

Owner's Operation and Instruction Manual



MODEL:AWC21



CAUTION!

Please read this entire manual before you install or use your new room heater. Failure to follow instructions may result in property damage, bodily injury, or even death. **Improper Installation Could Void Your Warranty!**

SAFETY NOTICE:

If this heater is not properly installed, a house fire may result. For your safety, follow the installation instructions. Never use make-shift compromises during the installation of this heater. Contact local building or fire officials about permits, restrictions and installation requirements in your area.

Approved for installation in the U.S.A.
CONFORMS TO UL 1482, AND CERTIFIED TO ULC-S627
ALSO SUITABLE FOR MOBILE HOME INSTALLATION.

U.S. Environmental Protection Agency

Certified to comply with 2015 particulate emissions standards.

SAVE THESE INSTRUCTIONS
THIS MANUAL WILL HELP YOU TO OBTAIN EFFICIENT, DEPENDABLE SERVICE FROM THE HEATER, AND ENABLE YOU TO ORDER REPAIR PARTS CORRECTLY. KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

U.S. Stove

227 Industrial Park Road P.O. Box 151 South
Pittsburg, TN 37380
(800) 750-2723 • www.usstove.com



Intertek

852327B-4004E

SPECIFICATIONS

CONGRATULATIONS!

You've purchased a heater from North America's oldest manufacturer of wood burning products.

By heating with wood you're helping to CONSERVE ENERGY!

Wood is our only Renewable Energy Resource. Please do your part to preserve our wood supply. Plant at least one tree each year. Future generations will thank you.

This manual describes the installation and operation of the Ashley, AWC21 wood heater. This heater meets the 2015 U.S. Environmental Protection Agency's crib wood emission limits for wood heaters sold after May 15, 2015. Under specific test conditions this heater has been shown to deliver heat at rates ranging from 10,925 to 24,900 Btu/hr.

Note: The BTU ratings mentioned above are based on the EPA test protocol burning dimensional Douglas Fir lumber. Our advertised BTU's are based on the first hour of operation at high burn rate burning cordwood.

Combustible :	Wood
Colors :	Metallic Black
Flue Pipe Diameter :	6" (153cm)
Flue Pipe Type: (Standard Single Wall or Double Wall):	Black or Blued Steel 2100°F (650°C)
Minimum Chimney Height :	12' (3.7m)
Maximum Log Length :	18" (457mm)
Electrical	115V, 60Hz, 1.5A
Dimensions	
Overall : Depth x Width x Height :	24" x 29" x 28" (609.6mm x 736.6mm x 711.2mm)
Combustion Chamber : Width x Depth :	18.3" x 11.5" (465mm x 293mm)
Volume : Cubic Feet:	1.4 cubic feet
Door Opening : Width x Height:	17" x 8.6" (432mm x 218mm)
Pyroceramic Glass Door : (Viewing) Width x Height:	16.5" x 10" (419mm x 254mm)
Weight (lbs):	450 lbs

CAUTIONS:

HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS.

DO NOT USE CHEMICALS OR FLUIDS TO IGNITE THE FIRE.

DO NOT LEAVE THE STOVE UNATTENDED WHEN THE DOOR IS SLIGHTLY OPENED.

DO NOT BURN GARBAGE, FLAMMABLE FLUID SUCH AS GASOLINE, NAPHTHA OR MOTOR OIL.

DO NOT CONNECT TO OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATIONS.

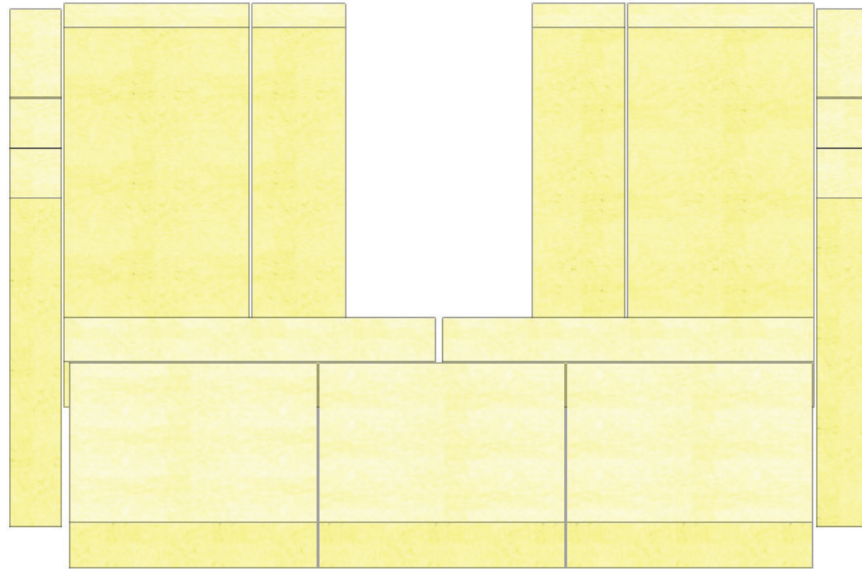
ALWAYS CLOSE THE DOOR AFTER THE IGNITION.

CONSULT YOUR MUNICIPAL BUILDING DEPARTMENT OR FIRE OFFICIALS ABOUT PERMITS, RESTRICTIONS AND INSTALLATIONS REQUIREMENTS IN YOUR AREA.

PRE-ASSEMBLY

2.1 UNPACK AND INSPECT

Remove the packing from the appliance and inspect for any damage. Ensure that the bricks are positioned correctly and not broken (see illustration for proper brick arrangement). Make sure that the baffle board, above the air tubes, is in place and undamaged. DO NOT remove the baffle board.



BRICK CONFIGURATION

TOOLS AND MATERIALS NEEDED FOR INSTALLATION

- A 7/16" socket wrench
- A 5/16" socket (Best if using a power drill and a socket bit)
- A pair of pliers or channel-locks
- A power drill with an 1/8" drill bit to install sheet metal screws into connector pipe.
- Sheet metal screws
- A non-combustible floor protector as specified in this manual
- All chimney and chimney connector components required for your particular venting installation.

ASSEMBLY

ASSEMBLY INSTRUCTIONS

Read and follow the directions in this manual to ensure proper assembly, installation and operation of your new wood heater.

Caution! The appliance is very heavy.

The assistance from a second person is strongly suggested. Please use proper lifting technic when positioning the appliance for assembly and installation. Several methods may be used to attach the legs and pedestal to the appliance. The safest method is to roll the appliance on its back. When using this method, you should first remove the firebrick from the unit so as to reduce weight and possible breakage. It will be required to raise the bottom of the unit up to attach two of the legs. It is recommended that you use cardboard or other means of padding to protect the finish on your new stove.

FREESTANDING LEG ASSEMBLY

- 1) Unpack the stove and ensure all components are present:
- 2) Position the unit for assembly.
- 3) Make sure that the fire brick is in place and undamaged. DO NOT remove the fire brick.

INSTALLATION

SAFETY NOTICE

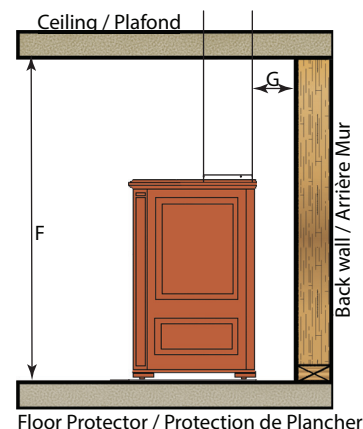
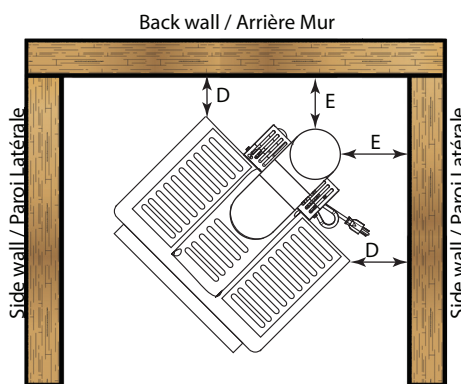
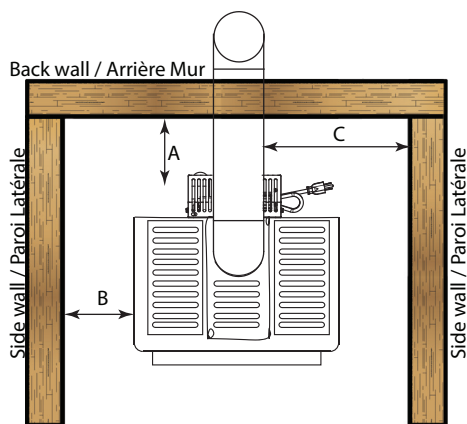
- **IF THIS STOVE IS NOT PROPERLY INSTALLED, A HOUSE FIRE MAY RESULT. TO REDUCE THE RISK OF FIRE, FOLLOW THE INSTALLATION INSTRUCTIONS.**
- **CONSULT YOUR MUNICIPAL BUILDING DEPARTMENT OR FIRE OFFICIALS ABOUT PERMITS, RESTRICTIONS AND INSTALLATIONS REQUIREMENTS IN YOUR AREA.**
- **USE SMOKE DETECTORS IN THE ROOM WHERE YOUR STOVE IS INSTALLED.**
- **SMOKE EXPELLED FROM THE UNIT, BY EITHER PAINT CURING, OPENING THE FUEL LOADING DOOR, OR A NEGATIVE PRESSURE INSIDE THE HOME, COULD TRIGGER THE SMOKE DETECTORS. MOUNT SMOKE DETECTORS AT LEAST 10' FROM STOVE**
- **NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR "FRESHEN UP" A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE HEATER WHILE IT IS IN USE.**
- **IN THE EVENT OF A CHIMNEY FIRE, PUSH THE AIR CONTROL FULL CLOSED TO DEPRIVE THE FIRE OF OXYGEN. CALL THE FIRE DEPARTMENT.**
- **A SOURCE OF FRESH AIR INTO THE ROOM OR SPACE HEATED SHALL BE PROVIDED WHEN REQUIRED.**
- **ROOM HEATER, SOLID FUEL TYPE, ALSO FOR USE IN MOBILE HOMES.**

POSITIONING THE STOVE

It is very important to position the stove as close as possible to the chimney, and in an area that will favor the most efficient heat distribution possible throughout the house. The stove must therefore be installed in the room where the most time is spent, and in the most spacious room possible. Recall that stoves produce radiating heat, the heat we feel when we are close to a stove. A stove also functions by convection, that is through the displacement of hot air accelerated upwards and its replacement with cooler air. If necessary, the hot air distribution from the stove may be facilitated by the use of a fan or blower.

FREE STANDING STOVE INSTALLATION

A stove must never be installed in a hallway or near a staircase, since it may block the way in case of fire or fail to respect required clearances. It is of the utmost importance that the clearances to combustible materials be strictly adhered to during installation of the stove. Refer to the table and diagrams below for minimum required clearances.



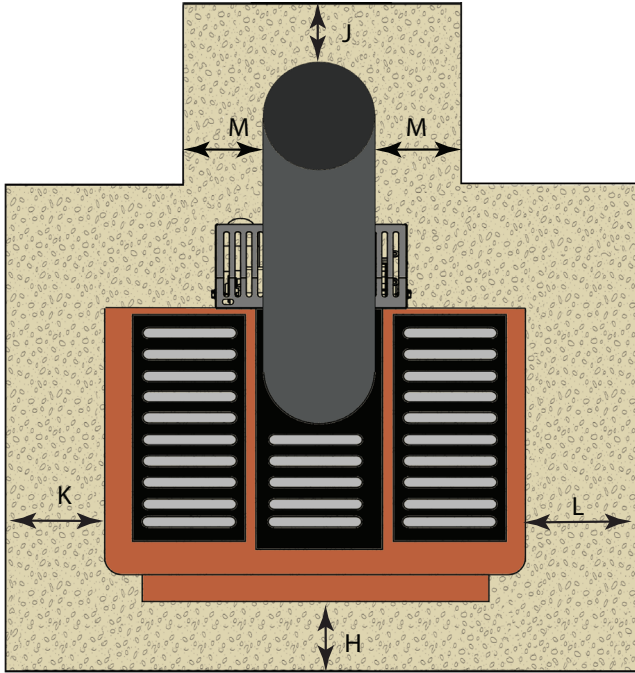
Dimension		Inch	mm
A	Backwall to Stove	11	280
B	Sidewall to Stove	7	178
C	Sidewall to Flue	17.3	440
D	Wall to Stove (Angled Installation)	3	77
E	Wall to Flue (Angled Installation)	14.4	366
F	Ceiling Height	84	2134
G	Backwall to Flue	14.8	376

- Do not place any combustible material within 4' (1.2m) of the front of the unit.
- The clearance between the flue pipe and a wall are valid only for vertical walls and for vertical flue pipe.
- The chimney connector must not pass through an attic or roof space, closet or similar concealed space, a floor, or a ceiling.
- For Canadian installations, where passage through a wall, or partition of combustible construction is desired, the installation must conform to CAN/CSA-B365.
- A flue pipe crossing a combustible wall must have a minimum clearance of 18" (457.2mm).
- To reduce flue clearances from combustible materials, contact your local safety department.

INSTALLATION

FLOOR PROTECTOR

The stove must be placed on solid concrete, solid masonry, or when installed on a combustible floor, on a floor protector. The floor protector is required to provide heat, live ember, and ash protection and must be of a non-combustible, continuous solid surface to protect against infiltration of live embers and ash. The stove must be placed on solid concrete, solid masonry, or when installed on a combustible floor, on a Type 2 floor protector listed to standard UL 1618 with a minimum R value of 1.03 and a minimum thickness of 1/2" or equivalent.



Dimension		Inch	mm
H*	Front	16	407
J	Flue rear	2	51
K**	Left	6	204
L**	Right	6	204
M	Flue Side	2	51

*Canadian installations require 18" (457mm)

**Canadian installations require 8" (203mm)

INSTALLATION

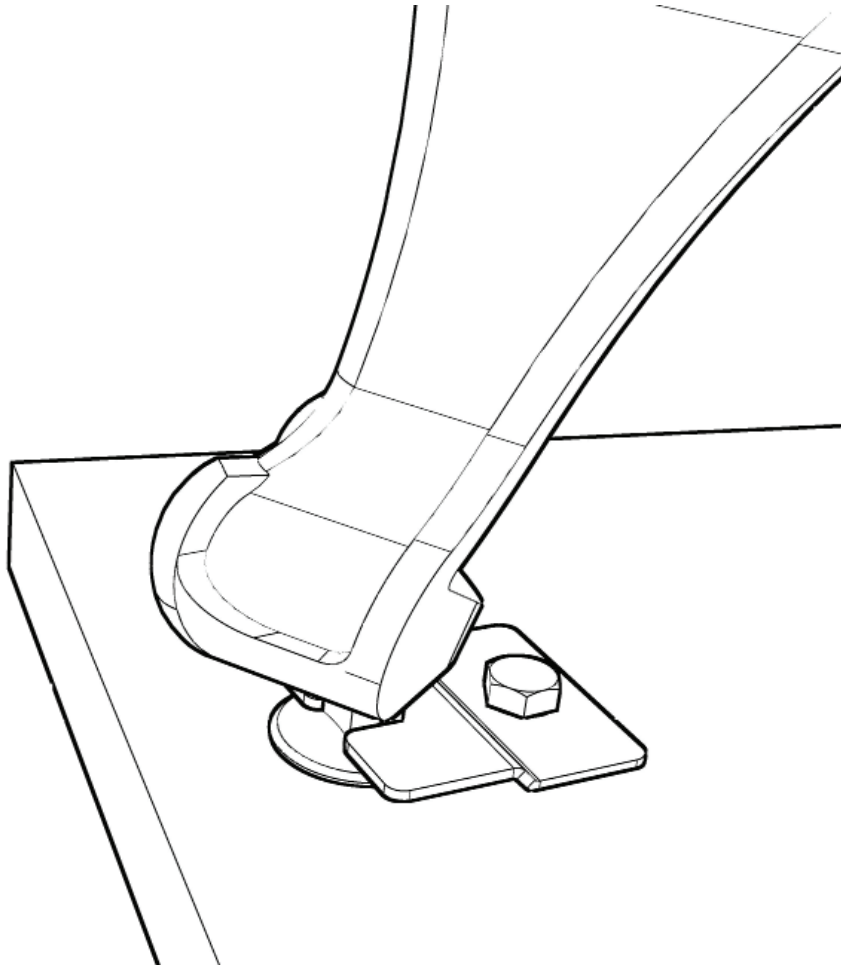
SPECIAL MOBILE HOME REQUIREMENTS

△ **WARNING! - Do not install in a sleeping room**

△ **CAUTION! - The structural integrity of the mobile home floor, wall, and ceiling/roof must be maintained.**

In addition to the previously detailed installation requirements, mobile home installations must meet the following requirements:

- The heater must be permanently attached to the floor.
 1. There are two holes in the pedestal base, use 3/8" bolts through the floor.
 2. To attach the leg model use two 3/8-16 UNC bolts through the floor.
- The heater must be electrically grounded to the steel chassis of the mobile home with 8 GA copper wire using a serrated or star washer to penetrate paint or protective coating to ensure grounding.
- When moving your mobile home, all exterior venting must be removed while the mobile home is being relocated. After relocation, all venting must be reinstalled and securely fastened.
- Outside Air is mandatory for mobile home installation. See your dealer for purchasing.
- Check with your local building officials as other codes may apply.



MOBILE HOME ATTACHEMENT

VENTILATION

COMBUSTION AIR ASSEMBLY INSTRUCTIONS

This appliance requires a source of combustion air. If your home is of tight construction or has negative pressure problems, you will need an outside source of air. Below is a list of possible indicators that a source of outside combustion air may be required.

1. Your stove does not draw steadily, smoke rollout occurs, wood burns poorly, or back-drafts occur whether or not there is combustion present.
2. Existing fuel-fired equipment in the house, such as fireplaces or other heating appliances, smell, do not operate properly, suffer smoke roll-out when opened, or back-drafts occur whether or not there is combustion present.
3. Opening a window slightly on a calm (windless) day alleviates any of the above symptoms.
4. The house is equipped with a well-sealed vapor barrier and tight fitting windows and/or has any powered devices that exhaust house air.
5. There is excessive condensation on windows in the winter.
6. A ventilation system is installed in the house.

If an outside air intake is required. You may purchase a standard 4" Dryer Vent kit from your local hardware supply store.

If using a Dryer venting kit, the outlet cover must be of a design that DOES NOT close by means of a flap or trap door.

You must purchase a style that allows a continuous in-flow of air and that has a rodent screen.

DRYER VENTING KIT" INSTALLATION

Follow the manufacturer's installation instructions for attaching the dryer vent kit to the home. Then attach it to the appliance.



“DRYER VENTING KIT”
INSTALLATION

VENTILATION

CHIMNEY

Your wood stove may be hooked up with a factory built or masonry chimney, matching the diameter of the stove exhaust. If you are using a factory built chimney, it must comply with UL 103 or CSA-B365 standard; therefore it must be a Type HT (2100°F). It is extremely important that it be installed according to the manufacturer's specifications. Take into account the chimney's location to insure it is not too close to neighbors or in a valley which may cause unhealthy or nuisance conditions.

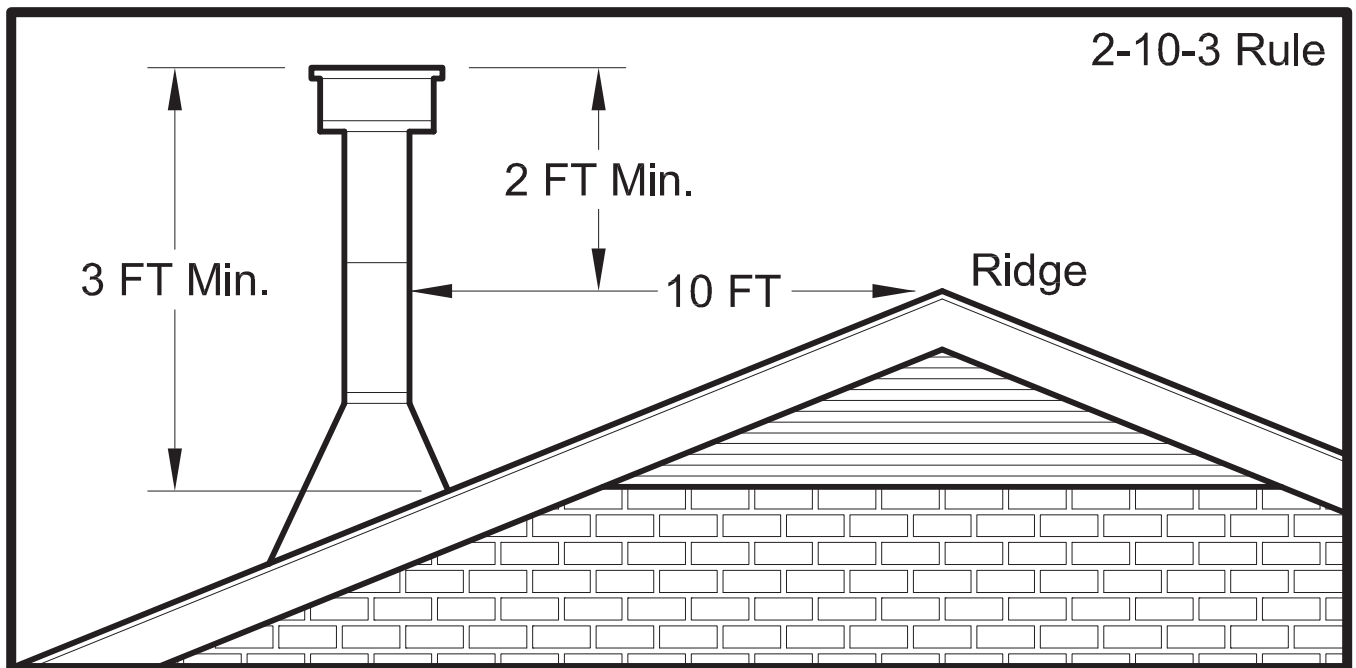
If you are using a masonry chimney, it is important that it be built in compliance with the specifications of the National Building Code. It must be lined with fire clay bricks, metal or clay tiles sealed together with fire cement. (Round flues are the most efficient).

The interior diameter of the chimney flue must be identical to the stove smoke exhaust. A flue which is too small may cause draft problems, while a large flue favors rapid cooling of the gas, and hence the build-up of creosote and the risk of chimney fires. Note that it is the chimney and not the stove which creates the draft effect; your stove's performance is directly dependent on an adequate draft from your chimney.

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

The following recommendations may be useful for the installation of your chimney:

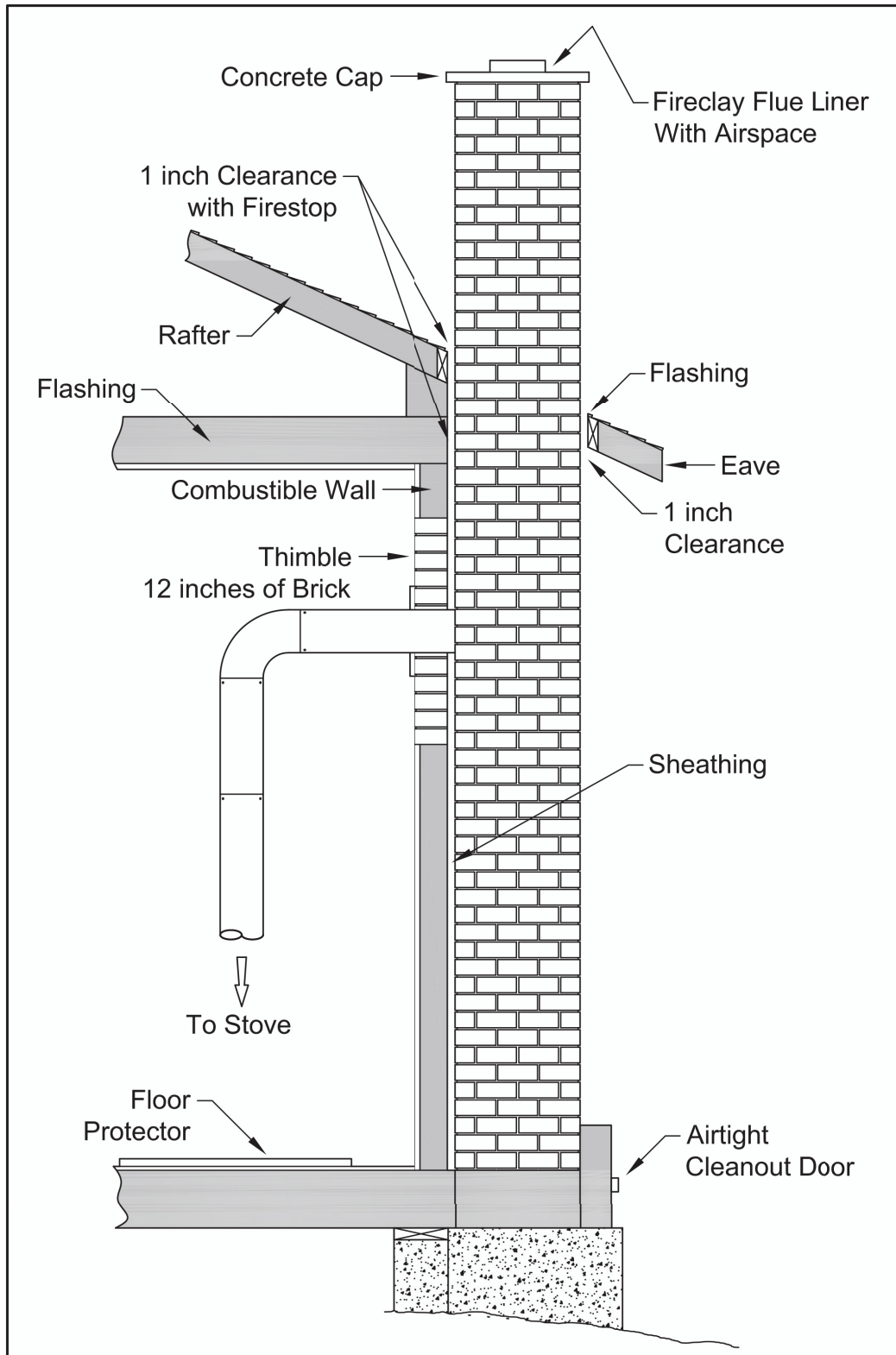
- It must rise above the roof at least 3' (0.9m) from the uppermost point of contact.
- The exterior portion should be double or triple wall pipe to ensure proper draft.
- The chimney must exceed any part of the building or other obstruction within a 10' (3.04m) distance by a height of 2' (0.6m).
- Installation of an interior chimney is always preferable to an exterior chimney. The interior chimney will be hotter than an exterior chimney that is being cooled by the ambient air outside the house. Therefore the gas which circulates will cool slower, thus reducing the build-up of creosote and the risk of chimney fires.
- The draft caused by the tendency for hot air to rise will be increased with an interior chimney.
- Using a fire screen at the extremity of the chimney requires regular inspection in order to insure that it is not obstructed thus blocking the draft, and it should be cleaned when used regularly.



VENTILATION

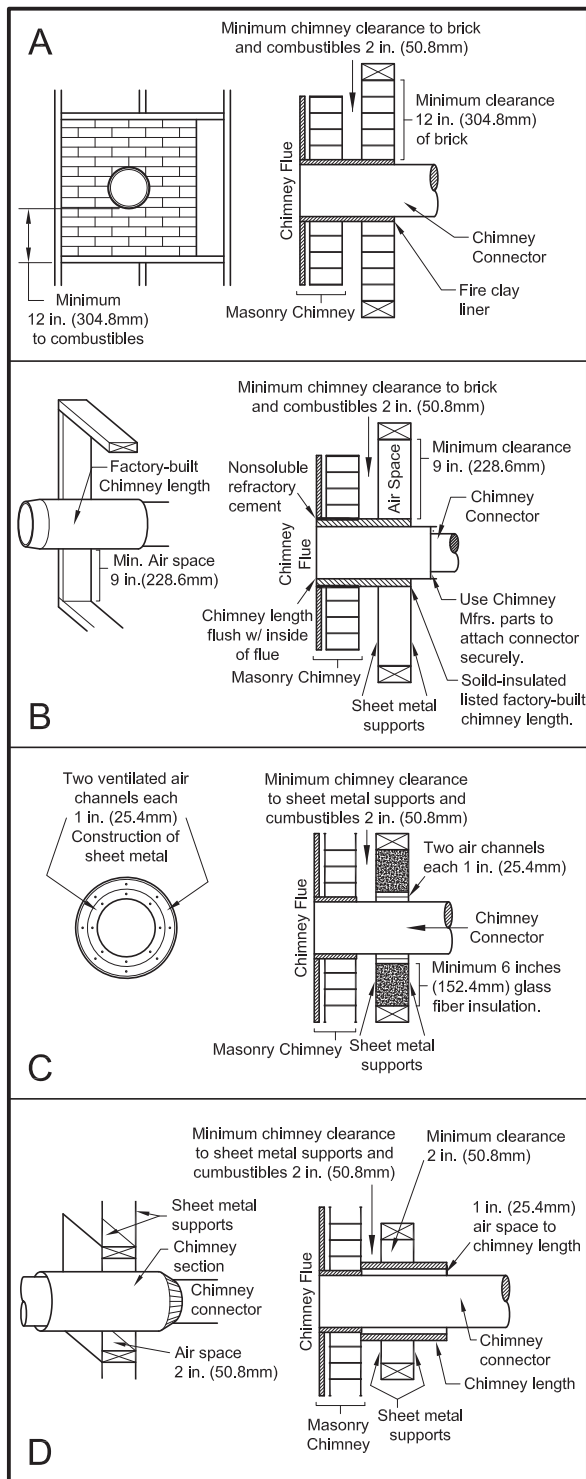
MASONRY CHIMNEY

Ensure that a masonry chimney meets the minimum standards of the National Fire Protection Association (NFPA) by having it inspected by a professional. Make sure there are no cracks, loose mortar or other signs of deterioration and blockage. Have the chimney cleaned before the stove is installed and operated. When connecting the stove through a combustible wall to a masonry chimney, special methods are needed as explained in the “5.5 Combustible Wall Chimney Connector Pass-Throughs” Section.



VENTILATION

COMBUSTIBLE WALL CHIMNEY CONNECTOR PASS-THROUGHS



NOTES:

Connectors to a masonry chimney, excepting method B, shall extend in one continuous section through the wall pass-through system and the chimney wall, to but not past the inner flue liner face. A chimney connector shall not pass through an attic or roof space, closet or similar concealed space, or a floor, or ceiling.

Method A. 12" (304.8 mm) Clearance to Combustible Wall Member: Using a minimum thickness 3.5" (89 mm) brick and a 5/8" (15.9 mm) minimum wall thickness clay liner, construct a wall pass-through. The clay liner must conform to ASTM C315 (Standard Specification for Clay Fire Linings) or its equivalent. Keep a minimum of 12" (304.8 mm) of brick masonry between the clay liner and wall combustibles. The clay liner shall run from the brick masonry outer surface to the inner surface of the chimney flue liner but not past the inner surface. Firmly grout or cement the clay liner in place to the chimney flue liner.

Method B. 9" (228.6 mm) Clearance to Combustible Wall Member: Using a 6" (152.4 mm) inside diameter, listed, factory-built Solid-Pak chimney section with insulation of 1" (25.4 mm) or more, build a wall pass-through with a minimum 9" (228.6 mm) air space between the outer wall of the chimney length and wall combustibles. Use sheet metal supports fastened securely to wall surfaces on all sides, to maintain the 9" (228.6 mm) air space. When fastening supports to chimney length, do not penetrate the chimney liner (the inside wall of the Solid-Pak chimney). The inner end of the Solid-Pak chimney section shall be flush with the inside of the masonry chimney flue, and sealed with a non-water soluble refractory cement. Use this cement to also seal to the brick masonry penetration.

Method C. 6" (152.4 mm) Clearance to Combustible Wall Member: Starting with a minimum 24 gauge (.024" [.61 mm]) 6" (152.4 mm) metal chimney connector, and a minimum 24 gauge ventilated wall thimble which has two air channels of 1" (25.4 mm) each, construct a wall pass-through. There shall be a minimum 6" (152.4 mm) separation area containing fiberglass insulation, from the outer surface of the wall thimble to wall combustibles. Support the wall thimble, and cover its opening with a 24-gauge minimum sheet metal support. Maintain the 6" (152.4 mm) space. There should also be a support sized to fit and hold the metal chimney connector. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure the metal chimney connector do not penetrate chimney flue liner.

Method D. 2" (50.8 mm) Clearance to Combustible Wall Member: Start with a solid-pak listed factory built chimney section at least 12" (304 mm) long, with insulation of 1" (25.4 mm) or more, and an inside diameter of 8" (2 inches [51 mm] larger than the 6" [152.4 mm] chimney connector). Use this as a pass-through for a minimum 24-gauge single wall steel chimney connector. Keep solid-pak section concentric with and spaced 1" (25.4 mm) off the chimney connector by way of sheet metal support plates at both ends of chimney section. Cover opening with and support chimney section on both sides with 24 gauge minimum sheet metal supports. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure chimney flue do not penetrate flue liner.

VENTILATION

CHIMNEY CONNECTOR (STOVE PIPE)

Your chimney connector and chimney must have the same diameter as the stove outlet. If this is not the case, we recommend you contact your dealer in order to insure there will be no problem with the draft.

The stove pipe must be made of aluminized or cold roll steel with a minimum thickness of 0.021" or 0.53 mm. It is strictly forbidden to use galvanized steel.

Your stove pipe should be assembled in such a way that the male section (crimped end) of the pipe faces down. Attach each of the sections to one another with three equidistant metal screws. Seal the joints with furnace cement.

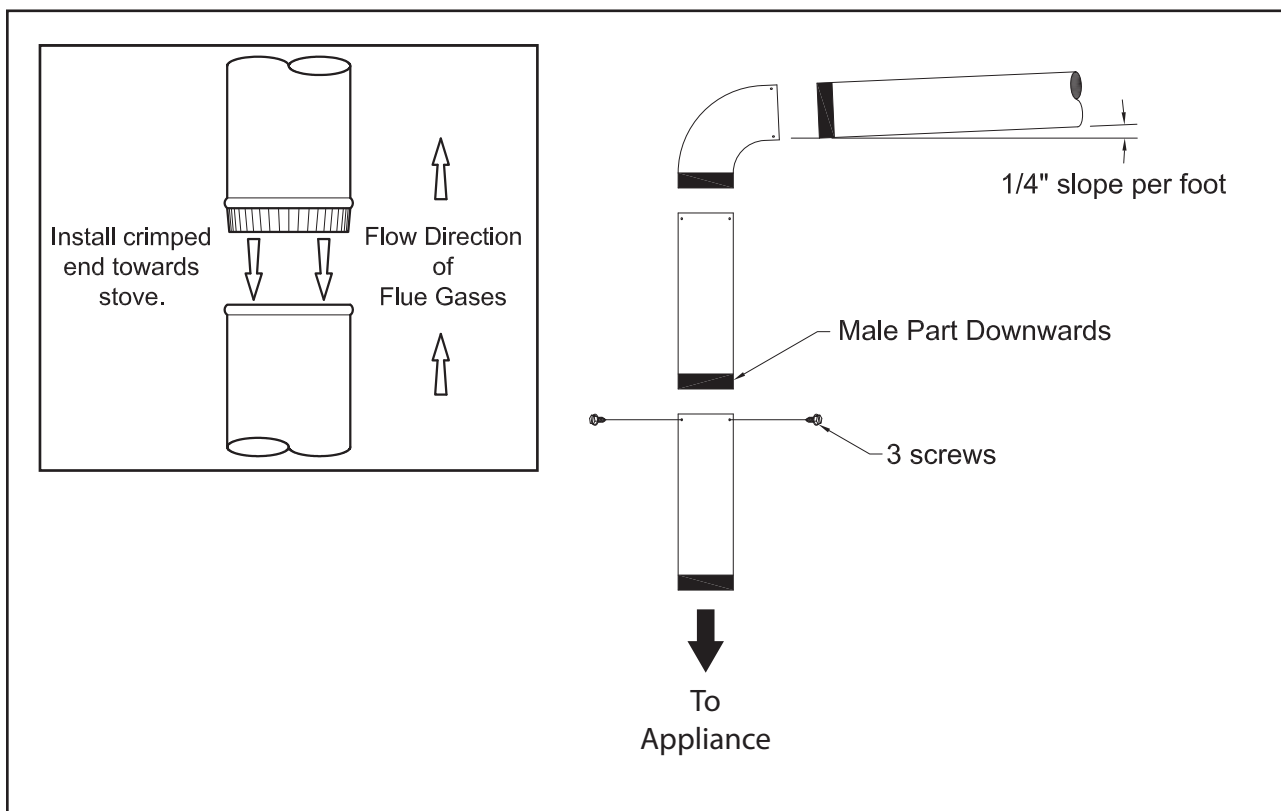
The pipe must be short and straight. All sections installed horizontally must slope at least 1/4 inch per foot, with the upper end of the section toward the chimney. Any installation with a horizontal run of stove pipe must conform to NFPA 211. You may contact NFPA (National Fire Protection Association) and request the latest edition of the NFPA Standard 211.

To insure a good draft, the total length of the stove pipe should never exceed 8' to 10' (2.4m to 3.04 m). (Except for cases of vertical installation, cathedral-roof style where the smoke exhaust system can be much longer and connected without problem to the chimney at the ceiling of the room).

There should never be more than two 90 degrees elbows in the smoke exhaust system.

Installation of a "barometric draft stabilizer" (fireplace register) on a smoke exhaust system is prohibited.

Furthermore, installation of a draft damper is not recommended. With a controlled combustion wood stoves the draft is regulated upon intake of the combustion air in the stove and not at the exhaust.



IMPORTANCE OF 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. Inadequate draft may cause backpuffing into the room and 'plugging' of the chimney.

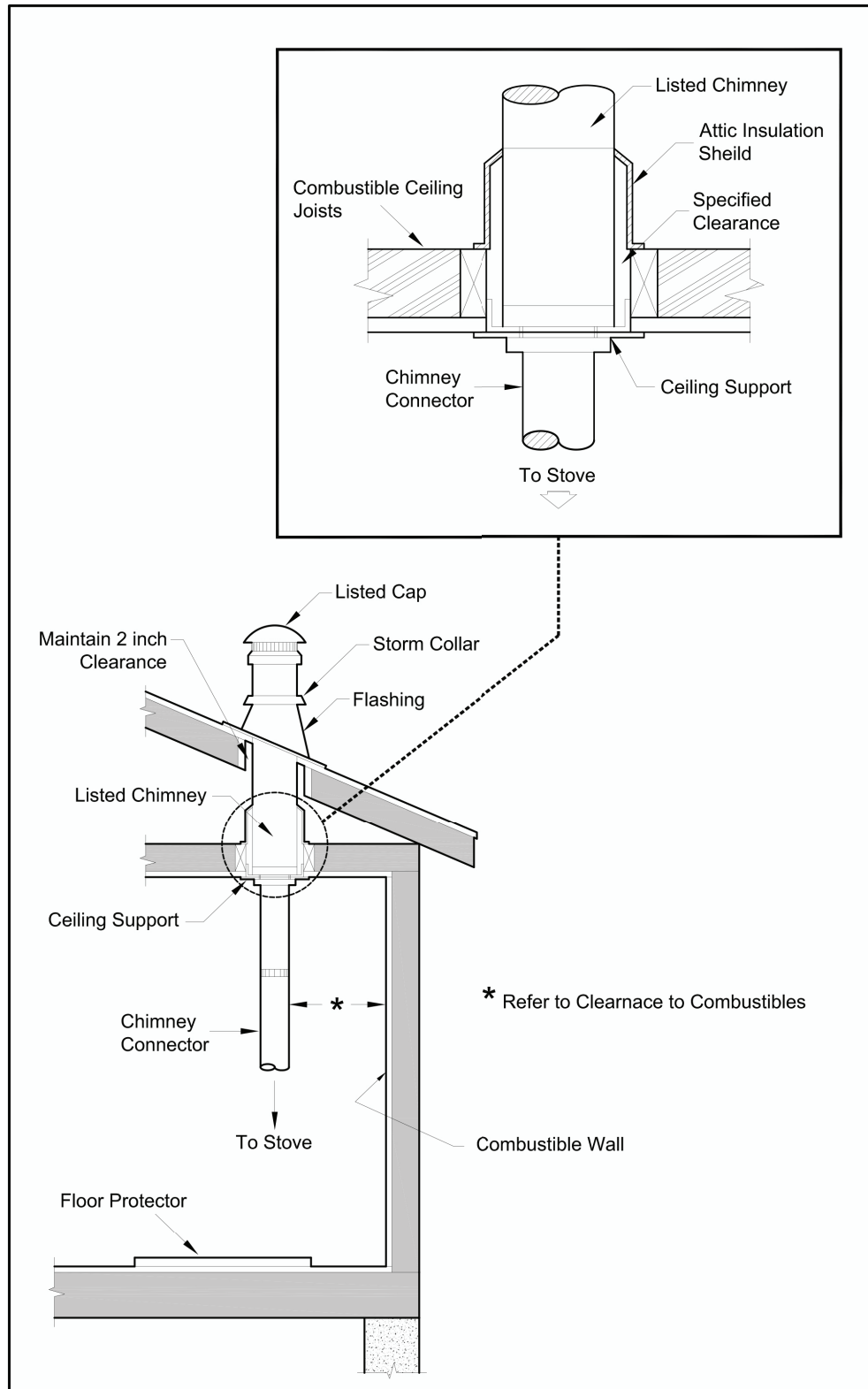
"Inadequate draft will cause the appliance to leak smoke into the room through appliance and chimney connector joints."

"An uncontrollable burn or excessive temperature indicates excessive draft."

VENTILATION

FACTORY BUILT CHIMNEY :

When a metal prefabricated chimney is used, the manufacturer's installation instructions must be followed. You must also purchase (from the same manufacturer) and install the ceiling support package or wall pass-through and "T" section package, firestops (where needed), insulation shield, roof flashing, chimney cap, etc. Maintain proper clearance to the structure as recommended by the manufacturer. The chimney must be the required height above the roof or other obstructions for safety and proper draft operation.



WOODSTOVE UTILIZATION

WOODSTOVE UTILIZATION

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. Garbage;
 2. Lawn clippings or yard waste;
 3. Materials containing rubber, including tires;
 4. Materials containing plastic;
 5. Waste petroleum products, paints or paint thinners, or asphalt products;
 6. Materials containing asbestos;
 7. Construction or demolition debris;
 8. Railroad ties or pressure-treated wood;
 9. Manure or animal remains;
 10. Salt water driftwood or other previously salt water saturated materials;
 11. Unseasoned wood; or
 12. Paper products, cardboard, plywood, or particleboard.
- The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in an affected wood heater.
- Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke.

Dead wood lying on the forest floor should be considered wet, and requires full seasoning time. Standing dead wood can usually be considered to be about 2/3 seasoned. Splitting and stacking wood before it is stored accelerates drying time. Storing wood on an elevated surface from the ground and under a cover or covered area from rain or snow also accelerates drying time. A good indicator if wood is ready to burn is to check the piece ends. If there are cracks radiating in all directions from the center then the wood should be dry enough to burn. If your wood sizzles in the fire, even though the surface is dry, it may not be fully cured, and should be seasoned longer.

Waste and other flammable materials should not be burned in your oven. Any type of wood may be used in your oven, but specific varieties have better energy yields than others. Please consult the following table in order to make the best possible choice.

TYPE	WEIGHT (LBS. CU. FT., DRY)	PER CORD	EFFICIENCY RANKING	SPLITS	MILLIONS BTU's/CORD
Hickory	63	4500	1.0	Well	31.5
White Oak	48	4100	.9	Fair	28.6
Red Oak	46	3900	.8	Fair	27.4
Beech	45	3800	.7	Hard	26.8
Sugar Maple	44	3700	.6	Fair	26.2
Black Oak	43	3700	.6	Fair	25.6
Ash	42	3600	.5	Well	25.0
Yellow Birch	40	3400	.4	Hard	23.8
Red Maple	38	3200	.3	Fair	22.6
Paper Birch	37	3100	.3	Easy	22.1
Elm/Sycamore	34	2900	.2	Very Difficult	20.1
Red Spruce	29	1800	.1	Easy	16.1

It is EXTREMELY IMPORTANT that you use DRY WOOD only in your wood oven. The wood should have dried for 9 to 15 months, such that the humidity content (in weight) is reduced below 20% of the weight of the log. It is very important to keep in mind that even if the wood has been cut for one, two or even more years, it is not necessarily dry, if it has been stored in poor conditions. Under extreme conditions it may rot, instead of drying. This point cannot be over stressed; the vast majority of the problems related to the operation of a wood oven is caused by the fact that the wood used was too damp or has dried in poor conditions.

These problems can be:

- Ignition problems
- Creosote build-up causing chimney fires
- Low energy yield
- Blackened windows
- Incomplete log combustion

Smaller pieces of wood will dry faster. All logs exceeding 6" in diameter should be split. The wood should not be stored directly on the ground. Air should circulate through the cord. A 24" to 48" air space should be left between each row of logs, which should be placed in the sunniest location possible. The upper layer of wood should be protected from the elements but not the sides.

ATTENTION:

This wood heater needs periodic inspection and repair for proper operation. It is against federal regulations to operate this wood heater in a manner inconsistent with operating instructions in this manual.

WOODSTOVE UTILIZATION

CAUTIONS:

- **ASHES COULD CONTAIN HOT EMBERS EVEN AFTER TWO DAYS WITHOUT OPERATING THE STOVE.**
- **THE ASH PAN CAN BECOME VERY HOT. WEAR GLOVES TO PREVENT INJURY.**
- **NEVER BURN THE STOVE WITH THE STOVE DOOR OR ASH CLEAN OUT OPENING UNSEALED . THIS WOULD RESULT IN OVER FIRING THE STOVE. DAMAGE TO THE STOVE AND EVEN HOUSE FIRE MAY RESULT.**

TESTING YOUR WOOD

When the oven is thoroughly warmed, place one piece of split wood (about five inches in diameter) parallel to the door on the bed of red embers.

Keep the air control full open by pulling on it and close the door. If ignition of the piece is accomplished within 90 seconds from the time it was placed in the oven, your wood is correctly dried. If ignition takes longer, your wood is damp.

If your wood hisses and water or vapor escapes at the ends of the piece, your wood is soaked or freshly cut. Do not use this wood in your oven. Large amounts of creosote could be deposited in your chimney, creating potential conditions for a chimney fire.

TAMPER WARNING

This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

THE FIRST FIRES

The fresh paint on your stove needs to be cured to preserve its quality. Once the fuel charge is properly ignited, only burn small fires in your stove for the first four hours of operation. Never open the air control more than necessary to achieve a medium burn rate.

Make sure that there's enough air circulation while curing the stove. The odors could be smelled during the 3 or 4 first fires. Never start your stove outside. You will not be able to see if you are over heating.

IGNITION

After making sure that the stove air intake controls are fully open (completely pull-out towards you), The top down method of fire building is recommended for this appliance. After making sure that the stove air intake controls are fully open (completely pull-out towards you), Place the largest pieces of wood on the bottom, laid in parallel and close together. Smaller pieces are placed in a second layer, crossways to the first. A third layer of still smaller pieces is laid crossways to the second, this time with some spaces between. Then a fourth layer of loose, small kindling and twisted newspaper sheets tops off the pile..

Before igniting the paper and kindling wood, it is recommended that you warm up the chimney. This is done in order to avoid back draft problems often due to negative pressure in the house. If such is the case, open a window slightly near the stove and twist together a few sheets of newspaper into a torch. Light up this paper torch and hold it as close as possible to the mouth of the pipe inside the combustion chamber to warm up the chimney. Once the updraft movement is initiated, you are ready to ignite the stove by lighting the paper and kindling wood inside the combustion chamber.

When you have achieved a good bed of hot embers, we recommend the following burn procedures:

AWC21			
Primary Air Settings (Slide Damper is located in center of stove under hearth plate) (Damper Adjustment: Pulling out on damper decreases air)		Electric Blower Speed Setting (Variable) (Blower is on High when turned "ON", Rotate clockwise until stop for "LOW".)	
Burn Rate	Adjust Damper from fully closed	Burn Time	Blower Speed
Low	Closed	@ 30 minutes	Low
Medium - Low	5/16"	@ 30 minutes	Low
Medium - High	9/16"	@ 30 minutes	Low
High	Fully Open	all minutes	High

CAUTION: Never alter the damper slide or the adjustment range to increase firing for any reason. Doing so could result in heater damage and will void your warranty.

The amount of visible smoke being produced can be an effective method of determining how efficiently the combustion process is taking place at the given settings. Visible smoke consist of unburned fuel and moisture leaving your stove. Learn to adjust the air settings of your specific unit to produce the smallest amount of visible smoke. Wood that has not been seasoned properly and has a high wood moisture content will produce excess visible smoke and burn poorly.

WOODSTOVE UTILIZATION

OPERATION

Controlled combustion is the most efficient technique for wood heating because it enables you to select the type of combustion you want for each given situation. The wood will burn slowly if the wood stove air intake control is adjusted to reduce the oxygen supply in the combustion chamber to a minimum. On the other hand, wood will burn quickly if the air control is adjusted to admit a larger quantity of oxygen in the combustion chamber. Refer to the primary air settings table for damper operation setting. Real operating conditions may give very different results than those obtained during testing according to the species of wood used, its moisture content, the size and density of the pieces, the length of the chimney, altitude and outside temperature.

EFFICIENCIES

Efficiencies can be based on either the lower heating value (LHV) or the higher heating value (HHV) of the fuel. The lower heating value is when water leaves the combustion process as a vapor, in the case of woodstoves the moisture in the wood being burned leaves the stove as a vapor. The higher heating value is when water leaves the combustion process completely condensed. In the case of woodstoves this would assume the exhaust gases are room temperature when leaving the system, and therefore calculations using this heating value consider the heat going up the chimney as lost energy. Therefore, efficiency calculated using the lower heating value of wood will be higher than efficiency calculated using the higher heating value. In the United States all woodstove efficiencies should be calculated using the higher heating value.

The best way to achieve optimum efficiencies is to learn the burn characteristic of your appliance and burn well-seasoned wood. Higher burn rates are not always the best heating burn rates; after a good fire is established a lower burn rate may be a better option for efficient heating. A lower burn rate slows the flow of usable heat out of the home through the chimney, and it also consumes less wood.

OPERATIONAL TIPS

Operational Tips for Good, Efficient, and Clean Combustion

- Get the appliance hot and establish a good coal bed before adjusting to a low burn rate (this may take 30 minutes or more depending on your wood)
- Use smaller pieces of wood during start-up and a high burn rate to increase the stove temperature
- Be considerate of the environment and only burn dry wood
- Burn small, intense fires instead of large, slow burning fires when possible
- Learn your appliance's operating characteristics to obtain optimum performance
- Burning unseasoned wet wood only hurts your stoves efficiency and leads to accelerated creosote buildup in your chimney.

WARNINGS

- **NEVER OVERFIRE YOUR STOVE. IF ANY PART OF THE STOVE STARTS TO GLOW RED, OVER FIRING IS HAPPENING. READJUST THE AIR INTAKE CONTROL AT A LOWER SETTING.**
- **THE INSTALLATION OF A LOG CRADLE OR GRATES IS NOT RECOMMENDED IN YOUR WOOD STOVE. BUILD FIRE DIRECTLY ON FIREBRICK.**
- **NEVER PUT WOOD ABOVE THE FIREBRICK LINING OF THE FIREBOX.**
- **ATTEMPTS TO ACHIEVE HEAT OUTPUT RATES THAT EXCEED HEATER DESIGN SPECIFICATIONS CAN RESULT IN PERMANENT DAMAGE TO THE HEATER.**

RELOADING

Once you have obtained a good bed of embers, you should reload the unit. In order to do so, open the air controls to maximum a few seconds prior to opening the stove's door. Then proceed by opening the door very slowly; open it one or two inches for 5 to 10 seconds, before opening it completely to increase the draft and thus eliminate the smoke which is stagnant in a state of slow combustion in the stove. Then bring the red embers to the front of the stove and reload the unit.

For optimal operation of your wood stove, we recommend you to operate it with a wood load approximately equivalent to the height of fire bricks.

It is important to note that wood combustion consumes ambient oxygen in the room. In the case of negative pressure, it is a good idea to allow fresh air in the room, either by opening a window slightly or by installing a fresh air intake system on an outside wall.

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 during the heating season to determine if a creosote build-up has occurred. If creosote has accumulated (3mm or more), it should be removed to reduce the risk of a chimney fire. We strongly recommend that you install a magnetic thermometer on your smoke exhaust pipe, approximately 18" above the stove. This

WOODSTOVE UTILIZATION

thermometer will indicate the temperature of your gas exhaust fumes within the smoke exhaust system. The ideal temperature for these gases is somewhere between 275°F and 500°F. Below these temperatures, the build-up of creosote is promoted. Above 500 degrees, heat is wasted since a too large quantity is lost into the atmosphere.

➤ **To Prevent Creosote Build Up: Always Burn Dry Wood. This Allows Clean Burns And Higher Chimney Temperatures, Therefore Less Creosote Deposit.**

Leave the air control full open for about 5 min. every time you reload the stove to bring it back to proper operating temperatures. The secondary combustion can only take place if the firebox is hot enough.

Always check for creosote deposit once every two months and have your chimney cleaned at least once a year.

If a chimney or creosote fire occurs, close all dampers immediately. Wait for the fire to go out and the heater to cool, then inspect the chimney for damage. If no damage results, perform a chimney cleaning to ensure there is no more creosote deposits remaining in the chimney.

ASH DISPOSAL

Whenever ashes get 3 to 4 inches deep in your firebox or ash pan, 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 noncombustible 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.

SMOKE AND CO MONITORS

Burning wood naturally produces smoke and carbon monoxide(CO) emissions. CO is a poisonous gas when exposed to elevated concentrations for extended periods of time. While the modern combustion systems in heaters drastically reduce the amount of CO emitted out the chimney, exposure to the gases in closed or confined areas can be dangerous. Make sure your stove gaskets and chimney joints are in good working order and sealing properly to ensure unintended exposure. It is recommended that you use both smoke and CO monitors in areas having the potential to generate CO.

MAINTENANCE

Your wood stove is a high efficiency stove and therefore requires little maintenance. It is important to perform a visual inspection of the stove every time it is emptied, in order to insure that no parts have been damaged, in which case repairs must be performed immediately. Inspect and clean the chimney and connector pipe periodically for creosote buildup or obstructions.

GLASS

- Inspect and clean the glass regularly in order to detect any cracks. If you spot one, turn the stove off immediately. Do not abuse the glass door by striking or slamming shut. Do not use the stove if the glass is broken.
- If the glass on your stove breaks, replace only with the glass supplied from your heater dealer. Never substitute other materials for the glass.
- To replace the glass, remove the screws retaining the glass mouldings inside the door. Remove the mouldings and replace the damaged piece with a new one. Perform the procedure backwards after replacing. When replacing the glass, you should change the glass gasket to make sure you keep it sealed.
- Never wash the glass with a product that may scratch. Use a specialized product, available in the stores where wood stoves are sold. The glass should be washed only when cold.

GASKETING

It is recommended that you change the door gasket (which makes your stove door air tight) once a year, in order to insure good control over the combustion, maximum efficiency and security. To change the door gasket, simply remove the damaged one. Carefully clean the available gasket groove, apply a high temperature silicone sold for this purpose and install the new gasket. You may light up your stove again approximately 24 hours after having completed this operation. This unit's door uses a 1/2" diameter rope gasket.

WARNING:

NEVER OPERATE THE STOVE WITHOUT A GASKET OR WITH A BROKEN ONE. DAMAGE TO THE STOVE OR EVEN HOUSE FIRE MAY RESULT.

BLOWER (IF EQUIPPED)

The blower needs to be removed and air blown clean. Make sure the blades do not have build up.

SECONDARY AIR TUBES

The secondary air tubes must be cleaned with a wire brush. If debris remains in holes lightly tap with a wooden stick to remove.

FIREBRICK

The firebrick should be cleaned and inspected as necessary. Replace any damaged or broken brick.

AIR TUBES

The air tubes assembled in this unit are designed to provide an accurate mix of secondary air to insure the highest efficiency. Any damage or deterioration of these tubes may reduce the efficiency of combustion. The air tubes are held in position by either screws or snap pins. Locate these to either side of the tube and remove to allow the tube to be removed and replaced.

PAINT

Remember to only clean your stove with a dry soft cloth that will not harm the stoves finish.

Your stove has two types of coatings that are used in the final finish; porcelain enamel and high temperature stove paint.

ENAMEL REPAIR-

The porcelain enamel finish will maintain its color and luster for the life of the stove. However, because it is glass it may chip if hit with a hard or sharp object. If you experience a scratch or chip in the porcelain enamel finish, specially formulated gloss touch up paint can be used. Contact your stove dealer to request a small bottle of this touch up paint.

- 1) Ensure the stove is cool.

Note: The paint may be applied to a warm stove, but the temperature of the section to be painted should be below the boiling temperature

(200°F) to achieve a smooth finish.

- 2) The area should be built up with multiple thin coats.

Note: Better results are obtained if the stove is brought up to operational temperatures between coats.

HIGH TEMPERATURE STOVE PAINT REPAIR-

If the painted portions of your stove need re coating it is possible to give those pieces a brand new look by repainting it with a 1200°F heat resistant stove paint.

- 1) Scrub the surface to be repainted with fine sand paper.
- 2) Clean it properly.
- 3) Apply thin coats (2-3) of paint successively.

During the curing process there are changes in the paint causing it to give off an odor and some visible smoke. The fumes are non-toxic, but can be unpleasant. Ventilate and vacate the room to avoid discomfort. Once the curing is complete there will be no odor or smoke. After re-coating portions of your stove remember to follow the curing process as discussed in the first fire section of this manual.

STOVE MORTAR REPAIR

Sometimes after the cement on the outside of the stove dries and hardens, it will develop some cracks. Thermal expansion, growth and shrinkage of the cast-iron do to changing temperatures, may contribute to cracks or chips in the mortar. If you desire to make repairs on your stove mortar contact your stove dealer to request fireplace mortar to perform the repair.

REPAIR INSTRUCTIONS -

- 1) Remove any loose pieces of mortar.
- 2) Using masking tape or blue tape, line both sides of each seam.
- 3) Cut the tip of the mortar tube for a 1/8" to 3/16" bead.
- 4) Fill any large voids.
- 5) Run a continuous bead of grout the entire length of the seam.
- 6) Smooth the bead to the size of fillet desired. Smaller is better.
- 7) Stop and remove any excess before it spreads beyond the tape.

Note: You may have to do this several times before you can run the full length of the seam.

- 8) Carefully remove the tape.
- 9) Using a damp (not soaked) small cell sponge or cotton cloth, run the length of the seam to flatten the edge of the mortar and remove any cement that spread beyond the fillet.
- 10) Rinse the sponge or cloth often.

Note: You must get everything off of the enamel before it dries.

The mortar contains sodium silicate that will etch the porcelain finish if not removed promptly.

It is better to remove too much rather than to make the fillet too large.

- 11) Allow the mortar to dry overnight before firing up the stove.

TROUBLESHOOTING

High Fuel Consumption	
Possible Cause	Possible Remedies (Unplug blower first if equipped)
Improper regulation of draft or air inlet	Close air inlet control as much as possible to maintain desired heat output.
	Check all gaskets, reinstall if necessary (see maintenance for gasket replacement procedure).
Improper door fitting	Check door gasket, reinstall if necessary (see maintenance for gasket replacement procedure).
	Check door latch adjustment. Readjust if necessary.

Back Puffing	
Possible Cause	Possible Remedies (Unplug blower first if equipped)
Gusts of wind.	Chimney may need wind diverter.
2-10-3 rule not properly maintained.	Raise chimney to appropriate height.
Chimney Blockage.	Smoke shelf in chimney is filled with creosote, soot and ash.
	Tree limb or other obstruction too close.

Smoke rolls out when feed or ash doors are opened	
Possible Cause	Possible Remedies (Unplug blower first if equipped)
Wind Gusts blowing down the chimney.	Smoke shelf in chimney is filled with creosote, soot and ash.
	Chimney may need wind diverter.
Opening heater door too soon.	Open air control, crack door for 5-10 seconds before fully opening door.

Low Heat Output	
Possible Cause	Possible Remedies (Unplug blower first if equipped)
Obstruction in chimney.	Check for blockage in chimney, remove if necessary.
Improperly sealed venting.	Check all gasketing, replace if necessary.
	Check exhaust venting seals, reseal if necessary.
Wet or unseasoned wood being burned.	Burn dry, seasoned hard wood.
Improper wood loading.	Load wood according to directions under utilization.
Poor chimney draft.	Improper chimney height or wrong size flue in use.
	Inspect chimney for soot, creosote and ash buildup, clean if necessary.

Persistent soot, creosote or ash build up in chimney	
Possible Cause	Possible Remedies (Unplug blower first if equipped)
Cool exhaust flue gasses.	Use double or triple wall external chimney.
Burning unseasoned / wet wood	Use dry, seasoned hardwood.

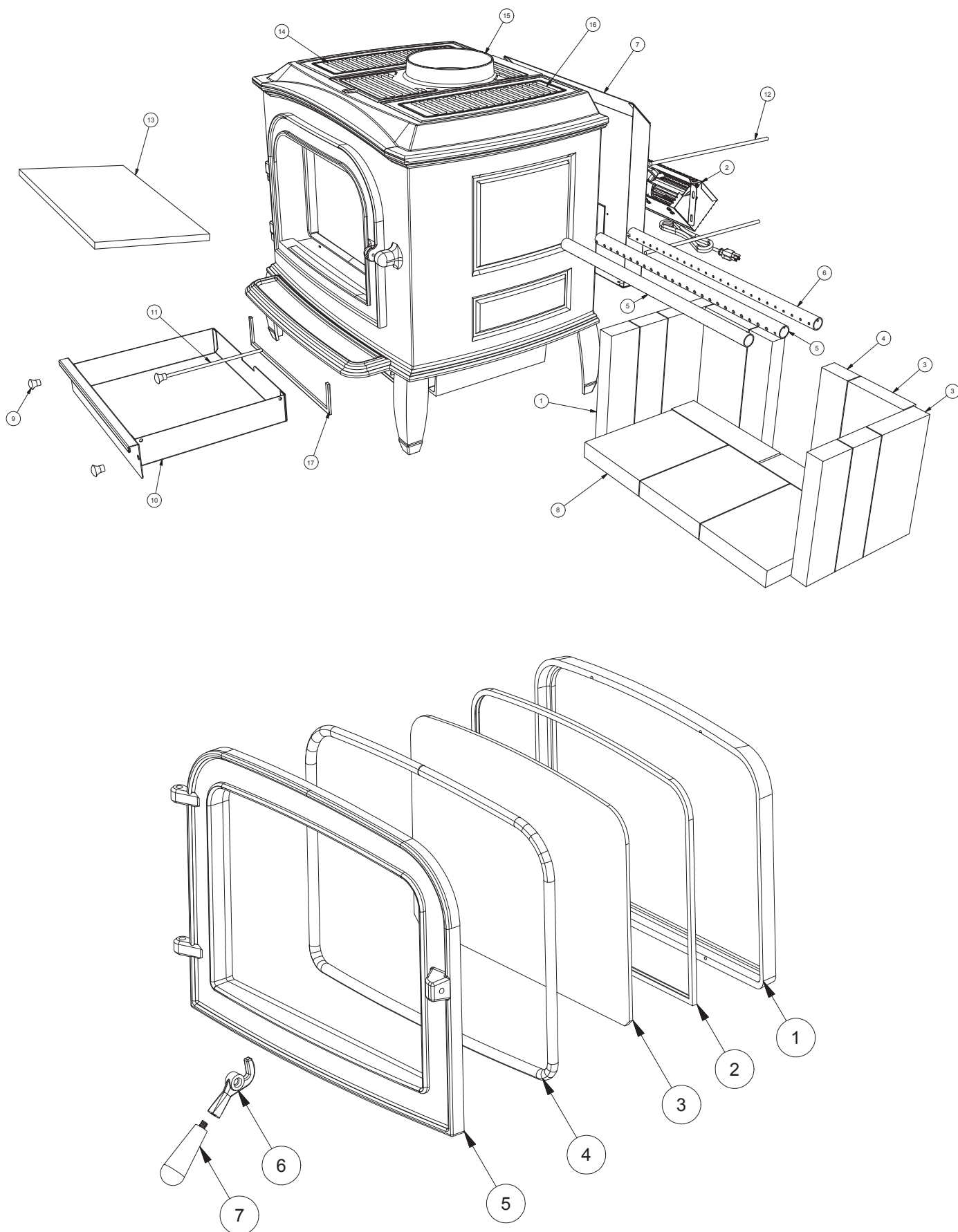
REPAIR PARTS

Key	Part	Description	Qty
1	23783	Firebrick (1-1/4 X 2-9/16 X 9)	4
2	69354	Blower Assembly (B36)	1
3	89066	Firebrick (4-1/2 X 9)	4
4	891414	Half Firebrick	4
5	86656	Secondary Air Tubes	2
6	86655	Secondary Air Tube, Rear	1
7	69942	Heatshield Weldment	1
8	891095	Firebrick (1-1/4 X 5-15/16 X 8-1/4)	3
9	891987	Plastic Knob	3
10	69945	Weldment, Ash Pan	1
11	86668	Damper Rod	1
12	83614	15" Threaded Rod	4
13	88147	Baffle Board	1
14	40619	Top Cast Grate Left	1
15	40620	Top Cast Grate With Flue	1
16	40621	Top Cast Grate Right	1
17	88174	Gasket-Flat	1

Key	Part	Description	Qty
1	40675	Glass Brace	1
2	88087	Fiberglass Gasket	1
3	892342	Door Glass	1
4	88057	1/2" Fiberglass Rope Gasket	3.5Ft
5	40674	Cast Door	1
6	40626	Door Latch	1
7	892352	Plastic Handle	1

**IN ORDER TO MAINTAIN WARRANTY, COMPONENTS MUST BE REPLACED USING ORIGINAL MANUFACTURERS PARTS PURCHASED THROUGH YOUR DEALER OR DIRECTLY FROM THE APPLIANCE MANUFACTURER.
USE OF THIRD PARTY COMPONENTS WILL VOID THE WARRANTY.**

REPAIR PARTS



HOW TO ORDER REPAIR PARTS

This manual will help you obtain efficient, dependable service from your stove, and enable you to order repair parts correctly.

Keep this manual in a safe place for future reference.

When writing, always give the full model number which is on the nameplate attached to the stove.

When ordering repair parts, always give the following information as shown in this list:

1. **The part number AWC21**
2. **The part description** _____
3. **The model number:** _____
4. **The serial number:** _____



U.S. Stove
227 Industrial Park Rd.
P.O. Box 151
South Pittsburg, TN 37380

CUT HERE



WARRANTY INFORMATION CARD

Name _____ Telephone #: (____) _____

City _____ State _____ Zip _____

Email Address _____

Model # of Unit _____ Serial # _____

Fuel Type: ☐ Wood ☐ Coal ☐ Pellet ☐ Gas ☐ Other _____

Place of Purchase (Retailer) _____

City _____ State _____ Zip _____

If internet purchase, please list website address _____

Date of Purchase _____

Reason for Purchase: ☐ Alternative Heat ☐ Main Heat Source

☐ Decoration ☐ Cost ☐ Other _____

What was the determining factor for purchasing your new appliance? _____

I have read the owner's manual that accompanies this unit and fully understand the:

Installation ☐ Operation ☐ and Maintenance ☐ of my new appliance.

Print Name

Signature

Date

Please attach a copy of your purchase receipt.

Warranty not valid without a Proof of Purchase.

Warranty information must be received within 30 days of original purchase.

Detach this page from this manual, fold in half with this page to the inside and tape together. Apply a stamp and mail to the address provided. You may use an envelope if you choose.

You may register online by going to www.usstove.com

All information submitted will be kept strictly confidential. Information provided will not be sold for advertising purposes.
Contact information will be used solely for the purpose of product notifications.

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