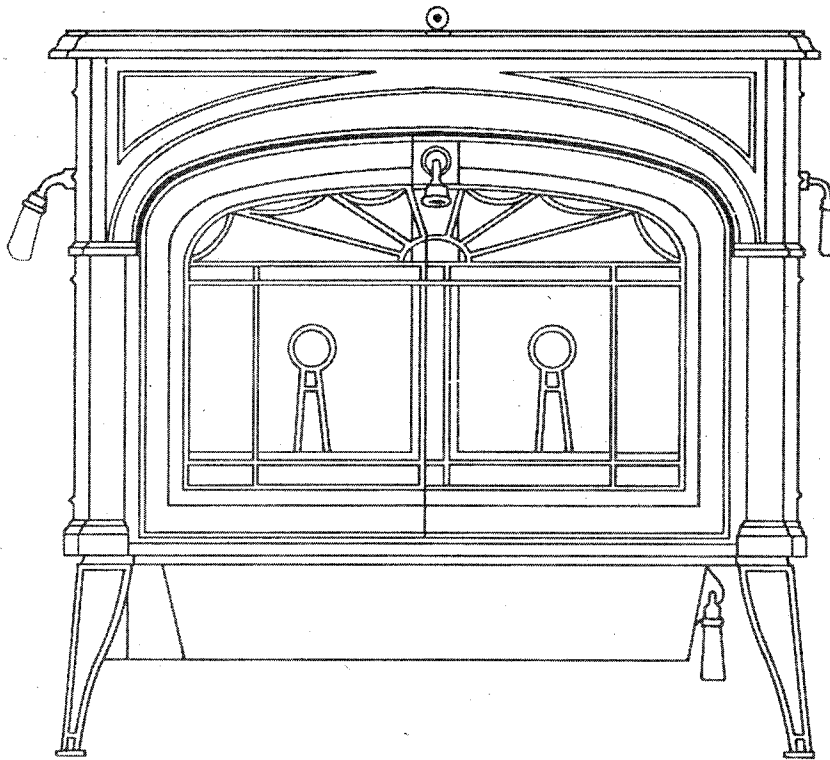


Defiant ENCORE™

Owner's Guide

For use in North America

The Defiant Encore Model #2190 is covered



SAFETY NOTICE: IF YOUR DEFIAANT ENCORE IS NOT PROPERLY INSTALLED, OPERATED AND MAINTAINED, A HOUSE FIRE MAY RESULT. FOR SAFETY, FOLLOW ALL INSTALLATION, OPERATION AND MAINTENANCE DIRECTIONS. CONTACT LOCAL BUILDING OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

VERMONT CASTINGS, INC.

Operation

Your Encore's Controls and What They Do

Two controls regulate the performance of the Encore: a **primary air control** supplies oxygen for the fire, and a **damper** directs air flow within the stove to activate and deactivate the catalytic combustor.

Symbols cast into the stove are reminders of the correct directions for opening and closing the controls. The symbols assume that you are facing the front of the stove.

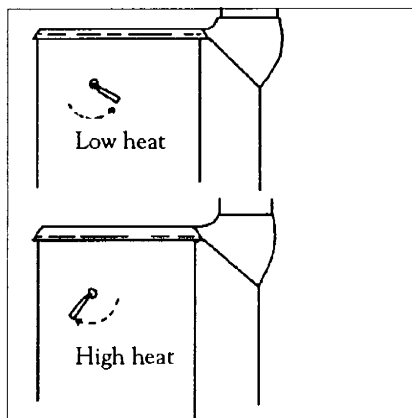
A Single Air Control Regulates the Amount of Heat the Fire Will Produce and How Long It Will Burn

The **primary air control lever**, located on the right side of the stove, controls the amount of incoming air for starting, maintaining, and reviving a fire.

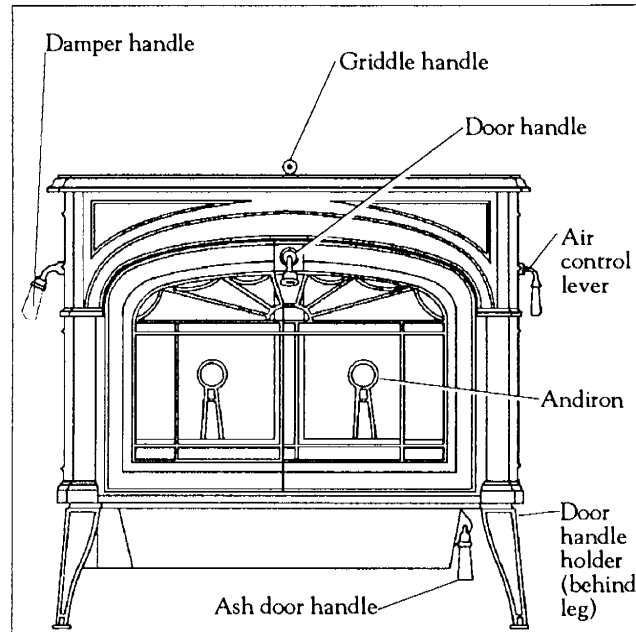
More air entering the stove makes the fire burn hotter and faster, while less air prolongs the burn at a lower heat level.

For the greatest air supply and maximum heat output (but the shortest burn time), move the lever toward the front of the stove. For a fire that will last longer with less heat, move the lever toward the rear of the stove.

The Encore's air control system also features an automatic thermostat to ensure an even heat output at whatever manual setting you select. The thermostat senses the heating and cooling of the stove surface and adjusts the air shutter accordingly.



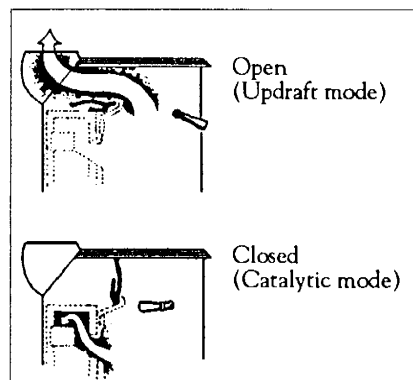
The handle also may be positioned anywhere between the two extremes for different heat levels.



The Encore's controls are conveniently located and easy to operate.

When the handle points to the rear, the damper is closed. Smoke from the fire is directed through the catalytic combustion system where it can be further burned for greater efficiency, before passing up the chimney.

When closing the damper, be sure to push firmly enough to snap it into the locked position to ensure that the stove remains in the catalytic mode.



The damper is either open or closed. There are no intermediate positions.

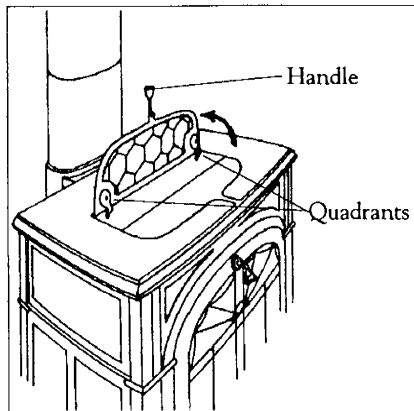
A Damper Directs Air Flow Within the Stove

The **damper handle** on the left side of the stove opens and closes the damper to direct air flow within the stove.

The damper is open when the handle is down and to the front, enabling smoke to pass directly into the chimney. The damper must be open when starting or reviving a fire, and whenever the griddle or doors are opened.

Two Ways to Add Fuel

The Encore's griddle lifts for convenient top-loading of logs, and is the easiest way of regularly adding fuel.



The Encore's hinged griddle makes convenient top-loading of wood possible.

However, the front doors open as well for adding an occasional log to the fire. If equipped with the 8" (200 mm) flue collar, the front doors may be opened (or even removed) and the optional Defiant Encore Spark Screen placed in the opening for open-fire viewing. The Defiant Encore is *not* approved for operation with the front doors open if equipped with the optional 6" (150mm) flue collar.

WARNING: FOR SAFETY AND GREATEST EFFICIENCY, OPERATE YOUR DEFIANT ENCORE WITH ALL DOORS FULLY CLOSED. THE TEST STANDARD FOR YOUR STOVE WHEN IT IS OPERATED IN THIS MODE IS UL 1482.

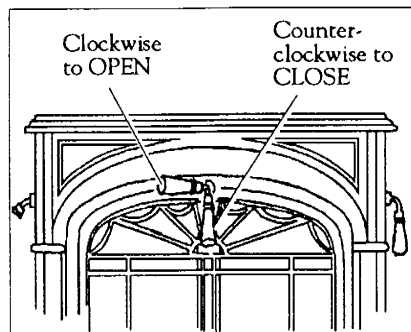
THE DEFIANT ENCORE MAY BE USED AS A FIREPLACE WITH THE FRONT DOORS OPEN OR REMOVED, BUT ONLY WHEN IT IS EQUIPPED WITH AN 8" (200 MM) FLUE COLLAR AND ONLY WHEN THE OPTIONAL SPARK SCREEN IS PLACED CORRECTLY IN THE OPENING TO PROTECT AGAINST THE POSSIBILITY OF SPARKS AND EMBERS LEAVING YOUR STOVE. THE TEST STANDARD FOR YOUR STOVE WHEN IT IS OPERATED IN THIS MODE IS UL 737.

USE ONLY THE DEFIANT ENCORE SPARK SCREEN, PART #0127.

DEFIANT ENCORE SPARK SCREENS ARE AVAILABLE FROM YOUR VERMONT CASTINGS' AUTHORIZED DEALER.

To open the front doors, insert the handle into the door latch stub and turn it to the left and up.

To close them, always close the left door first. Turn



To open the front doors, turn the handle clockwise.

the handle in the right door to the left and up (to the open position) and close it. Finally, push on the door as you turn the handle to the right and down. The doors will draw in slightly, and the handle should offer some resistance as you turn it to the closed position.

Avoid striking the glass or slamming the doors to reduce the risk of breaking the glass.

When you're not using the door handle, store it in the hole on the right front leg of the stove.

Infra-Red Reflective Glass Panels for Clear Fire Viewing

The infra-red reflective glass panels are kept at a higher temperature than the outer surface. This design, along with a pre-heated "airwash," makes clear fire viewing possible at any level of operation.

Andirons Help Protect the Glass

Your stove is equipped with andirons to keep logs away from the glass panels. The andirons are essential to maintain clear fireviewing, and should be left permanently in place. Since the andirons may slightly hinder refueling through the front doors, most stoveowners will prefer the convenience of top loading through the griddle.

Burn Only High-Quality Wood

The Encore is designed to burn natural wood only; do not burn fuels other than that for which it was designed.

You'll enjoy the best results when burning wood that has been adequately air-dried. Avoid burning "green" wood that has not been properly seasoned or cordwood that is older than 2 years. Do not burn construction materials; they often contain chemicals and metals that can damage the catalytic combustor.

The wood should be 18-20" (400-500 mm) in length.

The best hardwood fuels include oak, maple, beech, ash, and hickory that has been split, stacked, and air-dried outside under cover for at least one year.

For areas that do not have a supply of hardwood, commonly burned softwoods include tamarack, yellow pine, white pine, Eastern red cedar, fir, and redwood. These too should be properly dried.

Wood should be stored under cover to maintain dryness. Even for short-term storage, however, keep wood a safe distance from the heater and keep it out of the areas around the heater used for refueling and ash removal.

A Surface Thermometer is a Valuable Guide to Operation

An optional surface thermometer lets you know when to adjust the air control, when to refuel, and when your catalyst is operating properly.

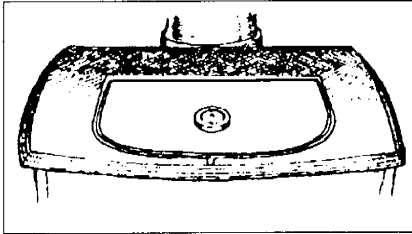
For example, when the thermometer registers at least 450°F. (230 C) after start-up you know that the stove is hot enough to begin catalytic combustion and that it is time to close the damper.

When thermometer readings drop below 350°F. (175 C) it's time to adjust the air control for a higher burn rate or to reload the stove.

A temperature reading over 750° F. (400 C) is a sign to cut back on the air supply to slow the burn rate.

Use the following temperature ranges as a guide to operation:

- Readings in the 350-500°F. (175-260 C) range indicate low to medium heat output.
- 500-600°F. (260-315 C) readings indicate medium heat output.
- Readings of 600-750°F. (315-400 C) indicate high heat output. Operating your Defiant Encore continuously at griddle temperatures of 750°F. (400 C) or higher may damage the cast iron or enamel finish.



Take temperature readings with the thermometer located in the middle of the griddle.

Use the Air Control Settings that Work Best for You

No single air control setting will fit every situation. Each installation will differ depending on the quality of the fuel, the amount of heat desired, and how long you wish the fire to burn.

The control setting also depends on your particular installation's "draft," or the force that moves air from the stove up through the chimney. Draft is affected by such things as the length, type, and location of the chimney, local geography, nearby obstructions, and other factors.

Too much draft may cause excessive temperatures in the Encore, and could even damage the combustor. On the other hand, too little draft can cause backpuffing into the room and/or the "plugging" of the chimney or combustor.

How do you know if your draft is excessively high or low? Symptoms of too much draft include an uncontrollable burn or a glowing-red stove part. A sign of inadequate draft is smoke leaking into the room through the stove or chimney connector joints, low heat, and dirty glass.

In some newer homes that are well-insulated and weather-tight, poor draft may result from insufficient air in the house. In such instances, an open window near the stove on the windward side of the house will provide the fresh air needed.

Another option for getting more combustion air to the stove is to duct air directly from the outside to the stove. In fact, in some areas provisions for outside combustion air are required in all new construction.

Your Encore is designed so that it is possible to incorporate outside air for combustion.

When first using the stove, keep track of the air control settings. You will quickly find that a specific setting will give you a fixed amount of heat. It may take a week or two to determine the amount of heat and the length of burn you should expect from various settings.

Most installations do not require a large amount of combustion air, especially if adequate draft is available. Do not for any reason attempt to increase the firing of your heater by altering the air control adjustment range outlined in these directions.

Use the following air control settings as a starting point to help determine the best settings for your installation. Each is described as a fraction of the total distance the lever may be moved from right to left.

Encore Control Settings

<u>Burn Rate</u>	<u>Primary Air Control</u>
Low	From far right to 1/3 the distance to left
Medium	From 1/3 to 2/3 the distance to left
High	From 2/3 the distance to left to far left

How To Build a Wood Fire and Keep It Going

A Defiant Encore leaves the factory with the combustor installed.

In the United States, it is against the law to operate this wood heater in a manner inconsistent with operating instructions in this manual, or if the catalytic combustor is deactivated or removed.

High-Efficiency Wood Burning with Catalytic Combustion

The components of the catalytic combustion system in your Encore work together to produce optimum conditions for secondary combustion.

When the damper is closed, smoke is directed through the catalytic element, which causes ignition of smoke at temperatures of 500-600° (260-315 C), half the temperature normally required for unaided secondary combustion.

The catalytic element is a ceramic "honeycomb" coated with the catalytic material. The element is located in the secondary combustion chamber, molded from a special high-temperature insulating refractory material. The design of the chamber provides the correct environment necessary for secondary combustion of the fuel (smoke).

Catalytic combustion is activated by closing the damper, thereby exposing the smoke to the combustor.

Closing the stove damper may also reduce the draft, so to avoid putting out the fire or deactivating the combustor, close the damper only when a fire is well-established. When starting a fire, wait until the fire is well established and there is an ember bed of at least 3-4 inches before closing the damper.

Never kindle a fire with colored paper or paper that has colored ink or a glossy surface, and never burn treated wood, garbage, solvents, or trash. All of these may poison the catalyst and prevent it from operating properly. Never burn cardboard or loose paper except for kindling purposes. Never burn coal; doing so can produce soot or large flakes of char or fly ash that can coat the combustor and cause smoke to spill into the room. Coal smoke also can poison the catalyst so that it won't operate properly.

In general, the fire must be sufficiently well-established to ensure that catalytic activity is initiated. When first starting a fire, a medium- to high- firing rate must be maintained for at least twenty minutes. This ensures that

the stove, catalyst, and fuel are all stabilized at the proper operating temperatures.

Even though it is possible for the fire to get quite hot within a few minutes after a fire is started, the combustor may stop working or the fire may go out if the fire is allowed to die down immediately as a result of the damper being closed. Once the combustor starts working, heat generated by burning the smoke will keep it working.

To determine whether the combustor is operating, observe the amount of smoke leaving the chimney when the damper is activated and when it is not. This procedure is described on page 10.

Conditioning Your Stove

Cast iron is extremely strong, but it can be broken with a sharp blow from a hammer or from the thermal shock of rapid and extreme temperature change.

The cast plates expand and contract with changes in temperature. When you first begin using your Defiant Encore, minimize thermal stress by allowing the plates to adjust gradually during three or four initial break-in fires following Steps 1-3 below.

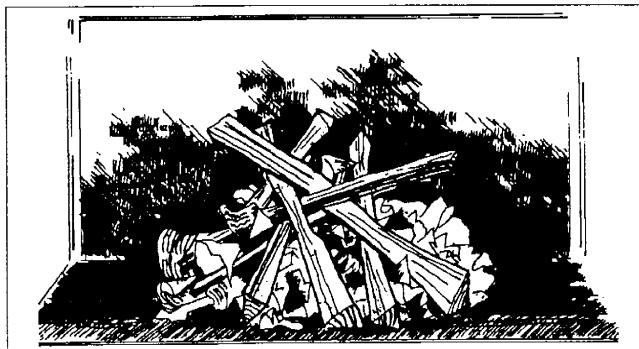
Starting and Maintaining a Wood Fire

Burn solid wood fuel only in the ENCORE, and burn it directly on the grate. Do not elevate the fuel. Do not burn coal or other fuels.

THE DAMPER MUST BE OPEN WHEN STARTING A FIRE OR WHEN REFUELING.

Step 1. Open the stove damper, and open the primary air control fully.

Step 2. Place several sheets of crumpled newspaper in the stove. Do NOT use glossy advertisements or colored paper, as they can poison the catalyst. Place on the paper six or eight pieces of dry kindling split to a finger-width size, and on the kindling lay two or three larger sticks of split dry wood approximately 1-2" (25-50 mm) in diameter.



Start the fire with newspaper and dry kindling.

DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE. DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA, OR ENGINE OIL. Also, never use gasoline-type lantern fuel, kerosene, charcoal lighter fluid, or similar liquids to start or "freshen up" a fire. Keep all such liquids well away from the Encore while it is in use.

Step 3. Light the newspaper and close the door. Gradually build up the fire by adding a few 3-5" (80-120

mm) diameter splits. If this is one of the first few "break-in" fires, let the fire burn brightly, and then let it die out.



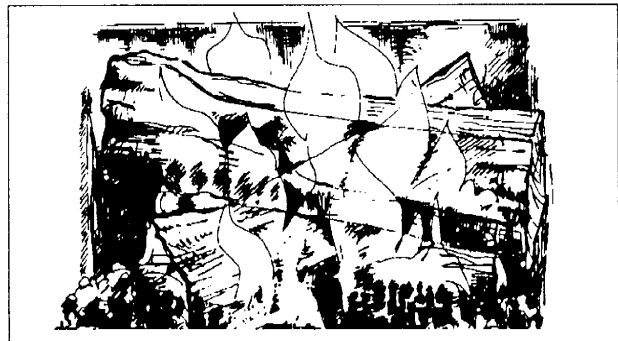
Add larger pieces of wood as the fire begins to burn well.

During the break-in fires, don't let the stove get hotter than 500°F. (260 C) as measured on an optional stove-top thermometer. Adjust the air control lever as necessary to control the fire.

Some odor from the stove's hot metal, the paint, and the cement is normal for the first few fires.

NOTE: Some chimneys need to be "primed," or warmed up, before they will draw sufficiently to start a fire. To correct this situation, roll up a couple pieces of newspaper, place them on top of the kindling and toward the back of the stove, light them, and close the doors. This should heat the chimney enough to initiate a draft. Once the draft is established, open the front door and light the rest of the fuel from the bottom. Do not light the main bed of fuel until the chimney begins drawing, and repeat the procedure as often as necessary if the initial attempt is unsuccessful.

Step 4. If your Encore has been broken-in previously using Steps 1-3, continue to build the fire gradually. Add larger wood with a diameter of 3-4" (75-100 mm). Continue adding split logs of this size to the briskly-burning fire until there is a glowing ember bed that at least 3" (75 mm) deep. A good ember bed is necessary for proper functioning of the catalytic system and may take an hour or more to establish.



Add full-size logs after the ember bed is 3" (75 mm) deep.

Step 5. Close the damper when the griddle temperature reaches 450° F. (230 C).

Step 6. Adjust the air control for your desired heat output.

Refuel While the Embers Are Still Hot

When reloading, best results will be achieved if you first de-ash the stove by stirring the fuel bed to allow ash to fall through the grate into the ash pan.

Do not break the charcoal into very small pieces or pound or compress the charcoal bed.

It is important that air can circulate through the charcoal bed during the burn. Larger pieces of charcoal allow more air to circulate under the wood, resulting in the fire reviving more quickly.

For best results when refueling, wear stove gloves to protect your hands, add fuel while the stove still has plenty of glowing embers to re-kindle the fire, and include some smaller pieces of wood in the new fuel load to help the stove regain its operating temperature quickly. Use the following sequence as a guide to successful refueling:

Step 1. Open the damper.

Step 2. De-ash the stove as described above. Open the front doors and check the level of ash in the ash pan. Empty the pan if necessary and replace it in the stove. Close the front doors.

Step 3. Open the griddle, load the wood (smaller pieces first), and close the griddle.

Step 4. Close the damper.

Step 5. When the surface temperature reaches 450° F. (230 C), adjust the air control for the amount of heat you desire.

NOTE: If the remaining charcoal bed is relatively thick and if your fuel is well seasoned, it is possible to add fresh fuel (smaller pieces first), close the door and damper, and reset the primary air thermostat for the desired heat output.

WARNING: OPERATE YOUR DEFIANT ENCORE ONLY WITH THE DOORS EITHER FULLY OPEN OR FULLY CLOSED.

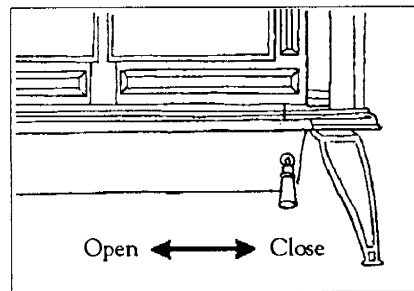
CAUTION: THE DEFIANT ENCORE WILL BE HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS.

DO NOT OVERFIRE THIS HEATER. Overfiring may cause a house fire, or can result in permanent damage to the stove and to the catalytic combustor. If an exterior part of the Encore glows, you are overfiring.

Ash Disposal

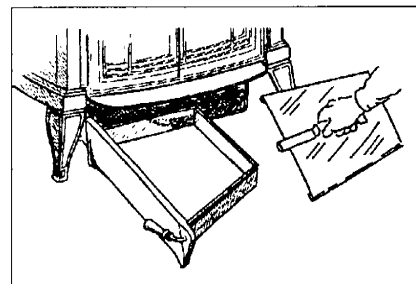
You should remove ash before it reaches the top of the ash pan. Check the level at least once a day. Every few days, clear any ash from the outer edges of the firebox. Most of the ash will fall through the grate. Slice or stir the ash with a shovel or poker so that it falls through the grate slots.

IMPORTANT: Check the level of ash in the ash pan before reloading the stove. If the ash level is close to the top edge of the pan, empty the pan according to this procedure:



Turn the handle to the ash pan compartment clockwise to open and counter-clockwise to close.

- Open the damper.
- Open the griddle or front doors, and using a shovel or poker, stir excess ash through the ash slots in the grate down into the ash pan.
- Close the griddle or doors, and unlatch the ash door. It will pivot, swinging the ash pan out of the stove.
- Slide the cover onto the pan, making sure it is securely closed.
- Remove the ash pan, making sure to keep it level.



Be sure the cover is securely attached before removing the ash pan.

Do not tilt the ash pan forward to prevent the cover from sliding off and to keep ash from falling on the floor.

If the stove is in operation, close the ash door while disposing of the ash.

- Properly dispose of the ash in a metal container with a tight-fitting lid, stored outdoors.
- Return the ash pan to its original position in the stove, and close and latch the ash door.
- Do not operate the stove with the ash door open. This will result in over-firing, and could cause damage to the stove, void the warranty, or even lead to a house fire.

Empty the ash pan regularly, typically every one to three days. The frequency will vary depending on how you operate your Encore: You burn more wood at higher heat output settings, and ash will accumulate faster.

Ash should be removed frequently and placed outdoors in a metal container with a tight-fitting lid. The closed container of ash should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ash is disposed of by burial in soil or otherwise locally dispersed, it should be retained in the closed container until all cinders have thoroughly cooled.

CAUTION: Never use your household or shop vacuum cleaner to remove ash from the stove; always remove and dispose of the ash properly.