

MODEL 21 ELITE NON-CATALYTIC UNIT



FEATURES

PREPARATIONS

INSTALLATION

OPERATION

MAINTENANCE

SAFETY

SAFETY NOTICE

IF THIS HEATER IS NOT PROPERLY INSTALLED, A HOUSE FIRE MAY RESULT. FOR YOUR SAFETY, FOLLOW THE INSTALLATION INSTRUCTIONS. CONTACT THE AUTHORITY HAVING JURISDICTION (SUCH AS MUNICIPAL BUILDING DEPARTMENT, FIRE DEPARTMENT, FIRE PREVENTION BUREAU, etc.) CONSULT BEFORE INSTALLATION TO DETERMINE THE NEED TO OBTAIN A PERMIT. KEEP THESE INSTRUCTIONS FOR FUTURE USE.

TESTED AND LISTED BY:



ITS/WARNOCK HERSEY, MIDDLETON, WI

Intertek

MANUFACTURED BY NEW BUCK CORPORATION

200 ETHAN ALLEN DRIVE

P.O. BOX 69

SPRUCE PINE, N.C. 28777

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INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS MODEL 21 ELITE

READ THIS FIRST IMPORTANT INSTRUCTIONS

WARNING

THIS UNIT GENERATES A LOT OF HEAT, SO TREAT UNIT WITH CARE. **HOT WHILE IN OPERATION.** KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. DO NOT USE CHEMICALS OR FLUIDS TO START FIRE. DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS. DO NOT CONNECT TO ANY DISTRIBUTION DUCT OR SYSTEM. READ ALL INSTRUCTIONS BEFORE INSTALLING AND USING APPLIANCE. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR EVEN DEATH. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCES.

- The New Buck Corp. non-catalytic systems have been tested by ITS, Warnock Hersey to ANSI/UL Standards: UL 1482-2000: UL/ULC S627.
- Install and operate your units according to instructions provided in this manual. Local building codes may apply; therefore, contact your local building inspector or fire marshal for necessary installation requirements and permits which may go beyond these instructions. The authority having jurisdiction should be consulted before installation to determine the need to obtain a permit.
- If appliance is installed in mobile homes:
WARNING DO NOT INSTALL IN SLEEPING ROOMS.
- **CAUTION:** The Structural Integrity Of the Mobile Home Floor, Wall And Ceiling/Roof Must Be Maintained.
- For space heaters installed in mobile homes, the necessity for attaching the space heater to the structure. See (Page 16, Statement 16, Figure 18).
- Install in accordance with 24 CFR, Part 3280 (HUD).
- **NOTE:** When burning any unit or appliance that combusts fuel for heat, such as coal, oil, wood or natural and (L.P.) liquid petroleum gas. We highly recommend the use of smoke and carbon monoxide detectors in your home.
- In case of room air starvation, example; if there are exhaust fans running in the house for kitchen, bathrooms, ect., enough negative pressure could be created in the house to cause back drafting of smoke from the stove, an outside air kit may have to be used. For outside air installation see (Page 15).

CAUTION

DO NOT USE MORE THAN ONE STOVE TO A CHIMNEY. DO NOT USE A FLUE INTENDED FOR A GAS APPLIANCE.

CAUTION

YOUR CHIMNEY OR FLUE MUST BE CORRECTLY SIZED. A CHIMNEY OR FLUE THAT IS TOO SMALL OR LARGE IN DIAMETER, OR TOO SHORT, CAN CAUSE YOUR STOVE TO SPILL SMOKE WHEN DOOR IS OPENED.

SECTION I

INTRODUCTION

Your new MODEL 21 ELITE is a non-catalytic unit designed to meet the most stringent emissions standards without the use of a catalytic combustor. This effect is achieved through the use of secondary air which is mixed with primary air in the units firebox.

For peak performance, we suggest the use of hard seasoned natural wood, loading wood from front to rear.

NOTE: Soft woods such as pine, create more creosote, clogging of chimney and produce a less efficient burn performance.

You should not burn trash or garbage, artificial or paper logs, gift wrapping, treated or painted wood or any type of coal.

**DO NOT USE CHEMICALS OR FLUIDS TO START FIRE.
DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS.**

The primary air, which is controlled by the user, burns the wood. Secondary air is admitted into the firebox through secondary air tubes at the top of the firebox. This secondary air burns the impurities in the smoke released from the initial wood burning. The temperature necessary for this combustion is maintained through the firebrick refractory. If any more technical information is necessary, contact your local dealer.

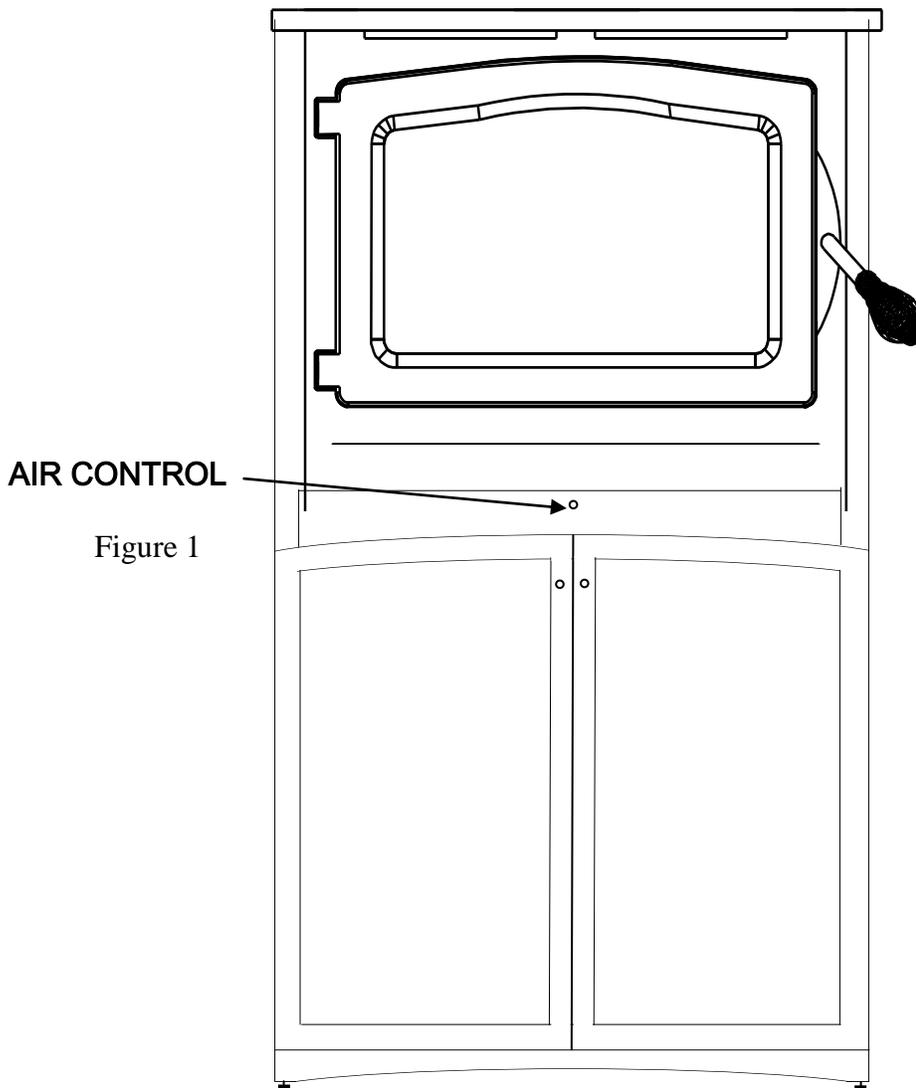
SECTION II

RESIDENTIAL / MOBILE FREESTANDING INSTALLATION AND CLEARANCES

Select an installation location that will give the best airflow from the front of the heater to the remainder of the home

PREPARING THE STOVE FOR INSTALLATION

1. Inspect unit for any obvious physical damage.
2. Plug power cord into a 115V AC outlet to test motor and fan. Do not run cord under unit or in high traffic areas.
3. Check primary air draft control to ensure that it slides freely.
4. Remove any items from within firebox.



Chimney

This model is designed for connection to any listed 2100° UL103 HT chimneys and parts. This room heater must be converted to 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 liner.

Floor Protection:

Floor protection must be 3/8" minimum thickness non-combustible material or equivalent.

How to use alternate materials and how to calculate equivalent thickness:

An easy means of determining if a proposed alternate floor protector meets requirements listed in the appliance manual is to follow this procedure:

1. Convert specification to R-value:
R-value is given—no conversion is needed.
K-factor is given with a required thickness (T) in inches:
C-factor is given: $R=1/C$
2. Determine the R-value of the proposed alternate floor protector.
Use the formula in step (1) to convert values not expressed as "R"
For multiple layers, add R-values of each layer to determine the overall R-value.
3. If the overall R-value of the system is greater than the R-value of the specified floor protector, the alternate is acceptable.

Example:

The specified floor protector should be 3/4" thick material with a K-factor of 0.84.

The proposed alternate is 4" brick with a C-factor of 1.25 over 1/8" mineral board with a K-factor of 0.29.

Step (a): Use formula above to convert specification to R-value. $R= 1/K \times T = 1/0.84 \times .75 = 0.893$

Step (b): Calculate R of proposed system. 4" brick of $C=1.25$, therefore $R_{brick} = 1/C = 1/1.25 = 0.80$ 1/8" mineral board of $K = 0.29$, therefore $R_{min.bd.} = 1/0.29 \times 0.125 = 0.431$

Step (c): Compare proposed system R of 1.231 to specified R of 0.893. Since proposed system R is greater than required, the system is acceptable.

Definitions:

$$\text{Thermal conductance} = C = \frac{\text{Btu}}{(\text{hr})(\text{ft}^2)(^\circ\text{F})} = \frac{\text{W}}{(\text{m}^2)(^\circ\text{K})}$$

$$\text{Thermal conductance} = K = \frac{(\text{Btu})(\text{inch})}{(\text{hr})(\text{ft}^2)(^\circ\text{F})} = \frac{\text{W}}{(\text{m})(^\circ\text{K})} = \frac{(\text{Btu})}{(\text{hr})(\text{ft})(^\circ\text{F})}$$

$$\text{Thermal conductance} = R = \frac{(\text{ft}^2)(\text{hr})(^\circ\text{F})}{\text{Btu}} = \frac{(\text{m}^2)(^\circ\text{K})}{\text{W}}$$

Install in accordance with 24 CFR, Part 3280 (HUD).

PREPARING THE ROOM HEATER LOCATION

1. Select an installation location that will give the best airflow from the front of heater to remainder of home.
2. Place protective floor pad in position.
3. Place unit on 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.

NOTE: This model is designed for connection to: any Listed 2100° UL 103 HT. TYP chimney also any Listed UL DVL Close Clearance pipe or single wall minimum 24 ga. blued or black pipe. Follow pipe manufacturers instructions carefully.

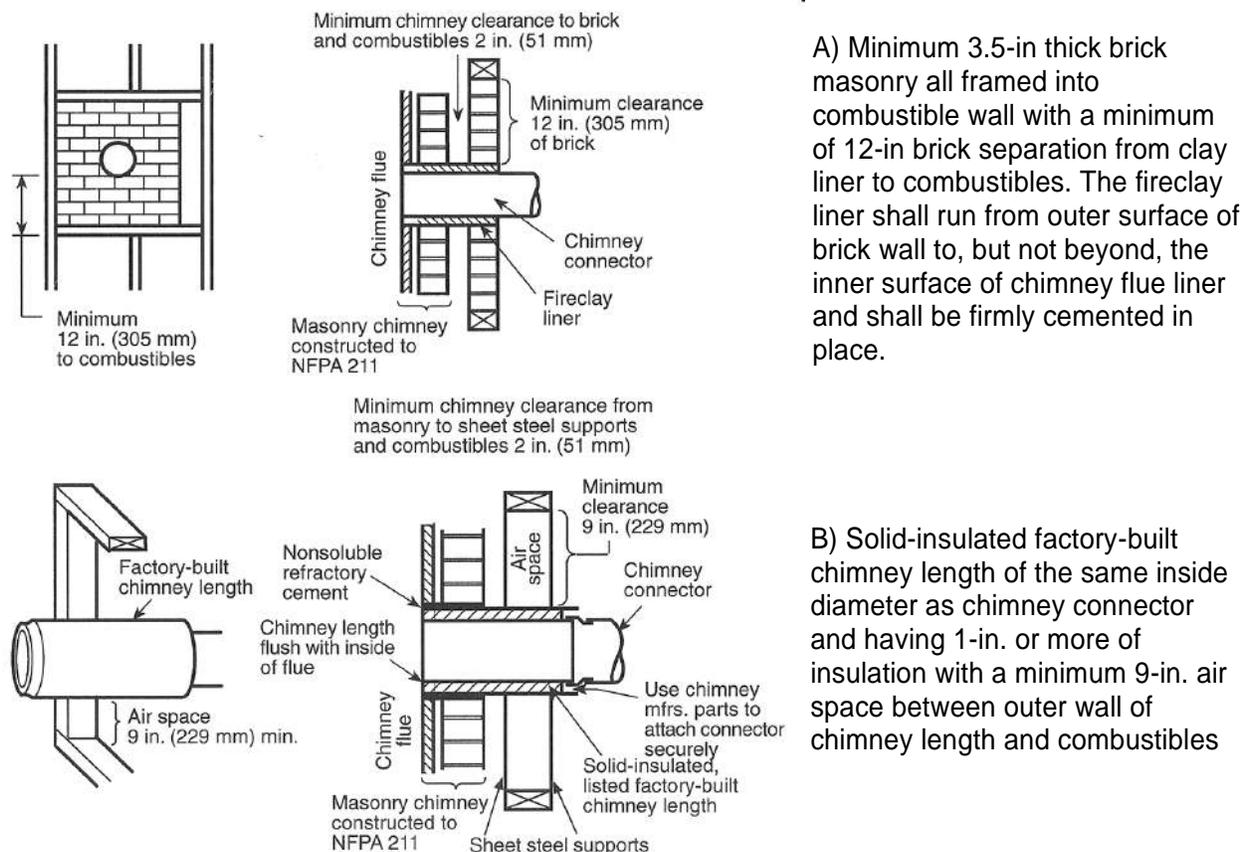
CHIMNEY

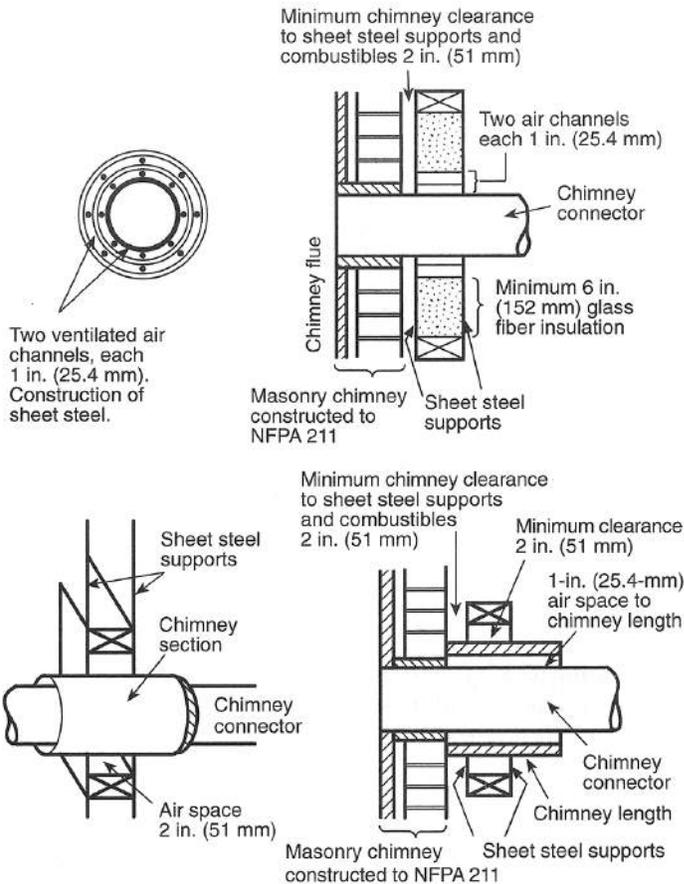
This room heater must be converted to a chimney complying with the requirements for Type HT chimneys in the Standard for Chimneys, Factory-Built, Residential, Type and Building Heating Appliance, UL 103.

The chimney size should not be less than or more than the cross-section area of the flue collar. These methods should be employed when connecting the room heater to a masonry chimney, factory-built chimney or masonry fireplace, when the connection from the room heater to a masonry chimney is made through a combustible wall.

A chimney connector shall not pass through an attic, roof space, closet, floor, ceiling or similar concealed space. Where passage through a wall or partition of combustible construction is desired, the installation shall conform with CAN/CSA-B365.

Installing a thimble through combustible wall Chimney Connector Systems and Clearances from Combustible Walls for Residential Heating Appliances





C) Sheet steel chimney connector, minimum 24 gauge in thickness, with a ventilated thimble, minimum 24 gauge in thickness, having two 1-in. air channels, separated from combustibles by a minimum of 6-in. of fiber insulation. Opening shall be covered, and thimble supported with a sheet steel support, minimum 24 gauge in thickness.

D) Solid insulated, listed factory-built chimney length with an inside diameter 2-in. larger than chimney connector and having 1-in. or more of insulation, serving as a pass-through for a single wall sheet steel chimney connector of minimum 24 gauge thickness, with a minimum 2-in. air space between outer wall of chimney section and combustibles. Minimum length of chimney section shall be 12-in. chimney section spaced 1-in. away from connector



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

HOW TO LOCATE CHIMNEY EXIT AND INSTALL

Residential Installation

A. Vertical Exit using (6" Single wall minimum 24 ga. blued or black pipe and any Listed 2100° UL 103 HT. Chimney).

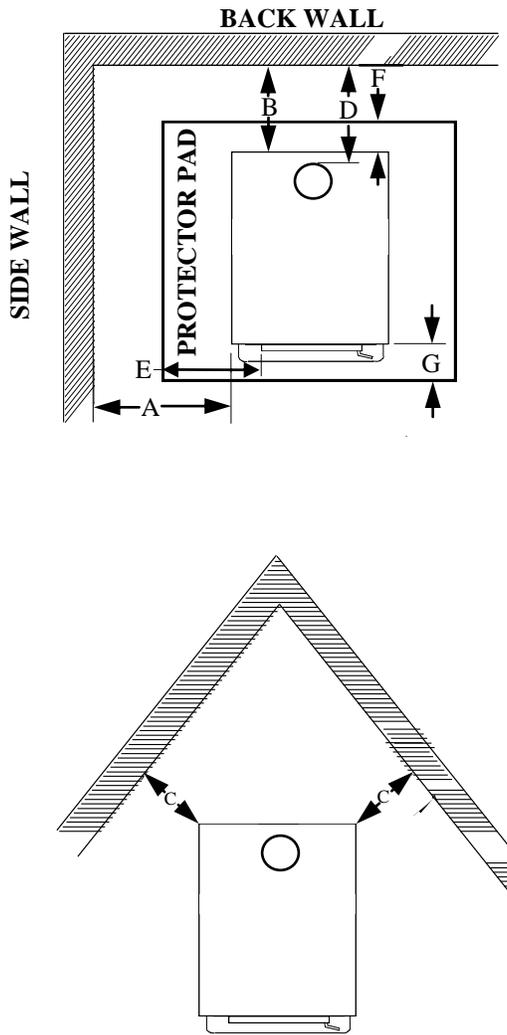
Without optional close clearance shield and pipe shield.

NOTE: For minimum clearances (See Page 8, Figure 4).

1. Suspend a plumb bob from ceiling above unit so that weight is hanging in center of flue exit. (A small weight on a string will serve as a plumb bob). Mark ceiling where string is suspended to locate center of chimney.
2. After locating center of hole, install ceiling support box, chimney or chimney connector, flashing and rain cap, per chimney manufacturers instructions and local building codes for installation through combustible walls or ceilings.
3. Now connect stove and ceiling support box using 6" Single Wall minimum 24 ga. blued or black pipe (DO NOT USE GALVANIZED PIPE). Connect each section so 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) sheet metal screws or rivets to connector collar on heater. (See Page 8, Figure 5).

**A. Vertical exit using (6" Single wall minimum 24 ga. blued or black pipe and any listed 2100° UL 103 HT. TYPE Chimney).
Without optional pipe shield.
Model 21 Elite minimum clearance to combustibles.**

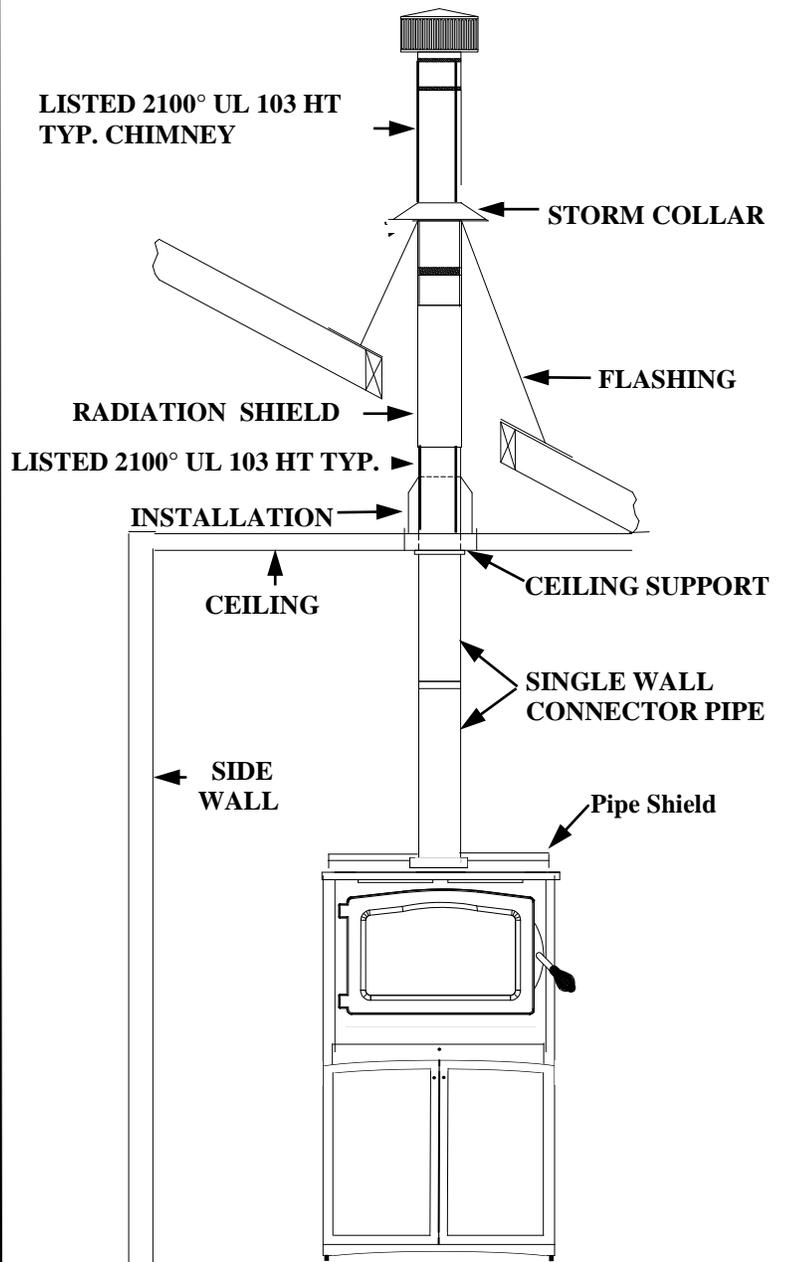
Figure 4.



MODEL 21 ELITE

A	B	C	D	E	F	G
25"	13"	13"	15.5"	8"	6"	16"

Figure 5.



NOTE: All clearances are to combustibles without pipe shield, using 6" single wall minimum 24 ga. blued or black pipe and minimum floor protector. The clearances above may be reduced. Follow NFPA-211 codes if available or follow instructions on (Pages 11, and 12).

HOW TO LOCATE CHIMNEY EXIT AND INSTALL

Residential Installation

- B. Vertical Wall Exit using (6" Single Wall minimum 24 ga. blued or black pipe with elbow and any Listed 2100° UL HT chimney and Listed 2100° UL HT. T-Box assembly). Without optional close clearance shields and pipe shield.**

NOTE: For minimum clearances (See Page 10, Figure 6).

1. Mark plumb line on wall directly behind center of heater.
(See Page 10, Figure 6).
NOTE: When using 6" Single Wall minimum 24ga. blued or black pipe.
Maintain 18" minimum clearances between pipe and ceiling.
2. Place vertical portion of heater pipe and elbow in position and project a point onto plumb line level with center of 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 page 9, figure 5. This will give you center of hole for chimney penetration.
4. After locating center of penetration, install the tee-box and chimney, as per the chimney manufacturers specifications.
5. Connect chimney collar to tee-box using 6" Single Wall minimum 24 ga. blued or black pipe. (DO NOT USE GALVANIZED PIPE). Connect each section so crimped end faces downward and secure each section to each other using three (3) sheet metal screws or rivets. Single wall pipe is to be connected with three (3) sheet metal screws rivets to connector collar on heater.(See Page 10, Figure 7).

**B. Vertical wall exit using (6" Single wall minimum 24 ga. blued or black pipe with elbow and any listed 2100° UL 103 HT. TYPE Chimney and Listed 2100° UL HT. T-Box assembly).
With optional pipe shield.
Model 21 Elite minimum clearance to combustibles.**

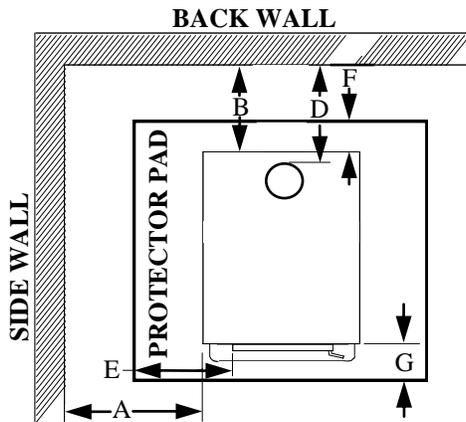
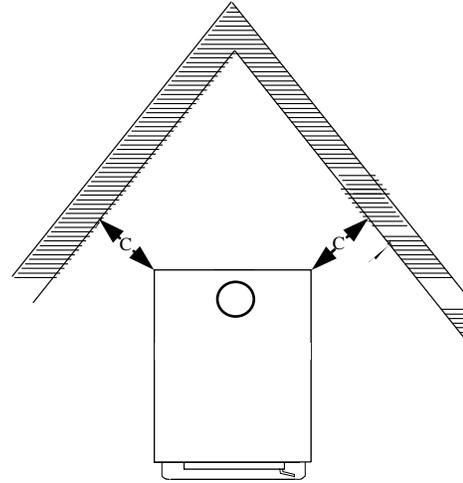


Figure 6.



A B C D E F G

MODEL 21 ELITE 25" 13" 13" 15.5" 8" 6" 16"

NOTE: All clearances are to combustibles with pipe shield, 6" Single Wall minimum 24 ga. blued or black pipe with elbow and minimum floor protector. Clearances above may be reduced. Follow NFPA-211 codes if available or follow instructions on (Pages 13, and 14).

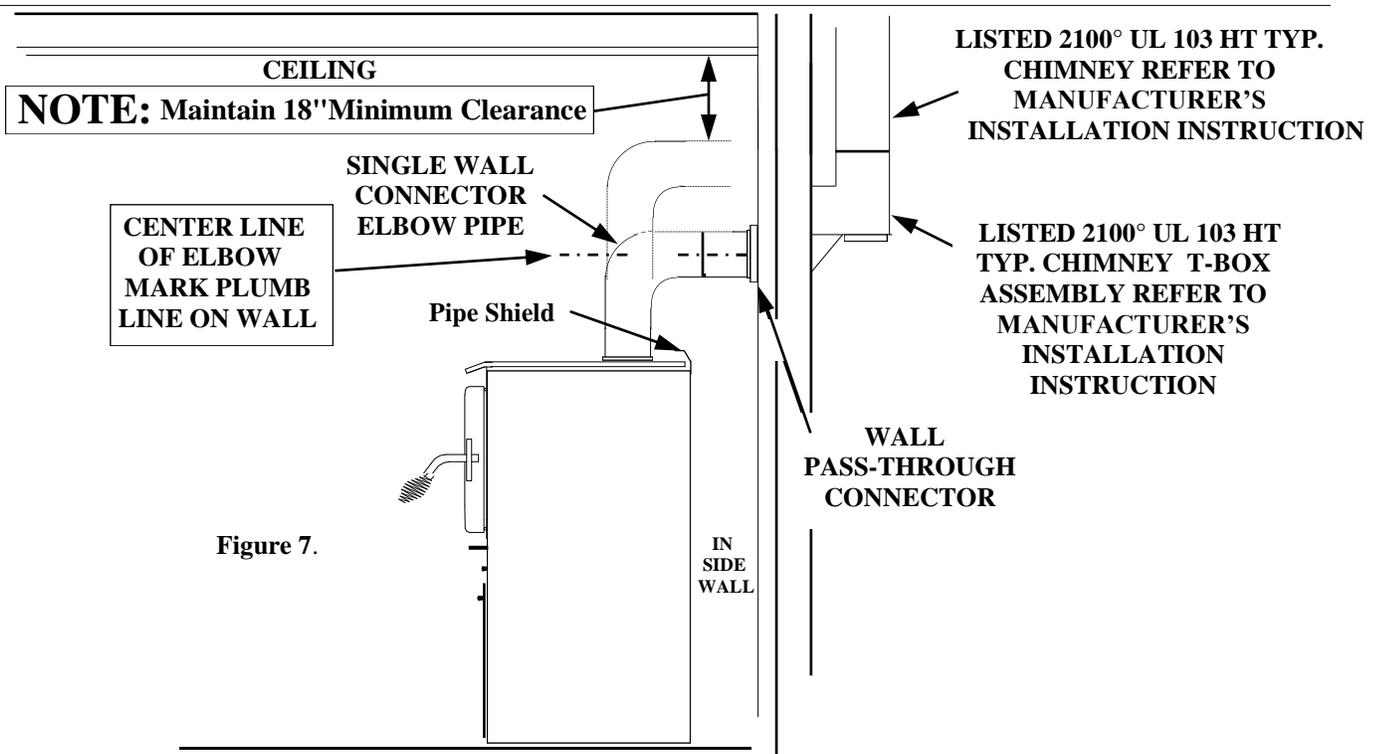


Figure 7.

HOW TO LOCATE CHIMNEY EXIT AND INSTALL

Residential and Mobile Home Installation

C. Vertical Exit using (6" DVL Close Clearance pipe and any Listed 2100° UL 103 HT chimney). With optional close clearance shield and pipe shield.

NOTE: For installation of optional pipe shield (See Page 23).

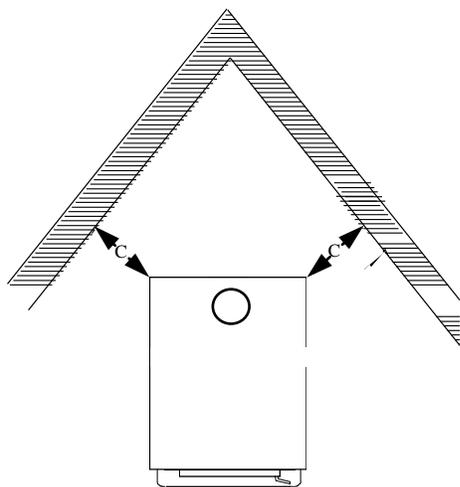
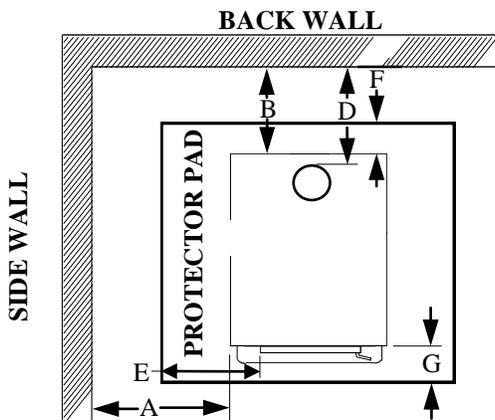
NOTE: For minimum clearances (See Page 12, Figure 8).

For Required Out Side Air in Mobile Homes (See Page 15).

1. Suspend a plumb bob from ceiling above unit so that weight is hanging in center of flue exit. (A small weight on a string will serve as a plumb bob). Mark ceiling where string is suspended to locate center of the chimney.
 2. After locating center of hole, install ceiling support box, chimney or chimney connector, flashing and rain cap, per chimney manufacturer's instructions and local building codes for installation through combustible walls or ceilings.
 3. Now connect stove and ceiling support box using DVL close clearance pipe. Connect each section, per manufacturer's instructions. Secure each section to each other using minimum (3) sheet metal screws or rivets.
DVL close clearance is to be connected with (3) sheet metal screws or rivets to connector collar on heater (See Page 12, Figure 9).
- If appliance is installed in mobile homes:
WARNING: DO NOT INSTALL IN SLEEPING ROOMS.

C. Vertical exit using (6" DVL Close Clearance pipe and any listed 2100° UL 103 HT. TYPE Chimney). With pipe shield. Model 21 Elite minimum clearance to combustibles.

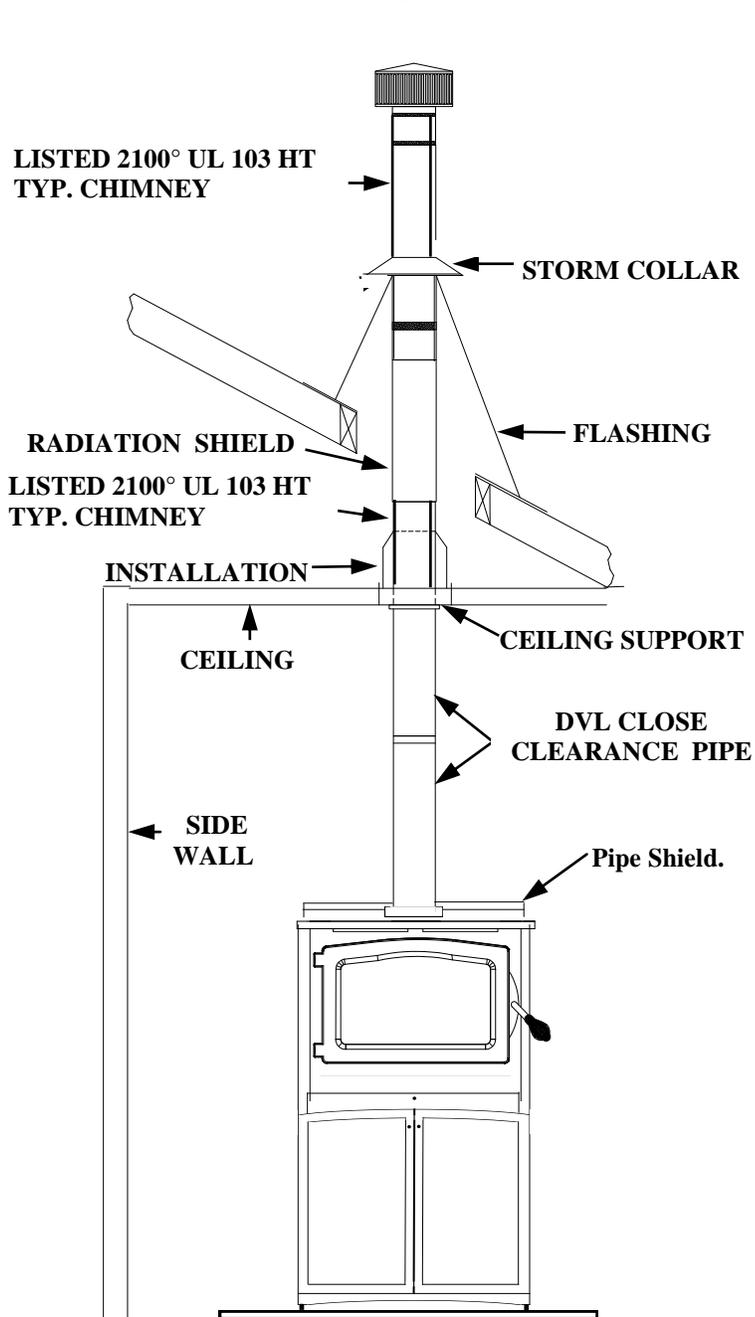
Figure 8.



A B C D E F G

MODEL 21 19" 7" 7" 8.5" 8" 6" 16"

Figure 9.



NOTE: All clearances are to combustibles with optional close clearance shields and pipe shield, using DVL Close Clearance pipe, and minimum floor protector.

HOW TO LOCATE CHIMNEY EXIT AND INSTALL

Residential and Mobile Home Installation

D. Vertical Wall Exit using (6" DVL Close Clearance Pipe and elbow and any Listed 2100° UL HT chimney and Listed 2100° UL HT T-Box assembly).

With optional pipe shield.

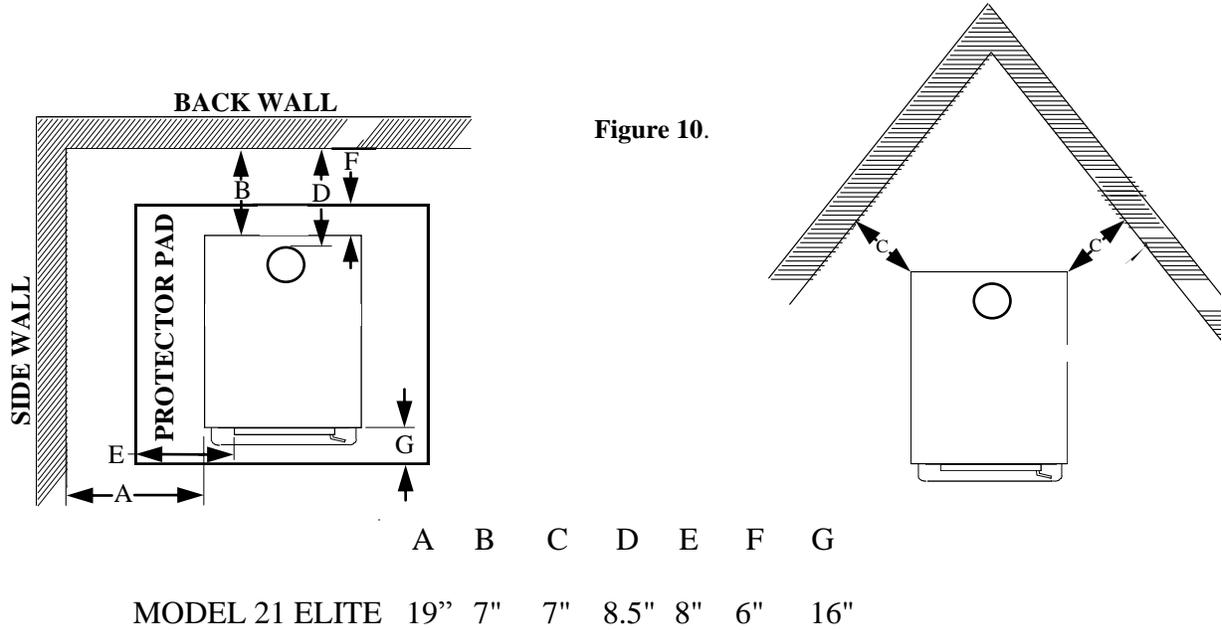
NOTE: For installation of optional pipe shield (See Page 23).

NOTE: For minimum clearances (See Page 14, Figure 10).

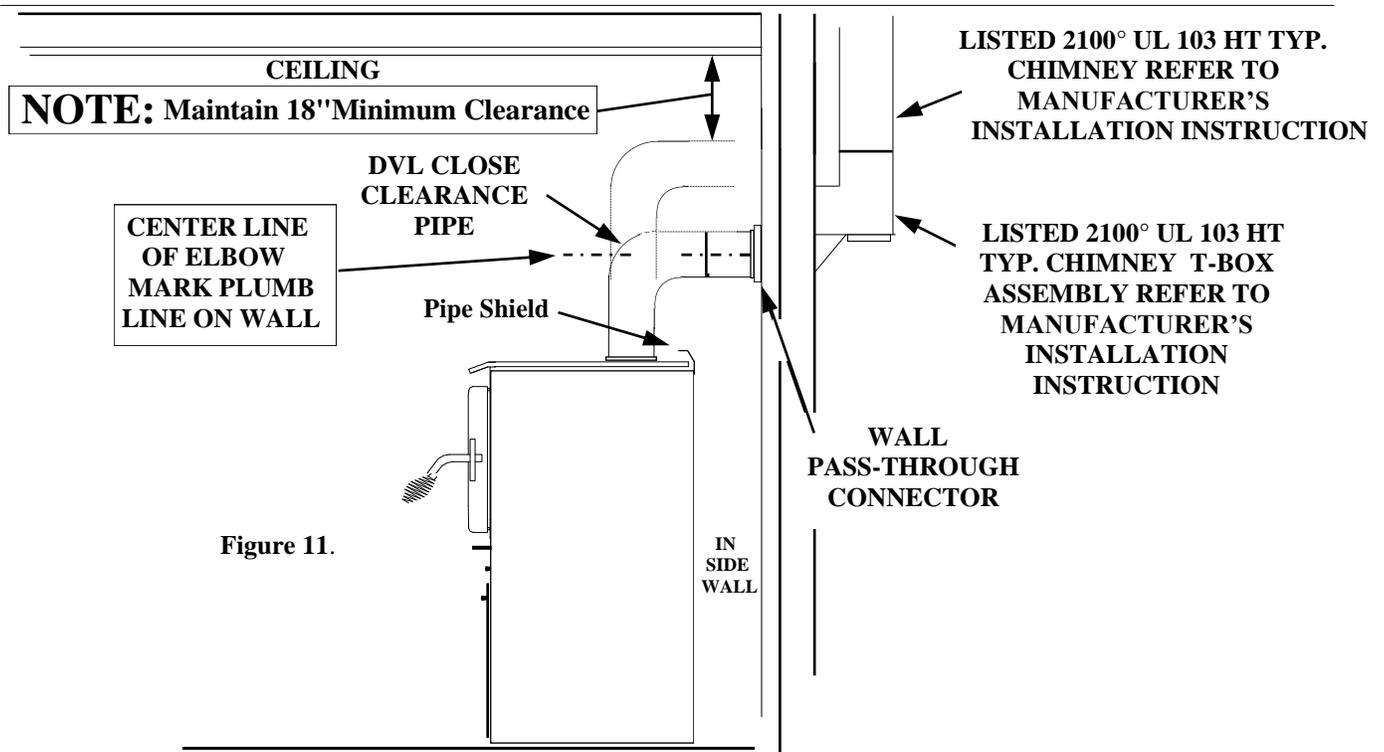
For Required Out Side Air in Mobile Homes (See Page 15).

1. Mark plumb line on wall directly behind center of heater.
(See Page 14, Figure 9).
NOTE: When using DVL Close Clearance Pipe, maintain manufacturer's minimum clearances between pipe and ceiling.
 2. Place vertical portion of heater pipe and elbow in position and project a point onto plumb line level with center of elbow.
 3. Measure up so there will be at least 1/4" rise per foot of horizontal connector pipe, maintaining clearances to ceiling as noted in (Page 13, Figure 9). This will give you the center of hole for chimney penetration.
 4. After locating center of penetration, install the tee-box and chimney, per chimney manufacturer's specifications.
 5. Connect the DVL close clearance pipe to tee-box, per manufacturer's instructions. DVL close clearance pipe is to be connected with (3) sheet metal screws or rivets to connector collar on heater.(See Page 14, Figure 11).
- If appliance is installed in mobile homes:
WARNING: DO NOT INSTALL IN SLEEPING ROOMS.

D. Vertical wall exit using (6" DVL Close Clearance pipe with elbow and any listed 2100° UL 103 HT. TYPE Chimney and Listed 2100° UL HT T-Box assembly). With pipe shield. Model 21 Elite minimum clearance to combustibles.



NOTE: All clearances are to combustibles with close clearance shields and pipe shield, DVL Close Clearance pipe with elbow and minimum floor protector.



OPTIONAL OUT SIDE AIR INSTALLATION

Select an installation location that will give the best airflow from the front of the heater to the remainder of the home.

TOOLS FOR INSTALLATION:

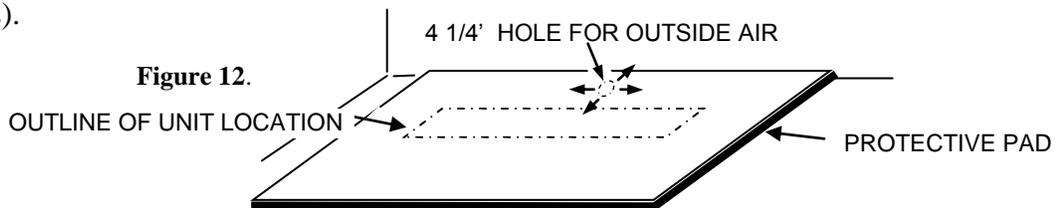
Drop cloth: 3/32" Meal drill bit: 5/16" magnetic socket chuck adapter: 5/16" wrench (box or socket) or adjustable wrench: jigsaw with masonry metal and wood blades.

1. Select an installation location that will give the best airflow from front of heater to remainder of home.
2. Choose which installation you are going to use.
3. Place floor protector according to manufactures specification in manual.

CAUTION:

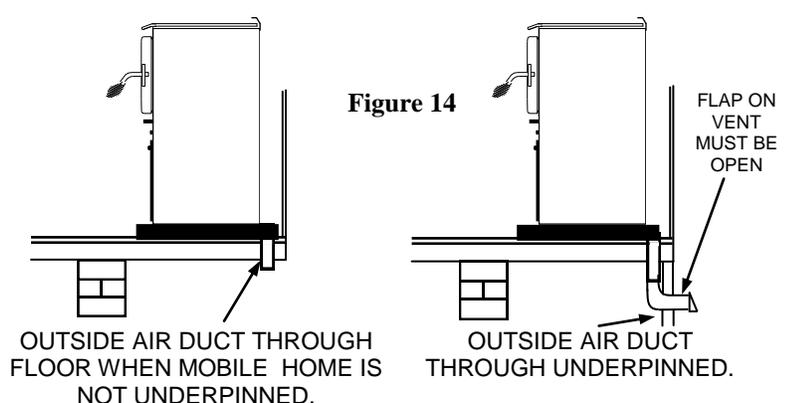
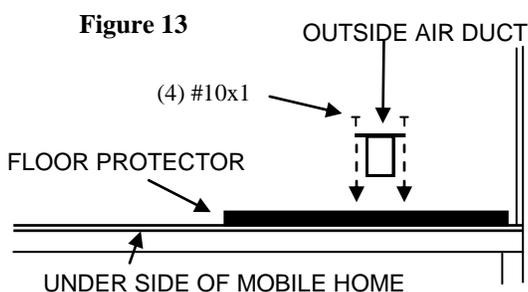
THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR , WALL AND CEILING/ROOF MUST BE MAINTAINED. MOVE SPACE OPENING AND / OR REPOSITION HEATER LOCATION IF NECESSARY).

5. Now measure and mark on floor protector location of heater using minimum clearance to combustible walls. (See Section A page 7-8, Section B page 9-10, Section C page 11-12, Section D page 13-14,) in which section you chose to install.
6. Mark a 4 1/4" circle on floor protector. Cut out floor protector and continue all the way threv floor. (See Figure 12).



7. Obtain outside air duct and slip duct down through the 4 1/4" hole until the face of outside air duct contacts pad. Secure outside air duct to pad using four #10 X 1" screws provided. (See Figure 13).
8. You may hook out side air kit to dryer vent hose. **NOTE:** If home is underpinned, you must run duct through underpin as shown.(See Figure 14).

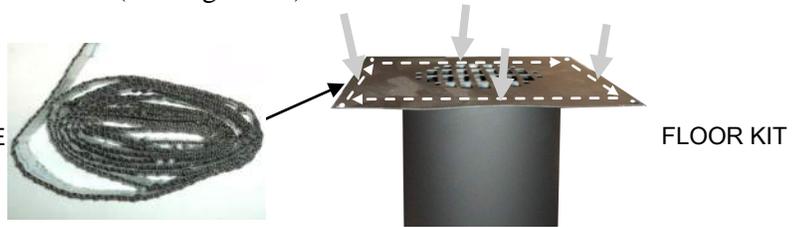
NOTE: THE FLAP ON DRYER VENT OUTLET MUST BE LOCKED IN THE OPEN POSITION. (HOSE MUST EXTEND THREV OUTSIDE WALL OF STRUCTURE.)



9. Your unit is equipped with 4 leveling legs located on outer bottom at each corner, you may have to adjust for your unit to sit level. (See Figure 18).
10. Place insulation tape onto the top four edges of floor duct. (See Figure 15).

Figure 15.

INSULATION TAPE

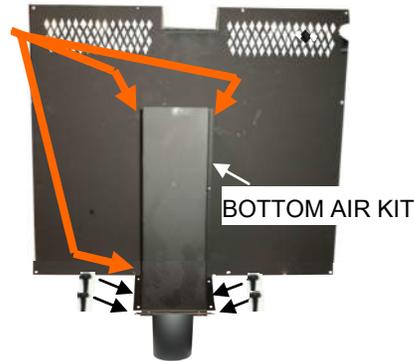


FLOOR KIT

11. Place insulation tape onto edges of bottom outside air kit.
12. Now position unit in correct position, meeting the correct minimum clearance.
13. Place bottom part of outside air kit on top of floor duct and screw together. Fasten bottom air kit to back of unit with the screws. (See Figure 16).
14. Place insulation tape onto edges of top outside air kit.
15. Place top part of outside air kit over bottom outside air kit making sure to cover air channel extension. Fasten top air kit to back of unit with the screws (See Figure 17).

INSULATION TAPE

Figure 16.

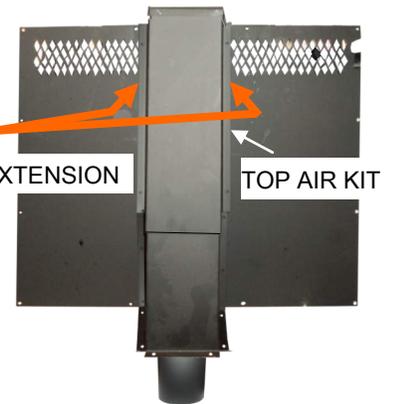


BOTTOM AIR KIT

INSULATION TAPE

COVER AIR CHANNEL EXTENSION

Figure 17.



TOP AIR KIT

16. Open screen doors, you will find 4 holes in outer bottom. These are there if you have to fasten unit to floor. Drill through holes and using leg bolts fasten to floor. If thicker floor protector is used you may have to use longer leg bolts.
17. Now you may start installing your flue system. NOTE: FOLLOW PIPE MANUFACTURES SPECIFICATION.(See Figure 18).
18. Remove any items from within firebox, check primary air draft control to ensure that it slides freely.
19. Plug power cord into a 115VC outlet, do not run power cord under unit. Your unit is equipped with automatic thermostat, when stove gets hot enough this will activate your blower system. You may adjust your fan speed by using the rheostat located on back left side facing unit

Figure 18.

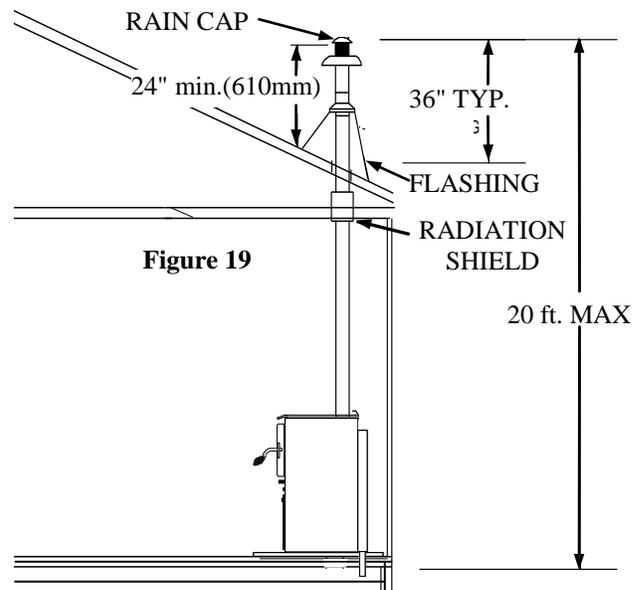
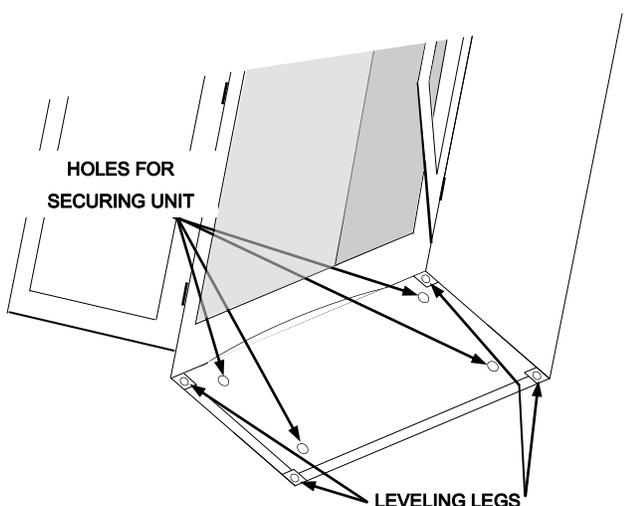


Figure 19

FINAL CHECK

1. Recheck specified clearances.
2. Remove all foreign material from firebox area.
3. Open primary air draft.
4. Plug power cord into a 115V AC outlet.
5. Place crumpled pieces of newspaper in the stove. Light it and close door. Ensure that stove draws properly through primary draft.
6. Check for smoke leaks around door.

CAUTION

Open door and check for smoke escaping from front of 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 chimney heats up, a proper draft can usually be obtained.

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

CAUTION

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 pain 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 ALCOVE INSTALLATION AND CLEARANCES

Select an installation location that will give the best airflow from the front of the heater to the remainder of the home.

PREPARING THE STOVE FOR INSTALLATION

Chimney

This model is designed for connection to any listed 2100° UL103 HT chimneys and parts. This room heater must be converted to 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.

1. Select an installation location that will give the best airflow from front of heater to remainder of home.
2. Now choose which installation you are going to use.
3. Place floor protector according to manufactures specification in manual.
4. Now position unit in correct position, meeting the correct minimum clearance.
5. Your unit is equipped with 4 leveling legs located on outer bottom at each corner, you may have to adjust for your unit to sit level. (See Page 16, Figure 18).
6. Open screen doors, you will find 4 holes in outer bottom. These are there if you have to fasten unit to floor. Drill threwholes. Using leg bolts fasten to floor. If thicker floor protector is used you may have to use longer leg bolts.
7. Now you may start installing your flue system. NOTE; FOLLOW PIPE MANUFACTURES SPECIFICATION. (See Page 16, Figure 19).
8. Remove any items from within firebox, check primary air draft control to ensure that it slides freely.
9. Plug power cord into a 115VC outlet, do not run power cord under unit. Your unit is equipped with automatic thermostat, when stove gets hot enough this will activate your blower system. You may adjust your fan speed by using the rheostat located on left side front center facing unit.

Floor Protection:

Floor protection must be 3/8" minimum thickness non-combustible material or equivalent.

How to use alternate materials and how to calculate equivalent thickness

An easy means of determining if a proposed alternate floor protector meets requirements listed in the appliance manual is to follow this procedure:

1. Convert specification to R-value:
 - R-value is given—no conversion is needed.
 - K-factor is given with a required thickness (T) in inches:
C-factor is given: $R=1/C$
2. Determine the R-value of the proposed alternate floor protector.
 - Use the formula in step (1) to convert values not expressed as "R"
 - For multiple layers, add R-values of each layer to determine the overall R-value.
3. If the overall R-value of the system is greater than the R-value of the specified floor protector, the alternate is acceptable.

Example:

The specified floor protector should be 3/4" thick material with a K-factor of 0.84.

The proposed alternate is 4" brick with a C-factor of 1.25 over 1/8" mineral board with a K-factor of 0.29.

Step (a): Use formula above to convert specification to R-value. $R= 1/K \times T = 1/0.84 \times .75 = 0.893$

Step (b): Calculate R of proposed system. 4" brick of $C=1.25$, therefore $R_{brick} = 1/C = 1/1.25 = 0.80$ 1/8" mineral board of $K = 0.29$, therefore $R_{min.bd.} = 1/0.29 \times 0.125 = 0.431$

Step (c): Compare proposed system R of 1.231 to specified R of 0.893. Since proposed system R is greater than required, the system is acceptable.

Definitions:

$$\text{Thermal conductance} = C = \frac{\text{Btu}}{(\text{hr})(\text{ft}^2)(^\circ\text{F})} = \frac{\text{W}}{(\text{m}^2)(^\circ\text{K})}$$

$$\text{Thermal conductance} = K = \frac{(\text{Btu})(\text{inch})}{(\text{hr})(\text{ft}^2)(^\circ\text{F})} = \frac{\text{W}}{(\text{m})(^\circ\text{K})} = \frac{(\text{Btu})}{(\text{hr})(\text{ft})(^\circ\text{F})}$$

$$\text{Thermal conductance} = R = \frac{(\text{ft}^2)(\text{hr})(^\circ\text{F})}{\text{Btu}} = \frac{(\text{m}^2)(^\circ\text{K})}{\text{W}}$$

Install in accordance with 24 CFR, Part 3280 (HUD).

HOW TO LOCATE CHIMNEY EXIT AND INSTALL

Alcove Installation

Vertical Exit using (6" DVL Close Clearance pipe and any Listed 2100° UL 103 HT chimney). Pipe shield must be used.

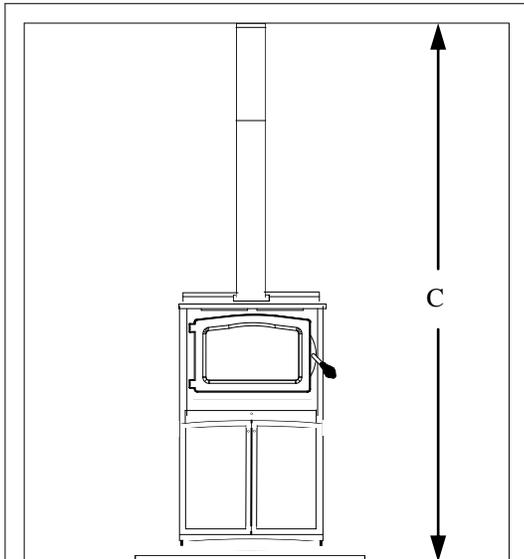
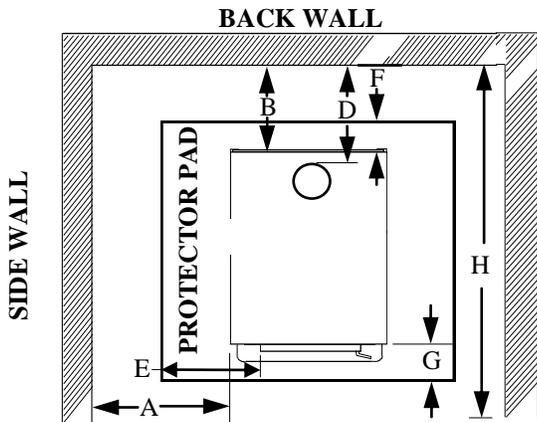
NOTE: For minimum clearances (See Page 21, Figure 20).

1. Suspend a plumb bob from the ceiling above unit so that weight is hanging in center of flue exit. (A small weight on a string will serve as a plumb bob). Mark ceiling where string is suspended to locate center of chimney.
2. After locating center of hole, install ceiling support box, chimney or chimney connector, flashing and rain cap, per chimney manufacturer's instructions and local building codes for installation through combustible walls or ceilings.
3. Now connect stove and ceiling support box using DVL close clearance pipe. Connect each section per manufacturer's instructions.
4. Secure each section to each other using minimum (3) sheet metal screws or rivets. DVL close clearance is to be connected with (3) sheet metal screws or rivets to connector collar on heater.(See Page 21,Figure 21).

ALCOVE INSTALLATION AND CLEARANCES

**Vertical exit using (6" DVL Close Clearance pipe and
any listed 2100° UL 103 HT. TYPE Chimney).
With optional pipe shield.
Model 21 Elite minimum clearance to combustibles.**

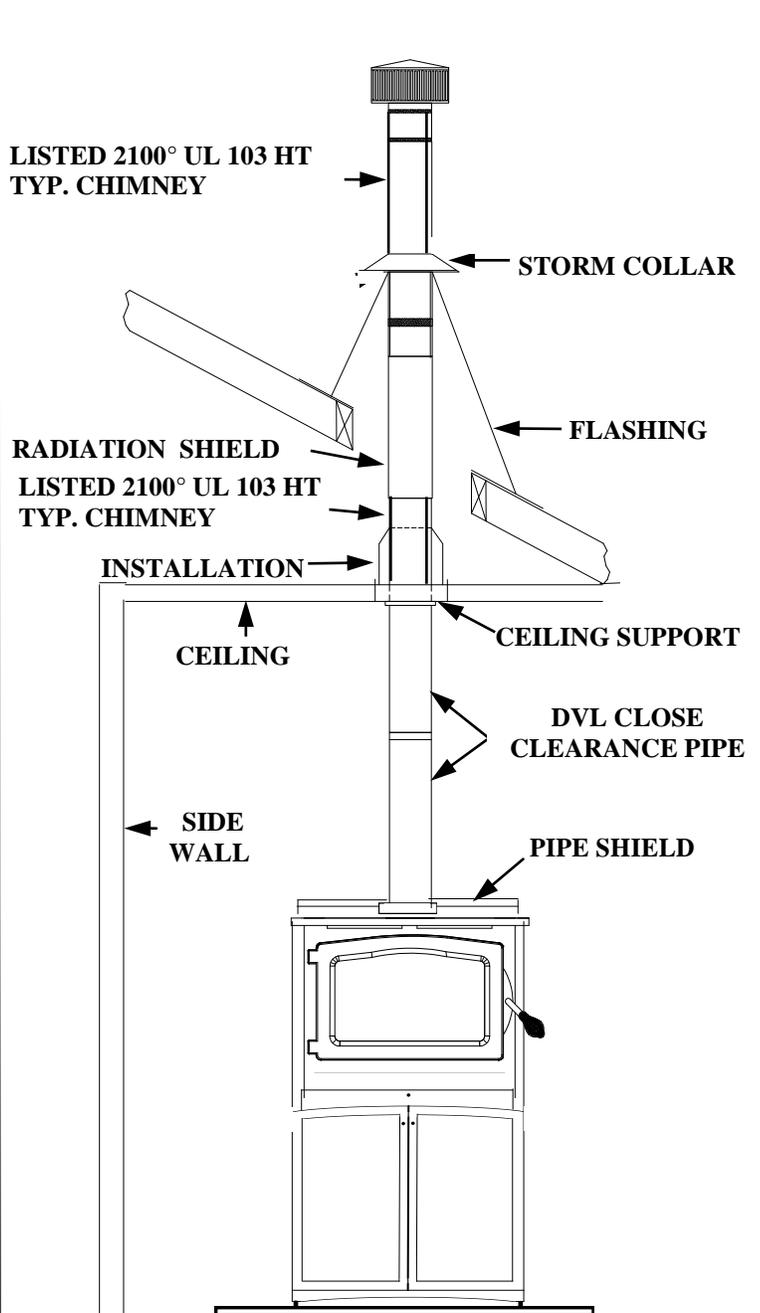
Figure 20.



A B C D E F G H

MODEL 21 19" 7" 84" 8.5" 8" 6" 16" 48"

Figure 21.



NOTE: All clearances are to combustibles with pipe shield, using DVL Close Clearance pipe and minimum floor protector.

FINAL CHECK

1. Recheck specified clearances.
2. Remove all foreign material from firebox area.
3. Open primary air draft.
4. Plug the power cord into a 115V AC outlet.
5. Place crumpled pieces of newspaper in stove. Light it and close door. Ensure that stove draws properly through primary draft.
6. Check for smoke leaks around door.

CAUTION

Open door and check for smoke escaping from the front of 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 open damper with a poker or fire tong. Once chimney heats up, a proper draft can usually be obtained.

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

CAUTION

The unit is painted with a specially formulated high temperature paint that cures during first two or three firings. You may notice a slight smoking effect and an odor of burning paint when you build 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 unit will allow these fumes to escape. DO NOT build a large, roaring fire until this curing is complete or heater finish may be damaged.

Installation of Pipe Shield

1. Place pipe shield above top rear of stove cabinet. (See Figure 22).
2. Measure from the top of the back of stove and place the pipe shield 1" above stove top on both sides keeping the pipe shield centered at the back. (See Figure 23).
3. Using the screws provided fasten pipe shield to the top back of stove cabinet and stove back shield. (See Figure 23).

Figure 22.

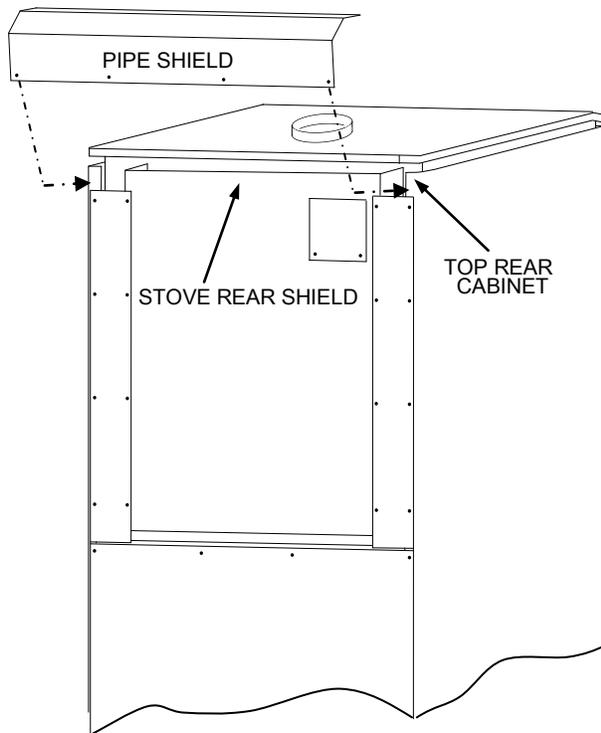
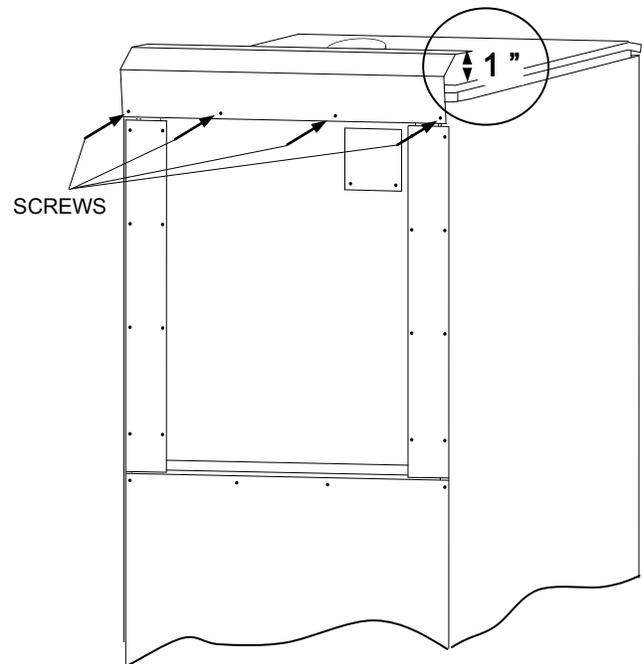


Figure 23.



SECTION IV

OPERATION

This section of manual is to help you get 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. The manufacturer recommends that for maximum performance burn dried natural seasoned hard wood.

Build a fire for maximum efficiency. These models burn wood and extract heat so efficiently, a large fire is not necessary. A large fire not only wastes energy, it usually results in home being too warm for comfort.

BUILDING A FIRE

1. Open door.
2. Primary air control. The Primary Control Rod is located in front under the hearth.

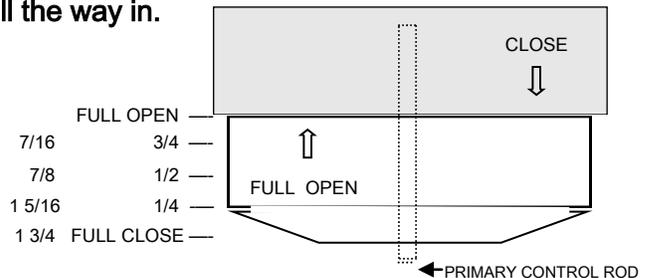
FULL OPEN, push the primary control rod all the way in.

3/4 OPEN, pull 7/16"

1/2 OPEN, pull 7/8"

1/4 OPEN, pull 1 5/16 "

FULL CLOSE, pull all the way 1 3/4 "



3. Twist two pieces of non-colored newspaper into a roll and place them on the floor of firebox.
4. These models are not designed for use of grates, andirons or other methods of supporting fuel.

NOTE: Do not use grate or elevate fire. Build wood fire directly on inner bottom of fire box.

5. Lay several pieces of dry kindling on top of newspaper.
6. Place three or four small pieces of firewood, 2-3" in diameter, on top of kindling.
7. Light newspaper in front. Close and latch door. Don't leave fire unattended at this point. The draft system of heater should start quickly. It may be necessary to preheat chimney to get draft started. To do this, open door and add newspaper to top backside of wood. Light or let paper ignite and allow to burn while holding door slightly cracked. Once draft has started, close and lock door. You are over heating unit if chimney and or connector glows red.
8. After embers and a coal bed have been established, load heater with dried natural seasoned hard wood.

NOTE: THE FUELING DOOR MUST REMAIN CLOSED DURING OPERATION.

NOTE: If blower is being used on the Model 21 Elite, your stove is equipped with a automatic thermostat. When stove gets hot enough, thermostat will activate room air blower. Set fan speed using rheostat according to desired heat output. Rheostat is located on back left side facing unit.

NOTE: When refueling or removing ashes turn "OFF" room air blower. Be sure to turn room air blower back on when finished.

NOTE: Do not run power cord underneath heater or in walk way or heavy traffic areas.

SECTION V

OPERATION FOR ROOM AIR BLOWER AND MAINTENANCE

Your heater is equipped with a room air blower. For operation and wiring see blow. (Figure 25).

Operation:

After heater has warmed up the thermostat will automatically turn on blower. When the stove cools off, thermostat will automatically shut off blower.

WIRE DIAGRAM

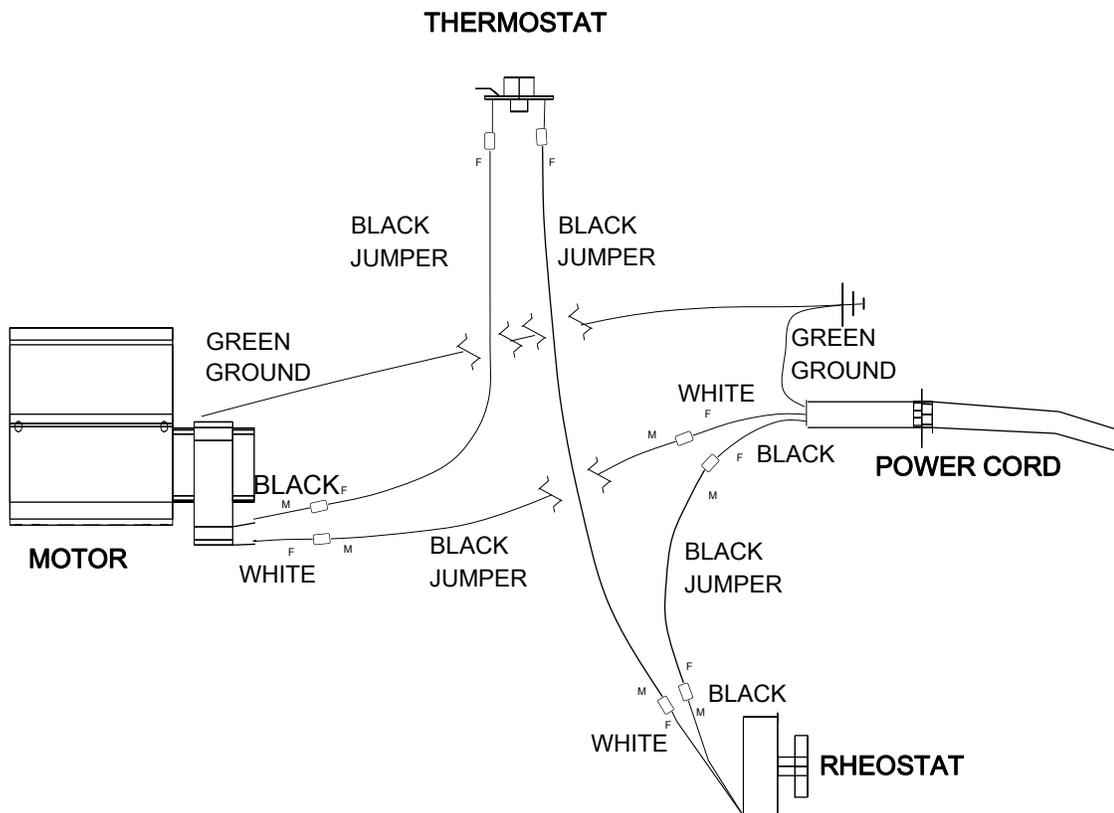


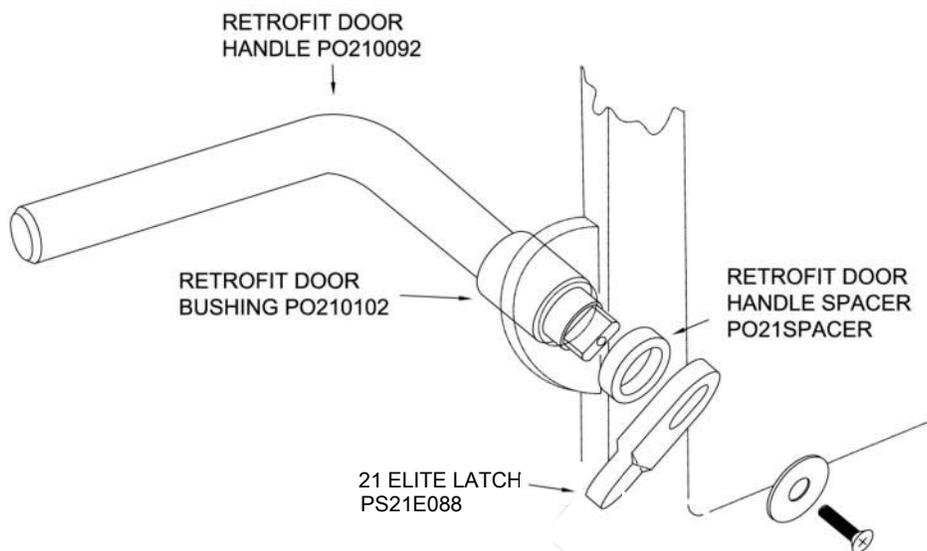
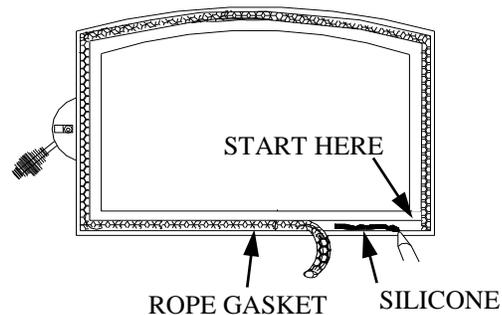
Figure 25.

MAINTENANCE

DOOR GASKET REPLACEMENT (COLD HEATER)

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

1. Obtain 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 door frame.
4. Measure and cut gaskets to length. Care should be taken not to stretch gaskets. What you want is a full and loose gasket weave after attachment to framing.
5. Obtain silicone glue and run a 3/16" bead inside door frame.
6. Obtain gasket (s) and place in gasket channel areas starting at lower right corner, See below. Use a technique which assures that gasket is applied in a loose like manner. **DO NOT STRETCH GASKETS.**
7. After gasket (s) are applied to glue, use your finger and go over all gasket gently pressing gasket to the channel. Use same pressure against gasket so that final result is an evenly applied gasket.
8. Leave door open and allow at least two (2) hours for glue to dry.
9. Once gaskets are checked, heater is ready for use.
10. This should be done annually. Allowing gaskets to deteriorate can cause over-firing and shorten burn time.



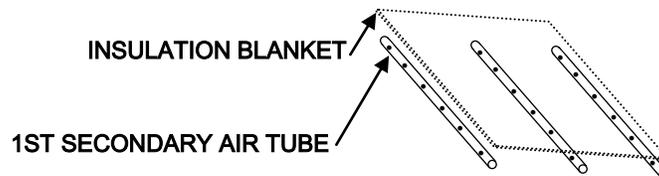
MAINTENANCE

CHECK CHIMNEY

- A. Chimney should be inspected twice a year.
- B. The chimney should be cleaned as necessary to remove creosote, soot, leaves, birds nests, etc.

Before sweeping the chimney a few steps must be done.

1. Open feed door and remove the 1st Secondary Air Tube by removing cotter pin up in right side facing stove. Remove air tube and cotter pin, set aside.
2. Gently remove the Baffle Board and set aside.
3. Close feed door for cleaning chimney so debris don't fall out feed door while cleaning chimney.
4. Creosote and debris will fall into the bottom of the stove unit from the cleaning.
5. Clean out all the creosote and debris from inside stove unit left from clean sweeping chimney.
6. To replace Baffle Board and 1st Secondary Air Tube, reverse steps 1-2.



NOTE: 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 heater is not in use.
- D. When heating season is over, heater should be cleaned out completely with a wire brush or cloth to help eliminate ash and burned wood smell.

MAINTENANCE

CARE OF GLASS DOOR

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

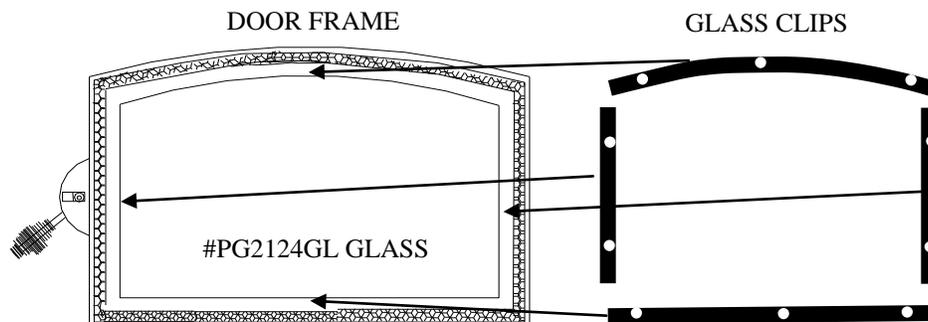
1. Inspect glass regularly for cracks or breaks. If you detect a crack or break extinguish fire immediately and return door to your dealer for glass replacement (#PG2124GL) before further use.
2. Do not slam heater door or otherwise impact glass. When closing door, make sure that no logs or other objects protrude that would impact against glass.
3. Do not clean glass with materials which may scratch it (such as steel wool) or otherwise damage 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 glass that has been there for a considerable length of time can be burned off with a propane torch or straight razor blade. Use protective gloves when using razor.

To replace broken or cracked door glass follow steps below.

NEVER SUBSTITUTE GLASS MATERIAL, USE ONLY CERTIFIED NEW BUCK CORP. #PG2124GL CERAMIC GLASS. IT MAY CAUSE DAMAGE AND VOID YOUR WARRANTY.

1. Please use caution and safety when handling broken glass and use safety glasses and gloves.
2. Remove and dispose of any easily loose, broken glass from the stove and area before starting any work with the door. Dispose of glass properly.
3. Lay a piece of card board or drop cloth large enough for door to lay face down on, place door on card board or drop cloth to protect surface of door and to catch any lose or falling glass.
4. Remove glass clips from back of door by removing glass clip screws holding clips and dispose of the rest of any broken glass properly. Clean out all broken glass thoroughly.
5. Place new ceramic glass (SIZE CUSTOM FIT Part# PG2124GL BUCK STOVE CORP.) in door frame and replace glass clips and secure with glass clip screws. Do not over tighten screws or glass could crack.
6. Replace door onto unit.



MAINTENANCE

To replace Thermostat:

1. NOTE: Make sure stove is cool and unplug power cord to unit.
2. Remove access plate located at the rear of unit on the top right side of stove back by removing four (4) screws holding plate. (See Figure 29).
3. Unplug wires to thermostat.
4. Remove the thermostat by unscrewing two (2) screws holding the thermostat.
5. Replace thermostat with # listed in replacement parts list.
6. To reinstall thermostat reverse step 4.
7. Plug wires back onto thermostat.
8. Replace access plate located at the rear of unit and plug power cord in receptacle outlet.

Figure 29.

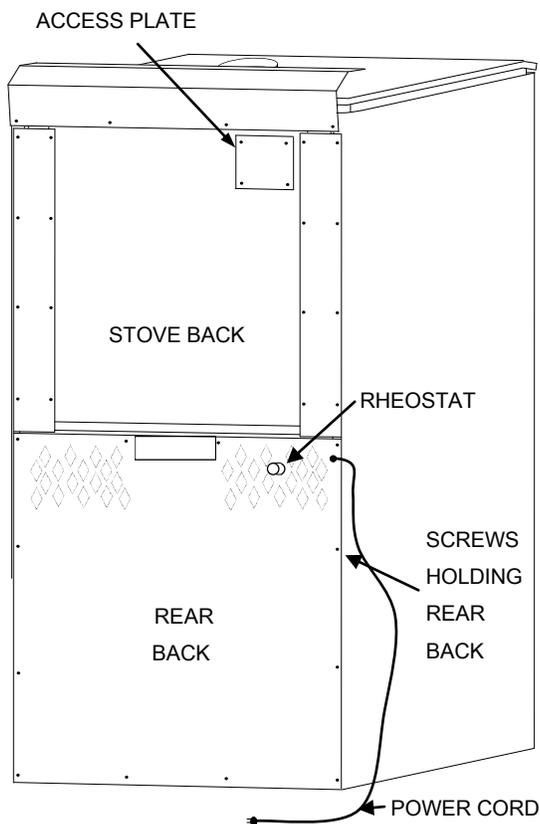
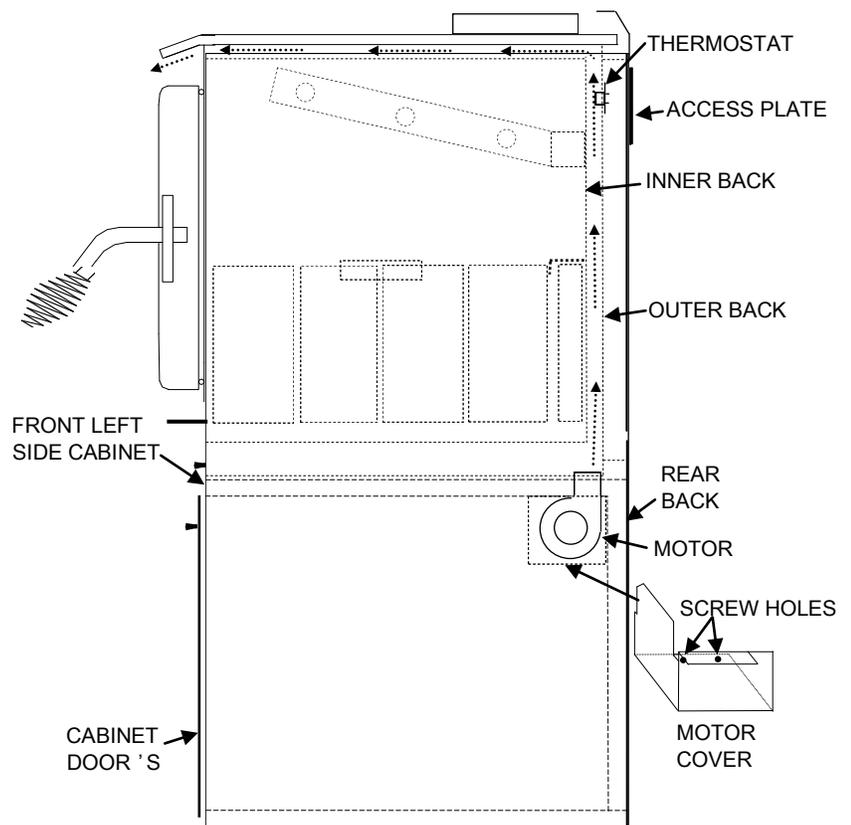


Figure 30.



To replace Motor from rear of unit:

1. NOTE: Make sure stove is cool and unplug power cord to unit.
2. To access motor, remove rear back by unscrewing the twelve (12) screws holding rear back to unit, lay a side. (See Figure 29).
3. Remove two (2) screws holding motor cover and lay aside. (See Figure 30).
4. NOTE: Mark wires before unwiring motor.
5. Replace motor with new unit # MA5126715 .
7. If needed, See wiring diagram. (See Page 25, Figure 25).
6. To reinstall motor reverse steps 1-5. Plug power cord in receptacle outlet.

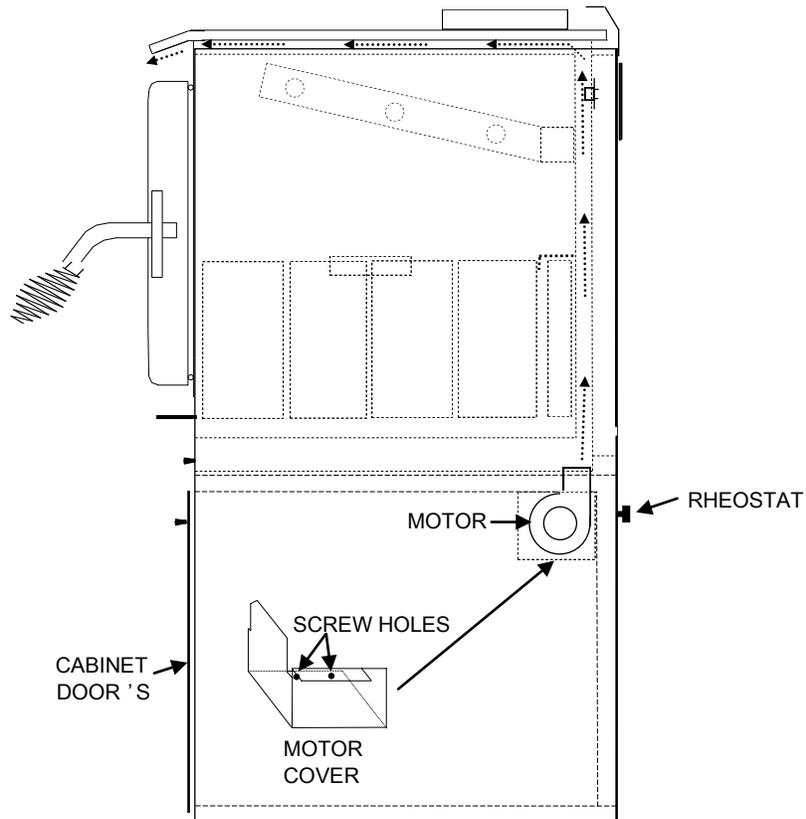
MAINTENANCE

To replace Motor from front of unit:

NOTE: If back of stove is close to wall, you may access motor from front cabinet doors.

1. NOTE: Make sure stove is cool and unplug power cord to unit.
2. To access motor, open cabinet doors. Motor cover is located in left upper rear. (See Figure 31).
3. Remove two (2) screws holding motor cover and lay aside. (See Figure 31).
4. NOTE: Mark wires before unwiring motor.
5. Replace motor with new unit # MA5126715.
7. If needed, See wiring diagram. (See Page 25, Figure 25).
6. To reinstall motor reverse steps 1-5. Plug power cord in receptacle outlet.

Figure 31.



21 ELITE

REPLACEMENT PARTS LIST

	PART NUMBER
1 - SMALL DOOR WITH ROPING	MA212400W
2 - SMALL DOOR ASSEMBLY	MA212400
1 - SMALL DOOR GLASS	PG2124GL
1 - SMALL DOOR GLASS ROPING	RPFTKW197X875GA
4 - SMALL DOOR GLASS CLIPS	PO210767
10- DOOR GLASS SCREWS	
1 - DOOR HANDLE RETROFIT	
1 - DOOR HANDLE LATCH 21 ELITE	
1 - DOOR HANDLE BUSHING	
1 - DOOR HANDLE SPACER	
1 - DOOR HANDLE WASHER (FLAT)	
1 - DOOR LATCH SCREW (PHILLIPS HEAD)	
1 - SPRING HANDLE (FOR DOOR HANDLE)	PO100150B
2 - KNOB'S (FOR SCREEN DOORS)	POBC413
1 - KNOB (FOR AIR CONTROL)	POBC413
3 - SECONDARY AIR TUBE'S	PS210026
1 - BAFFLE BOARD	POBPFB01
3 - COTTER PINS (FOR SECONDARY AIR TUBE'S)	PH182CPSS
- FULL FIRE BRICK 1 1/4" T X 4 1/2" W X 9" L	PR900050
- CUT FIRE BRICK 1 1/4" T X 2 1/4" W X 9" L	PR900050
1 - BLOWER MOTOR	PESBR085
1 - RHEOSTAT	PEBC204
1 - THERMOSTAT (110°)	PE400132
1 - POWER CORD	PE400240
1 - STRAIN RELEASE	PE400320
- MALE TERMINALS	PE5X428
4 - JUMPER WIRE	
1 - FAN SPEED CONTROL LABEL	
1 - RHEOSTAT KNOB	PE30JUMPER

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 FLUE:** An older flue 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.

When burning wood the chimney and chimney connector should be inspected once every two months during the heating season to determine if a creosote buildup has occurred. Any build-up of soot should be removed to prevent risk of a chimney fire. To remove chimney or chimney connector: remove screws or fasteners then remove pipe and clean with steel brush. Replace chimney or chimney connector and replace screws and/or fasteners.

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 STOVE WHEN IT IS IN USE. ALL FLUIDS OF THIS TYPE GIVE OFF VOLATILE FUMES AND CAN AND WILL EXPLODE! DON'T TAKE A CHANCE WITH SAFETY OF YOUR HOME AND FAMILY.

CAUTION: Never remove ashes from heater with blower running.

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 noncombustible floor or on the ground, well away from all combustible materials pending final disposal. If ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in closed container until all cinders have thoroughly cooled.

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 flue lining. When ignited this creosote makes an extremely hot fire.

SECTION VII TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Sluggish Heater	Obstruction in chimney	Check for and remove obstruction
	Wet or unseasoned wood being burned.	Burn dried natural seasoned hard wood.
	Poor chimney draft	Improper chimney height or wrong size flue is being used. Cooler temperatures caused by external chimney.
High Fuel Consumption	Improper regulation of draft or inlet air	(a) Close inlet air control as much as possible to maintain desired heat output. (b) Check gaskets, reinstall fiberglass gasket around doors and glass as necessary
	Improper door fitting	Check door gasket, check adjustment of door latch.
Backpuffing	Gusts of Wind	Chimney may need wind diverts. Raise chimney for better draft.
Smoke rolls out when heater door is opened.	Wind gusts blowing down the chimney	Chimney may need wind diverts. Raise chimney for better draft.
	Opening heater door too fast	Crack door for 15 seconds before fully opening door.

NEW BUCK CORPORATION (NBC)
"LIMITED WARRANTY" FOR THE BUCK STOVE
PLEASE READ THIS WARRANTY CAREFULLY

PRODUCTS COVERED

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

PRODUCTS NOT COVERED

This warranty does not cover the following:
Glass, Refractory Material, Firebrick or Gaskets.

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

PROCEDURE

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

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

New Buck Corporation
Customer Service Department
P. O. Box 69
Spruce Pine, NC 28777
Email: info@buckstove.com

CONDITIONS AND EXCLUSIONS

- (A) Replacement of parts may be in form of new or fully reconditioned parts, at NBC's option.
- (B) There is no other express warranty. All implied warranties of merchantability and fitness for use are limited to duration of Express Warranty.
- (C) New Buck Corporation is not liable for indirect, incidental or consequential damages in connection with use of product including any cost or expense of providing substitute equipment or service during periods of malfunction or non-use.
Some states do not allow exclusion of incidental or consequential damages, so 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, 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 date of purchase or from 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 Authorized Buck Stove Dealer Code Number and the Certified Installer's number (if applicable) for warranty coverage to begin.

To be completed by selling distributor/ dealer/ customer:

Name _____
(Last) (First)

Address _____

City _____ State _____ Zip _____

CUSTOMER EMAIL: _____

MODEL 21 ELITE

Serial Number _____

Date of Installation: Day _____ Month _____ Year _____

Installer's Name _____

Installer's Certification Number _____