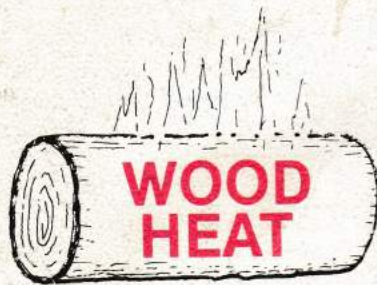


morsø



HANDBOOK

About the Author

Lee Dora Gilchrist is the National Sales Manager for Southport Stoves, the exclusive importers of the MORSØ Cast Iron Stoves and Fireplaces. For one year she has dedicated herself to finding out everything possible about the construction, design, function and operation of the MORSØ.

Prior to joining Southport Stoves, Lee was the New England Sales Representative for a major distributing company marketing prefabricated fireplaces and chimneys.

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WOOD HEAT HANDBOOK



Many people contributed to the effort which produced this Morsø Wood Heat Handbook. I wish to thank them all. One especially, who wishes to remain anonymous, was invaluable; it could not have been done without him.

Lee Gilchrist

Illustrations by Frank Ossmann of Becket, Massachusetts

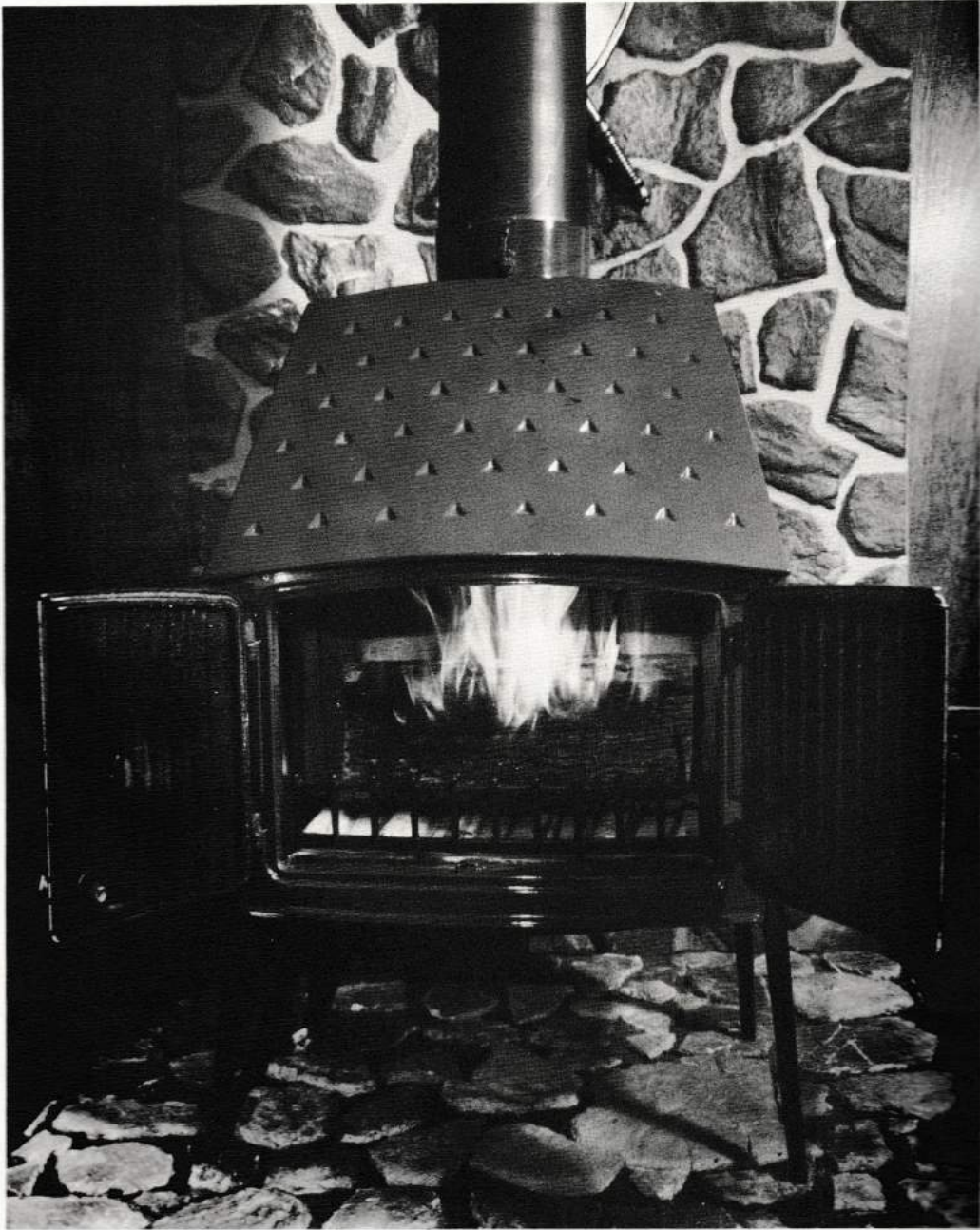
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INTRODUCTION

Experienced wood burners know that wood heat is the most comfortable and healthful of all forms of home heating. Sitting in a room with a wood stove, your body is heated directly by radiant heat. The room air doesn't have to be as warm and consequently the relative humidity can be held higher. Further, the MORSØ will hold a room or house at an even temperature. All this means more health and comfort for you. There is nothing like coming indoors on a cold winter day and warming up next to a good hot stove. Ask a wood stove owner.

A MORSØ stove will provide insurance and a degree of independence no other household purchase can. It is also comforting to know that in an emergency this warm dependable friend is ready to give you the heat necessary to cook your food, heat your water and warm your body and spirit.

The MORSØ is all you could ever ask for in a wood stove. The designers of MORSØ have combined graceful lines, fine finish, craftsmanship and life long durability to bring you the perfect wood stove, one whose classic simplicity will grace any interior, whether antique or modern. More important, it is a stove that is unsurpassed in heating effectiveness and efficiency. MORSØ owners have heated their entire homes with the larger models using a surprisingly small amount of wood.

When first inspecting the MORSØ look for the fine points in design. We will mention a few often overlooked.

Check the **pipe collar**. It is designed to be trouble free. The smoke pipe fits **inside** the collar. Thus any liquid condensing in the pipe flows back into the stove. No leaks with the MORSØ.

Note that the **doors** on the 1125 may be removed and replaced easily due to the simple thought of making the lower door pins longer.

Curved stove plates are far more resistant to heat fatigue than straight ones. The bottom of each box stove is slightly rounded giving great strength without the use of reinforcing ridges. As you study the pleasing contours of the MORSØ you see few perfectly flat pieces. Style is again combined with function to bring you true value in your MORSØ.

The **screen** of the fireplace models is another example of thoughtful engineering. Room heat loss is reduced 50%, yet does not restrict your view of the fire. As you are probably aware, warm room air is drawn up the flue through any open fireplace. It is therefore desirable to limit this flow. MORSØ accomplishes this by using perforated metal rather than wire mesh.

Consider the **enamel finish**. Many stove owners like the flat black of cast iron but would prefer to avoid messy stove blacking. MORSØ has the answer. Our matte black finish is an enamel. It is without gloss and there is never any rust or maintenance.

If the lively contemporary colors of today's freestanding fireplaces are your preference, MORSØ is ready to please you with the 1125 in bright red, deep blue, olive green and pure white. These are all luxurious gloss enamel finishes. Visualize each of these units with doors of a contrasting color. Yes, they can be special ordered to suit your decorating

needs. This is made possible because of the lift off ease of the swing out doors.

Even more than style, MORSØ is famous throughout the world for its efficient burning of wood. Every design technique known to increase efficiency is incorporated into each model. Every MORSØ stove includes:

1. Baffle system
2. Air-tight construction
3. Precision made doors
4. Precise draft control
5. Heavy cast iron
6. Enamel finish

With the exception of the 1125, the price of all MORSØ stoves includes smoke pipe.

In the door of the box stoves, notice the iron plate (baffle) hanging from the top. This plate reduces the amount of air flowing into the stove while the door is open. Also, since the smoke flow pattern is toward the front of the stove and then backward toward the vent, this baffle prevents smoke from coming out the door into the room when loading the stove.

Note how the legs lend a tall grace to the MORSØ stoves. This also makes viewing the fire more practical — adding wood and removing ashes easier. Air circulation around the stove is increased. The firebox stands farther from combustible surfaces such as wood, floors and rugs. Spark screen and stove tools can easily be stored beneath the stove. The hearth is much easier to clean when the stove is on tall legs.

The MORSØ stoves occupy a small space relative to their heat output. This makes them practical additions to the modern home.

The expense of owning any heating appliance is the cost of maintaining it. MORSØ has designed zero maintenance into all models by limiting the number of moving parts. There are only four moving parts in the 1125. The door latch doubles as a draft control. Can you purchase any other item for the home that will last a lifetime and be virtually maintenance free?

The MORSØ stoves were not designed basically for cooking, however, as on any cast iron stove with a flat top surface, it is possible. Even with a low fire, it is quite easy to make stew, pancakes, steam bread, etc. MORSØ owners report crock pot recipes are very successful. The 1125 is in essence a brick oven. Just think of all the possibilities that exist for cooking. A kettle of water simmering gently on the stove adds moisture to the atmosphere as well as atmosphere to the room.

The thoughts presented in this handbook are drawn from the experiences and suggestions of many woodburning friends. It also includes our personal observations in heating our homes with wood. We want you to get started right.

We dedicate this book to helping you make an intelligent purchase of a MORSØ stove or fireplace and to helping you make certain that it is installed and operated safely and efficiently. The MORSØ is a one-time purchase affording you a lifetime of economy, comfort and a feeling of self-reliance.



MORSØ 2B

The MORSØ 2B is an air-tight, controlled-draft, enameled cast iron box stove.

The air-tight construction allows for controlled burning of the wood, as air can only enter the burning chamber through the draft control located on the door of the stove. The control spins to the left for opening and to the right for closing. To assure a tight fit, the door is precision-ground and hand-fitted by a skilled craftsman. The stove will hold a fire overnight, eight to twelve hours, or with the draft control closed, it will hold the hot coals overnight for easy fire-building the next morning.

The draft control is backed by an air-circulator box located on the inside of the door. The air-circulator:

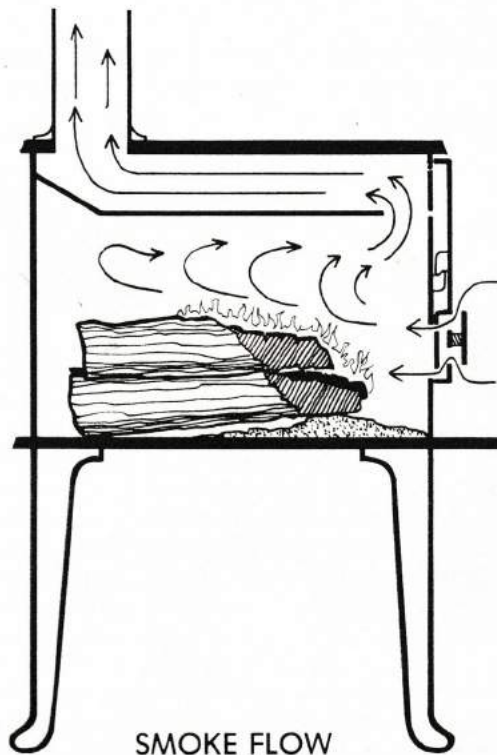
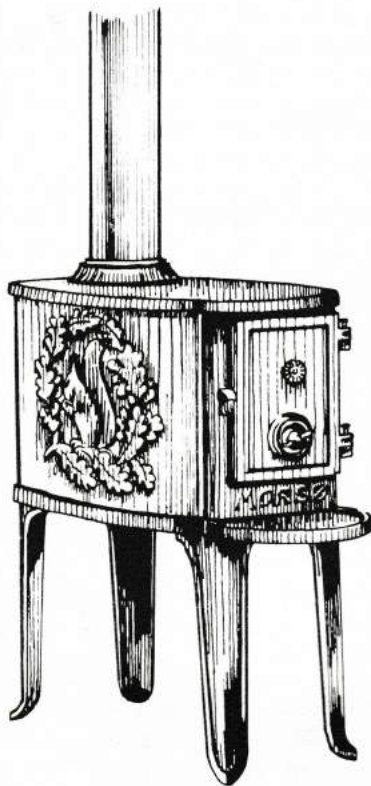
1. Prevents sparks from leaving the stove through the draft control.
2. Pre-warms the air entering the burning chamber. This decreases the density of the air and allows more control of the burning. High density air would result in rapid burning.
3. Regulates the air-flow. It directs the primary source of air through the bottom of the air-circulator box to the base of the fire. An opening at the top of the air-circulators provides a secondary source of air.

The baffle (or smoke-shelf) in the MORSØ 2B prevents the heat from going directly up the chimney. By holding the heat in the stove longer, the cast iron can absorb more heat from the smoke and increase the efficiency of the stove.

The exterior finish is a dull black matte vitreous enamel (opaque porcelain) which prevents rust, eliminates stove polishing, and enhances the beauty of the stove. The squirrel and oak leaf design lends an artistic touch and gives more radiating surface.

The price includes two pieces of heavy eighteen (18) gauge smoke pipe, an elbow, a wall thimble, stove poker and sufficient asbestos packing to seal the smoke pipe at the thimble.

The 2B is especially adaptable for installing in a masonry fireplace. Ask your MORSØ dealer about the short legs available for this purpose.



SMOKE FLOW
PATTERN & BAFFLE SYSTEM



MORSØ MODEL #2B CAST IRON BOX STOVE

HEATING CAPACITY: Approximately 4800 Cu. Ft.

SPECIFICATIONS:

Size: 13" Wide x 27 1/2" Deep x 28" High

Weight: 124 lbs.

Shipping weight - 130 lbs.

Flu Size: 4.7" - Top Vented Only

Clearance: 18" From Combustibles

Finish: Dull Black **ENAMEL** (Opaque Porcelain)

Accessories

Included: Stove Poker

2 pcs. stove pipe (18 ga. enamelled)

1 90° Elbow (18 ga. enamelled)

1 Wall Thimble (18 ga. enamelled)

NOTE: The above information was supplied by the Danish Manufacturer.

MORSØ 2BO

The MORSØ 2BO is the same baffled, long-burning, air-tight box stove as the 2B with a special heat exchanger arch added on the top. The additional radiating surface created by the arch yields greater heat from the same amount of wood.

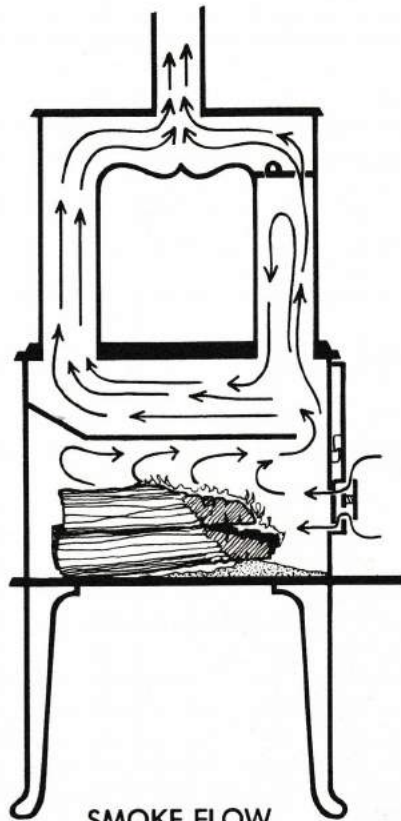
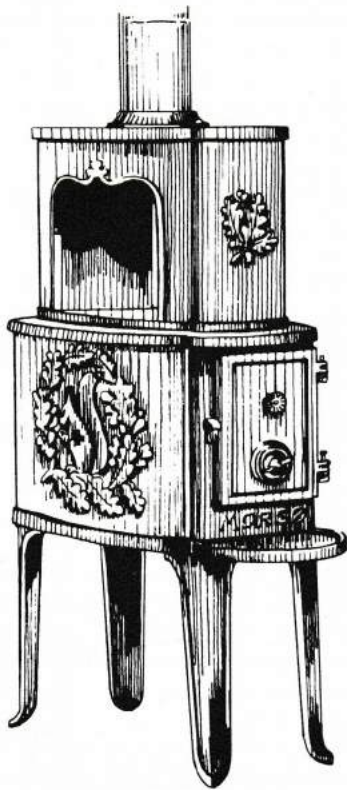
Like the 2B, the S-shaped smoke flow holds the heat in the stove longer and increases the heat transfer. Heat must flow around both sides of the arch to meet at the top and exit through the smoke pipe. A restricting baffle plate is placed at the top of the front chamber of the arch to allow only a small portion of the heat to pass through and out the smoke pipe. This forces the bulk of the heat entering the arch to retrace its path again to the back of the stove where it enters the back chamber of the arch (see cross-section drawing). This heat holding aspect of the arch permits you to have a hotter fire (larger draft opening) and gain proportionally more heat than you could attain without the arch.

The burning time, approximately eight to twelve hours, is the same as the 2B. Complete with the enamel finish, the price includes two pieces of heavy eighteen (18) gauge smoke pipe, an elbow, a wall thimble, a stove poker and sufficient asbestos packing to seal the smoke pipe at the thimble.

The fit of the door is very tight, giving the operator complete control of the draft and the stove's heat output without the necessity of a thermostat.

The tall slender lines of this stove are deceiving. It has many square inches of radiating surface, yet looks small and delicate. It has more radiating surface and a greater heating capacity than the 1B which has a larger firebox and therefore holds more wood.

From an aesthetic point of view, this stove is handsome when installed sideways with the fascinating squirrel and oak leaf design facing into the room. This also saves space as the width of the stove is thirteen (13) inches compared to a length of twenty-seven and one-half (27½) inches. The smoke pipe extends from the center of the arch creating an installation of symmetrical beauty.



**SMOKE FLOW
PATTERN & BAFFLE SYSTEM**

MORSØ MODEL #2BO CAST IRON STOVE WITH HEAT EXCHANGER

HEATING CAPACITY: Approximately 6400 Cu. Ft.

SPECIFICATIONS:

Size: 13" Wide x 27.5" Deep x 40" High

Weight: 164 lbs.

Shipping Weight - 178 lbs.

Flu Size: 4.7" - Top Vented Only

Clearance: 18" From Combustibles

Finish: Dull Black **ENAMEL** (Opaque Porcelain)

Accessories

Included: Stove Poker

2 pcs. Stove Pipe (18 ga. enamelled)

1 90° Elbow (18 ga. enamelled)

1 Wall Thimble (18 ga. enamelled)

NOTE: The above information was supplied by the Danish Manufacturer.

MORSØ 1B

The 1B is a large, heavy cast iron enameled box stove. As with all the MORSØ box stoves, it is available in the matte black vitreous enamel finish and, as an added plus, the 1B is available in a glossy gray vitreous enamel.

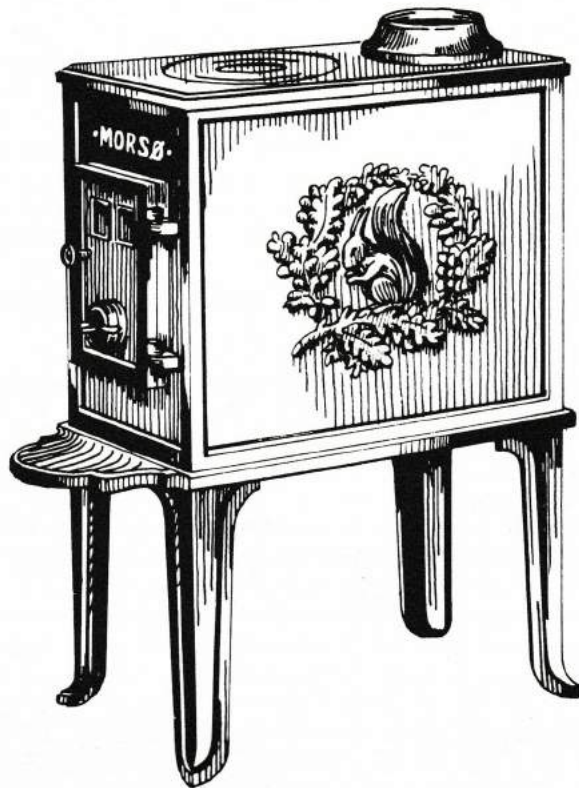
The baffle system is much like the 2B; however, the 1B has a fitted lining on each of the two sides much like the lining in the 6B. The baffle (smoke shelf) prevents a hasty exit of the smoke and holds the gases in the firebox allowing them to ignite and burn. The side liners allow for a much hotter firebox and also hold more heat for radiating once the fire has burned low. This after heat is important should you want only to hold the live coals overnight instead of constant burning.

The draft control is on the door in the form of a spin disc. Backing the draft control on the inside of the door is an air-circulator box. This air-circulator directs the air flow down for feeding the fire and up and back for forcing the smoke and gases back for burning. The air entering the stove through the air-circulator is pre-warmed, thereby allowing even more control over the rate of burning. This type of air circulation system also prevents sparks from leaving the stove around the damper control. The stove is absolutely safe to leave unattended during long periods of burning.

The weight of this stove is 240 pounds. The firebox is 22.8" deep and 14" wide. The stove will hold enough wood to burn twelve to sixteen hours and has a minimum heating capacity of six thousand (6,000) cubic feet. The 1B has not been used in actual tests in this country as the first units were imported in July of 1976. After a winter of testing under actual home usage conditions, the reports will no doubt indicate (as with the other MORSØ stoves) a much larger heating capacity.

The stove has the nice tall legs which provide for easy cleaning of the hearth beneath the stove and improve the air circulation around the stove. The six inch short legs used with the 2B can also be used on the 1B. In some instances this would shorten the height of the stove just enough to allow for an in the fireplace installation.

The price of the 1B includes all the accessories. With each unit you receive a stove poker, two pieces of pipe (eighteen gauge), an elbow and a wall thimble.



MORSØ MODEL #1B CAST IRON BOX STOVE

HEATING CAPACITY: 6,000 Cu. Ft. Approximately

SPECIFICATIONS:

Size: 14.2" Wide x 30.3" Deep x 33.9" High

Weight: 240 lbs.

Shipping Weight - 254 lbs.

Flu Collar: 4.7" Inside Diameter

Firebox: 22.8" Inside length
5,186 cu. in. inside content

Clearance: 18" From Combustibles

Finish: Dull Black **ENAMEL** (Opaque Porcelain)

Gray **ENAMEL** (Translucent Porcelain)

Venting: Top Vented Only

NOTE: The above information was supplied by the Danish Manufacturer.

MORSØ 1BO

The MORSØ 1BO has to be the "Grand-Daddy" of all stoves. It is gigantic; it is majestic; it is efficient! This stove has the same baffle system and side linings as the 1B and is a long-burning air-tight controlled draft stove with a beautiful, graceful heat exchanger arch sitting on top. As in the MORSØ 2BO, the extra radiating surface of the arch causes the 1BO to yield more heat from the same amount of wood.

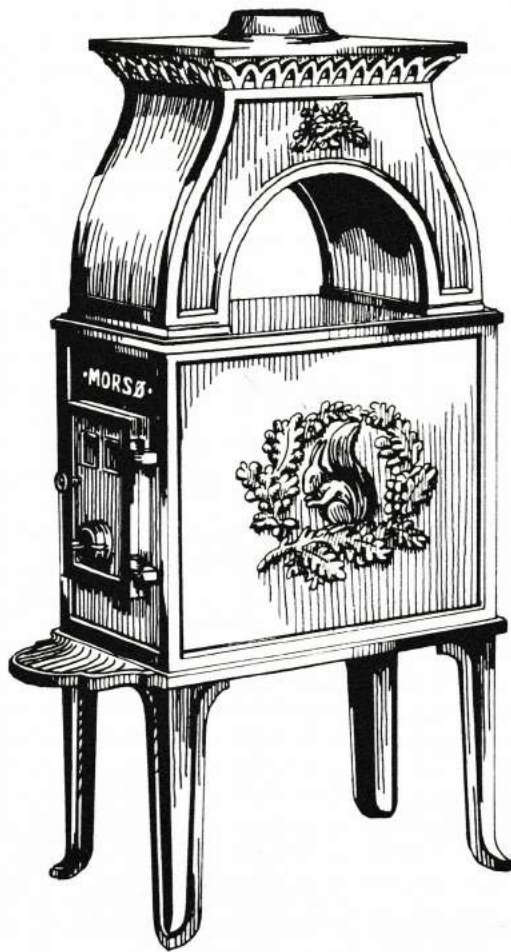
The smoke flow pattern of a 1BO is much the same as in the 2BO with one exception. Heat flows around both chambers of the arch to meet at the top and exit through the smoke pipe. There is no restricting baffle in the front chamber. The arch has ornate grill work around the top edges and grilled plates on the top of the arch. The inward curves of the chambers create an air flow upward through the grill work and out the grilled plates on top. Heat is added to the room with this warm air flow. The heat holding aspect of the arch permits you to have a hotter fire (larger draft opening) and utilize the heat before it exits into the smoke pipe.

The burning time on a full load of dry seasoned hardwood is approximately twelve to sixteen hours, or the same as the 1B. As with all the MORSØ stoves, the 1BO will hold live coals overnight for easy fire-building the next morning if the draft control is closed completely.

The enamel finish is available in either the matte black or a glossy gray and is included in the price of the unit. Also included in the price is a wall thimble, an elbow, two pieces of eighteen gauge smoke pipe, a stove poker and sufficient asbestos packing to seal the smoke pipe at the wall thimble.

Since the stove is air-tight, the operator has complete control of the draft intake and the stove's heat output without the necessity of a thermostat. More efficiency can be obtained in burning a wood stove if it is manually controlled.

The 1BO is, without a doubt, the most handsome and unique stove of them all. It can be installed with the side facing into the room giving a full view of the graceful arch and the squirrel and oak leaf design on the side plate. As in the 2BO, the smoke pipe extends from the center of the arch lending a symmetrical beauty to the installation.



MORSØ MODEL #1BO CAST IRON STOVE WITH HEAT EXCHANGER

HEATING CAPACITY: Approximately 9,000 Cu. Ft.

SPECIFICATIONS:

Size: 14.2" Wide x 30.3" Deep x 51.2" High

Weight: 320 lbs.

Shipping Weight - 365 lbs.

Flu Collar: 4.7" Inside Diameter

Firebox: 22.8" Inside Length

5,186 Cu. In. Inside Content

Clearance: 18" From Combustibles

Finish: Dull Black **ENAMEL** (Opaque Porcelain)

Gray **ENAMEL** (Translucent Porcelain)

Venting: Top Vented Only

NOTE: The above information was supplied by the Danish Manufacturer.

MORSØ 6B

This unique box stove is one of a kind! It has the elegant modern styling for which Denmark is famous. This, plus the matte black vitreous enamel (opaque porcelain) finish, makes it a trend setter in the stove world. There is none to compare to it.

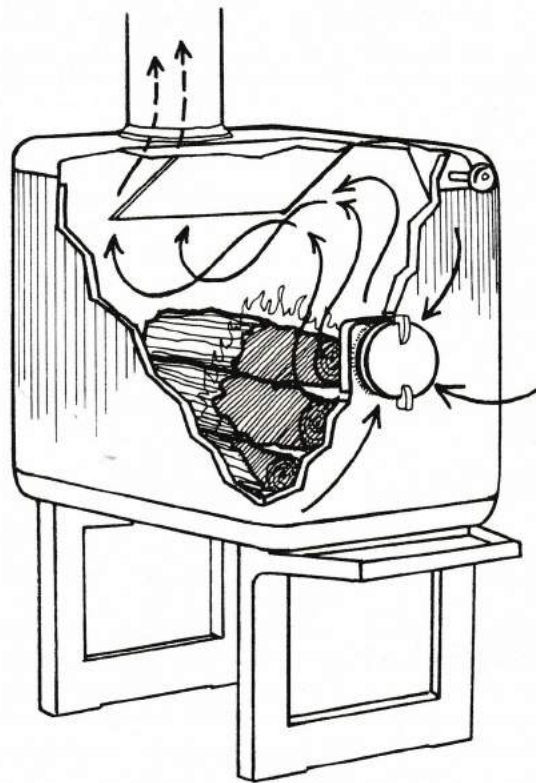
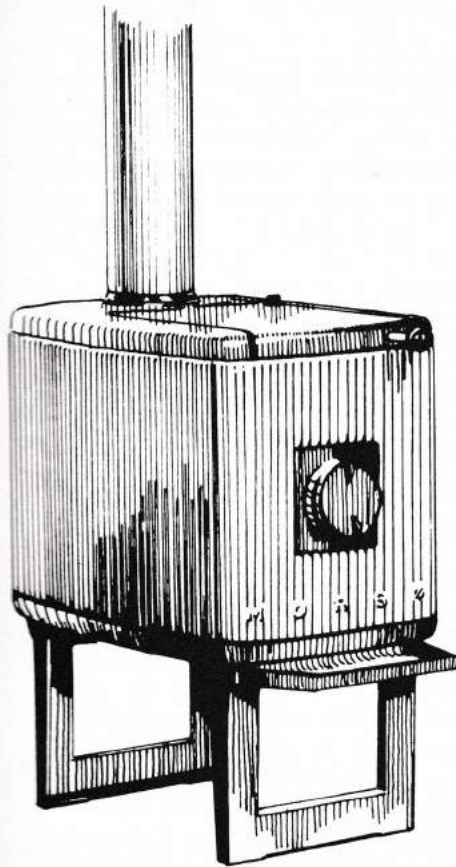
A quality not to be overlooked is that it can be installed where space would prohibit most stoves of equal capacity. The rectangular design of the firebox permits an exceptionally large load of wood (sixteen inches in length). The resulting heating capacity is a surprising six thousand (6,000) cubic feet. A fully lined firebox promotes higher temperatures within the stove yet protects and prolongs the life of the exterior walls. Vertical fluting of the exterior, while enhancing the styling, adds twenty-five (25) percent to the side radiating surfaces.

Wood is placed in this stove by lifting the top lid. The top-loading feature eliminates the need for a large hearth to catch ashes. Ashes will **never** fall out the front of a MORSØ 6B. An ash scoop for easy ash removal is provided with each stove.

The draft control is located on the front and is backed inside the stove by the same type air-circulator box as the 2B and 2BO. The same air intake principles apply. The most significant difference in this stove is the unique baffle as illustrated in the smoke flow cross-section drawing.

As in all of the MORSØ box stoves, two lengths of eighteen (18) gauge pipe, an elbow, a wall thimble and sufficient asbestos rope packing are included in the purchase price.

You've heard of a "diamond in the rough" — this one is polished.



**SMOKE FLOW PATTERN
& BAFFLE SYSTEM**

MORSØ MODEL #6B CAST IRON BOX STOVE - TOP LOADING

HEATING CAPACITY: Approximately 6000 Cu. Ft.

SPECIFICATIONS:

Size: 14" Wide x 23.6" Deep x 24.4" High

Weight: 146 lbs.

Shipping Weight 168 lbs.

Flu Size: 4.7" - Top Vented Only

Clearance: 18" From Combustibles

Finish: Dull Black **ENAMEL** (Opaque Porcelain)

Accessories

Included: Ash Scoop

2 pcs. Stove Pipe (18 ga. enamelled)

1 90° Elbow (18 ga. enamelled)

1 Wall Thimble (18 ga. enamelled)

NOTE: The above information was supplied by the Danish Manufacturer.

MORSØ 1122

The MORSØ 1122 is a beautiful free-standing fireplace. Designed to be compact as well as elegant, this fireplace is perfect for a small room.

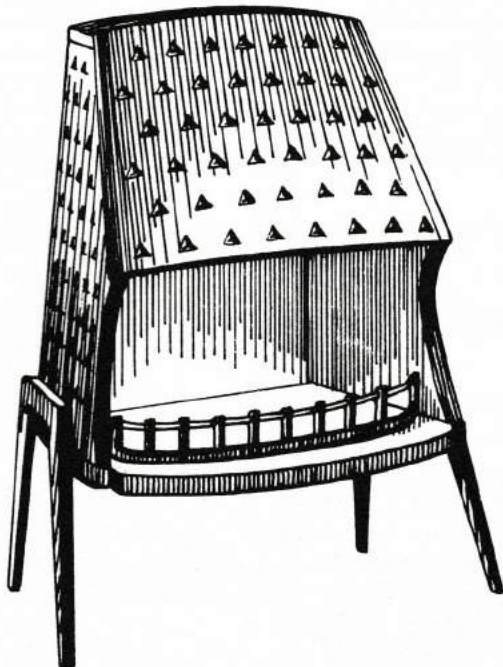
Everyone knows that the efficiency of a stove is greater than the efficiency of an open fireplace. However, the design of the 1122 tends to increase the heat output considerably. The indentations convect air around the unit and the tall legs permit air circulation beneath the firebox.

The firebox is lined with refractory, affording protection against burn-out, cracking or crazing. The cast iron construction, refractory lining, and vitreous enamel finish make this a lifetime purchase.

There is a unique baffle which directs the air flow for increased heat transfer. The baffle is a protection against sparks entering the smoke pipe. It is not necessary to build a large fire in the 1122 to achieve maximum heat radiation. A small fire is sufficient.

The screen should always be in place when wood is burning. This keeps the sparks or hot embers in the firebox. Also, the screen is perforated rather than mesh and decreases the draft intake by 50%. Even if the screen is not in place, logs which fall forward during burning cannot roll out onto the hearth or floor. Thus, the enameled grill across the front is functional as well as beautiful.

The 1122 is back vented only and takes a five and one-half (5½) inch smoke pipe. The MORSØ venting pipe is installed inside the back collar rather than over the collar as in other stoves and fireplaces. The unit price includes a section of smoke pipe, the screen, and a wall thimble. Additional pipe, elbows and adapters to six (6) inch are available. Since all the special size pipes, elbows and adapters are imported along with the stoves from Denmark, it is easy for your dealer to either stock them or obtain them quickly from the importers. Because no special pipe and fittings have to be custom made, you have no long wait for installation.



MORSØ #1122 CAST IRON FIREPLACE

HEATING CAPACITY: Approximately 4300 Cu. Ft.

SPECIFICATIONS:

Size: 27" Wide x 19" Deep x 32" High
Weight: 158 Lbs.
Shipping Weight — 178 lbs.
Flu Size: 5½"
Venting: Back Vented Only
Clearance: 18" From Combustibles
Finish: Dull Black **ENAMEL** (Opaque Porcelain)
Olive Green **ENAMEL** (Translucent Porcelain)
Special Order Colors:
White **ENAMEL**
Red **ENAMEL**
Blue **ENAMEL**

Accessories:

Spark Screen
5½" x 6" Smoke Pipe
5½" Wall Thimble

NOTE: The above information was supplied by the Danish Manufacturer.

MORSØ 1125

The MORSØ 1125 stove and fireplace combination is elegant, efficient and enameled. It, too, stands alone in today's highly competitive market. As one dealer so aptly phrased it, "The ultimate in functional elegance."

That beautiful stylized design actually increases the efficiency of the stove. Those inward and upward slants of the front and sides and the triangular indentations convey a flow of warm air. Each casting is designed with a gentle curve. More important than the beauty of the curves is the added strength inherent in curved stove plates. Efficiency and style — that's quite a combination!

Simplicity and freedom from maintenance are virtues few designers achieve but the MORSØ designers have done it! The 1125 is maintenance free with only four moving parts. Yet it works better and more efficiently than far more complicated stoves.

The colored vitreous enamel gives a lasting protection to the exterior and enhances and compliments the decor of your home. The enamel is fired at approximately 1400° Fahrenheit and is a permanent finish which does not require stove polish, is easy to keep clean and will never rust.

This unit has two swing out doors for full viewing of the fire. Should you prefer to use the stove as a free-standing fireplace, the doors lift off easily. A screen, which stores underneath the stove when not in use, is supplied with each unit and should be used when burning as a fireplace.

The MORSØ 1125 has the largest firebox of any cast iron airtight stove and fireplace combination on the market. With the logs placed horizontally, it will take wood lengths up to twenty (20) inches. With the logs placed vertically, the lengths are sixteen (16) inches for the back and twenty (20) inches for the front. When burning as a **stove**, vertical loading allows a larger quantity of wood to be placed in the firebox. **Always** place the wood horizontally across the ridged firebrick when burning as a fireplace.

It is easy to regulate the heat output of the stove. Turn the handle to the right — more heat; handle to the left — less heat. The draft control is in the door handle. With the doors closed and the handle turned to the extreme left, the doors are locked and sealed air-tight. In this position the only air intake is through the handle itself. However, as the handle is turned toward the right, the doors remain locked but move outward ever so slightly to allow an even flow of air into the firebox along the top and bottom of the doors. Cross section drawings clearly indicate the air flow intake and the smoke flow patterns.

A high grade firebrick lines the sides, back, and bottom of the firebox. This allows a much hotter heating chamber without stressing the cast iron or the enamel finish. A fire grate is unnecessary and is not recommended. Gracing the front of the firebox is an enameled grill which prevents embers from falling out. This grill lifts out easily for cleaning or loading.

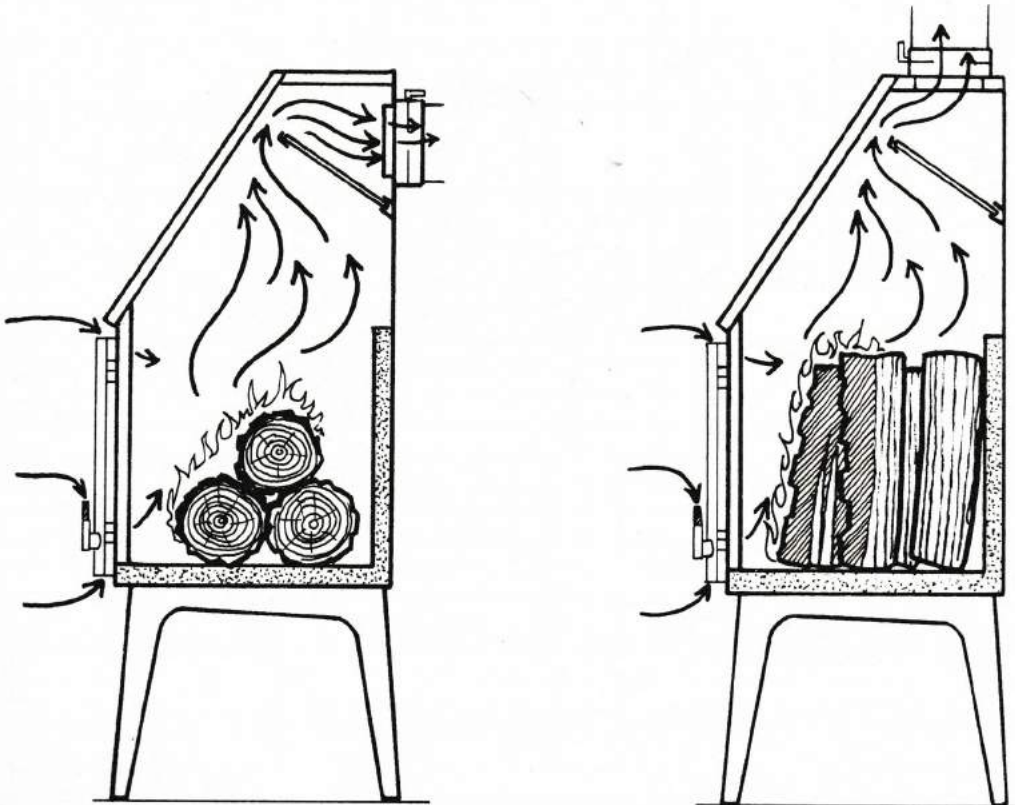
Venting of smoke is through a collar containing its own spring-loaded damper. The collar accepts an eight (8) inch diameter pipe which fits inside the collar. The 1125 can be either top or back vented by interchanging the collar and the top plate.

Increased efficiency, as in the box stoves, is achieved by placing a heavy baffle plate above the firebox. Heat is held in the stove longer and is forced to flow against the entire length of the sloping front before exiting at the rear or top.

Matte black iron legs raise the stove to make loading easy and viewing a pleasure. All colored enamel stoves have black enameled legs, base plates, and back plates. The high

legs permit greater air circulation around and beneath the stove and warm air is more easily conveyed to other parts of the room.

Many fireplace owners found the 1125 the only fireplace and stove combination able to be vented into their fireplace opening. Most stoves are too high. By removing the legs from the 1125 this problem can be solved. However, do not place the stove directly on the hearth as the hearth would become too hot. At least one inch of air space should be left beneath the stove. With the use of bricks the height can be adjusted to accommodate the opening. Care must be taken that such installations comply with local fire codes.



Back-vented

Top-vented

NOTE: Wood can be either horizontal or vertical. Stove can be either top or back vented.

SMOKE FLOW PATTERN & BAFFLE SYSTEM

MORSØ #1125



MORSØ #1125 CAST IRON STOVE AND FIREPLACE COMBINATION

HEATING CAPACITY: Approximately 10,000 Cu. Ft.

SPECIFICATIONS:

Size: 29.5" Wide x 22.8" Deep x 41.7" High

Weight: 310 lbs.

Shipping Weight - 354 lbs.

Flu Size: 8" American

Venting: Top or Back

Clearance: 18" From Combustibles

Finish: Dull Black **ENAMEL** (Opaque Porcelain)

Olive Green **ENAMEL** (Translucent Porcelain)

Special Order Colors:

White **ENAMEL**

Red **ENAMEL**

Blue **ENAMEL**

Accessories:

Included: Spark Screen

NOTE: The above information was supplied by the Danish Manufacturer.

Heating With Wood Stoves

The following communique was received from Knud Larsen, General Manager of N.A. Christensen Company, Denmark, the manufacturers of the MORSØ cast iron stoves and fireplaces.

“Heating With Log Stoves”

“The temperature of ignition of wood is approximately 300 to 350 centigrades (600 to 650 F.) but the gases will leave the wood at temperatures around 250 centigrades (500 F.). Since the temperature of ignition of the gases is as high as 700 to 800 centigrades (1300 to 1500 F.) it is very important to make sure that the gases are lit. The heat losses are tremendous otherwise. Furthermore, if the temperature in the stove is too low the content of humidity and evaporated tar oil will condensate in the flue pipe system.

Every time a new log of wood is placed in the stove it is important that sufficient air be sent into the stove until the gases have burnt. Then the draft regulator can be closed slightly until the next log is placed in the stove. Only a few logs should be added at a time. Never fill the box stove with logs and treat it as a **coke** stove.

The heat from a log stove will fluctuate and the regulation cannot be controlled thermostatically (as in a coke or coal stove). The regulation is made by putting new logs into the stove.

When the gases have burned and the flames are dying out, only the live coals will remain and they are practically not producing any heat. The after heat comes from the stove. If the draft regulator is closed, the live coals will remain in the stove even after eight to ten hours, thus permitting one to light the logs used the next day.

A layer of ashes will improve the conservation of the live coals.”

Keeping in mind the above communication, we present to you the following information on operating efficiently the MORSØ stoves.

The burning of wood takes place in several stages. First, the moisture is driven off. As the temperature reaches about 400 degrees Fahrenheit gases begin to leave the wood. At 600 degrees the wood itself burns. At this stage the escaping gases have not yet been ignited. Then at about 1400 degrees, the gases ignite and only then can full combustion be achieved.

The gases represent a good part of the fuel value of your wood so you want to do everything you can to burn them. In addition, as these unburned gases travel through the smoke pipe and chimney along with the moisture of combustion, they condense on the inside surfaces to form undesirable creosote deposits. To assure that these gases are burned, thus maximizing heat and minimizing creosote, you should:

1. Always burn dry seasoned hard wood. Much of the heat in the log is used to drive off moisture. Another reason for burning dry wood is that less moisture is deposited in your chimney.
2. Make sure you have a good bed of ashes and hot coals in the firebox before adding wood.
3. If you use large diameter logs, place a few smaller diameter pieces in first and perhaps a few around the sides too.
4. Use a larger draft opening for awhile after you add wood to promote higher firebox temperatures. The opening can be reduced as the fire becomes hotter.
5. If someone can be in attendance during the stove's burning cycle, (we know this is not always possible) it is good to add a log or two at a time to an already hot fire and then give the stove a fair amount of draft. This will insure a fire hot enough to burn the gases.

Avoid loading it full on top of just a few embers, then turning the draft way down. This practice provides enough heat to drive off all the gas in the wood but not enough heat to burn the gases. The result is creosote deposits in the stove, smoke pipe and chimney.

By operating the stove in this manner you will get far less creosote and much more efficiency from a small hot fire with a few logs rather than a large load of smouldering logs.

The final stage of the burning cycle is reached after all the volatile substances have been driven off and mostly charcoal remains.

Since less air flow is needed for efficient burning of charcoal you may use a very small draft opening yet still achieve unusually high efficiency. Almost no heat is being lost up the flue with such a small draft setting.

At night or during prolonged absence from your home, you will want your stove to burn on a low heat for the longest possible time. Fill the stove and burn it a while until you have plenty of charcoal, then reduce the draft just before leaving. Your fire will hold well with little chance of creosote deposits. NOTE: Burning the fire hot when reloading allows the stove pipe and chimney to become warm enough to melt any creosote deposits which might have occurred during the slow burning process. The melting creosote then runs back down the pipe and into the stove and is reduced to ash. This keeps your chimney clean.

Proper Loading and Burning of the MORSØ

Box Stoves

1. Protect the bottom plate from extreme heat by allowing an ash build-up of an inch or so to always remain in the stove. Once you have this "insulating blanket" of ashes, the fire burns much hotter and the wood burns more completely. The ash buildup and the necessity to remove ashes is greatly reduced. Alternate suggestions for protecting the bottom plate would be to line the bottom with refractory or to place a layer of sand in the bottom of the stove. We find sand to be messy.
 2. Place two or three balls of crumpled paper in the front of the firebox.
 3. Lay small dry sticks (kindling) on top of the paper.
 4. Light the paper and close the stove door.
 5. Spin the draft control to the left until it is in full open position.
 6. Once the kindling is burning briskly, being careful not to smother the fire, add several full length logs of three inch or four inch diameter. With a full draft the smaller logs will quickly be reduced to a nice bed of coals.
 7. When ready to reload the stove, rake the coals to the front of the firebox. A stove poker is provided with each stove.
 8. Add more logs. Fill the stove completely if you desire a fire that will burn for a long period of time. A larger log will burn slower and hold a fire longer. Smaller logs burn faster and hotter and give quick heat.
 9. The draft control can be adjusted at this point. Spin the control to the right to lessen the air intake. The more you close the draft control, the lower and slower the fire will burn. By experimenting, you will be able to determine the proper setting.
- NOTE: The strength of the chimney draft is affected by moisture, content of wood and weather conditions such as moisture, barometric pressure, wind and temperature. A more open draft control will be needed if you have (a) low pressure, (b) damp air, (c) no wind, (d) low temperatures or (e) wet or green wood.
10. As long as there are hot coals in the stove, repeating steps eight and nine will enable you to maintain a continuous fire. Hence our favorite saying, "MORSØ mornings are warm and one fire will last all winter long."
 11. Ash removal is best done before adding a large load of wood. Push the hot coals to the back of the firebox. Rake the ashes forward and remove with a shovel. NOTE: Leave the necessary inch or so blanket of ashes for protection.

Fireplaces — 1122 and 1125

1. Before lighting your first fire open the damper by turning the knob on the flue collar to a vertical or open position.
2. Place crumpled paper and/or kindling directly on the bottom and light.
3. Once the kindling is ignited, being careful not to smother the fire, add three or four small logs across the kindling as you would in any fireplace.
4. After the added logs have caught fire, the damper in the collar can be closed slightly. If it is closed too much, smoke will come out into the room.
5. With screen in place, sit back and enjoy the beauty and warmth of your first MORSØ fire.

NOTE: We find it of interest that the MORSØ screen is perforated rather than mesh. This reduces the front opening of the firebox by 50% and thereby decreases the flow of warm room air up the chimney. Since this does not hinder viewing the fire, it is just another way MORSØ has of increasing the efficiency of the fireplace.

Stove — 1125

6. Instead of using the screen, close the doors and operate the 1125 as a stove. Screen may be stored beneath the stove on brackets provided.
7. The door handle is the draft control. The handle shaft is hollow and when in full closed position (as far left as it can be turned), allows enough air for a slow burning fire. As the handle is turned to the right, the doors remain locked but move outward slightly to allow an even air flow into the firebox along the top and bottom of the doors. This increases the combustion and results in a hotter fire.
8. Decide the length of time you want the stove to burn unattended and load the wood accordingly.
9. For short burning periods or for optional use as a fireplace, rake the hot coals forward and place one very large log or several smaller logs horizontally across the ridged firebrick.
10. All day burning can be accomplished by loading the stove with several large logs or as many small or split logs as possible when placing horizontally. Start by positioning the handle vertically and adjusting slightly left or right to achieve the desired heat output.
11. All day and all night burning (approximately twenty-four hours) would necessitate standing as much wood as possible in the firebox. When the wood is being burned in the vertical position, do not use the stove as a fireplace. If you must open the doors, do so very carefully and check the position of the wood. The wood could possibly have fallen forward against the door during the burning period. Once again position the handle to achieve desired heat output.
12. Ashes should be removed periodically using a shovel.

Installing Your MORSØ

Assemble your MORSØ following the directions supplied by the manufacturer.

Clearances

Your MORSØ must be placed at a safe distance from **any** combustible. This includes furniture, rugs, newspapers, stacks of wood, etc., as well as walls which are papered, panelled, painted, etc. Refer to the specifications supplied by the manufacturer for minimum clearances. **IMPORTANT:** In all cases, the clearances specified in your local building and fire codes will apply. Consult them.

If it is not convenient for you to place your stove the required distance from the wall due to space or aesthetic reasons, a wide selection of non-combustible coverings are available. These materials provide safety and enhance the beauty of the entire installation.

A hearth made of non-combustible material is required to be placed under a stove or fireplace. Floor protection must extend at least eighteen inches in front of the unit to protect the floor from hot sparks or ashes. Your MORSØ dealer can suggest a list of available materials and methods of installing. The materials include, but are not limited to, the following:

1. Masonry type — permanent type installations with greatest aesthetic value.
 - a. brick
 - b. stone
 - c. glazed brick or tile
 - d. stucco
 - e. prepared slate (kits)
 - f. imitation brick (kits)
2. Stove boards — portable, easy to install, available in a variety of sizes.
 - a. metal covered asbestos boards
 - b. prefabricated tile covered masonry pads
 - c. cement asbestos board (4' x 8' sheets)
 - d. flagstone or slate slabs (sized)
 - e. metal tray filled with pebbles or crushed stone
 - f. metal stove pads (sized)

Placement

A wood stove is a space heater and uses no ductwork or pipes to convey heat to remote parts of the house. Locating the stove is important. Here are a few suggestions to assist you in placing your stove.

1. Place in or near rooms where you will be spending most of your time. You will want it warmest in living, dining or kitchen areas. The bedrooms will tend to be cooler, but most folks like it this way. Air is constantly moving upward around the stove then across the room to remote points of the house. There, cool air is displaced and returns to the stove to be heated. This is called convection. Even the bedrooms will get heat.
2. Place a large stove in a large room or one that has large or numerous doorways leading off it if you want to heat the whole house. If it is in a small room with only one door, for example, that room will be too warm. The heat will not move out fast enough. If it is necessary to do this:
 - a. Install a low speed wall fan to move air to the next room.
 - b. Put a grate with adjustable louvers in the ceiling. This permits heat to rise into the overhead rooms.
3. If you want to heat a second floor, you will find that some heat will radiate right through the floor, but opening the stairway doors is even more effective. We know of numerous two story homes with up to seventeen thousand (17,000) cubic feet being heated solely with the 1125. The stove most generally is placed in a large living room and the heat radiates through the ceiling and also rises up the stairway.
4. For a house with many small rooms, it is best to install two or more small stoves.
5. Stoves placed in basements will provide heat upstairs. More heat will transfer upstairs if the door leading down into the basement is left open.

Smoke Pipe

MORSØ box stoves come with a special heavy gauge smoke pipe designed to last many years. If you examine a section of it closely, you will notice the small end fits downward into the stove and each section above fits **INTO** the large end of the pipe below. The smoke will not come out of the joints. The pipe must be installed in this unusual way to keep any moisture or creosote in the pipe from running on the outside of the pipe.

Basic rules of thumb for installing smoke pipe are:

1. Always install the small end down or pointed toward the stove.
2. Keep the amount of pipe between the stove and chimney to a minimum especially with a horizontal run. A six or eight foot vertical run into a metal chimney causes no problem.
3. Minimize the number of elbows.
4. Install at least eighteen inches away from a combustible.
5. Avoid thin gauge smoke pipe — use at least twenty-four gauge or heavier if possible.

High quality pipe for the 1125 is available from your MORSØ dealer. The same rules of installation apply. Pipe for the 1122 fireplace is five and one-half (5½) inch diameter pipe. Extra pipe, elbows and adapters to six inch have been imported from Denmark and can be ordered by your MORSØ dealer.

THE CHIMNEY

General Information

A proper chimney is most important to the satisfactory operation of any wood heating system. Your chimney installation must comply with your local fire and building codes.

The taller the chimney the stronger and more dependable the draft. It must also be free of any air leaks and should be kept warm. When wood burns, water vapor and smoke are given off. Both will condense on the inside of the chimney as creosote in excessive amounts if the temperature of the chimney is under approximately 250 degrees Fahrenheit. You are always going to get some creosote so the warmer the chimney the less creosote and moisture you will have. You need a warm chimney to increase the draft.

To insure a warm chimney install both masonry and metal prefab chimneys inside the house where they will be protected from the cold. As an added bonus, you will benefit from all the heat radiated by the chimney. In years past this was standard building practice. Chimneys should always be insulated.

To prevent downdrafts be sure the top is at least two feet higher than the ridge (peak) of the roof. If the top is not near the peak, then it must be two feet higher than any point on the roof ten feet away. It must rise three feet above a flat roof. Tall buildings or trees near the chimney top may still create downdrafts under certain wind conditions. Increasing the height or adding a turbine at the top may be the only solution.

Prefabricated metal chimneys are lower in cost than masonry with one possible exception. If a seven inch or larger diameter outside chimney is needed, concrete block may cost less.

Installations involving two or more stoves connected to one chimney are more critical and must comply with local fire and building codes. Your MORSØ dealer will be happy to handle the installation of your chimney or he will recommend a contractor who specializes in stove installations. Ask his advice.

Chimney Fires

Chimney fires rarely happen. You must be aware of the possibility and take steps to prevent them from happening. If you have permitted a heavy layer of soot to build up in your chimney, an intense hot fire could ignite it. Call the Fire Department if you cannot immediately smother the fire. In the event of a chimney fire, your MORSØ stove can be used to an advantage. Being an air-tight stove, closing the draft control (or the doors on an 1125) cuts off the air supporting the fire. The pipe connections between stove and chimney must also be air-tight for this to work.

The best insurance against chimney fires is to minimize soot. Burning trash in your stove could cause a soot build-up. It is our belief that a creosote build-up would melt and run down into the stove rather than ignite. It is, however, important to minimize the creosote build-up as this would affect the draft of the chimney. The chimney should be inspected periodically and if found to be necessary, clean the smoke pipe and chimney using a stiff bristle or wire brush on a pole. You could also pull chains, a weighted sack containing rags or paper, or a small bunch of weighted tree branches up the chimney.

Avoid roaring fires in your fireplace models, as this could carry flames into the pipe and chimney causing a fire. An open fireplace burns the wood less efficiently and could cause a soot build-up in your chimney. A fireplace chimney should be inspected more often than a stove chimney.

Metal Chimneys

Your MORSØ dealer can supply you with a complete metal chimney along with do-it-yourself instructions. A prefabricated chimney will work very well with your MORSØ. It should have the following characteristics:

1. Underwriters Laboratories (UL) Listed.
2. Double wall non-corrosive steel with one inch of insulating material.
3. Easy installation with hand tools.

The prefabricated chimney heats up quickly, induces a good draft, stays warm and can be easily installed by the homeowner with ordinary hand tools.

Use of single wall pipe as chimney installed out a window or through a wall or roof is against all fire codes (to my knowledge), is dangerous and will cause serious creosote problems. Single wall pipe tends to rust out quickly, stay colder, increase creosote and lessen the draft. Moisture condensing in large quantities on the inside at the top or at the bottom (elbow) can actually freeze the pipe shut and block the draft completely.

Ordering a Metal Chimney

Diagrams of chimney installations have been included on the two pages following this section. This should assist you in ordering a prefabricated chimney. When ordering a manufacturer's approved insulated chimney, supply your MORSØ dealer with the following information:

1. Installation number (see Types of Chimney Installations).
2. Roof pitch.
3. Chimney length below roof (distance between ceiling and roof exit point or wall exit point to roof edge).
4. Chimney height above roof. (The rule is two and ten. The chimney must be two feet above the ridge or two feet above any point on the roof ten feet away from the chimney). NOTE: Chimney must be three feet above roof. Heights of five feet or more should be guy wired or supported for safety.
5. The total run of chimney is figured by adding together the length below the roof and the height above the roof.
6. Wall thickness if applicable.

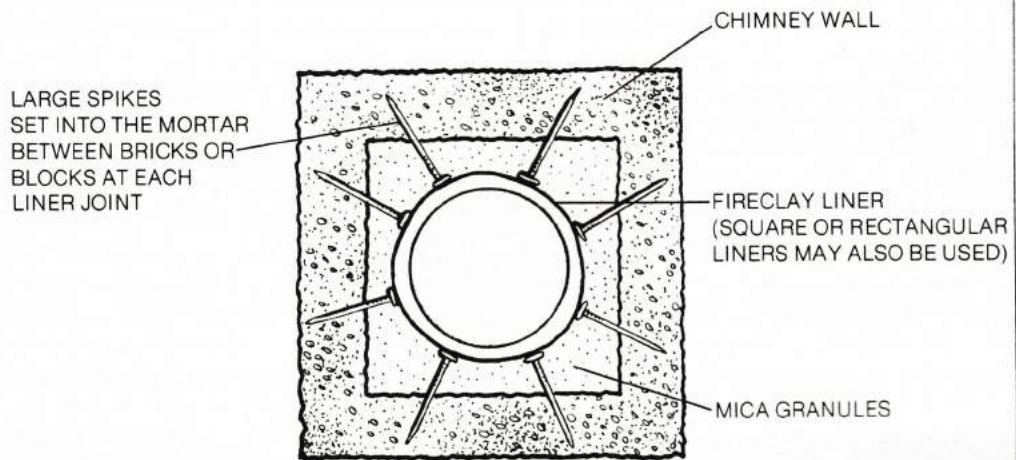
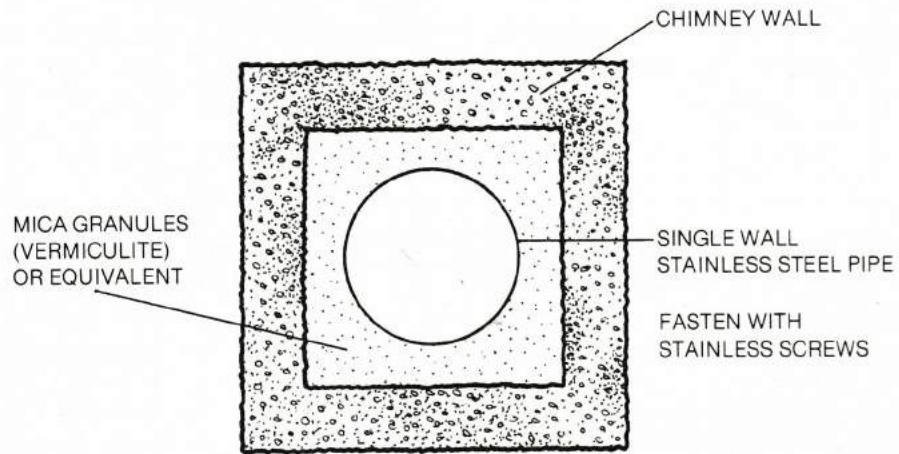
Masonry Chimneys

If you must vent your stove into an existing masonry chimney, make sure the mortar is sound and above all, be sure it has a fireclay liner. If there is no liner, install a single wall pipe inside the chimney using two foot lengths of stainless steel pipe. Such pipe is commercially available. Never use galvanized pipe for such an installation as the acidic nature of the deposits in the pipe will rapidly dissolve the galvanizing and rust through the pipe. To promote a warm chimney, always fill the void between the pipe and inside of the chimney with vermiculite (mica) granules or equivalent non-combustible insulating material. The section around the liner should be sealed completely with mortar to prevent moisture in the insulating material. The two diagrams illustrate the two types of liners installed with the insulating material.

If you have a new masonry chimney built, be sure to include the following features:

1. Vitreous fireclay liner at least 5/8" thick and seated one on top of the other in refractory mortar. A round liner is preferred since it will give a better draft than a square one of the same dimensions.
2. The void between the liner and the inside of the brick or concrete block should be filled with vermiculite (mica). This will insulate the chimney against cold. In the event of a chimney fire, the insulation prevents excessive heat from being transmitted to combustible parts of the house.
3. Below the smoke pipe opening include a pocket to catch and hold accumulations of soot and creosote.
4. At the bottom of the soot pocket place a cleanout door; otherwise, you have to clean the chimney through the smoke pipe opening. The cleanout door should be kept tightly sealed to prevent loss of draft at the stove.
5. Proper smoke pipe connection is necessary. Use a round fireclay pipe with a tight fit to chimney liner. It must not extend into the liner. If the smoke pipe passes through a combustible wall, it must be surrounded on all sides by at least eight inches of masonry, asbestos packing or equivalent.

MASONRY CHIMNEYS

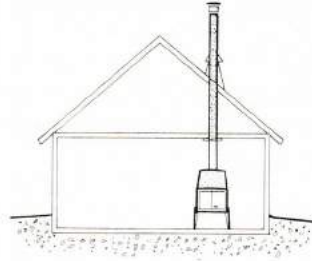


TYPES OF CHIMNEY INSTALLATIONS

Installation #1 Flat ceiling with attic space.

Parts needed:

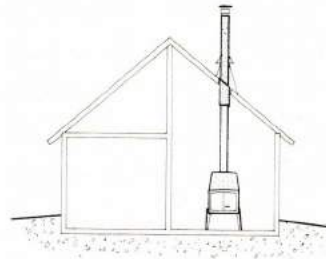
- 1 - Flush support box
 - 1 - Roof Flashing
 - 1 - Storm Collar
 - 1 - Rain Cap
- Enough insulated pipe to reach total height.



Installation #2 Open beam or cathedral ceiling.

Parts needed:

- 1 - Long Support Box
 - 1 - Roof Flashing
 - 1 - Storm Collar
 - 1 - Rain Cap
- Enough insulated pipe to reach total height.



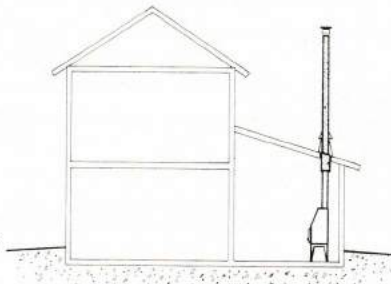
Installation #3 Porch or room addition with open beam ceiling and flat roof.

Parts needed:

- 1 - Long Support Box
- 1 - Storm Collar
- 1 - Roof Flashing
- 1 - Rain Cap

Enough insulated pipe to reach total height.

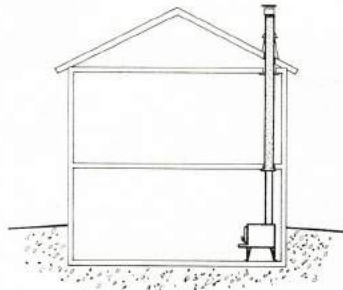
NOTE: If installation is within 10' of vertical walls, dormers or higher roofs, increase chimney height to 2' higher than any point 10' away.



Installation #4 Multi-floor installation with flat ceilings and attic space.

Parts needed:

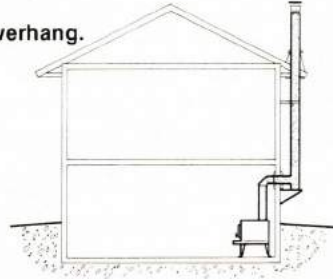
- 1 - Flush Support Box
 - 1 - Fire Stop (for each additional ceiling)
 - 1 - Roof Flashing
 - 1 - Storm Collar
 - 1 - Rain Cap
- Enough insulated pipe to reach total height.



Installation #5**Through the wall — up the outside of the house — through a roof overhang.***Parts needed:*

- 2 - Wall Spacers or Collar Spacers
- 1 - Insulated Tee
- 1 - Wall Band or Strap Spacer for each 8' of wall
- 1 - Firestop
- 1 - Roof Flashing
- 1 - Storm Collar
- 1 - Rain Cap

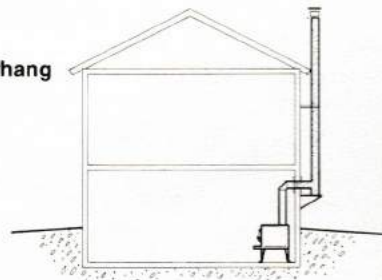
Enough insulated pipe to reach total height.



Installation #6**Through the wall — up the outside of the house — no roof overhang***Parts needed:*

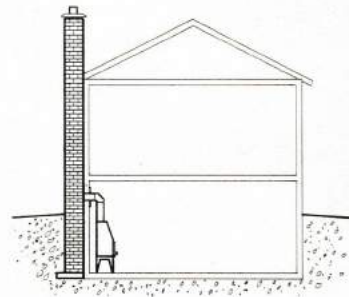
- 2 - Wall Spacers or Collar Spacers
- 1 - Insulated Tee
- 1 - Tee Support
- 1 - Wall Band or Strap Spacer for each 8' of wall
- 1 - Rain Cap

Enough insulated pipe to reach total height.



Installation #7**Through a combustible wall into a masonry chimney.***Parts needed:*

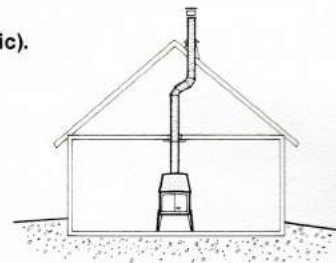
- 2 - Wall Spacers or Collar Spacers.



Installation #8**Offset installation — bypassing the ridge (or obstacle in the attic).***Parts needed:*

- 1 - Flush Support Box
- 2 - Insulated Elbows
- 1 - 12' pcs. Insulated Pipe
- 1 - Roof Flashing
- 1 - Storm Collar
- 1 - Rain Cap

Enough insulated pipe to complete the total run.



FACTS ABOUT WOOD

Through the ages, man has used wood for heat. During the nineteenth century, wood was the primary source of heat in the United States. It was used not only for heating and cooking but, in many instances, as industrial fuel. There was never any worry about using all the wood and leaving the country bare of trees.

Our ancestors, who were accustomed to burning wood, knew that wood was a renewable fuel, that it is a crop the same as wheat or corn only it will re-seed itself. They also knew that a stand of trees left unthinned would result eventually in a stand of evergreens and that the soil under the evergreens would not grow anything. They knew the fallen wood which had been toppled by storms was good heating wood. The dead and diseased trees were good heating wood and their removal improved the forest. As a point of interest — trees left to rot on the ground release the same gases into the atmosphere as burning wood.

Of course there are many more people today, a century later, but not as many heating their homes exclusively with wood. Actually, if one-third of the people today were to heat exclusively with wood, there would be far less wood consumed than during the nineteenth century when virtually everyone heated and cooked with wood, and large amounts were consumed as industrial fuel. Stoves are also much more efficient today. In many cases, only one-third the amount of wood is burned for the same given period as burned in the inefficient stoves of yesteryear. It takes less effort to heat the insulated homes of today.

It might be of interest to you that the following acres of forest land (taken from a 1955 chart) are still standing in the United States!

- 180,000,000 — Owned as National Forests
- 53,722,000 — Owned by other Federal agencies including Indian Reservations
- 38,000,000 — Administered by State, Municipal and County Governments
- 345,000,000** — Private Ownership
- 616,722,000 — Total available acres of forest land.

The breakdown of private ownership is as follows:

- 36,600,000 — lumber companies
- 14,800,000 — pulp companies
- 139,100,000 — farmers
- 154,500,000 — small tract owners — non-farmers

I suspect that the acreage is far greater now than in 1955. Our conservation groups have greatly improved restoration, controlled cutting or thinning and control of forest fires. The regrowth on the tracts of forest owned by lumber companies is in some instances faster and greater than they can use it. A supply of wood is not a problem. Wood is a renewable fuel and is the least expensive of all fuels.

Solar Heat

Solar heat for homes may soon be realized. Great strides are being taken every day to make solar heating inexpensive enough to become a primary source of heat. Solar heating will require a back-up system and the natural choice is wood.

Wood is a solar fuel. During the many years of growth of a tree, the leaves use solar energy to make sugar from carbon dioxide and water. From sugar, by intricate chemistry, the wood of a tree is eventually built. As the cells of the tree live, grow and reproduce, they use some of the sugar made by the leaves, minerals taken from the soil and tremendous amounts of water. This chemical reaction, which occurs within the leaf of a tree, is the only known natural exchange that can store the sun's energy.

If you are planning a home heated by solar heat, it might be well to take a long look at the MORSØ 1125 stove and fireplace combination. This unit provides the aesthetics expected

of a fireplace and, when needed, becomes one of the most efficient stoves money can buy. What better back-up system for solar heating?

How Much Wood Will You Need?

Wood heat is a constant heat. When an even constant heat is maintained without cooling down periods, less wood is required to maintain the desired temperature in your home. A manually controlled air-tight stove uses less wood than a thermostatically controlled air-tight stove.

It is very hard to give an exact amount of wood you will need to heat your home. Statistics indicate you should divide the number of gallons of oil used per winter by 200 (200 gallons of oil equals one full cord of wood) to get the number of cords necessary. However, in actual usage of the MORSØ 1125 stove, the amount of wood required for one winter varied between two and four cords depending on the size of the house. For example, one ten room, two-story home which normally used 2000 gallons of oil per year, was heated using three cords of wood. Had the formula been applied, the number of cords required would have been nine and one-half approximately. The MORSØ saves you money.

Sources of Wood

Many people own their own wood lot. For those of you who must consider an outside source for wood, we offer the following suggestions:

Free Sources — always get permission before removing wood.

1. State and National Forests. Check with county forestry agents and forest rangers for a permit to remove weed trees and dead wood.
2. Private owners of forest tracts. Volunteer to thin crowded trees and remove dead and fallen trees.
3. Construction sites. Tops and often trunks of trees are left after clearing for highway right-of-ways, power lines, and housing sites.
4. Logging operations. Often left behind are cull logs and tops.
5. Pruning operations along streets, in orchards, and power lines.
6. Dumps and landfills.
7. Look around after storms for toppled trees.

Inexpensive Sources

1. Manufacturers of wood products often discard ends, scraps.
2. Sawmills. When a log is sawed into lumber, slabwood is generated. It consists of about half bark and half wood and makes a fairly good fuel. The heat value is not as high as a complete log but if you pick it up at the mill, it is usually very inexpensive. The best slabwood would be oak which was debarked before sawing.
3. Logging companies often sell cull trees at low prices. You will have lots of splitting to do.

Buying Wood

Be sure you are getting a full measure. Order by specifying a full or fraction of a cord. A full cord is a stack of wood four feet wide by four feet high by eight feet deep. A face cord is a stack of wood four feet high by eight feet deep by whatever length of log you specify. For example, a face cord of twenty-four inch logs equals one-half of a full cord. Beware of being sold a "face cord" as a "full cord" of wood. Always stack the wood, measure it and

make sure you have the required number of cubic feet. A full cord is 128 cubic feet. A pick-up truck will hold approximately a half cord of wood.

Selecting, Cutting and Drying Wood

Obtain the species with the most weight per cord. The heavier the wood, the greater the heat output. You also would handle and use less wood over a winter's time.

Next in importance is moisture content. After cutting and splitting, dense species such as oak need up to a year or more to dry. By planning ahead you can always have dry wood on hand yielding fifteen to twenty-five percent more heat per cord. Age wood at least six months.

Seek out limbs and smaller trunks to avoid splitting. Cut to stove length immediately, split logs over five or six inches in diameter, and store in a shed or in a sunny, airy place. Outdoor stacks should be kept off the ground and protected from rain.

The Characteristics of Wood Chart will help you manage your wood supply. It tells which woods (1) give the most heat, (2) improve the most with seasoning, (3) are most resistant to rotting, (4) are easiest to split.

Rotten wood is very low in heat value and makes a very poor fuel.

COMPARISON OF HEATING COSTS

TYPE OF FUEL	QUANTITY	AVAILABLE HEAT PER MILLION BTU*	EFFICIENCY OF HEATER	USABLE HEAT PER MILLION BTU	COST OF FUEL	TOTAL COST OF USABLE HEAT
Wood ¹	1 Cord	25.9	70% ²	18.12	\$50/Cord	\$50.00
Oil	199 Gal.	27.86	65%	18.12	\$.42/Gal.	\$83.58
Electric	5,294 Kil.	18.12	100%	18.12	\$.034/Kil. ⁴	\$180.00
Gas	24,160 Cu. Ft.	24.16	75%	18.12	\$.00378/Cu. Ft. ⁵	\$91.32
Coal ³	2195 lbs. (1.1 Tons)	17.87	65%	18.12	\$65/Ton	\$71.50

NOTE: The Quantity shown of each fuel yields the same heat to the homeowner.

For example:

1 cord of wood burned in a 70% efficient stove yields the same heat as 199 gallons of oil burned in a 65% efficient burner.

1. White Ash Air Dried 20% Moisture Content
2. Large Scandinavian stoves when operated as recommended by the manufacturers and using seasoned wood, can easily attain an efficiency of 70%. Box stoves with heat exchangers can attain up to 80% efficiency when operated as recommended by the manufacturer.
3. Anthracite pea coal.
4. Electric Rate Includes Fuel Adjustment Charge
5. Natural Gas Price Includes Fuel Adjustment Charge

* BTU Ratings For All Fuels Taken From ASHRAE Guide.

SPECIAL NOTE: This chart was authenticated by John Burton of Enola, Pa., and Roy Weeks of Halifax, Pa., owners of Burton-Weeks Wood Heating.

CHARACTERISTICS OF WOOD

Species Listed in approximate order of density	Available Heat per cord in Millions of BTU		Percent more heat from air dry wood	Dura- bility*	Split- ability**	Weight Lb/Cord 20% Moisture
	Green Wood	Air Dry Wood				
Hickory	21	25	19	4	2	4400
Oak, White	19	23	18	2	3	4400
Maple, Sugar	18	21	16	4	2	4100
Beech, Amer.	17	22	26	4	3	4000
Oak, Red	18	21	19	3	3	3900
Birch, Yellow	17	21	23	4	2	3800
Pine, Yellow	14	21	44	3	1	3700
Ash, White	17	20	21	4	3	3700
Elm, American	14	17	20	4	3	3400
Maple, Red	15	19	22	4	2	3400
Birch, Paper	15	18			2	3400
Fir, Douglas	13	18	38		1	2900
Pine, E. White	12	13	10	3	1	2200
Aspen	10	12	25	2		2160

*Durability Key: 1 — Perishable
 2 — Intermediate
 3 — Durable
 4 — Most Durable

**Splitability Key: 1 — Easy
 2 — Intermediate
 3 — Hard

NOTE: Durability has nothing to do with the hardness or softness of the wood itself, but whether or not it is susceptible to rot and fungi.

Splitability of the wood is important. The straighter the grain, the easier to split. Wood with knots or wavy, twisting grains is very difficult to split and should be used as whole logs.

The above chart was compiled from many sources and is meant to be used as a guideline only.

GLOSSARY OF TERMS

- Air Dry** — Wood containing 20% moisture.
- Air-tight stove** — one with all seams filled and a very tight door. No air can enter the stove except at the draft control. Gives the operator full control over burning rate.
- Box Stove** — A four legged, rectangular or oval shaped stove with draft at one end. Generally not convertible to a fireplace.
- BTU** — British Thermal Unit — the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit.
- Baffle Plate** — holds the hot gases and heated air in the stove longer causing them to travel a longer path before exiting; brings and holds them in close contact with the stove plates. This results in more heat from the same amount of fuel.
- Charcoal** — Wood after all volatile substances have been heated and driven off. Consists mainly of carbon and gives intense efficient heat.
- Chimney** — An upright tube for conducting smoke and gases from the house. Can be heavy masonry or a pipe consisting of two or more layers of steel which are insulated.
- Condensate** — the liquid resulting when water in vapor form contacts cool surface.
- Convection** — Heat transfer by warmed room air moving by gravity to other parts of the house. One method a stove heats your home.
- Cord** — A stack of wood which is four feet wide by four feet high by eight feet long and contains a gross space of 128 cubic feet.
- Creosote** — The black tar-like substance which is deposited on the inside of stoves, smoke pipe and chimneys.
- Cubic** — A measure of volume which is calculated by multiplying width times length times height.
- Damper** — A flat round plate located inside the pipe collar or smoke pipe used to change the strength of the chimney draft.
- Draft Control** — Any device used to change the amount of combustion air admitted to the firebox. Sometimes called a draft regulator.
- Efficiency** — The quality of producing the maximum heat with the least wood.
- Front End Combustion** — Combustion air enters the stove at the front and burns the wood from front to back.
- Face Cord** — Wood cut twelve, sixteen or twenty-four inches long and stacked four feet high and eight feet long. This is not to be confused with a "cord".
- Green Wood** — Wood that is still standing or just freshly cut and has the highest moisture content. This is not to be confused with wet wood.
- Heat Exchanger** — The arched chamber added to a box stove to increase efficiency.
- Radiation** — Heat transfer from a stove directly to another surface such as a wall, furniture or you without affecting the temperature in between.
- Refractory** — A ground-up asbestos substance mixed with concrete and applied to the bottom of a firebox to provide added protection against burn-out.
- Roof Pitch** — The measure of steepness of a roof expressed as the number of inches the roof rises for each foot of horizontal run.
- Smoke Pipe** — Stove pipe. A single wall pipe venting the stove to the chimney.
- Stove Rake** — Tool shaped like a hoe used to manage ashes and embers in a wood stove.
- Vermiculite** — A trade name for fluffy granules of expanded Mica. This substance is non-combustible.

the **morsø** story

MORSØ Cast Iron Stoves and Fireplaces are made by the N.A. Christensen Company of Denmark. The company was founded in 1853, and between that time and 1945 it grew and prospered as wood was the prime fuel source in Denmark. However, because wood was scarce throughout much of Europe it was necessary to keep making improvements in the design so that the stoves would give off more heat while burning fewer logs.

Between 1945 and 1973 oil central heating systems became the primary way of heating homes in Denmark. Then the oil crisis of 1973 hit Denmark as hard as it did the United States. The need for additional heat sources brought the wood burning stoves and fireplaces back to a renewed place of prominence.

Now Morsø is expanding the line of wood burning stoves and fireplaces. Old designs are being revised and new designs created to meet new market requirements.

The Morsø stoves are all cast iron with a vitreous enamel finish designed for long burning and even heat radiation. The stoves are constructed to be air tight and they have a controlled draft air intake which eliminates the need for a thermostat.

Production facilities are constantly being modernized and enlarged to meet the rapidly increasing demand for our stoves. However, our products still retain the hand-crafted quality of the past.

The pride of the skilled Danish craftsmen who make these stoves and fireplaces is reflected in the quality of the product. It is obvious to all who own and use them.