebox. Spread the drop cloth on the floor behind the heater. Next, tilt the heater so that the back is on the drop cloth.
6. Using a tape measure, make a line down 3” from the front of the heater.
7. Open the proper outside air freestanding kit and obtain the stand. Place the stand against the bottom of the heater (angle side to heater) at the marked line. Center the stand left to right and mark screw locations on bottom through outer holes of stand mounting angles. Set stand aside and drill four 3/32” holes in heater bottom.
8. Obtain the four #10-16 x 3/4” self-tapping screws provided and secure the stand to the heater.
9. Reposition the heater to the upright position.

PREPARING THE ROOM HEATER LOCATION

1. Select an installation location that will give the best airflow from the front of the heater to the remainder of the home.
2. Place the protective floor pad in position.
3. Place the unit on the pad making sure the minimum clearance specifications are met.
4. Lightly mark with a pencil the location of the pedestal on the protective pad.
5. Next, remove the four (4) screws holding the heater to the stand. Position heater out of the way of the installation area.
6. Check that the pedestal stand is still aligned with the marks and now, mark the inside outside air opening of the stand on the pad.
7. Next, mark the center line of the outside air opening. Set stand aside for now.
8. Next, cut a 4 1/4” diameter hole (2 1/8” radius from centerline) in the pad and continue through the floor.
CAUTION!!! The structural integrity of the mobile home floor must be maintained. (Move opening and/or reposition heater location if necessary.)
9. Now, reposition the pedestal stand and set on the pad being sure to line the stand up with the reference marks.
10. Using an electric drill and 3/8” masonry bit, drill four (4) holes in the protective pad using the holes in the bottom side lips of the pedestal stand as a guide. Be careful to drill only through the pad and not into the floor. Change the bit to a 1/4” metal bit and drill through the floor.
11. Using four (4) 3/8” x 1-1/2” lag bolts, secure the pedestal stand and pad to the floor of the mobile home.
CAUTION!!! If a thick floor protector is used, you may have to use longer lag bolts.
12. Set the heater back onto the stand and re-secure using the screws.
13. Obtain the outside air duct from the box in the pedestal kit marked **FA P21B**.
14. From under the mobile home, slip the duct up through the 4” hole. Push up until the face of the outside air duct contacts the underside of the floor of the mobile home. For certain floor thicknesses, you may have to shorten the length of the outside air duct.
15. Secure the outside air duct to the floor using four (4) - 10x1” screws. (See Figure 3.)

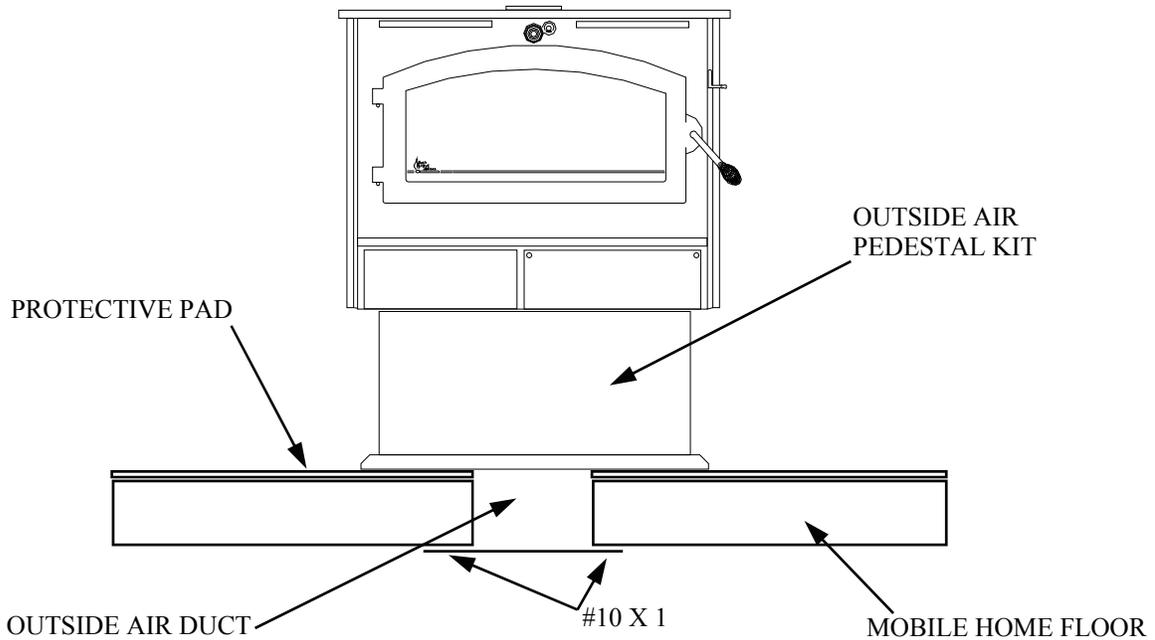


FIGURE 3

DETERMINING THE CHIMNEY LOCATION

1. Suspend a plumb bob from the ceiling above the unit so that the weight is hanging in the center of the flue exit. (A small weight on a string will serve as a plumb bob.) Mark the ceiling where the string is suspended to locate the center of the chimney hole.
2. After locating the center of the hole, install the ceiling support box, chimney, flashing, and rain cap.

CAUTION!!! - Refer to chimney manufacturers instructions for assembly and disassembly of chimney parts. Be sure to follow chimney instructions for proper clearances to combustibles and proper air spacing required.

3. Add additional pipe until both of the following are met:
 - (a) Chimney pipe is 3' higher than roof at the point where it penetrates the roof. (See Figure 4.)
 - (b) Chimney pipe height is at least 2' higher than any part of the roof within 10' of the chimney. (See Figure 5.)
4. Next, install a New Buck Corporation Chimney Connector to the flue of the heater. (See Figure 4.)
5. Using "Type DVL" double wall chimney connector, connect the heater to the chimney by following Dura-Vent installation instructions exactly.

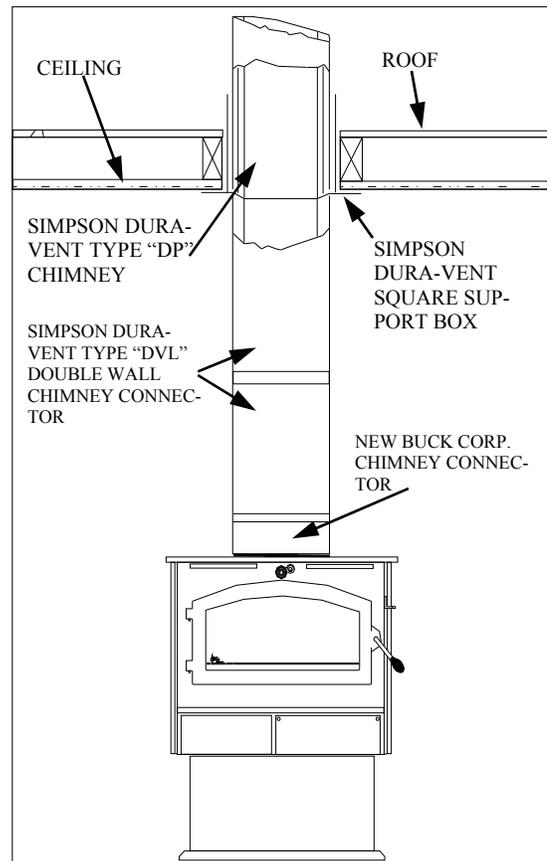


FIGURE 4

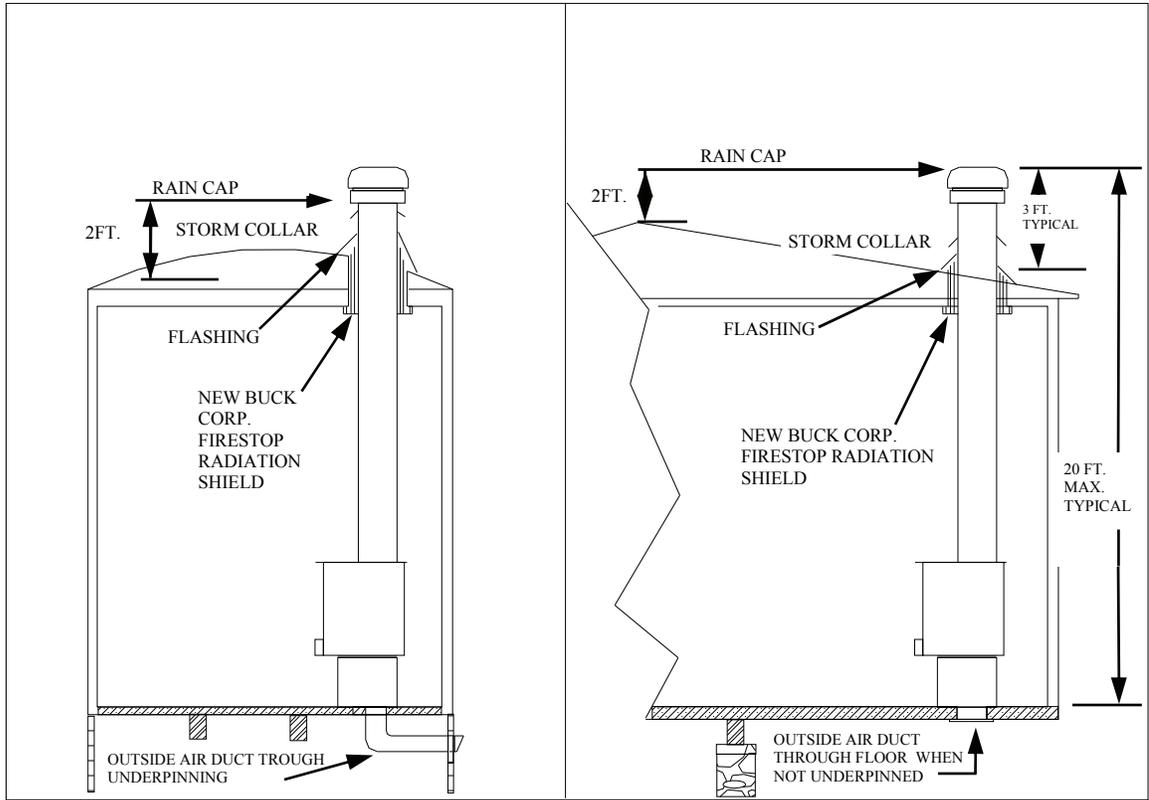


FIGURE 5

FINAL CHECK

1. Recheck the specified clearances.
2. Remove all foreign material from the firebox area.
3. Open the primary air draft and damper bypass.
4. Plug the power cord into a **115V AC** outlet. Set switch to “Manual” and rheostat to “High” position to ensure motor operates properly.
5. Place crumpled pieces of newspaper in the stove. Light it and close the door. Ensure that the stove draws properly through the primary draft.
6. Check for smoke leaks around the door.
7. Open the door and check for smoke escaping from the front of the stove. Smoking usually indicates defective or poorly positioned chimney. Some chimneys with a marginal draft can be preheated by lighting newspaper and holding it near the open damper with a poker or fire tong. Once the chimney heats up, a proper draft can usually be obtained.

If a thorough review of the Troubleshooting Guide in the rear of the manual does not reveal the problem, contact your dealer for assistance.

NOTE: The unit is painted with a specially formulated high temperature paint that cures during the first two or three firings. You may notice a slight smoking effect and an odor of burning paint when you build the first fires. This is normal and is not a cause for alarm. In some cases, these fumes will activate a smoke alarm. Opening a window near the unit will allow these fumes to escape. **DO NOT** build a large, roaring fire until this curing is complete or the heater finish may be damaged.

SECTION V

PRE-FAB INSERT INSTALLATION

INSTALLATION PRECAUTIONS

This room heater is listed by Warnock-Hersey Laboratories for installation into the following Zero-Clearance Cabinet Models. These are:

MAJESTIC—M-36, M-43, L-36, L-42, MD36, MD42, MD36-AO, MD42-AO

HEATILATOR—FP36, 3036, 3042, 3048, 3138, 3138 EP

PREWAY—DW36, DW42, BI36, BI42, BI36B, BI42B, BI36EM, BI42EM, BI36CEM, BR42CEM, BI36SEM, BI42SEM

NOTE: A Preway unit has to use insert trim panels.

Other models of those brands may also be acceptable for installation of the Model 20 unit into them. However, factory approval from New Buck Corporation and Warnock-Hersey Laboratories is required prior to installation. Installation must conform to New Buck Corporation installation instructions or addendums.

INSTALLATION (Pre-Fab Fireplace Insert)

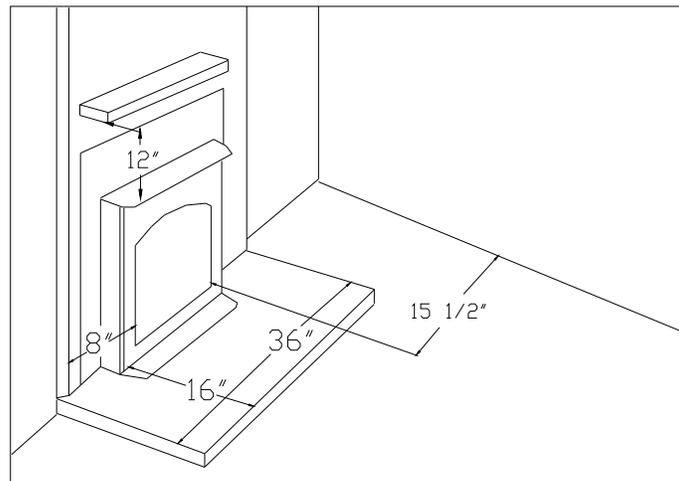


FIGURE 1

PRE-FAB FIREPLACE INSERT

MINIMUM CLEARANCES

INSTALLATION PREPARATION

Pre-Fab Fireplace

1. Locate furniture and other materials away from the front of the fireplace to allow free access to the fireplace.
2. Cover the hearth and adjacent floor areas with the drop cloth to protect from soiling or marring the surface.
3. Remove the existing fireplace damper plate/damper rod assembly.

4. Thoroughly clean the fireplace of ashes and soot.
5. Check the chimney and smoke chamber for excessive buildup of creosote or soot. Also, check for obstructions, such as birds' nest. If the chimney is excessively dirty, clean it, or have someone clean it professionally **BEFORE** installing or using the room heater.
6. The Firebrick, Ash Lip, Smoke Baffle, and Smoke Shelf may also be removed if necessary to provide room for the Model 20.



CAUTION: Any parts removed from the Pre-Fab Fireplace must be stored inside the unit or given to the homeowner for re-installation should the Model 20 be removed.

Heater Preparation

1. Inspect the unit for any obvious physical damage.
2. Plug the power cord into a **115V AC** outlet. Set switch to “Manual” and rheostat to “High” position to ensure motor operates properly.
3. Check the primary air draft control to ensure that it operates freely.
4. Check the operations of the damper control to ensure that it will open and close properly.

Heater Installation

1. There are three listed and tested methods of installation of the Model 20 heater into the specified Pre-Fab Models.
 - A. 6” Increaser
 1. The preferred method is to use an increaser made of 24 ga. (minimum) stainless steel to go from 6” inside diameter to the exact diameter of the fireplace throat/chimney. (See Figure 2.)
 2. Position the increaser into the throat/chimney of the Pre-Fab Cabinet at a height slightly higher than the Model 20 will be after installation (22” + above Pre-Fab heater supports). **NOTE:** The increaser may be a two part slip connector type if desired.
 - B. Ceramic Blanket
 1. The second method is to use a 6” stainless steel connector (rigid or flex) and a ceramic blanket (available from your dealer). (See Figure 3.)
 2. Cut the connector at least 18” long and tightly wrap the upper portion of the connector with the ceramic blanket to almost the size of the fireplace throat/chimney.
 3. Insert the connector into the fireplace throat/chimney and use additional ceramic insulation and tightly pack around the connector and the throat/chimney at a height slightly higher than the Model 20 will be after installation (22” + above Pre-Fab heater supports). **NOTE:** The increaser may be a two part size connector type if desired.

MINIMUM CLEARANCE TO COMBUSTIBLES

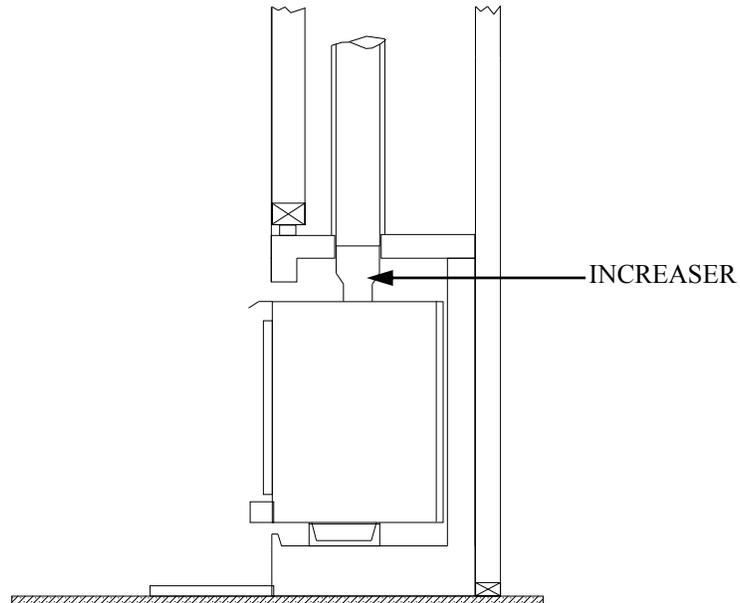


FIGURE 2

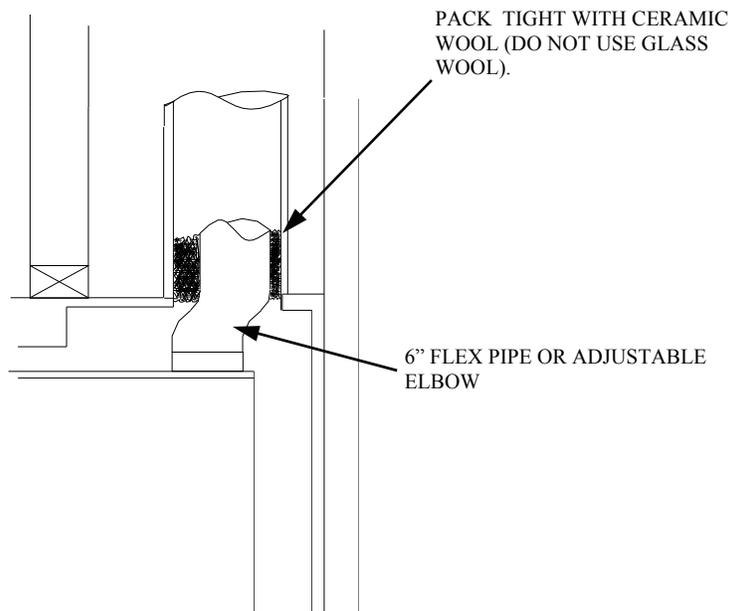


FIGURE 3

C. Sealing Trim Kit

1. This third method of installation is to use the masonry fireplace trim kit to seal the stove to the Pre-Fab fireplace.

CAUTION! Although this method is a tested and approved method, some codes may not allow this type installation so be sure to check local codes for approval prior to making this type of installation.

2. To complete this installation, follow the basic masonry fireplace trim kit installation instructions except:

The trim kit may have to be cut down in size so as not to block any cooling vents/chambers of the Pre-Fab Fireplace.

3. To complete methods 1 and 2:

Position the heater into the Pre-Fab Fireplace and center the flue exit under the connector.

4. Slide the connector (or slip connector) down into the flue exit of the heater approximately 3/8". Check that the damper operates without hitting the connector. Now, seal the connector to the heater (and fireplace throat if method #1 is used) using refractory cement.

CAUTION! Do not loosen the ceramic blanket.

5. **CAUTION!** Crimped end of connector must be placed into the heater throat.

6. Check installation minimum clearances and install an approved heater extension or floor protector to meet at least the minimum clearances.

This heater is now ready for use. Please read the heater operation Section VII of this manual before burning a fire in the heater.

SECTION VI

WOOD HEATER SAFETY

Certain safety hazards are inherent in any wood heater installation. You should be aware of these so that a safe and proper installation can be made.

1. **FAULTY CHIMNEY:** An older masonry chimney should be thoroughly checked to be sure there are no holes or weak spots which could allow sparks or hot gases to escape.
2. **HEAT CONDUCTION:** Placing combustible materials too close to a heater or chimney can be a fire hazard.

By keeping these particular hazards in mind as you install and use your room heater you can ensure a safe, reliable installation.

SAFETY PRECAUTIONS

For your protection, read and follow these safety precautions closely.

1. Use a spark arresting shield (3/8" mesh) on top of the chimney. Check monthly as this is a code requirement in some areas.
2. Use smoke detectors around the heater as well as in sleeping areas.
3. Keep a fire extinguisher rated for Class "A" fires near the heater.
4. Check with your insurance company to be sure your policy covers the installation and use of a wood fired room heater.
5. **Creosote-Formation and Need for Removal:** When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes an extremely hot fire.

The connector and/or chimney should be inspected at least once a month during the heating season to determine if a creosote buildup has occurred.

If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

6. Locate furniture and any other combustibles away from the heater.
7. Store firewood at a safe distance from the heater.
8. **Disposal of Ashes:** Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled. Ashes can ignite up to 72 hours after removal.
9. Always exercise caution when using your heater. Be particularly careful when there are children around an operating heater.

CAUTION!!  **NEVER** use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid or similar liquids to start or "freshen up" a fire in the heater. Keep all such liquids well away from the stove when it is in use. All fluids of this type give off volatile fumes and can **WILL EXPLODE!!** Don't take a chance with the safety of your home and family.

SECTION VII

OPERATION

This section of the manual is to help you get the maximum efficiency and maximum smoke (particulate) reduction from your heater. If you should experience any difficulty or have any questions concerning your heater, contact your dealer for assistance.

Build a fire for maximum efficiency. This model burns wood and extracts heat so efficiently, a large fire is not necessary. A large fire not only wastes energy, it usually results in the home being too warm for comfort.

The following steps will serve as a guide for operating your stove.

BUILDING A FIRE:

1. Open the door.
2. While looking inside the firebox, operate the damper bypass door in and out observing the movement. If the door does not operate freely and seal to the door opening, then the door has jumped out of its track during shipping and/or installation.
3. Open the primary air control on right side of the stove. Also, open outside air control if so equipped (mobile home installations).
4. Twist two pieces of non-colored newspaper into a roll and place them on the floor of the firebox.
5. The Model 20 is not designed for the use of grates, andirons or other methods of supporting the fuel.
6. Lay several pieces of dry kindling on top of the newspaper.
7. Place three or four small pieces of firewood, 2-3" in diameter, on top of the kindling.
8. Light the newspaper in the front, close and latch the door. Don't leave the fire unattended at this point. The draft system of the heater should start quickly. It may be necessary to preheat the chimney to get the draft started. To do this, open the door and add newspaper to the top rear of the wood. Light or let this paper ignite and allow to burn while holding the door slightly cracked. Once the draft has started, close and lock the door.
9. After embers and a coal bed have been established, load the heater with wood.

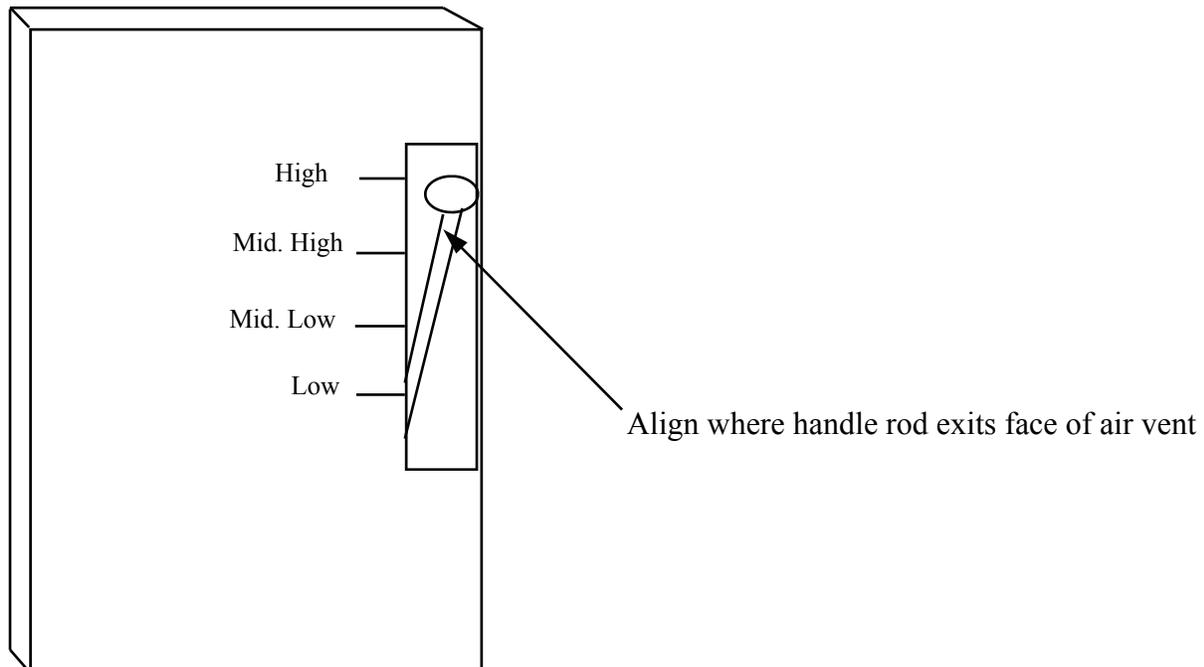
MODEL 20 OPERATION

- A. **Low Burn Rate:** Set primary air control to the low setting. Set the Auto-Off-Manual switch to the Auto position. **Wood Loading**—During refueling, open (pull-out) the bypass damper to allow smoke in the firebox to escape, open the door, and add wood. Immediately close door and bypass damper. Reopen the door 1/4" for one (1) minute to charge wood. Close and latch door. After most of the wood is burned, if you are not planning on reloading immediately, it may be necessary to open the bypass damper and door to rake the wood and coals into a pile near the front center of the firebox. (Be certain wood chunks are pulled out of the rear corners.) Close door and bypass damper. This step will assure continued combustion and thorough burning of the wood.
- B. **Medium—Low Burn Rate:** Set the primary air control to the medium-low setting. Set the Auto-Off-Manual switch to the Auto position. **Wood Loading**—During refueling, open the bypass damper, open the door, and add wood. Immediately close door and bypass damper. Open primary air control wide open for five minutes to charge wood. Reset primary air control to the med-low setting. After most of the wood is burned, if you are not planning on reloading immediately, it may be necessary to open the bypass damper and door to rake the wood and coals into a pile near the front center of the firebox. (Be certain wood chunks are pulled out of the rear corners.) Close door and bypass damper. This step will assure continued combustion and thorough burning of the wood.
- C. **Medium—High Burn Rate:** Set the primary air control wide open. Set the Auto-Off-Manual switch to the Auto position. **Wood Loading**—During refueling, open the bypass damper, open the door and add wood. Immediately close door and bypass damper. Open primary air control wide open for five minutes to charge wood. Reset primary air control to med-high setting. After most of the wood is burned, if you are not planning on reloading immediately, it may be necessary to open the bypass damper

and door to rake the wood and coals into a pile near the front center of the firebox. (Be certain wood chunks are pulled out of the rear corners.) Close door and bypass damper. This step will assure continued combustion and thorough burning of the wood.

- D. **High-Burn Rate**—Set primary air control wide open. . Set the Auto-Off-Manual switch to the Auto position. **Wood Loading**—During refueling, open the bypass damper, open the door, and add wood. Immediately close door and bypass damper.

NOTE: To select primary air setting, center rod where it exits the air vent opening and align to the marked settings on the heater.



You will have to experiment with the rate until you find the particular setting for heating your home. Chimney drafts, tightness of the house doors and windows, and atmospheric conditions all influence which setting you must have so it may take you several firings to learn the setting necessary for your installation.

Although the catalytic heaters decrease ash residue, routine removal of excess ash is still necessary.

OPERATING AND SAFETY HINTS:

When preparing to refuel the heater, open the bypass damper (taking the heater out of catalytic mode) and wait for the smoke to clear out of the firebox before opening the door.

Burn only natural wood in your catalytic heater. You should not burn trash or garbage, artificial or paper logs, gift wrapping, treated or painted wood, nor should you start a fire with lighter fluid or chemical starter. These and other compositions may contain lead, zinc, or other elements that can coat the catalyst and reduce its activity.

GUIDE TO THE DIFFERENT BURNING QUALITIES OF WOOD

Type of Wood	Ease of Starting	Coaling Qualities	Amount of Sparks
Apple	Poor	Excellent	Few
Ash	Fair	Good	Few
Beech	Poor	Good	Few
Birch	Good	Excellent	Moderate
Cherry	Poor	Excellent	Few
Cedar	Excellent	Poor	Many
Elm	Fair	Good	Very Few
Hemlock	Good	Low	Many
Hickory	Fair	Excellent	Moderate
Locust	Poor	Excellent	Very Few
Maple	Poor	Excellent	Few
Oak	Poor	Excellent	Few
Pine	Excellent	Poor	Moderate

The Main Audubon Society recently charted the heat produced by a wood fire. They noted that the heat produced by a wood fire varies greatly with the kind of wood burned. Beech is considered the best wood for a fire. A cord of well-seasoned Beech will produce as much heat as 169 gallons of fuel oil; Sugar Maple and Red Oak produce as much heat as 166 gallons of fuel oil; followed by White Ash 154; American Elm 130; White Birch 124; and White Pine 94.

HELPFUL HINTS

CURING THE PAINT ON YOUR HEATER: During the first several firings, burn small fires to cure the paint and to prevent damage to the finish. It is a good idea to flip the toggle switch to “Manual” position during these first firings so the blower will run continuously. This will allow the paint to cure at a slower rate and creates a better overall finish.

CAUTION: Never remove ashes from your heater with the blower running.



TIPS ON FIRE BURNING

GREEN WOOD vs. SEASONED WOOD-Green wood has a high moisture content, and therefore requires a hotter ignition temperature. Seasoned wood-cut at least one year before use-allows for a quicker, prolonged burn and more complete combustion.

SPLIT WOOD vs. ROUND WOOD-Split wood burns easier and more rapidly, whether it's seasoned or green. If used after starting a fire, it should be packed tightly to achieve a longer burn.

Round wood burns longer, but requires more effort to start. Inserting a round piece over a bed of red coals with the damper and drafts open will help it catch fire. Round wood should be used to accomplish an all-night burn.

SECTION VIII

PREVENTIVE MAINTENANCE / PARTS REPLACEMENT

Check Chimney

- A. The chimney should be cleaned as necessary to remove creosote, soot, leaves, birds' nests, etc. (Refer to Page 27, #5 Creosote Formation.)
- B. A neglected chimney can eventually cause a draw restriction or can ignite and burn hot enough to cause damage to the chimney.
- C. For proper inspection the chimney should be cleaned.
- D. A chimney cap should be installed to prevent moisture from entering chimney, to prevent sparks and burning materials from escaping chimney, and to keep birds and foreign materials from entering.

NOTE: Some areas may require an approved spark arrestor.

CLEANING THE HEATER

- A. The heater should not be cleaned with any type of detergent as most all detergents have an oil base and cannot be painted over.
- B. The heater should be lightly sanded with fine sandpaper or steel wool, then repainted or touched up with high temperature paint.
- C. If the heater is located in a moist or damp location, check thoroughly for signs of condensation during times when the heater is not in use.
- D. When the heating season is over, the heater should be cleaned out completely with a wire brush or cloth to help eliminate ash and burned wood smell.

CARE OF GLASS DOOR: The glass door on your heater permits you to enjoy the beauty of the fire while retaining the efficiency of your heater. Although the brand of glass used in the heater door has well established and recognized heat resistant and strength characteristics, it can be broken through improper care. To achieve the maximum utility and safety of your glass door, we advise that you observe the following use and safety tips:

1. Inspect the glass regularly for cracks or breaks. If you detect a crack or break extinguish the fire immediately and return the door to your dealer for glass replacement before further use.
2. Do not slam heater door or otherwise impact the glass. When closing door, make sure that no logs or other objects protrude to impact against the glass.
3. Do not clean the glass with materials which may scratch it (such as steel wool) or otherwise damage the glass. Scratches on the glass can develop into cracks or breaks.

The glass can be cleaned with a commercial oven cleaner, providing it does not contain abrasives. A build-up on the glass that has been there for a considerable length of time can be burned off with a propane torch.

CATALYTIC INSPECTION

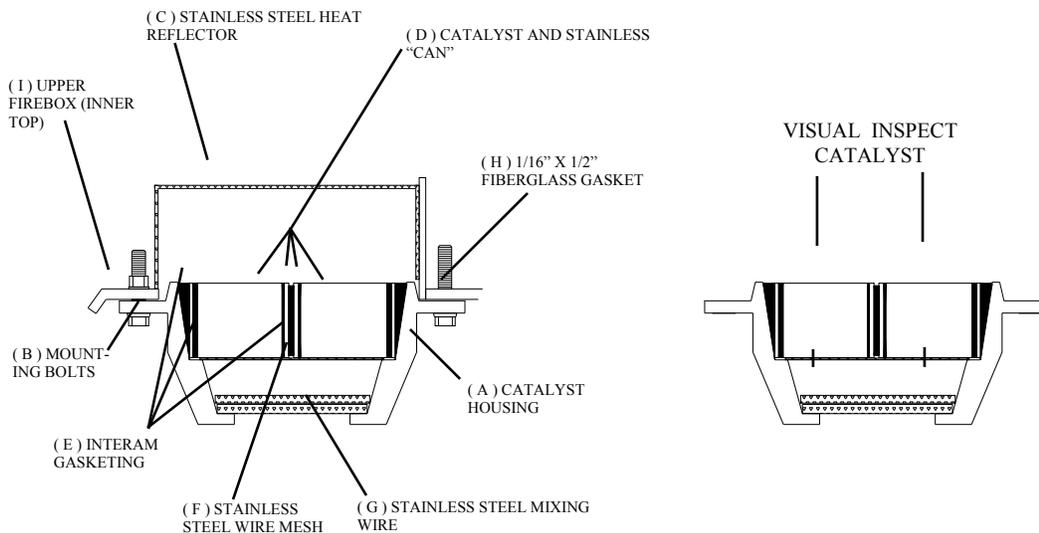
Catalytic combustors should be visually inspected at least three times during the heating season to determine if physical degradation has occurred.

Preferred Inspection Method: The easiest method to determine the condition of the catalysts is to observe the glow of the catalyst after ignition (med-low firing or hotter). You can observe the catalysts by leaning down and looking up through the door glass.

- a. Properly functioning catalysts will be exhibiting a uniform glow from one end to the other (indicating ignition).
- b. Physically degraded catalysts will have cold places (areas not igniting) where plugging, crumbling, or other degradation has occurred. If this occurs, the monitor probe temperature will not increase at a normal rate. For further inspection it will be necessary to go by the disassembly method as follows:

Disassembly Inspection Method: For thorough catalysts inspection, removal of the catalyst housing is necessary (cold heater only).

- a. Spread a drop cloth in front of the heater.
- b. Open door and clean out any ash.
- c. Open the bypass door to give access to the two rear mounting bolts.
- d. Using 9/16" wrench or 9/16" socket, loosen the four bolts and remove the catalyst housing (drop down) and place in a suitable inspection area (it may be necessary to use penetrating oil if nuts and bolts have seized).
- e. Inspect top and bottom side of catalysts for plugging, crumbling, and other physical degradation.
 1. If a problem exists, refer to the Troubleshooting section of the manual for possible cause of the problem and solution (including replacement if necessary).
 2. Reassemble if the catalysts are okay being sure the stainless steel heat reflector is positioned back in its original position and bolt housing and heat reflector securely back in place.

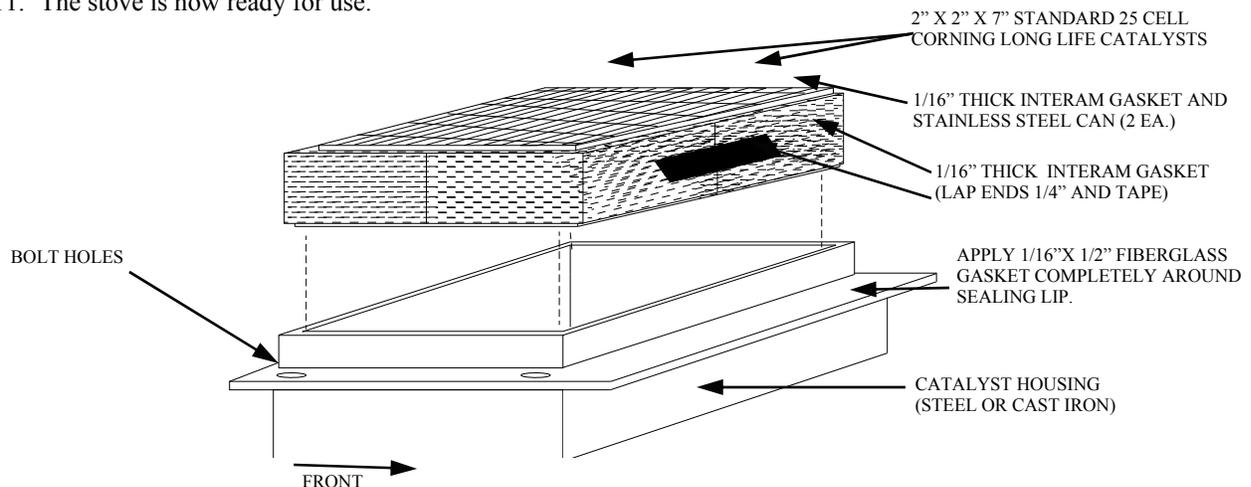


CATALYST REPLACEMENT (Off-Season Replacement Recommended)

The catalysts in your stove are designed for many years of use. If after several years of use, the efficiency of the stove decreases or if a notable increase in the amount of smoke is observed, the catalysts may need to be replaced. See the Catalyst Warranty prior to replacement.

1. Spread a drop cloth in front of the stove.
2. Open the door and clean out any ash.
3. Open the bypass door to give access to the two rear mounting bolts.

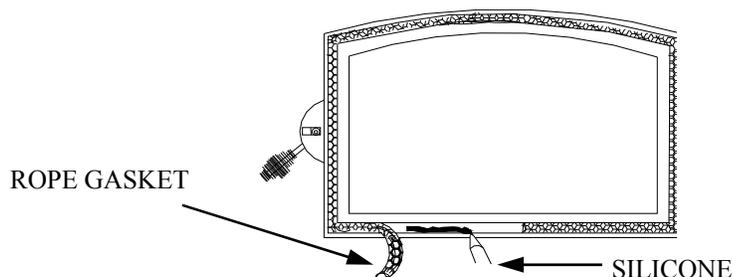
4. Using penetrating oil, generously lubricate the four (4) bolt threads holding the catalyst housing in place. Allow to penetrate.
5. Using a 9/16" wrench or 9/16" socket, loosen the four (4) bolts and remove the catalyst housing (drop down) and place in a suitable work area.
6. Using needle nose pliers, grasp the front edge of the stainless steel "can" which houses a catalytic element and pull upward.
7. Using a small putty knife or scraper, remove any gasket that may have adhered to the catalyst housing.
8. Now, obtain the new catalysts and wrap the stainless steel "can" with interam gasket and tape ends together using scotch tape or masking tape.
9. Insert the new catalysts into the catalytic housing and push down until they are seated on the top of the stainless steel wire mesh supports.
10. Reinstall the catalyst housing into the stove and secure in place with the bolts.
11. The stove is now ready for use.



DOOR GASKET REPLACEMENT (Cold Heater)

To replace deteriorated gaskets, the following steps must be taken to ensure proper installation of gaskets.

1. Obtain the proper gaskets and silicone glue from your local dealer.
2. Using pliers, remove any worn and deteriorated gaskets.
3. Using a scraper, wire brush, and sandpaper or steel wool, clean glue and gasket residue from the door frame.
4. Measure and cut gaskets to length. Care should be taken not to stretch the gaskets. What you want is a full and loose gasket weave after attachment to the framing.
5. Obtain the silicone glue and run a 3/16" bead inside the door frame.
6. Obtain the gasket (s) and place in the gasket channel areas. Use a technique which assures that the gasket is applied in a loose like manner. **DO NOT STRETCH GASKETS.**
7. After gasket (s) are applied to the glue, use your finger and go over all the gasket gently pressing the gasket to the channel. Use the same pressure against the gasket so that the final result is an evenly applied gasket.
8. Leave door open and allow at least one hour for the glue to dry.



OPERATION OF SWITCH

With Power Cord Plugged Into 115V AC Outlet.

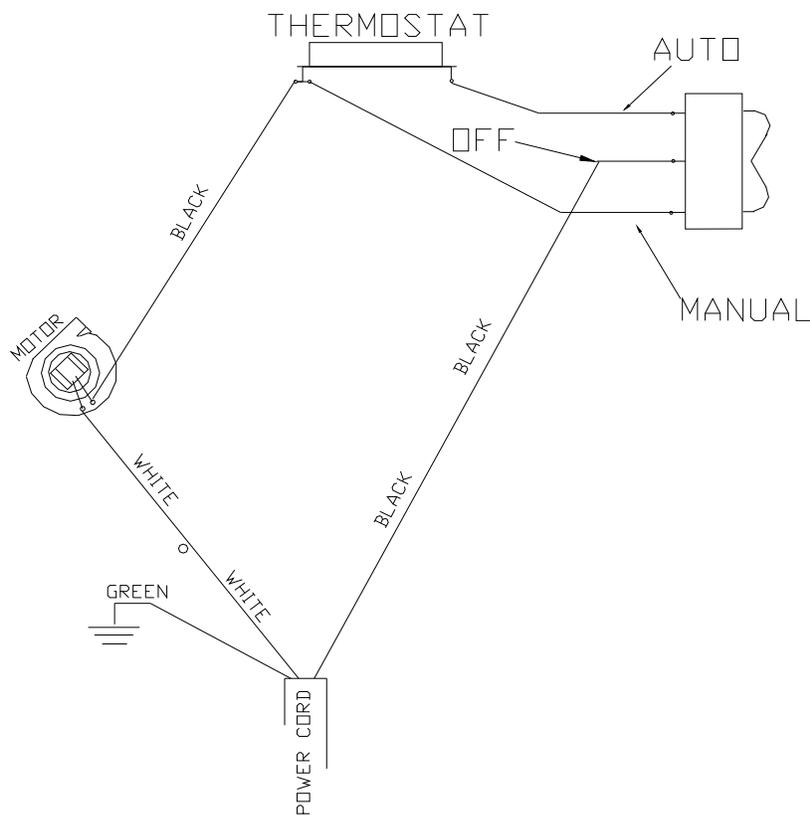
(A) For Auto position push in top of switch. When the room heater becomes warm enough the Room Air Blower will come on and stay on until your room heater falls below the activating temperature for the thermostat.

(B) For Off position place the switch in the middle position.

(C) For Manual position push in on the bottom of the switch. This will allow your Room Air Blower to operate without the thermostat being activated. With the switch placed in this position the Room Air Blower will continue to operate until it is Manually shut Off.

WIRING SCHEMATIC

(Changes refer to page 34 in your owners manual: Due to the Auto-Off-Manual switch replacing the Rheostat.)



NOTE: When ordering replacement parts for your Model 20/ZC20 Room Heater, be sure to have the serial number available to insure that you receive the correct parts.

SECTION IX

CATALYTIC TROUBLESHOOTING

CONTENTS

Definitions

Possible Problems

Plugging

Extreme Temperatures

Flow Restrictions

Creosote Build-up

Chemical Deactivation

Excessive Handling

Condensation in Chimney

Backpuffing

Non-uniform flow

Troubleshooting

Heater Related Problems

1. Sluggish Heater Performance
2. Drop in Overall Efficiency
3. High Fuel Consumption
4. Backpuffing
5. Smoke Rollout When Heater Door Is Opened
6. Low Catalytic Temperature
7. Creosote Running From Draft Inlet Openings

Chimney-Related Problems

1. Creosote Accumulation
2. Tar and Liquid Creosote Leaking from Metal Flue Joints
3. Heavy Concentration of Smoke Leaving Chimney
4. Rusted or Corroded Flue Parts
5. Odor
6. Poor-Drafting Chimney

Combustor-Related Problems

1. Plugging
2. Catalyst Peeling
3. Chemical Deactivation
4. Catalyst Masking
5. Substrate Cracking-Thermal
6. Substrate Cracking-Mechanical
7. Substrate Crumbling
8. Color Variations

DEFINITIONS

AIRTIGHT HEATER—In an airtight heater, all air enters in through the inlets. Generally, non-airtight stoves are not as efficient and their level of heat output is less controllable than that of an airtight.

BURN CYCLE—Time span between refuelings in which the wood is reduced to a bed of hot coals.

BYPASS—Movable door inside a woodstove that is opened when the stove door is opened to give a path of least resistance to smoke to prevent roll-out.

CREOSOTE—Condensed wood-gas vapor.

DOWNSTREAM TEMPERATURE—Outlet temperature of the combustor or temperature of the gas leaving the combustor from the chimney side or face.

DRAFT—Amount of vacuum created by buoyant hot air in the chimney. Draft pulls in oxygen for the combustion process and pulls out exhaust gases.

FIREBRICK—Brick capable of withstanding high temperatures. Used in furnaces, kilns and stoves. Used to mean only “hard” or “dense” firebrick as distinguished from “soft” or “insulating” firebrick.

FIRING RATE—Rate at which fuel is burned in a heater.

FLAME IMPINGEMENT—Flames directly contacting the combustor face.

FLUE COLLAR—The part of a stove to which the chimney connector or chimney attaches.

GLOW-PLUG EFFECT—When a combustor is at temperatures above 1400° F (760° C) and periodically causes pockets of wood gas in the firebox to ignite spontaneously.

GREEN WOOD—Non-dried, freshly cut wood from a live tree.

IGNITION TEMPERATURE—The minimum temperature of a flammable mixture of gases at which it can spontaneously ignite.

LIGHT-OFF—Activation temperature of the combustor catalyst.

NOBLE-METAL CATALYST—A catalyst is a substance that can accelerate a chemical process without being consumed by it. A noble-metal catalyst is one made of a precious metal or metals. (In the combustor, platinum and palladium are used because they are stable under high heat conditions.)

POSSIBLE PROBLEMS

Problems encountered with the operation of catalytic-combustor equipped wood heaters are usually the same as those experienced in the operation of traditional wood heaters. Our experience has shown that adoption of good operating practices will eliminate most of these problems. In addition, it should be noted that problems with catalytic combustors are rare-fewer than 1 percent of combustors are returned for any reason. Nonetheless, installers and retailers should make themselves aware of the nature, cause and solution to possible problems so as to serve their customers better.

Plugging-Plugging can occur if the combustor is operated improperly. It may occur if the wrong materials are burned. Evidence of these types of plugging is a coating of black soot, creosote or fly ash on the combustor. Burning materials that produce large flakes of char, such as Christmas wrapping paper or cardboard, can plug enough cells to cause smoke spillage.

Extreme Temperature-A combustor becomes extremely hot during operation. Temperatures between 1400° F and 1600° F (760° C - 870° C) are common, but operating temperatures between 1200° F and 1400° F (650° C - 760° C) are recommended. Most of this heat is transmitted to surrounding heater parts via thermal radiation.

Flow Restrictions-Because the combustor is mounted in the gas flow stream, it does offer resistance to draft. This restriction or resistance presents two problems:

If the bypass is not open when the fuel-loading door is opened, smoke rollout will occur.

Chimneys that produce marginal draft may prevent operation of a combustor-equipped device. A chimney that provides, on average, .02" of water draft in low-fire operation would probably not operate with a catalytic combustor appliance in the low-fire mode. In such a case, the combustor resistance would offset the remaining draft, resulting in a system that will not draft.

Creosote Build-up-Even though reduction of creosote is one of the primary advantages of a combustor-equipped device, some creosote-forming gases will escape unburned during normal operation. In the event the combustor ceases to function, creosote can be expected to accumulate. Consequently, flues and chimneys should be inspected regularly (every 2-3 months of operation) and any creosote build-up removed. Failure to do this could result in a chimney fire.

Chemical Deactivation-Deactivation can occur when the catalyst is attacked by materials such as compounds of sulphur, phosphorus, or lead and other heavy metals. Burning large quantities of trash, pressure-treated lumber or painted wood can deactivate the catalyst. The operator takes a chance when burning anything other than natural wood. The catalysts are durable and are not likely to be greatly affected by an occasional mistake, but burning large quantities of chemical-laden materials will appreciably shorten the life of the combustor. The catalyst can also be deactivated when it is coated with excessive creosote, carbon or fly ash. This build-up greatly reduces the amount of catalyst available to react with the smoke.

Excessive Handling-An older combustor, especially one that is "uncanned", is susceptible to handling damage. Stress-relief cracks may develop in service but will not affect the performance of the combustor if it is not moved or handled. Handling a unit with these cracks, however, could result in it breaking apart. Excessive handling could also potentially remove some of the catalyst coating.

Condensation In Chimney-The burning that takes place in a combustor converts harmful hydrocarbons and carbon monoxide to heat, carbon dioxide and water. The additional water produced by this complete burning can lead to associated problems in the chimney.

Backpuffing-A hot combustor (above 1400° F) can sometimes act like a glow plug (spontaneous combustion ignitor). Usually the wood gas-to-air mixture is either too lean or too rich to form a highly flammable mixture. There are times when this mixture is just right within the firebox during the normal burning process. If the combustor is running at or above the ignition temperature of the mixture, spontaneous combustion will result, causing the stove to vent puffs of smoke.

Non-Uniform Flow-Non-uniform flow causes the combustor to heat and cool unevenly and is a result of fuel-loading configuration. This occurs when the flow pattern of the fire is concentrated on one side of the combustor. This condition causes thermal stress within the ceramic, resulting in cracking.

TROUBLESHOOTING

Operation of any wood heater can create problems. While the use of a catalytic-combustor equipped stove will substantially lessen some of these problems—such as creosote formation—other traditional wood-heater problems may remain.

The following guidelines apply to operation of all wood heaters, with problems related to catalytic heaters addressed where appropriate.

HEATER RELATED PROBLEMS

Problem	Possible Cause	Solution
1. Sluggish heater performance	1. Obstruction in chimney	1. Check for and remove obstruction
	2. Improperly sealed trim kit or direct connect kit	2. Check trim kit gasketing seal to fireplace and gasket as necessary to seal unit. Gasket under stove if needed. Check seal of direct connect and correct.
	3. Manual damper in chimney is closed	3. Open manual damper and wire shut with stainless steel wire or remove damper.
	4. Closing bypass or exhaust damper too soon	4. Follow New Buck instructions for proper firing procedures.
	5. Wet or unseasoned wood being burned	5. Burn dry, seasoned wood
	6. Too much wood added to too few coals	6. Add small amounts of wood to small coal beds. Once a good bed of coals has been established more wood can be added.
	7. Dislodged stove parts	7. Check all movable heater parts. Replace if necessary.
	8. Poor chimney draft	8. See section in “Chimney-Related Problems”
	9. Combustor is plugged	9. See section in “Combustor-Related Problems”
2. Drop in Overall Efficiency	1. Cold, windy weather	1. Weather stripping, caulking, insulation, storm windows
	2. Burning wet, pitchy or spongy wood	2. Burn quality wood available in your area
	3. Combustor not in operating mode	3. Close bypass or engage combustor when temperatures are high enough and stabilized
	4. Combustor not functioning	4. See “Combustor-Related Problems”

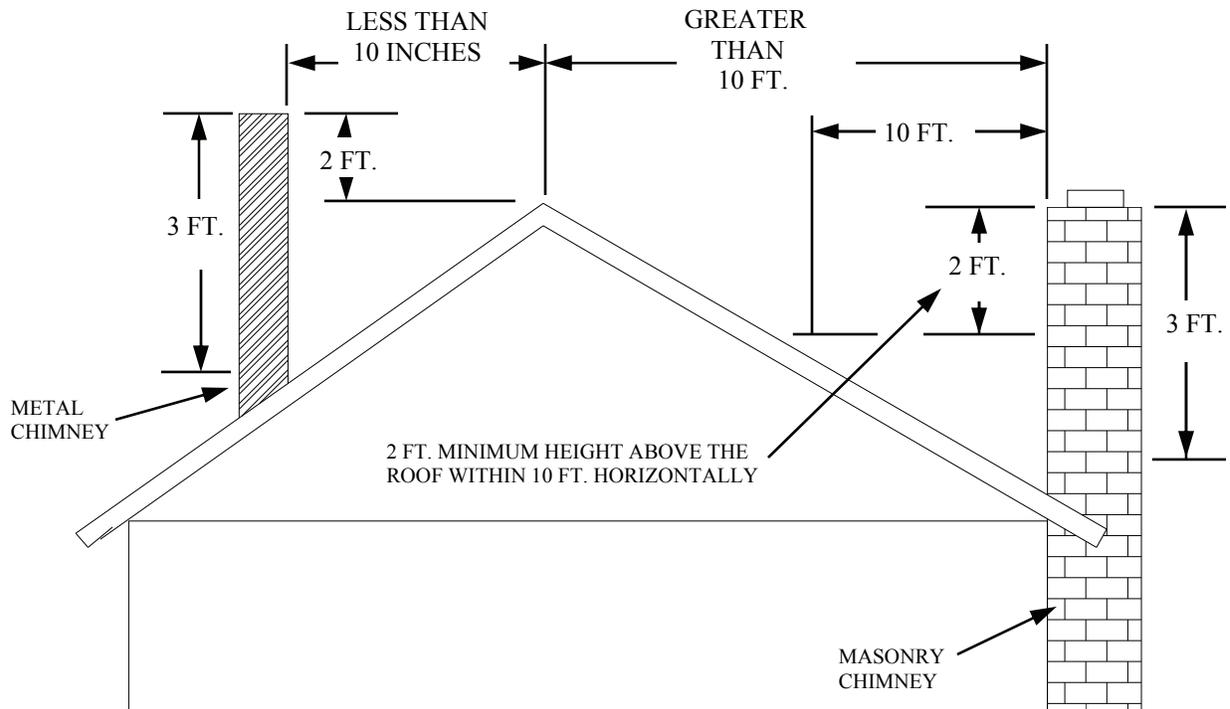
Problem	Possible Cause	Solution
3. High Fuel Consumption	<ol style="list-style-type: none"> 1. Inexperience in catalytic operation 2. Improper regulation of draft or inlet air 3. Burning wet, unseasoned wood or pitchy spongy wood 4. Cold, windy weather 5. Smoke bypassing combustor 6. Bypass stuck out 7. Combustor not engaged 8. Combustor not functioning 	<ol style="list-style-type: none"> 1. Operate stove with desired heat output in mind. Do not be overly concerned with maintaining light-off temperatures 2. Close inlet air control as much as possible to maintain desired heat output. Check gaskets, reinstall fiberglass gasketing around door and glass as necessary 3. Burn seasoned wood that is dry and of good quality 4. Weather stripping, caulking, insulation, storm windows 5. Replace warped stove parts 6. If warped or broken, replace 7. Put combustor in operating position or close bypass in stove 8. See “Combustor-Related Problems”
4. Backpuffing	<ol style="list-style-type: none"> 1. Gusts of wind 2. Hot combustor (Above 1400° F) 3. Opening doors in a tightly constructed house 	<ol style="list-style-type: none"> 1. Install chimney cap 2. Avoid burning soft, pitchy wood or large amounts of small diameter wood 3. Slowly open and close outside door
5. Smoke Rollout When Heater Door Is Opened	<ol style="list-style-type: none"> 1. Bypass is closed, or combustor is in operating position 2. Wind gusts blowing down chimney 3. Opening heater door too fast 	<ol style="list-style-type: none"> 1. Open bypass or place combustor in bypass position before opening stove door 2. Install wind-resistant chimney cap 3. Wait a few seconds after opening bypass before opening heater door to give smoke a chance to exit heater
6. Low Catalytic Temperature	<ol style="list-style-type: none"> 1. Bypass is open 2. Light-off not obtained 3. Fuel charge is spent 4. Gases bypassing combustor 5. Combustor coated with fly ash or soot 	<ol style="list-style-type: none"> 1. Once light-off temperatures have been reached and unit is stabilized, close bypass 2. Follow manufacturer’s operating instructions 3. Refuel as necessary for combustor operation 4. Check parts, particularly bypass. Replace if warped. 5. See section on “Combustor-Related Problems—Catalyst Masking”

Problem	Possible Cause	Solution
	6. Heater dampened down too much	6. Ensure that proper air mixture and draft are available for wood pyrolysis to continue
	7. Combustor not functioning	7. See section on “Combustor-Related Problems”
7. Creosote Running From Draft Inlet Openings	1. Burning wet, pitchy woods	1. Burn dry, seasoned wood
	2. Burning too much wood in one load	2. Burn reasonably sized loads so the combustor has a chance to burn the wood gases that are produced.
	3. Cool heater walls	3. Keep a good bed of coals in the heater

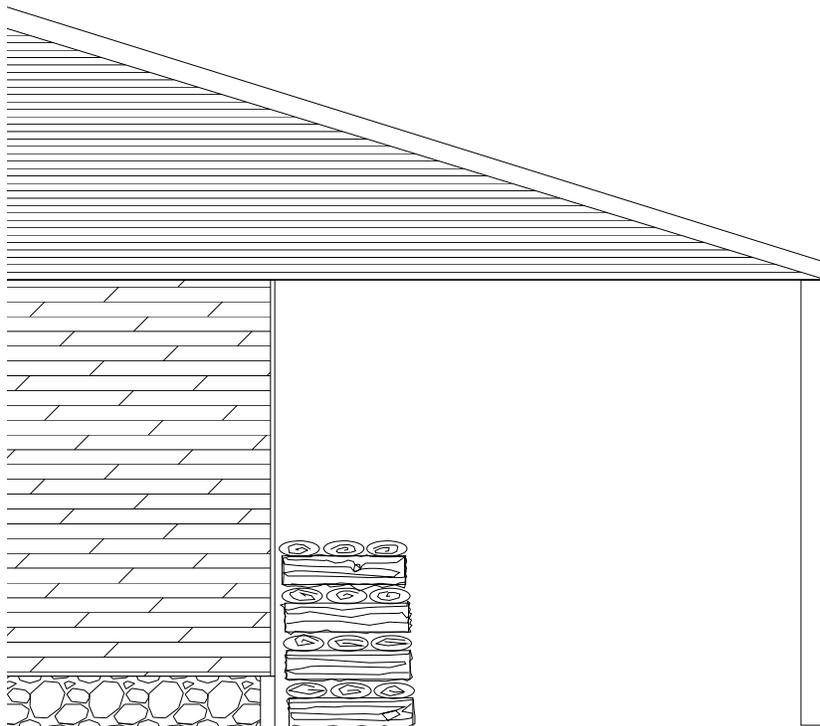
CHIMNEY-RELATED PROBLEMS

1. Creosote Accumulation	1. Leading bypass baffle plate	1. Replace any damaged parts
	2. Types and amounts of wood burned	2. Try not to burn pitchy wood Don't overstuff the firebox, burn pieces of wood with an approximate diameter of 6" or larger
	3. Poorly insulated chimney	3. Replace single-walled metal chimneys with double-walled insulated chimney sections (Meet local codes) Install a chimney liner in a masonry chimney. (Meet local codes) In new installations utilize an interior chimney rather than an exterior one
	4. Combustor not functioning	4. See section on “Combustor-Related Problems”
2. Tar and Liquid Creosote Leaking From Metal Flue Joints	1. No chimney cap on chimney	1. Install a chimney cap
	2. Metal flue assembled improperly	2. Top flue sections should be inserted into lower flue sections
	3. Normal increase in moisture due to catalytic burning (Condenses on cool chimney walls)	3. Replace single-walled chimneys with doubled-walled insulated sections (Meet local codes) Install chimney liner in masonry chimney (Meet local codes) In new installations try to utilize an interior chimney rather than an exterior one.

Problem	Possible Cause	Solution
3. Heavy Concentration of Smoke Leaving Chimney	<ol style="list-style-type: none"> 1. Water vapor. (On cold, still days water vapor may be mistaken for smoke. The difference is that water vapor appears white and will tend to rise vertically and dissipate rapidly while smoke is usually dark or bluish brown and will drift down and settle in low areas near the ground before slowly dissipating) 2. Wet, pitchy wood is being burned 3. Combustor not functioning 4. Bypass warped or in open position 	<ol style="list-style-type: none"> 1. Water vapor is normal and should be of little concern 2. Burn dry, seasoned wood 3. See section on "Combustor-Related Problems: 4. Replace warped bypass. Close bypass.
4. Rusted or Corroded Flue Parts	<ol style="list-style-type: none"> 1. Added moisture from efficient burning 2. Overheated flue parts due to a chimney fire 3. Age. Failure due to normal use 	<ol style="list-style-type: none"> 1. Replace worn-out parts with corrosion-resistant parts or materials 2. Same as #1 above. Have chimney inspected every 2-3 months of operation for creosote build-up 3. Replace worn-out parts with corrosion-resistant replacements
5. Odor-Both Inside and Outside The Home	<ol style="list-style-type: none"> 1. Bypass is open 2. Smoke is leaking around combustor 3. Backpuffs due to wind or hot combustor 4. Combustor not functioning 5. Insert trim panels or direct connect kit not sealed 	<ol style="list-style-type: none"> 1. Close bypass 2. Check for warped or damaged parts. Replace if necessary 3. See "Backpuffing" 4. See "Combustor-Related Problems" 5. Check seal and regasket as necessary
6. Poor-Drafting Chimney	<ol style="list-style-type: none"> 1. Improper chimney height 2. Wrong flue size being used. Ex. - using a 10" flue on an 8" flue collar 3. Cooler temperatures caused by external chimney 4. Massive stone or masonry chimney 	<ol style="list-style-type: none"> 1. Extend height of chimney (Meet Codes) 2. Use properly sized flue. Install topper with 8" chimney cap to hold heat in 3. Insulate chimney or build chimney higher. In new installations, try to utilize internal chimney 4. Install chimney liner (meet codes) Extend height



CHIMNEY "10 FT." RULE (MINIMUM HEIGHTS)



Stack wood in criss-cross pattern under a shelter to allow air flow to dry the wood and to keep wood from rain. Green wood may have 50-60% moisture content. Wood seasoned outside uncovered may have 40% moisture content. Wood properly seasoned in a covered environment will have less than 20% moisture content.

COMBUSTOR-RELATED PROBLEMS

Problem	Possible Cause	Solution
1. Plugging	<ol style="list-style-type: none">1. Burning materials that produce a lot of char and fly ash2. Burning wet, pitchy wood or burning large loads of small diameter wood with the combustor in the operating position without light-off taking place3. Combustor not functioning. If proper burning procedures have been followed to no avail, the combustor is not functioning.	<ol style="list-style-type: none">1. Do not burn materials such as garbage, gift wrap or cardboard2. Burn dry, seasoned wood. Don't place the combustor in the operating position until temperatures are high enough to initiate light-off. It may be possible to burn the accumulated soot or creosote off by putting the combustor in a partially open-partially closed position after a "hot" fire has been started.3. Replace combustor
2. Catalyst Peeling	<ol style="list-style-type: none">1. Extreme temperatures (above 1800° F or 1000° C) at combustor surface can cause the catalyst to peel. Over-firing and flame impingement are primary causes	<ol style="list-style-type: none">1. If peeling is severe, remove and replace combustor. Avoid extreme temperatures
3. Chemical Deactivation	<ol style="list-style-type: none">1. Burning large quantities of trash, pressure treated lumber or painted wood.	<ol style="list-style-type: none">1. Burn quality wood available in your area. If you decide the catalyst has been deactivated, replace combustor.
4. Catalyst Masking—a catalyst with a layer of fly ash or soot which prevents catalytic activity	<ol style="list-style-type: none">1. Not maintaining light-off temperatures2. Burning coal causes a sulfur based compound to coat the catalyst	<ol style="list-style-type: none">1. Place combustor in a partially closed position after a "hot" fire has been started to burn soot off.2. Revert to burning wood and fire the combustor at elevated temperatures for a period of 1 hour. (Five 20 minute high-fire startups would do it)
5. Substrate Cracking-Thermal	<ol style="list-style-type: none">1. Normal operation, as long as combustor remains intact.	<ol style="list-style-type: none">1. If cracking causes blockage of exhaust gases, replace combustor

Problem	Possible Cause	Solution
6. Substrate Cracking— Mechanical	1. Mishandling or abuse	1. Handle with care
7. Substrate Crumbling	1. Extreme thermal shock	1. Combustor being continually overfired. Reduce burn rate.
	2. High draft	2. Do not exceed .06" of water draft. Install a manual damper and draft gauge, or a barometric damper with free-standing units
8. Color Variations	1. Variation in color from combustor to combustor or within a combustor can occur (new combustors)	1. These color variations are normal and do not affect combustor performance

**Zero Clearance Cabinet
Model ZC20
For use with Fireplace Model 20 only**

FEATURES

PREPARATION INSTALLATION

OPERATION MAINTENANCE SAFETY

Contact your insurance company for coverage and installation inspection



SAFETY NOTICE

If this cabinet and intended fireplace are not properly installed, a house fire may result. For your safety, follow the installation directions. Contact local building or fire officials about restrictions and installation inspection requirements in your area.

“WARNING”

“THIS IS NOT A FIREPLACE”

Do not attempt to build a fire in this product. It has been designed and safety tested for use only with Model 20 manufactured by New Buck Corporation. Read and follow the installation and operating instructions for this model. Do not remove or cover this label.

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PI-ZC20660

SECTION I

RESIDENTIAL INSTALLATIONS

PARTS REQUIREMENTS

Listed NEW BUCK CORP.

Model	Part Description/Part #
ZC20	Zero clearance cabinet assembly with Model 20 fireplace installed

UL Listed and factory approved Chimney Systems

	Description
Simpson Dura Vent	- 6" 2100° HT Type "DP" Chimney
Security	- 6" "ASHT" High Temp Chimney
Selkirk Metal Bestos	- 6" Model SSII Type HT Chimney
Metal Fab	- 6" 2100° HT Chimney

CAUTION: Read through all of these instructions carefully. Follow approved Chimney Manufacturer's Installation exactly. Failure to install the Cabinet Fireplace, Stove and Chimney as described in the instructions will void the manufacturer's warranty and may have an effect on your Homeowner's Insurance. A major cause of chimney related fires is failure to maintain required clearances (air spaces) to combustible materials. It is of utmost importance that these parts be installed only in accordance with these instructions.

The Zero-Clearance cabinet and the Model 20 (hereafter referred to as the ZC20) is designed for installation in a family dwelling, where minimum clearance is desired.

INSTALLATION PRECAUTIONS

The following precautions are mandatory for a safe installation:

- A. Compliance with local building codes and regulations is mandatory.
- B. Be careful not to damage unit in handling and unpacking component parts and accessories.
- C. A UL Listed and Approved Chimney System is to be used and vented to the outside of the building. See chimney list above.
- D. The chimney must extend a minimum of 3' above the highest point where it penetrates the roof (3' above a flat roof or up to 2 1/2 pitch roof), and the chimney must extend a minimum of 2' higher than any portion of the building within 10' of the chimney. The minimum height is 12'. A 2" clearance must be maintained between the chimney and any combustible materials at all points.
- E. A rain cap must be used to terminate the chimney to prevent down-draft.

F. DO NOT build a fire directly inside the ZC Cabinet. It is designed solely for housing the Model 20 Stove.

G. **WARNING:** This fireplace has not been tested for use with a chase above the roof.

H. Do not connect this unit to a chimney serving another appliance.

SELECTING A CHIMNEY INSTALLATION AND LOCATION

There are two basic types of chimney installations possible with the ZC20; straight up through a ceiling, and chase installation, either outside or inside. These are normally used as follows:

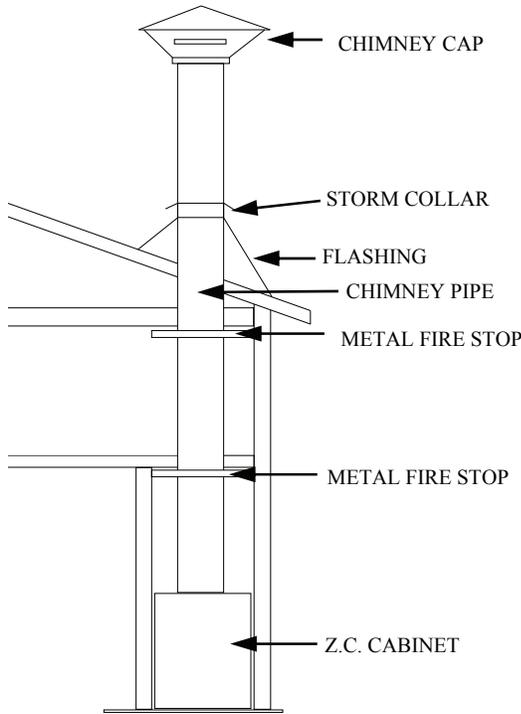


FIGURE 1 THROUGH CEILING

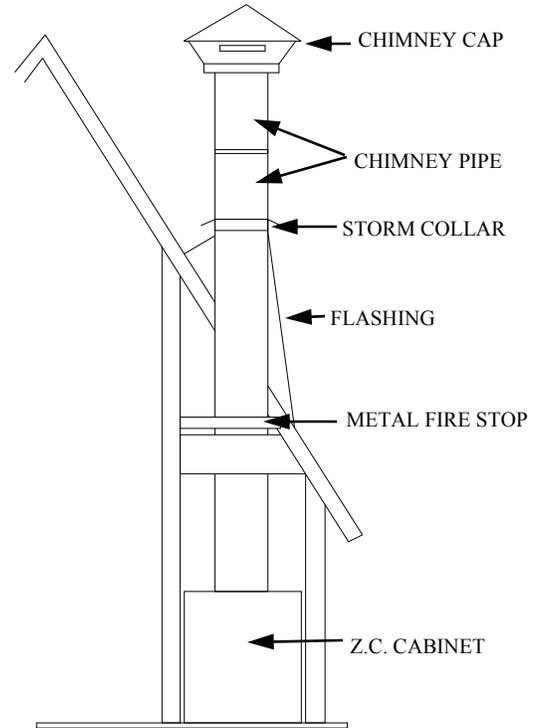


FIGURE 2 THROUGH CATHEDRAL CEILING

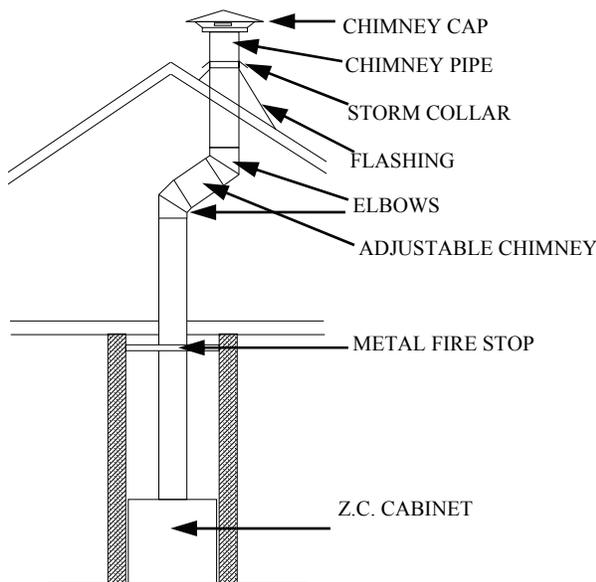


FIGURE 3 OFFSET TO CLEAR OBSTRUCTION



CAUTION: Refer to chimney manufacturers instructions for assembly and disassembly of chimney parts. Be sure to follow chimney instructions for proper clearances to combustibles and proper air spacing required.

NOTE: Chase Installation: (See Figure 3.) A chase is an enclosure built specifically to house a chimney. The interior of a chase is open from the ZC20 to the roof, eliminating the need to cut through ceilings and the roof. Normally, a chase is built outside and against the exterior wall of a home. A hole is cut through the wall, and the ZC20 is located in the bottom of the chase, with the front of the unit flush with the interior wall. Chases are commonly veneered on the outside with brick, stone or wood to give the appearance of a conventional fireplace flue. Occasionally, they are built inside and boxed in, similar to a stairwell. When making a chase installation, it is important to read the chimney manufacturer's instructions prior to building, as there are specific requirements for bracing a free-standing flue and must be planned for. There are also occasions where offsets are used within a chase to accommodate unusual building designs, or to locate the ZC20 further into a room.

FRAMING CONSTRUCTION AND INSTALLATION

Except as noted, the ZC20 can be installed almost anywhere you desire. There are, however, a few clearance and framing restrictions that must be followed. See Figure 3 and 4 to make sure that these clearance restrictions are met. It is much wiser to place your ZC20 correctly at the start of the installation than to be forced to relocate it after much of the work is done.

You must ensure that the floor is of adequate strength to accept the load of this unit. If inadequate, the floor will require additional support, such as bracing. **NOTE:** A wooden base constructed of plywood or 2"x4" boards is required in order to get proper clearance above the extended hearth (millboard, rock, stone, etc.).

Good planning is essential for a satisfactory installation, therefore, at this point you should have decided where the ZC20 is to be located and the route the chimney will follow to the roof—straight up, or chase. If you cannot decide the best route, contact your Dealer for assistance with the planning.

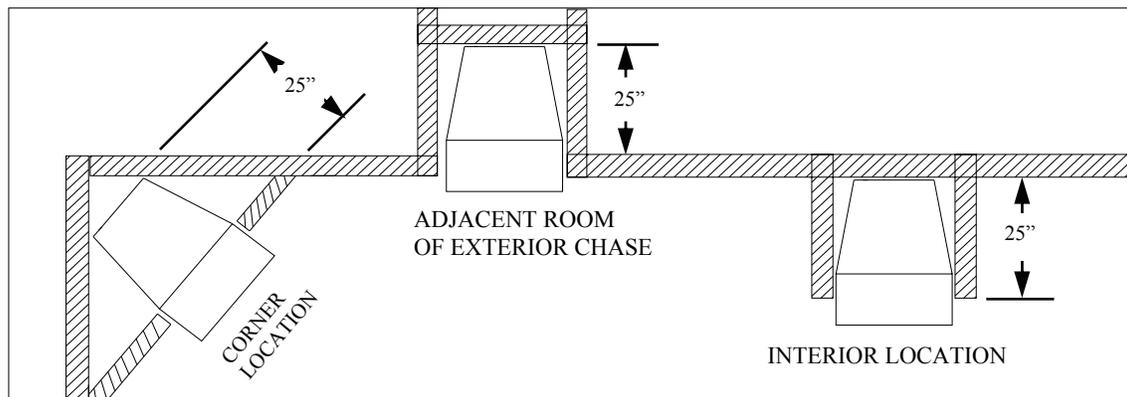


FIGURE 4

Above (Figure 4) are framing location examples with depth dimensions for some typical configurations. These are finished measurements so install accordingly.

Position ZC20 for installation as follows:

1. Thoroughly clean the area where the unit will be placed. Remove any carpeting/padding from the area where the ZC20 will be installed.
2. Lay out the location on the floor for ZC cabinet. (See Figure 4)
3. Layout for hearth extension preparation and removal of carpet and padding.
4. A sheet metal safety shield is placed 1 1/2" under the cabinet. It must extend out under the floor protector.
5. Now, you are ready to install the chimney system for the ZC20. If you are building an outside chase, follow approved Chimney Manufacturer's instructions. If you are penetrating a ceiling, install the chimney as follows:
 - a. Drop a plumb line, locate, and mark point on ceiling directly over center of ZC20 chimney adapter
 - b. After locating the center of the hole, install the firestop spacer per chimney manufacturer's instructions.

6. Obtain the listed and approved chimney installation instructions and follow exactly.
 - a) Obtain the starter section of pipe and install on the ZC20 cabinet. It may be necessary to crimp the inside of the starter pipe to ease installation into the ZC20 cabinet.
 - b) Obtain the two short sheet metal “ell” brackets and sheet metal screws provided with the ZC20 and secure the starter section of pipe to the ZC20 cabinet.

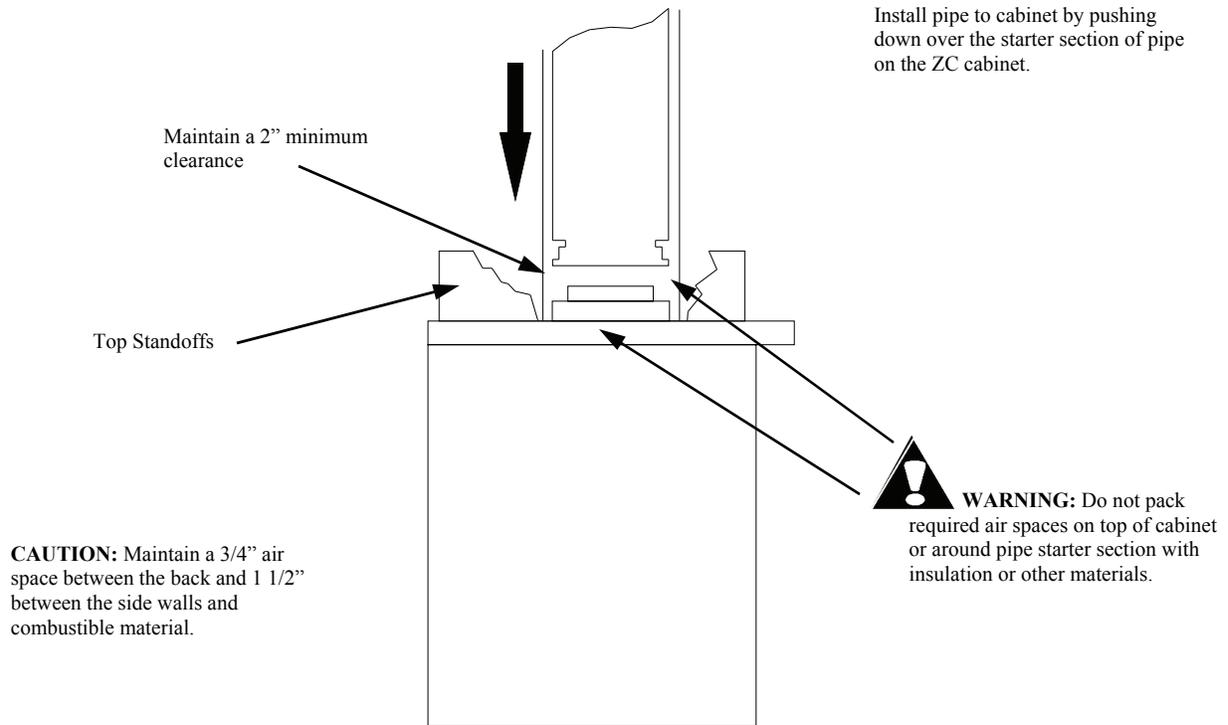


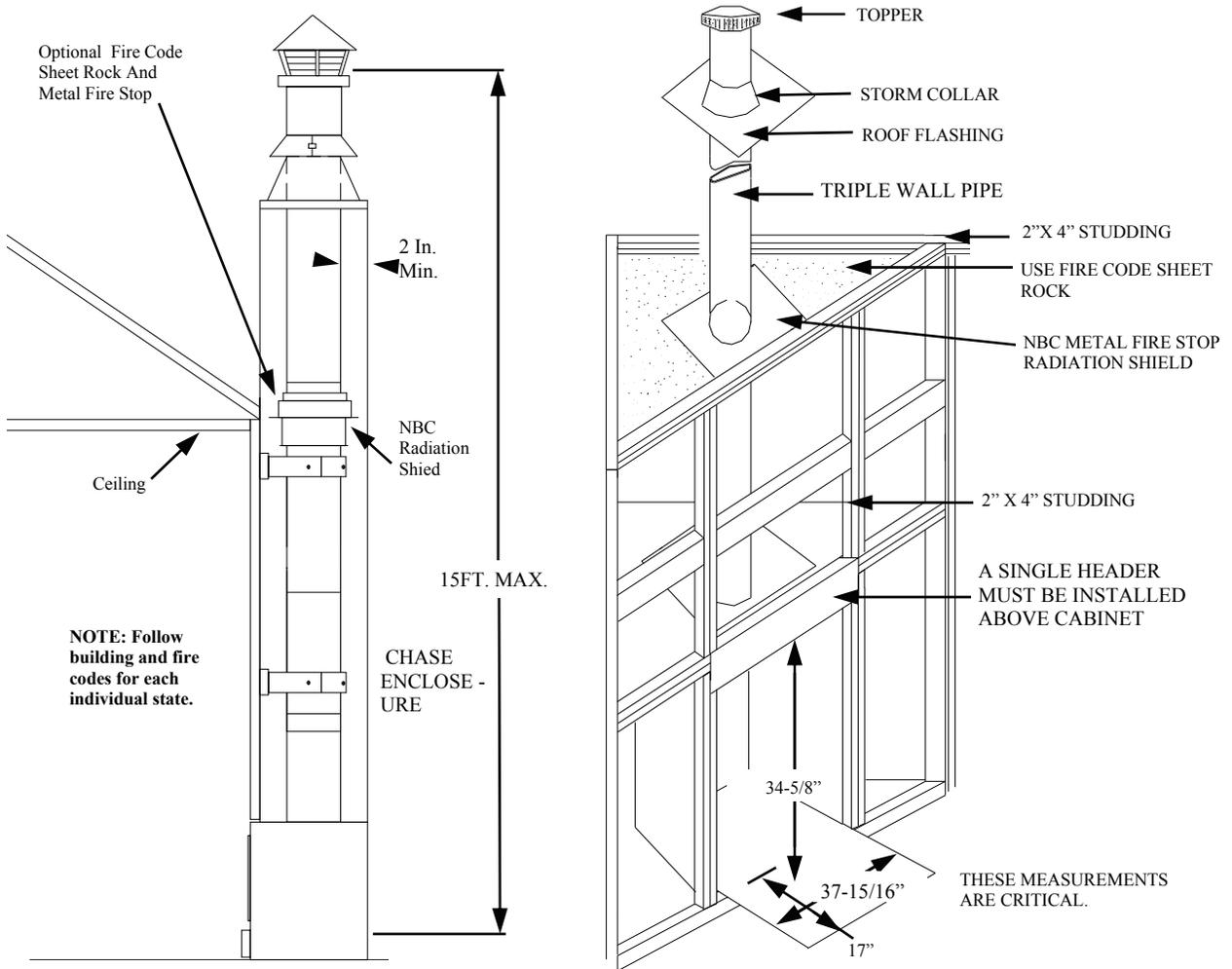
Figure 5

- c) Continue adding lengths of chimney until you are ready to penetrate another ceiling or the roof.
- d) Now, plumb bob the center of the ceiling or roof above the chimney and install another firestop for another ceiling penetration or follow pipe manufacturer's instructions for attic and roof penetration.
- e) Once the roof penetration is made, install the flashing.
- f) Add applicable lengths of chimney, extending through the roof until the following conditions are met:
 1. Chimney height is at least 12' to 15' maximum.
 2. The chimney must extend a minimum of 3' above the highest point where it penetrates the roof.
 3. The chimney must extend a minimum of 2' higher than any portion of the building within 10' of the chimney.
- g) Install the chimney cap and storm collar.

7. The ZC20 cabinet is now ready for framing as follows:
- a) Frame the ZC20 using 2"x4" studs or local building code framing. Some minor framing restrictions are required:
 1. Adjacent side walls must be at least 16" from the outer edge of the ZC20 trim panel
 2. The overall opening dimensions must be at least 37 15/16" wide and 34 5/8" high.

NOTE: Maintain 1 1/2" clearance at the side walls of the cabinet and combustible material.
 - b) 2"x4" framing above the unit must be turned flat. This allows proper clearance from framing to chimney (2" minimum). (See Figure 6.)

ZC20/Model 20



WARNING: Install the hearth protector only as specified. The hearth extension must extend a minimum of 17" in front of the fire-place opening and must be 37 15/16" wide minimum.

FIGURE 6

CHASE ENCLOSURE AND CORNER LOCATION FRAMING

8. Next construct the hearth extension out of non-combustible inorganic building materials as follows:
 - a) The hearth extension must extend 17” in front of the rough framed opening on the ZC20.
 - b) The hearth extension width must be at least 37 15/16”.
 - c) The hearth extension must be made of brick 2” thick, a listed “Hearth Extension” or “Floor Protector”, or a hearth extension made of non-combustible inorganic material with a K* factor of:

$$K = 2.5 \text{ BTU } ((\text{HR}) (\text{ft}^2) (^\circ\text{F}/\text{in.}))$$

ALTERNATE FLOOR PROTECTORS MATERIALS

With the floor protector or hearth extension material specified as one layer of 2” thick brick with a K* factor of 5.0, you may use alternate materials as long as the K* factor (s) is calculated as follows:

Formula: Required thickness = (K of alternate material/K of millboard) X (thickness of millboard)
 Example: An alternate inorganic non-combustible millboard with a K of .9375 would require a thickness as follows:
 Required thickness = .9375.0° x 2 inch
 = 3/8 inch

K Factors of Alternate Materials:

Material	K	Required Thickness
Ceroform 126	.21	1/8”
Limestone	8.0	3.2”
Concrete	8.0	3.2”
Sandstone	13.0	5.2”
Marble	18.0	7.2”

Hearth extension or floor protector thickness above four (4) inches is generally not acceptable due to cost, floor load capacity, and look. The alternate we recommend is using Ceroform No. 126 millboard 1/8” thick minimum and putting any type decorative brick or stone (any thickness) on top of it.

The K factor represents the thermal conductivity of a material and is the time rate of heat flow through a homogeneous material under steady-state conditions, through unit area, per unit temperature gradient in the direction perpendicular to a surface.

9. The next step is the electrical installation. **NOTE:** An electrician must wire the ZC20 into the home wiring system using No. 15 AWG (with ground wiring) as minimum in accordance with local wiring codes.



CAUTION: Stove is plugged into cabinet receptacle.

- A. Remove brass trim.
- B. Remove top panel and right side panel.
- C. Now an electrician must do the wiring.

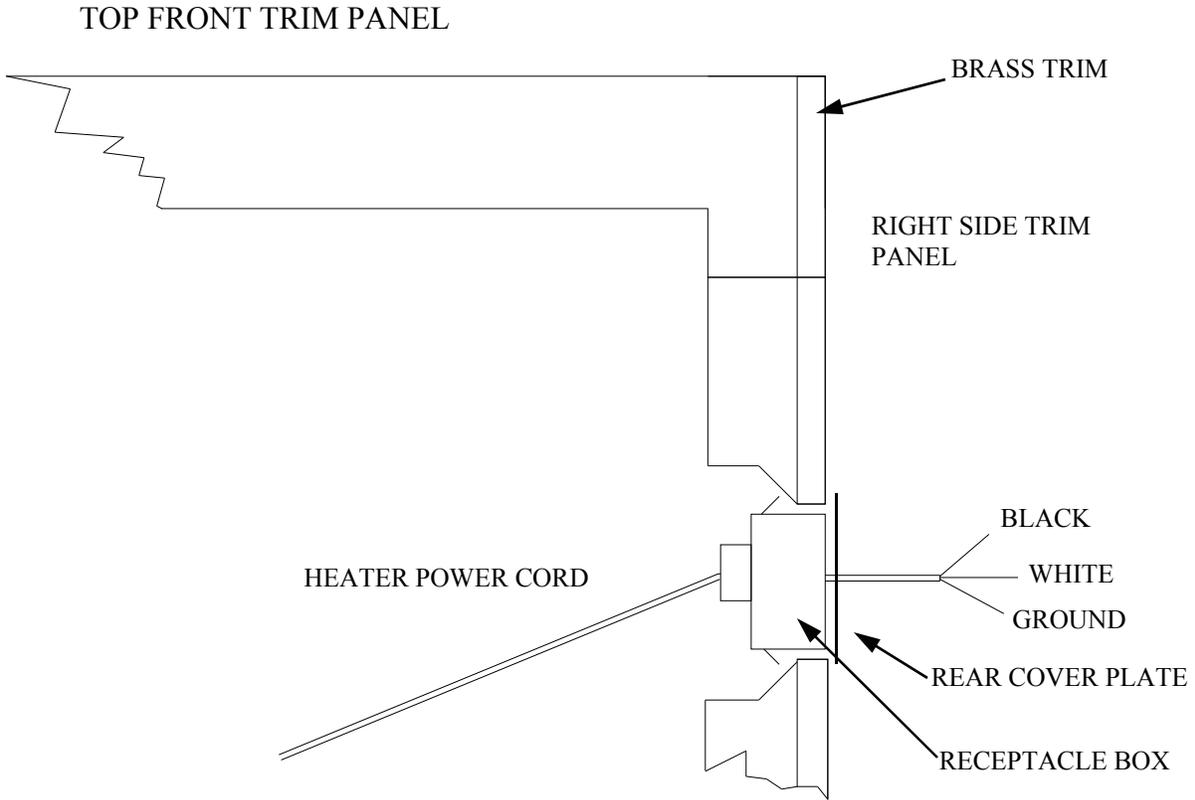


FIGURE 7 POWER HOOK-UP

10. Now, finish the wall around the ZC20 using brick, rock, sheetrock, paneling, or any type finishing material.
CAUTION: Do not block any openings designed into the unit.
11. Install a mantel above the unit if desired. Note that a combustible mantel must be positioned at least 12" above the top of the ZC20 cabinet.

SECTION II

MOBILE HOME INSTALLATIONS

PARTS REQUIREMENTS

Listed NEW BUCK CORP.

Model	Part Description/Part #
ZC20	Zero clearance cabinet assembly with Model 20 fireplace installed New Buck Firestop Radiation Shield # PA 6FRS20

UL Listed and Factory Approved Chimney Systems

	Description
Simpson Dura Vent	- 6" 2100° HT Type "DP" Chimney
Security	- 6" "ASHT" High Temp Chimney
Selkirk Metal Bestos	- 6" Model SSII Type HT Chimney
Metal Fab	- 6" 2100° HT Chimney

CAUTION: Read through all of these instructions carefully. Follow approved Chimney Manufacturer's Installation exactly. Failure to install the Cabinet Fireplace, Stove and Chimney as described in the instructions will void the manufacturer's warranty and may have an effect on your Homeowner's Insurance. A major cause of chimney related fires is failure to maintain required clearances (air spaces) to combustible materials. It is of utmost importance that these parts be installed only in accordance with these instructions.

The Zero-Clearance cabinet and the Model 20 (hereafter referred to as the ZC20) is designed for installation in a family dwelling, where minimum clearance is desired.

INSTALLATION PRECAUTIONS

The following precautions are mandatory for a safe installation:

- A. Compliance with local building codes and regulations is mandatory.
- B. Be careful not to damage unit in handling and unpacking component parts and accessories.
- C. A UL Listed and Approved Chimney System is to be used and vented to the outside of the building. (See chimney list above.)
- D. The chimney must extend a minimum of 3' above the highest point where it penetrates the roof (3' above a flat roof or up to 2 1/2 pitch roof), and the chimney must extend a minimum of 2' higher than any portion of the building within 10' of the chimney. The minimum height is 12'. A 2" clearance must be maintained between the chimney and any combustible materials at all points.
- E. A rain cap must be used to terminate the chimney to prevent down-draft.

- F. DO NOT build a fire directly inside the ZC20. It is designed solely for housing the Model 20.
- G. **WARNING:** Do not install in sleeping room.
- H. **CAUTION:** The structural integrity of the mobile home floor, wall, and ceiling/roof must be maintained.
- I. Do not connect this unit to a chimney serving another appliance.

FRAMING CONSTRUCTION AND INSTALLATION

Except as noted, the ZC20 can be installed almost anywhere you desire. There are, however, a few clearance and framing restrictions that must be followed. See Figure 5 and 6 to make sure that these clearance restrictions are met. It is much wiser to place your ZC20 correctly at the start of the installation than to be forced to relocate it after much of the work is done.

You must ensure that the floor is of adequate strength to accept the load of this unit. If inadequate, the floor will require additional support, such as bracing. **NOTE:** A wooden base constructed of plywood or 2"x4" boards is required in order to get proper clearance above the extended hearth (millboard, rock, stone, etc.)

Where cabinet is to be placed, a 4 1/4" diameter hole with a 2 1/8" radius from center line must be cut through floor. Outside air duct kit #PP 70075-01 is to be installed. (See Figure 9.)

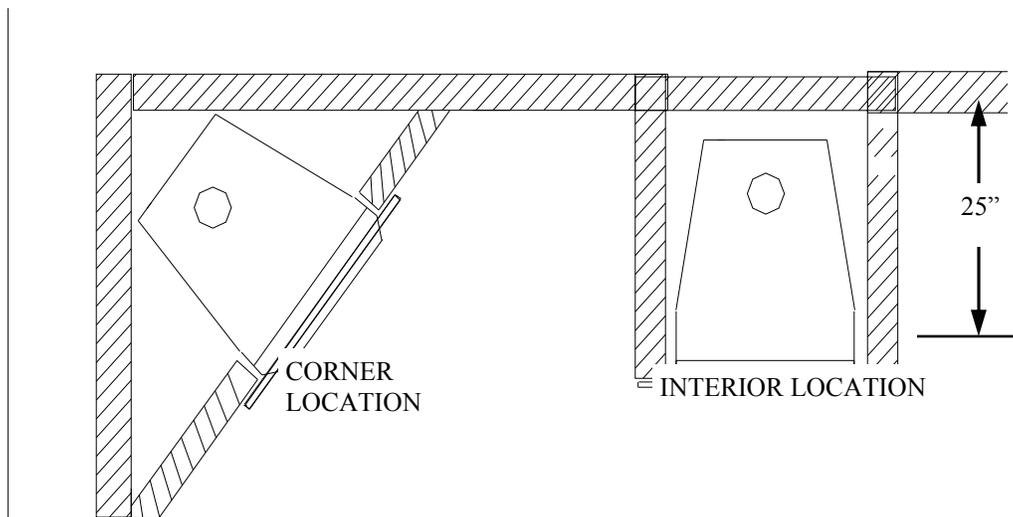


FIGURE 8

1. Thoroughly clean the area where the unit will be placed. Remove any carpeting/padding from the area where the ZC20 will be installed.
2. Layout the location on the floor for ZC cabinet. **NOTE:** Maintain 3/4" clearance between the rear of the cabinet and combustible material.
3. Layout for hearth extension preparation and removal of carpet and padding . Where cabinet is to be placed, a 4 1/4" diameter hole with a 2 1/8" radius from center line must be cut through floor. Outside air duct kit # PP 70075-01 is to be installed. (See Figure 9.)
4. Next, a sheet metal safety shield is placed 1 1/2" under the front of the cabinet. It must extend out under the floor protector. Drop a plumb line, locate and mark point on ceiling directly over center of ZC20 chimney adapter. After locating the center of hole, install firestop spacer per chimney manufacturer's instructions.

5. Obtain the Listed and Approved Chimney Installation instructions and follow exactly.
 - a) Obtain the starter section of pipe and install on the ZC20 cabinet. It may be necessary to crimp the inside of the starter pipe to ease installation into the ZC20 cabinet.
 - b) Obtain the two short sheet metal "ell" brackets and sheet metal screws provided with the ZC20 and secure the starter section of pipe to the ZC20 cabinet.
 - c) Add applicable lengths of chimney extending through the roof until the following conditions are met:
 1. The chimney must extend a minimum of 3' above the highest point where it penetrates the roof.
 2. The chimney must extend a minimum of 2' higher than any portion of the building within 10' of the chimney but not to exceed 15' above the hearth.
 - d) Install the flashing, storm collar, and chimney cap as indicated in the manufacturer's installation instructions.
6. The ZC20 Cabinet is now ready for framing as follows:
 - a) Frame the ZC20 using 2"x4" studs or local building code framing. Some minor framing restrictions are required:
 1. Adjacent side walls must be at least 17" from the outer edge of the ZC20 trim panel.
 2. The overall opening dimensions must be at least 37 15/16" wide and 34 5/8" high.
 - b) 2"x4" framing above the unit must be turned flat. This allows proper clearance from framing to chimney (2" minimum). (See Figure 10.)

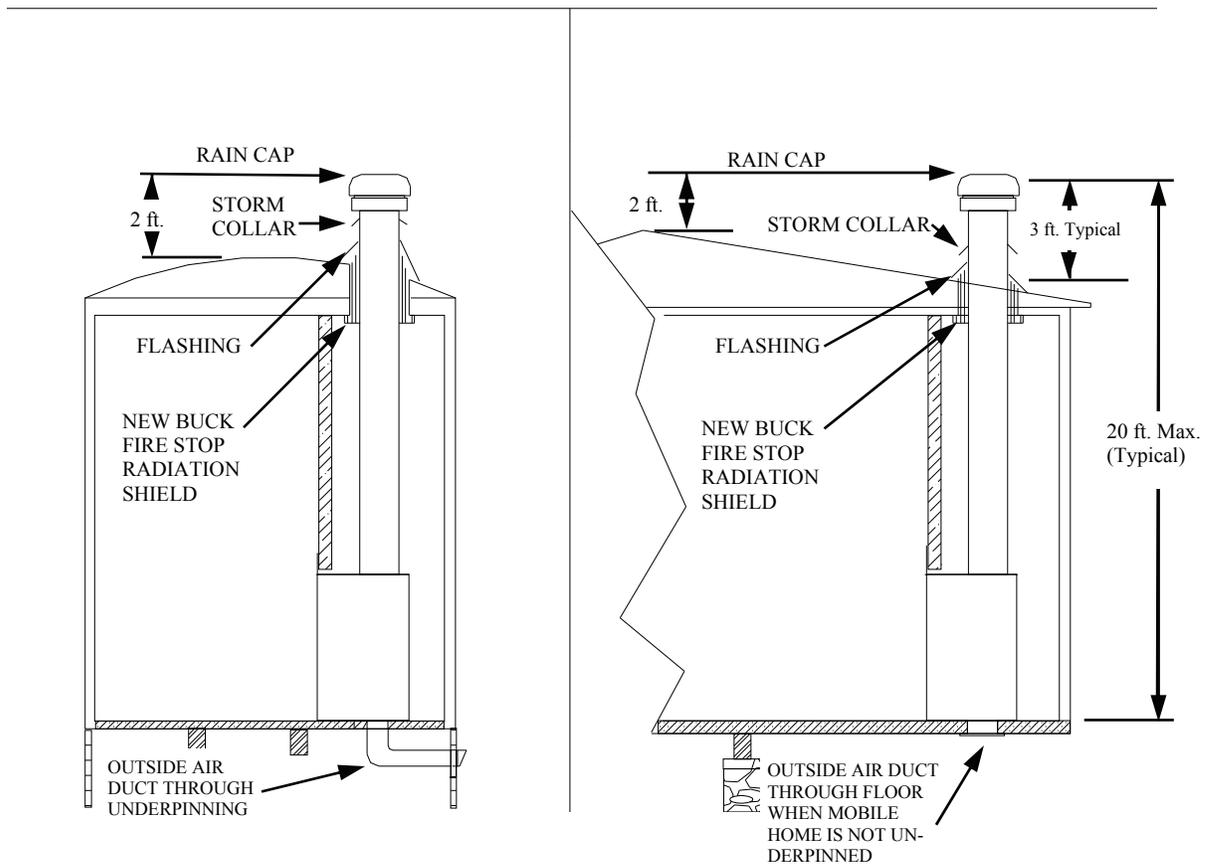


FIGURE 9

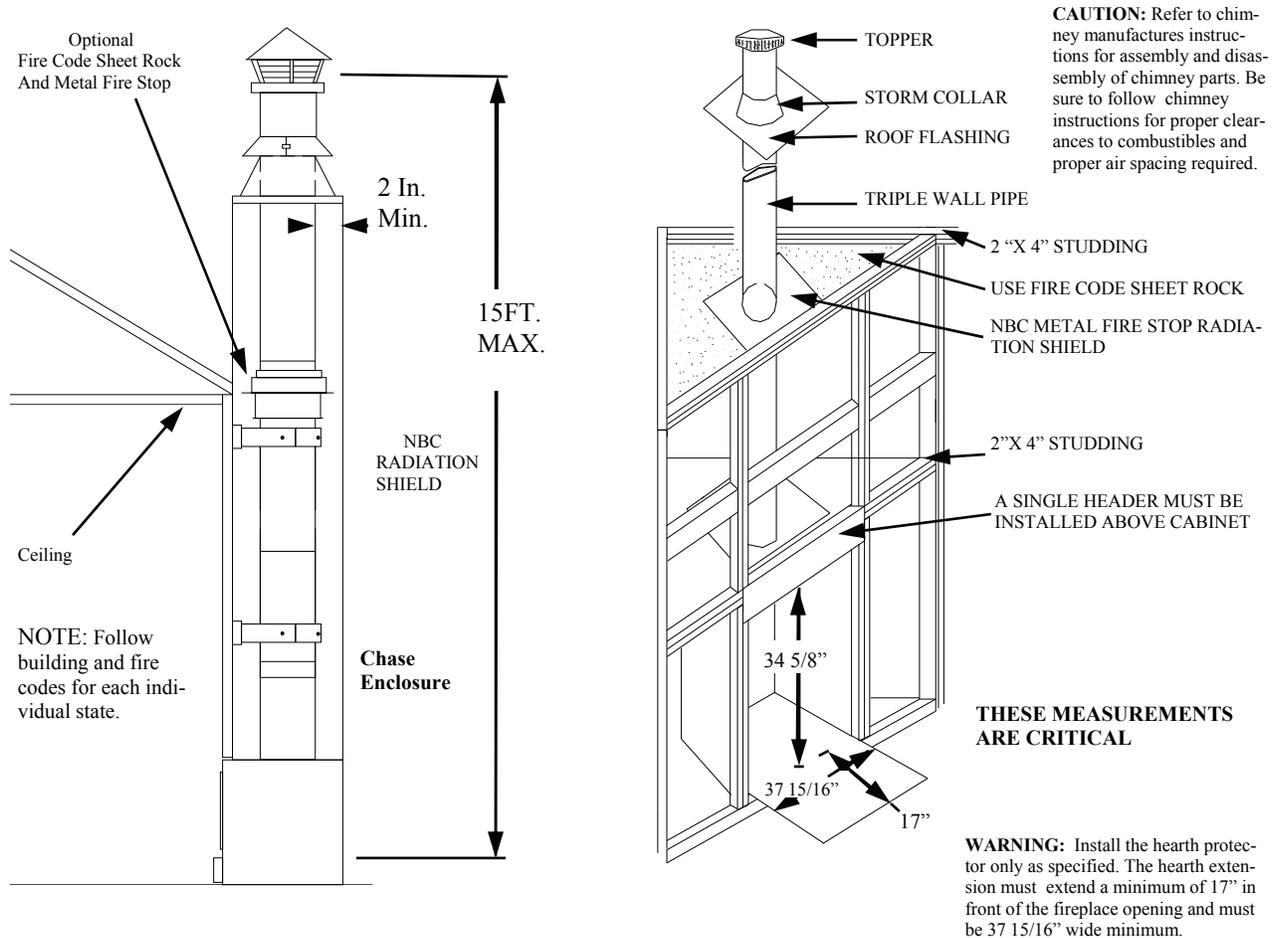


FIGURE 10 CHASE ENCLOSURE AND CORNER LOCATION FRAMING

7. Next construct the hearth extension out of non-combustible inorganic building materials as follows:
 - a) The hearth extension must extend 17" in front of the rough framed opening on the ZC20.
 - b) The hearth extension width must be at least 37 15/16".
 - c) The hearth extension must be made of brick 2" thick, a listed "Hearth Extension" or "Floor Protector", or a hearth extension made of non-combustible inorganic material with a K* factor of:

$$K = 2.5 \text{ BTU } ((\text{HR}) (\text{ft}^2) (\text{°F}/\text{in.}))$$

ALTERNATE FLOOR PROTECTORS MATERIALS

With the floor protector or hearth extension material specified as one layer of 2" thick brick with a K* factor of 5.0, you may use alternate materials as long as the K* factor (s) is calculated as follows:

Formula: Required thickness = (K of alternate material/K of millboard) X (thickness of millboard)
 Example: An alternate inorganic non-combustible millboard with a K of .9375 would require a thickness as follows:
 Required thickness = .9375.0° x 2 inch
 = 3/8 inch

K Factors of Alternate Materials:

Material	K	Required Thickness
Ceroform 126	.21	1/8"
Limestone	8.0	3.2"
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Sandstone	13.0	5.2"
Marble	18.0	7.2"

Hearth extension or floor protector thickness above four (4) inches is generally not acceptable due to cost, floor load capacity, and look. The alternate we recommend is using Ceroform No. 126 millboard 1/8" thick minimum and putting any type decorative brick or stone (any thickness) on top of it.

The K factor represents the thermal conductivity of a material and is the time rate of heat flow through a homogeneous material under steady-state conditions, through unit area, per unit temperature gradient in the direction perpendicular to a surface.

- The next step is the electrical installation. **NOTE:** An electrician must wire the ZC20 into the home wiring system using No. 15 AWG (with ground wiring) as minimum in accordance with local wiring codes.



CAUTION: Stove is plugged into cabinet receptacle.

- Remove brass trim.
- Remove top panel and right side panel.
- Now an electrician must do the wiring.

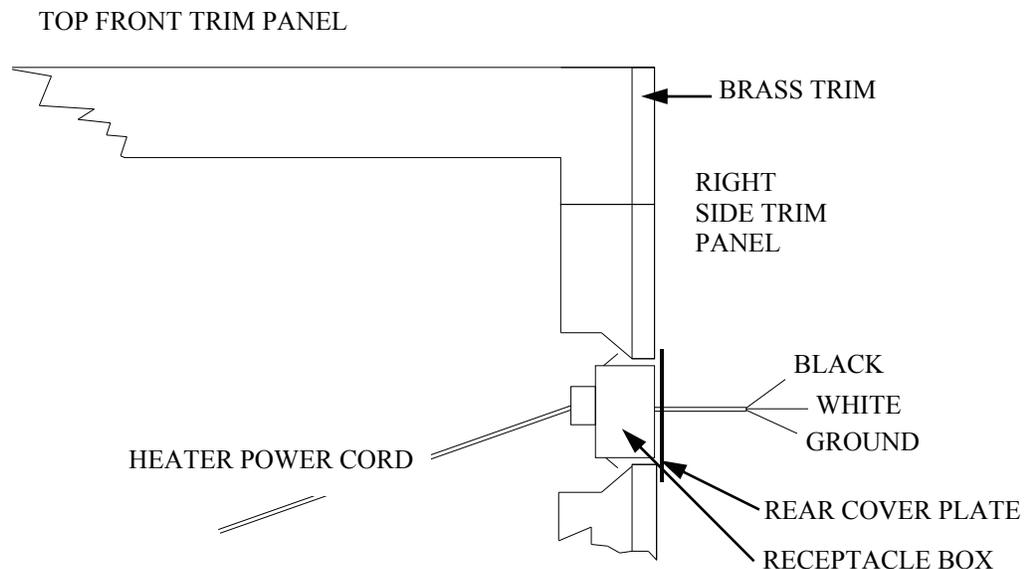


FIGURE 11 POWER HOOK-UP

- Now, finish the wall around the ZC20 using brick, rock, sheetrock, paneling, or any type finishing material. **CAUTION:** Do not block any openings designed into the unit.
- Install a mantel above the unit if desired. Note that a combustible mantel must be positioned at least 12" above the top of the ZC20 cabinet.
- The ZC20 and Model 20 fireplace are now ready for use. Refer to the Model 20 owners manual for operation, safety, and chimney maintenance. Refer to the back of this manual for ZC20 warranty registration information.

CLEANING THE UNIT

- A. The unit should be lightly sanded with fine sandpaper or steel wool, then repainted or touched up with high temperature black paint.
- B. If the unit is located in a moist or damp location, check thoroughly for signs of condensation during times when the unit is not in use.
- C. When the heating season is over, the unit can be cleaned out completely with a wire brush or cloth to help eliminate ash and burned wood smell.

SAFETY PRECAUTIONS

1. Use smoke detectors around the stove as well as in sleeping areas.
2. Keep a fire extinguisher rated for Class “A” fires near the stove.
3. Check with your insurance company to be sure your policy covers the installation and use of a wood burning appliance.
4. Creosote-Formation and Need for Removal: When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes an extremely hot fire.

The connector and/or chimney should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred.

If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

5. Locate furniture and any other combustibles away from the stove.
6. Store firewood at a safe distance from the stove.
7. Disposal of Ashes: Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.
8. Always exercise caution when using your fireplace. Be particularly careful when there are children around an operating fireplace.

CAUTION: NEVER use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid or similar liquids to start or “freshen-up” a fire in the fireplace. Keep all such liquids well away from the stove when it is in use. All fluids of this type give off highly volatile fumes and can and WILL EXPLODE! Don’t take a chance with the safety of your home and family.

PREVENTIVE MAINTENANCE/ SAFETY PRECAUTIONS

CHIMNEY

- A. The chimney should be cleaned as necessary to remove creosote, soot, leaves, birds' nests, etc.

CREOSOTE-FORMATION AND NEED FOR REMOVAL

When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes an extremely hot fire.

The chimney connector and chimney should be inspected at least once every two months. More frequent inspection and cleaning may be necessary. Under certain conditions of use creosote build-up may occur rapidly.

Creosote is caused by low temperatures in the chimney, which is controlled by the operator of the stove.

- B. A neglected chimney can eventually cause a draw restriction or can ignite and burn hot enough to cause damage to the chimney.
- C. For proper inspection the chimney should be cleaned.

CHIMNEY CLEANING:

1. **Access**-Chimneys must be installed so that access is provided for inspection and cleaning.
2. **When to Clean**-The chimney should be inspected at least once every two months during the heating season to determine if creosote or soot has built up. Check spark arrestor screens every 2-4 weeks. If creosote or soot has accumulated, it should be removed to reduce the risk of chimney fire.
3. **How to Clean**-Have your chimney cleaned by a professional chimney sweep if you have doubts about your ability to clean it, using a plastic, wood, or steel brush. Do not use a brush that will scratch the stainless steel liner of your chimney. Scrub the spark arrestor with a wire brush.

To remove the chimney cap for cleaning, unscrew the four screws that attach the cap's support legs to the cap base. The top cleanout cap can be removed once the screws are unscrewed. Remember to replace the screws when you are through cleaning the chimney.

4. **No Chemical Cleaners**-Do not use chemical chimney cleaners. Their use does not eliminate the need for mechanical cleaning and they may be highly corrosive.
5. **In Case of Fire**-If a flue fire occurs, close all appliance draft openings and call your Fire Department. Do not use the chimney again until it is inspected for possible damage.
6. **Chimney Protection**-Painting. To increase chimney life, coat all exterior metal parts with high temperature rust-proof paint. This is highly recommended, particularly in areas near the ocean. Wash the metal with a vinegar and water solution before painting.

**NEW BUCK CORPORATION (NBC)
“LIMITED WARRANTY” FOR NBC RELATED PRODUCTS**

**PLEASE READ THIS WARRANTY CAREFULLY
PRODUCTS COVERED**

This warranty covers the new heating unit so long as it is owned by the original purchaser, including optional and standard accessories purchased at the same time, subject to terms, limitations, and conditions herein set out.

PRODUCTS NOT COVERED

This warranty does not cover the following:

- Glass;
- Refractory material such as refractory cement or firebrick
- Gaskets;

This Warranty will also not cover any damage and/or failure caused by abuse or improper installation of the Products Covered.

WARRANTY TIME PERIODS

(A) Period I

For one (1) year from the date of purchase, NBC will replace or repair, at its option, any part defective in materials or workmanship. The costs of parts only are included. The customer pays any labor or transportation charges required.

Thereafter

(B) Period II

For the period after the first year from the date of purchase and extending for five (5) years as long as the related product is owned by the original purchaser, NBC will repair or replace, at its option, any part defective in materials or workmanship, with the exception of: electrical motors, wiring, switches, and components; optional and standard accessories; and all parts not permanently attached to the heating unit. Parts not permanently attached to the heating unit are defined as those items designed to be removed from the unit, including those removable with common hand tools. The cost of parts only are included. The customer pays any labor or transportation charges required.

PROCEDURE

Should you feel that your **heater** is defective, you should contact any NBC dealer for the name of your nearest authorized heater service representative, who will instruct you on the proper procedure, depending on which Warranty Time Period (Period I or Period II) applies.

If for any reason you are dissatisfied with the suggested procedures, you may contact us in writing at:

**NEW BUCK CORPORATION
Customer Service Department
P. O. Box 69
Spruce Pine, NC 28777**

CONDITIONS AND EXCLUSIONS

- (A) Replacement of parts may be in the form of new or fully reconditioned parts, at NBC's option.
- (B) There are no other warranties express or implied including warranties of Merchantability, Fitness for Purpose or Otherwise except those warranties expressly stated herein.
- (C) **New Buck Corporation** is not liable for indirect, incidental, or consequential damages in connection with the use of the product including any cost or expense of providing substitute equipment or service during periods of malfunction or non-use. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.
- (D) All warranty repairs under this warranty must be performed by an authorized Buck Stove service representative. Repairs or attempted repairs by anyone other than an authorized service representative are not covered under this warranty. In addition, these unauthorized repairs may result in additional malfunctions, the correction of which is not covered by warranty.

OTHER RIGHTS

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

OWNER REGISTRATION CARD

The attached Owner Registration Card must be completed in its entirety and mailed within 30 days from the date of purchase or from the date of installation, if installed by a factory certified installer, to New Buck Corporation, in order for warranty coverage to begin.

PLEASE NOTE: The Owner Registration Card must contain the Authorized Dealer Code Number and the Certified Installer's number (if applicable) for warranty coverage to begin.