

Prefabricated Chimneys

Prefabricated metal chimneys provide a wide variety of options for anyone considering a wood stove installation. Homeowners are no longer restricted to the traditional brick or stone chimney, which are often prohibitive because of cost or design considerations. Metal chimneys allow for a lot of flexibility for locating a stove in either an existing or new home, and are relatively inexpensive and easy to install.

Metal chimneys are most commonly fabricated with double or triple wall galvanized or stainless steel. Double walled chimneys have mineral wool insulation packed in between the two walls. Triple wall chimneys rely on air ventilation between the two outer layers to keep the exterior of the chimney cool. In either case, they must be rated "UL Class A - All Fuel Approved to 2100° F". The 2100° test standard will be indicated on the chimney label. A Class A chimney is needed to be safe in the event of a chimney fire or other period of excessive heat. Woodstock Soapstone carries Selkirk's Metalbestos Platinum Series of stainless steel Class A chimney pipe. It has a twist-lock system that is safe, durable, and comes with a limited lifetime guarantee. Metalbestos chimney pipe has a 2" clearance to combustible building components.

Tapping into an existing metal chimney?

If you are replacing a stove and plan to use the existing prefabricated metal chimney, it is a good idea to check a few things out first. 1) Make sure the chimney is labeled for 2100°. 2) Check to make sure the chimney has been installed properly and meets all clearance requirements. 3) Compare the flue size to the stove you will be installing. (See "What Makes a Good Chimney").

Woodstock Soapstone's Fireview and Classic Models have a six-inch flue collar and six-inch stovepipe and chimney pipe is recommended. The Keystone and Palladian models have a seven-inch flue collar but can be used with either six or seven inch pipe (six inch pipe requires a reducer).

A. Quick Pipe Primer

When installing a metal chimney system it is important to understand the difference between stovepipe and chimney pipe.

1. Stovepipe

Stovepipe is also referred to as connector pipe because it connects the wood stove to the chimney pipe. It can be single or double walled, but is neither insulated nor air-cooled and it has greater clearance



requirements. Stovepipe cannot penetrate either a ceiling or wall. It must transition to chimney pipe. Once it makes the transition, you will have to run chimney pipe from that point forward.

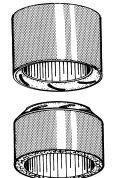
2. Double Wall Pipe

Double-walled stovepipe (or Close Clearance pipe) is another type of connector pipe that allows for reduced clearances to combustible surfaces. Typically, double wall pipe can be installed within 6" of a combustible surface. Double-wall pipe cannot penetrate a ceiling or a wall. Single wall and double wall stovepipe cannot be combined in the same installation.



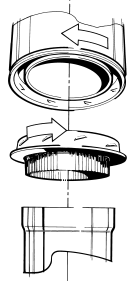
3. Class A Chimney Pipe

Class A chimney pipe is UL rated to 2100° and is approved for passing through walls and ceilings in conjunction with other components such as wall thimbles or firestops.



Critical Component: The Chimney Pipe Adapter

Any prefabricated chimney needs to have a way to convert the thick stainless steel Class A pipe to the standard single or double wall stove pipe that connects the chimney to the stove. In the Metalbestos system, that piece is the Chimney Pipe Adapter. On one end it has the same twist lock feature as the chimney pipe, and the other end fits inside single or doublewall stovepipe.

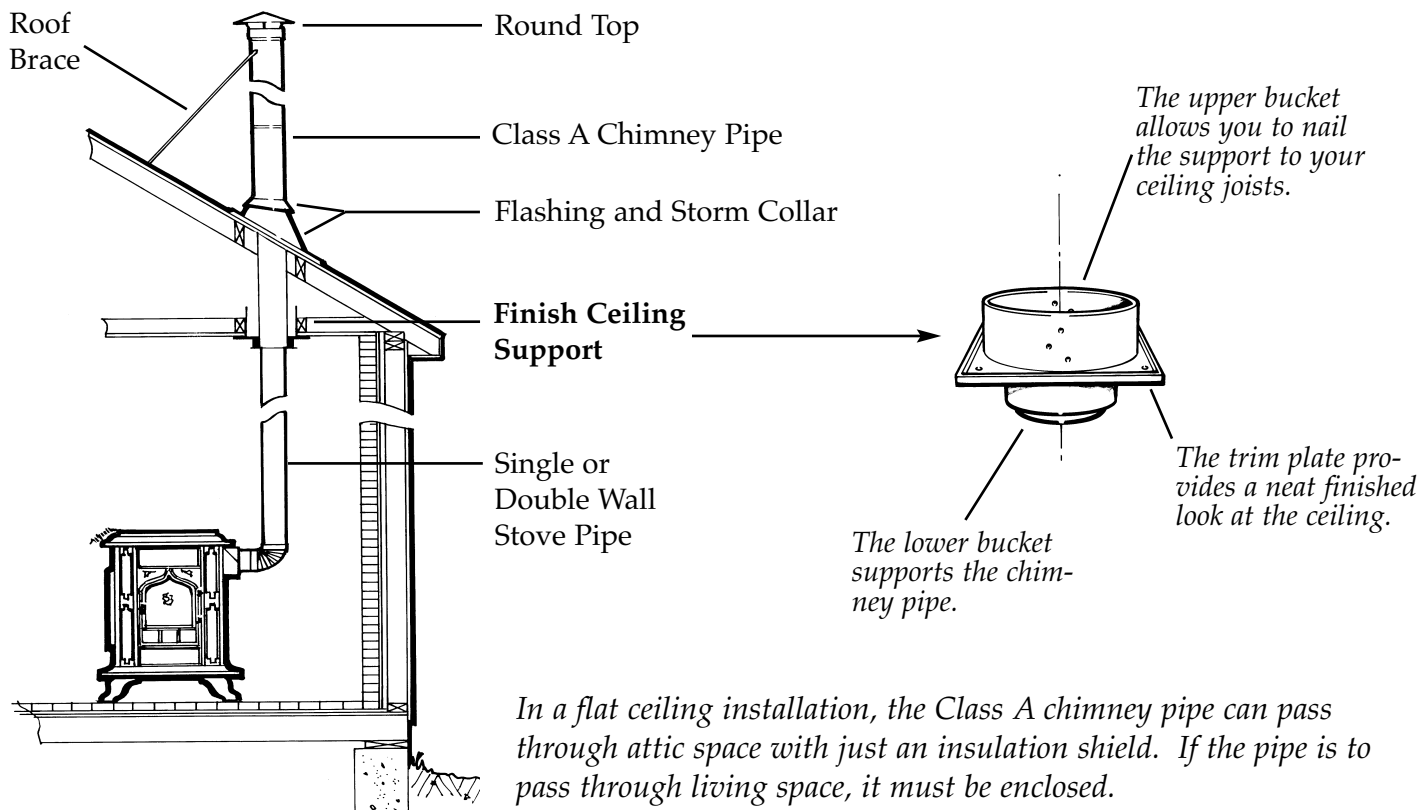


B. Three Common Chimney Designs

Choosing where your stove will sit in the house has to be considered in conjunction with how the chimney will be installed. There are typically three options for where to install a chimney: 1) run the chimney through a flat ceiling and up through the roof, 2) go up through a cathedral or pitched ceiling and roof, or 3) go through the wall and up along the outside of your house. In each instance, the chimney for a wood burning stove must end high enough above your roof to meet safety codes and ensure good performance.

If your stove location gives you a choice of going through the ceiling or out through the wall, it is always better to go through the ceiling. An interior chimney is vastly better for ensuring good draft because the pipe stays inside the heated part of the house longer - keeping smoke hotter. (See "What Makes a Good Chimney")

Installation 1 - Flat Ceiling Through the Roof



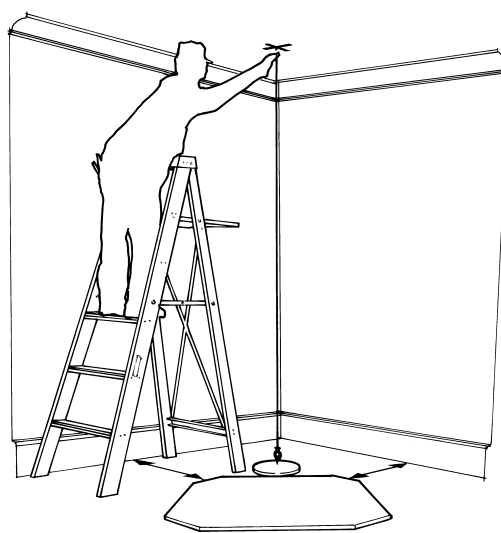
Installing a chimney in a room with a flat ceiling is quite straightforward. Your stovepipe will start at the stove's flue collar and go up to the ceiling. The Finish Ceiling Support will be installed in the ceiling to provide the necessary clearance and structural support for up to fifty feet of chimney pipe.

The upper bucket of the Finish Ceiling Support is nailed or screwed into a 12 $\frac{1}{4}$ " x 12 $\frac{1}{4}$ " rough opening between the ceiling joists. This framing will be concealed by a trim plate on the kit that mounts flush to the finished ceiling. The lower bucket provides the support for the chimney pipe. A Chimney Pipe Adapter is attached to the bottom piece of chimney pipe and extends down through the lower bucket into the room. The Adapter makes the connection from the chimney pipe to the stovepipe. If there is insulation above the ceiling, you will need to have an Attic Insulation Shield to prevent the insulation from coming in contact with the chimney pipe.

From the ceiling level, Class A chimney pipe continues up through any attic or second floor space and through the roof. The Adjustable Flashing and Storm Collar provide lateral support and protect against rain and snow leakage. A Round Top chimney cap is added to the last section of chimney pipe to keep out rain and snow as well as birds or other small animals that might be tempted to nest in the chimney.

Since stove placement determines chimney place-

ment, it is helpful to know exactly where you want the stove and that it meets all clearance requirements. The stove doesn't have to be in place to begin installing your chimney, but the location of the flue collar should be verified before you begin. It is helpful to make a cardboard template the same width and depth as the stove in order to



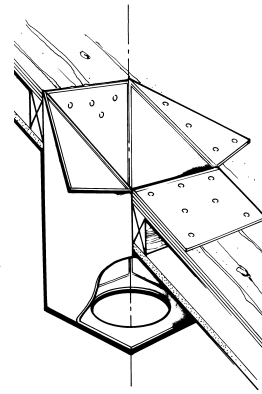
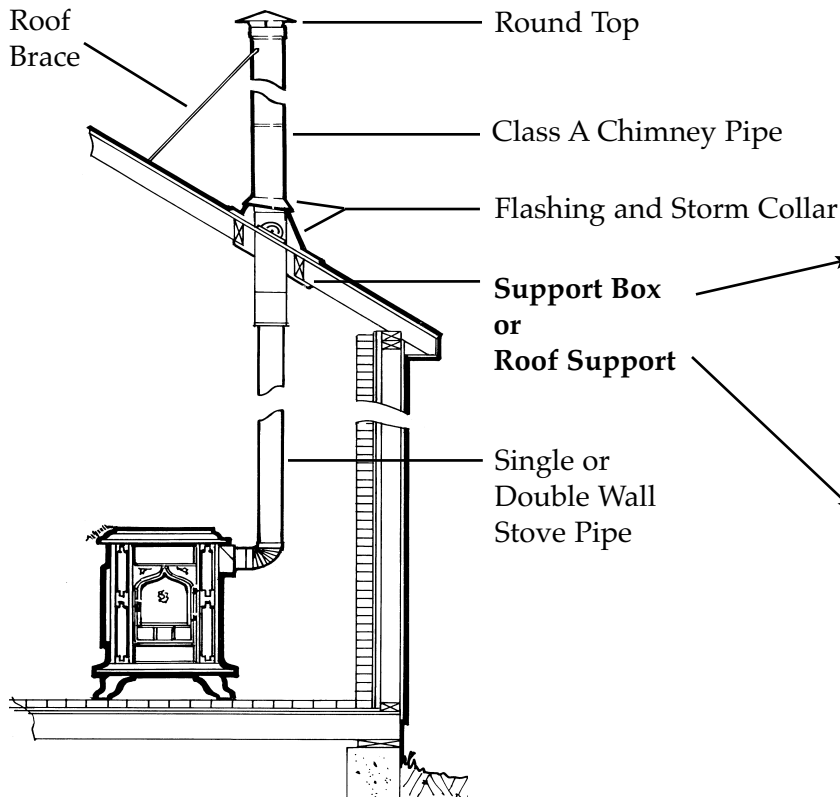
"lay out" your installation and make sure pipe will be straight and plumb.

Once you've got your location laid out, you just need to determine the pipe you need. You'll find instructions for figuring pipe lengths at the end of this article.

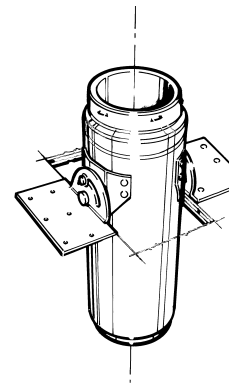
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Installation 2 - Pitched (or Cathedral) Ceiling Through the Roof



The Support Box
A support box can hold up to 20' of chimney pipe. It is a metal box that can be painted to match the color of the castings on your stove. The box is cut and the flaps laid back and secured to roof joists. The box effectively hides the stainless steel pipe from view inside the room.



The Roof Support
A roof support kit is an 18" section of Class A chimney pipe with two "wings" attached. The wings are secured to the roof joists and provide support for up to 30' of pipe. Several inches of the stainless steel pipe will extend down into the room.

When you have a pitched ceiling, your chimney pipe will be supported by the ceiling joists and hang down into the room 3-12 inches. There are two support options for this type of installation - the Support Box or the Roof Support Package. The key differentiator for most people is style. The Support Box conceals the stainless steel pipe that penetrates below the ceiling and the Roof Support would allow that stainless steel pipe to be visible in the room.

The Support Box is a metal box (painted to match the casting color of your stove) that hangs down from the ceiling and conceals the stainless steel chimney pipe. It is surrounded by a piece of metal trim to create a finished look on the ceiling.

We recommend the Support Box for folks who prefer not to see any of the stainless steel pipe in the living space. It is typically used in A-frame construction, mobile homes, or scissor truss systems. The Support Box can support up to 20 feet of chimney pipe. The box is sized to fit between 16" on-center rafters or trusses and provides a finished connection with the stove pipe at the ceiling level. A Chimney Pipe Adapter is attached to the bottom piece of chimney pipe and extends down through the flange on the bottom of the Support Box into the room. The Adapter makes the connection from the chimney pipe to the stovepipe.

The Support Box can also be used in a Cathedral

ceiling where there is no space between the ceiling and roof deck. In this case, you will have to use tin snips to cut the corners of the box where it protrudes through the roof and fold the sides down flat onto the roof deck (see above).

The Roof Support Package provides for a clean, simple installation where having a short length of stainless steel chimney pipe (about three to twelve inches) visible at the ceiling is acceptable. It consists of an 18" length of chimney pipe supported by two brackets that sit flat on the roof joists. The bracket system provides the necessary two-inch clearance to combustible materials and can support pipe above and below (up to thirty feet total).

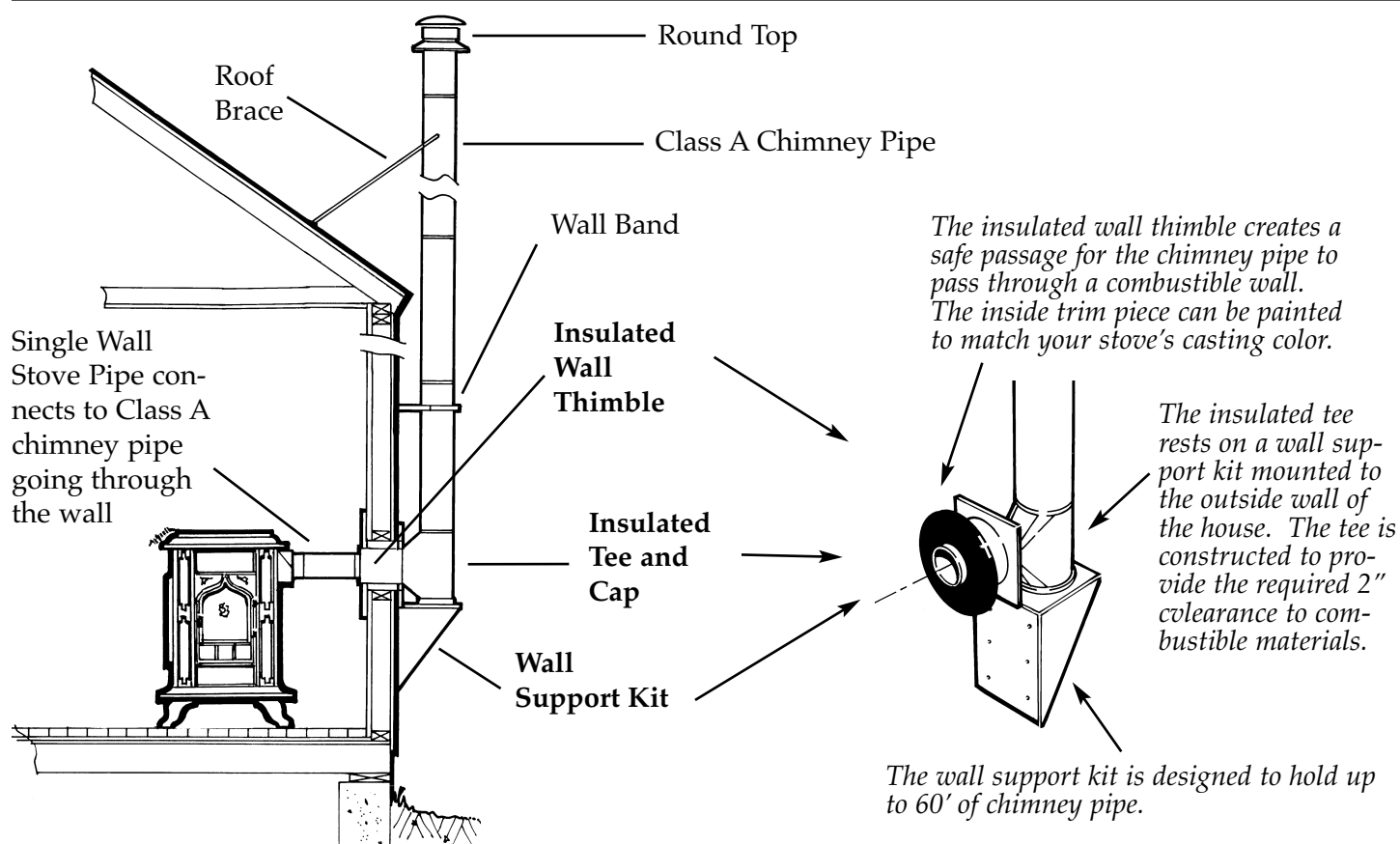
With a Roof Support, the opening in the ceiling is trimmed with a Pitched Ceiling Plate. This metal trim creates a frame around the stainless steel chimney pipe as it descends from the ceiling. The trim is 16.5" wide and can be painted to match the color of your stove's castings. Single or Double Wall Stove pipe is attached to the chimney with a Chimney Pipe Adapter and trimmed with a Finishing Collar at the connection.

Where the chimney pipe passes through the opening in the roof, an Adjustable Flashing and Storm Collar provide lateral support and protect against rain and snow. A Round Top chimney cap is added to the last section of chimney pipe to keep out rain, as well as birds or other small animals that might be tempted to nest in the chimney.

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Installation 3 - Through the Wall



If your stove location requires your chimney to pass through an exterior wall and run vertically up the side of the house, Metalbestos has a kit to get you through the wall safely. While the Metalbestos system is completely safe to "stand alone" we would highly recommend building an insulated chase around the pipe on the outside of the house to help keep it warm. This will help promote good chimney performance and reduce creosote formation. (See "What makes a good chimney").

The support for a thru-the-wall kit includes a Class A Insulated Wall Thimble framed in a 12 1/4" x 12 1/4" opening in the wall with Class A pipe running through it. The Wall Thimble ensures the clearances needed for safety. The Wall Thimble telescopes from 6" to 11" to accommodate walls of various thickness. It also provides a trimmed appearance to cover the wall cutout.

A 9" or 12" section of Class A chimney pipe is typically used to pass through the wall thimble and the wall. Several inches of this stainless steel pipe will be visible in the room. You will need a piece of stove pipe to connect the chimney pipe with the stove. There should be a 1/4" rise for every foot of pipe to keep the flue gases moving upward. The stove pipe connects to the chimney pipe with a Chimney Pipe Adapter. A Finishing Collar provides a trimmed appearance at this connection.

Once through the exterior wall, the chimney pipe

connects to an Insulated Tee. The Tee provides a 90° turn and a clean-out. The tee rests in the Wall Support Kit, a structural support that is usually lag-screwed to the side of the building. It can support up to sixty feet of chimney pipe. Wall Bands are collars that attach the chimney pipe to the side of the building every eight feet for stability and to maintain the required 2" clearance.

If you have to run your pipe through an overhanging eave, you will also need an Adjustable Flashing and a Storm Collar to provide lateral support and protect against rain and snow leakage. You will need to know your roof pitch to select the correct Adjustable Flashing. A Pitched Ceiling Plate can be used to trim the cutout at the underside of the overhang.

If you choose to jog around the overhang, you will have to add a 15 or 30-Degree Elbow Kit and a piece of pipe between them to provide the correct offset. Thirty-degree elbows are the maximum allowed. This method is costly and cumbersome and not generally recommended. If at all possible, try to plan your chimney to run up a gable end, which in most cases will have a minimal overhang, if any.

A Round Top chimney cap should be added to the last piece of chimney pipe to keep out rain and snow, as well as birds or other small animals that might be tempted to nest in the chimney.

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How Much Pipe?

For any of the three common chimney designs we've described, your job isn't complete until you figure out the total length of chimney pipe you need. There are two parts to this calculation: 1) measuring the pipe you'll need to penetrate the roof, and 2) calculating how much pipe you will need to extend above your roofline.

For **interior** systems, your Class A pipe begins at the support component. For a flat ceiling, you will need to measure from the ceiling in the room with the stove right up through upper floors, eaves, and attic to the roof. For pitched ceilings, your measurement begins at the ceiling and should include any attic space.

Four Key Measurements for Interior Chimneys

- A -- The floor to ceiling height where the stove will be located. If there are two stories, you will also need the floor to ceiling height of the second floor.
- B -- The distance from the floor of the eave or attic to the roof (where the chimney passes through). In some types of construction, this will be the height of roof trusses.
- C -- The distance from the chimney to the peak of the roof (measured horizontally).
- D -- The pitch of the roof (rise over run).

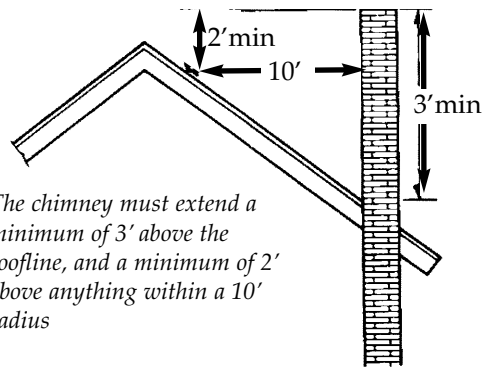
For **exterior** chimneys, your insulated tee will provide 6" of vertical rise outside the house. You'll need to measure from the centerline of the wall pass through to the roof and then subtract the 6" for the tee. From the roofline, follow the directions below to determine how much more pipe you'll need. Remember to include a length of pipe for passing through the Wall Thimble and a Wall Band for every eight feet of vertical pipe.

Four Key Measurements for Exterior Chimneys

- A -- The distance from the floor to the centerline of the wall pass-through. (22 $\frac{3}{4}$ " or higher for our stoves)
- B -- The distance from the centerline of the wall pass-through to the roof line. (If offsetting around an overhang, you will also need to measure the width of the overhang.)
- C -- The distance from the chimney to the peak of the roof (measured horizontally).
- D -- The pitch of the roof (rise over run).

Once you have your measurements to the roof, you are ready to calculate the amount of pipe extending above the roofline. This calculation is based on the pitch of your roof and the oft quoted "3-foot, 2-foot, 10-foot rule". This is a long-standing design requirement established by tradition (look around at brick chimneys in old colonial homes) and research, and it's required by the National Fire Protection Code. It means that the chimney must rise at least three feet higher than the roof where it passes through on the uphill side, and it must be at least two feet

higher than any part of the roof within ten feet (measured horizontally).



The chimney must extend a minimum of 3' above the roofline, and a minimum of 2' above anything within a 10' radius

This is where knowing your roof pitch comes in. Roof pitch is the number of inches the roof rises vertically for every twelve inches it runs horizontally. It is expressed as inches of rise/inches of run, such as 3/12, 4/12, 5/12. To figure out how much pipe you will need above your roof line, multiply the rise or numerator of your roof pitch (3 or 4 or 5, etc.) times ten and add 24 inches. This is the total number of inches of pipe you will need above where you penetrate the roof.

If your chimney will be less than ten feet away from the peak (measured horizontally), simply multiply the rise or numerator of your roof pitch by that number rather than by ten. Add 24 inches as before. If the chimney is close to the peak, your math might give you a total height that is less than 36". If it does, add what you will need to meet the minimum 36" requirement.

If you will have five feet or more of chimney pipe above the roof opening, you will need a Roof Brace Kit to stabilize the chimney in windy conditions. Steeper pitched roofs require higher chimneys, and often require at least one Roof Brace Kit.

Ninety-five percent of the chimneys we see fall into one of the three common designs above. If your installation is making you scratch your head or if you'd just like some help figuring out what your options are, just give us a call. We are happy to help talk through and design safe and effective chimney installations to go with our woodburning stoves. Our hours are 9am to 5pm Monday through Saturday at our factory and showroom in West Lebanon, NH or by phone, toll-free 1-800-866-4344.

