

JOB SURVEY

Initial Customer Contact

NOTE: CONTACT YOUR LOCAL BUILDING OR FIRE OFFICIAL ABOUT RESTRICTIONS AND INSTALLATION INSPECTIONS IN YOUR AREA.

When a prospective customer contacts you often their first question will be "How much will it cost?" Explain that only after examining the chimney can an accurate estimate be given.

Ascertain the prospective customer's full name, address, telephone numbers [including a work number] and accurate directions to the property. Ask the customer how he found out about your service and note it! This will tell you where your marketing is most effective. Show concern for the customers. Tell the customer about the features of the Supafly process, and how it can benefit them. Be sure to qualify the customer. Is the customer the property owner, tenant, or supervisor? Make sure the qualified owner/buyer is going to be present when you estimate the work! Ascertain the location of the chimney and its' accessibility so that you can take the necessary equipment. Be prepared to make a thorough inspection and to submit an accurate estimate. Ask for an appointment to inspect the chimney.

Before any estimates are written, gather as much information about the chimney as possible:

1. The extent of chimney damage.
2. The number of chimneys to repair
3. The height, size, and existing use of the chimney
4. What are the customers main concerns?

Gathering Job Information

You may need the following equipment on a job survey:

1. Supafly estimating form
2. Supafly retail brochure and sales book for the customer presentation
3. A light for inspection
4. Video inspection device
5. Tape measure
6. Mirror and any further equipment such as ladders, etc. you may require making a thorough inspection.

Chimney Inspection

Is the chimney structurally sound? If you answer "yes" to these questions, **STOP!**

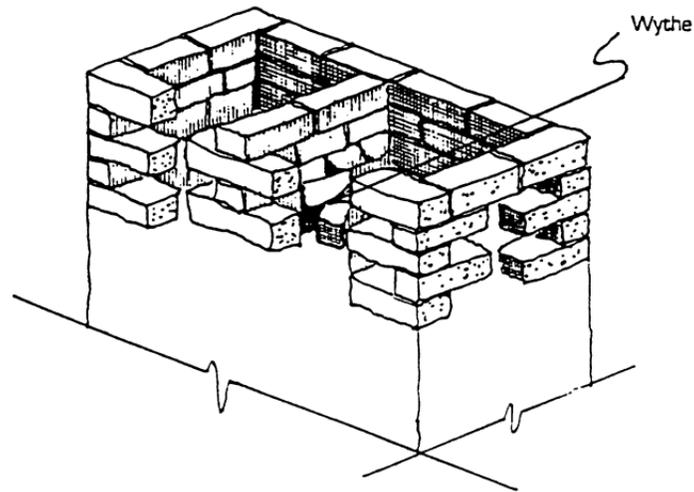
Without a proper foundation or footing, the chimney will never last. You may need to pour a new footing. This usually requires razing the chimney and pouring a new footing. In colder climates the footing will require a depth of 4 feet or more. In any event the footing must exceed the typical frost line for the area.

Begin your inspection in the basement. Proceed through the house toward the attic. Be thorough. Inspect the outside of the chimney last. Access the roof and use a light or video inspection device to inspect the inside of the chimney.

Note: Inquire of the customer as to his intentions for the chimney [gas or oil furnace, wood furnace, woodstove, etc]. These factors will determine the size of the finished flue.

Number of Flues

Upon inspection you may find more than one flue in the chimney. However your customer may only want one flue lined. It is important here that the customer is aware of the fact that it is often impossible to line just one flue. Lining a single flue of a multi-flue chimney may cause problems. Often the wythes separating the flues are in poor condition and can break open during a pour. Should a wythe break open, the Supaflu may run into the other flue. In most cases, it is impossible to repair the mid-wall due to its poor accessibility. In such cases, both flues would have to be lined. [See figure below]



Chimney with deteriorated wythe, lining just one flue could be a problem.

Make it absolutely clear to your customer about the risk involved in lining only a single flue. Give them the cost for lining all the flues one time. State that if you line only one and a break occurs in the wythe, it may be necessary to line the other flues to remedy the situation. The additional cost would then be the original quote for the entire chimney plus any additional labor and materials.

Type of Appliance Served

It is important to note the make and model of each appliance in use or proposed to be used on the chimney, as you may need to contact the manufacturer for recommended flue size. If the appliance is unlisted, you may not be able to obtain the required flue size. Make this fact known to the customer and enter it on your proposal as a condition of sale. In this case do not install a flue smaller than the exhaust size of the appliance.

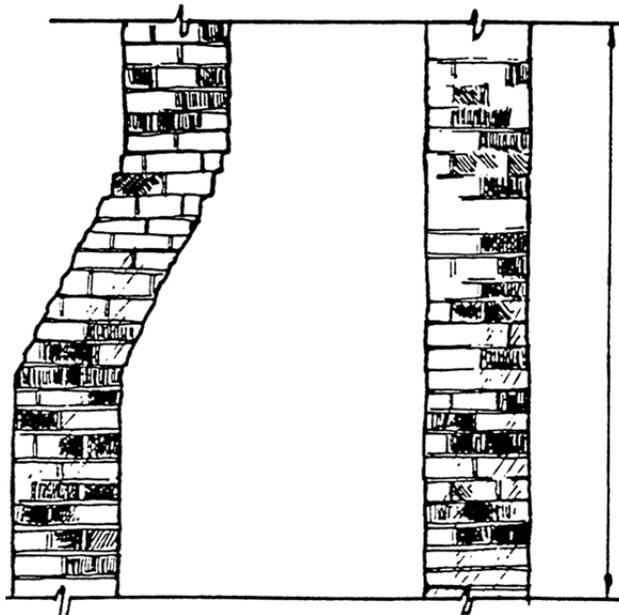
Chimney Height

Measuring the height of a chimney is easy and can be accomplished several ways. One method is adding the height of the rooms plus one foot to the height of the attic, and the height of the stack above the roof. [See example on next page] Another is to add the courses of brick with 4.5 courses equaling one foot; or you can simply drop the end of a tape measure down the chimney. **NOTE: The height of the existing chimney shall be a minimum eight (8) feet to a maximum of eighty (80) feet.**

Example:

| | | |
|--------------|------------|---------|
| Basement | 8 + 1 | 9 Feet |
| Living Room | 8 + 1 | 9 Feet |
| Bedroom | 8 + 1 | 9 Feet |
| Attic | | 10 Feet |
| Above Roof | 18 courses | 4 Feet |
| Total Height | | 41 Feet |

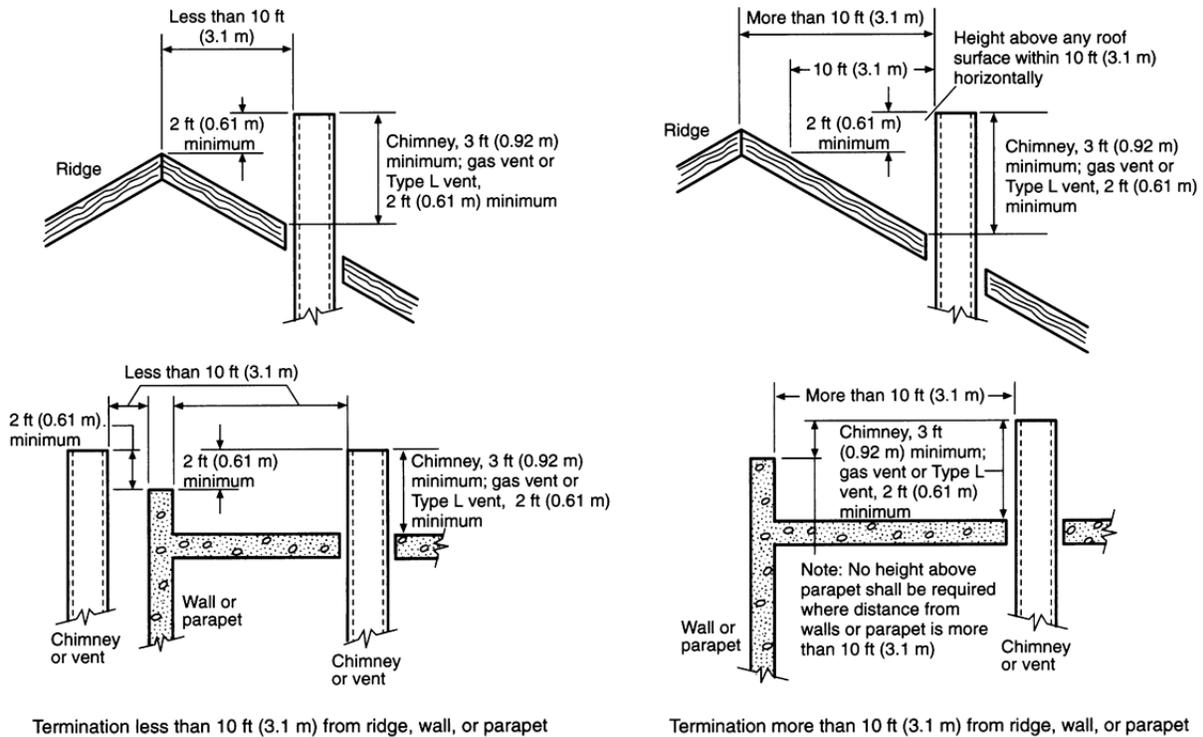
NOTE: If there are offsets presents within the chimney casing, this will add to the amount of Supafarm needed.



Chimney with an offset will require additional length of Supafarm.

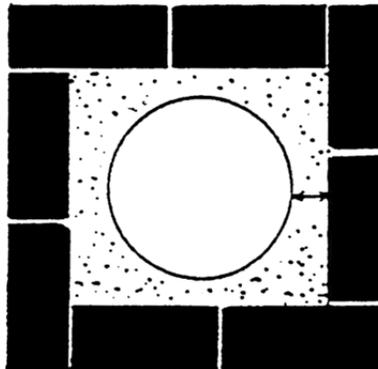
Check for Proper Chimney Height

A chimney, which does not have proper height, may not vent properly. Insure that the chimney extends at least 3' above the roofline. Also, the chimney top must be at least 2' higher than the roof peak or highest portion of the structure within 10' horizontally. [See figure below] If the chimney is too short, determine the length it must be extended.



Size of Flue

Measure the flue width and depth through any access such as cleanout doors, thimbles, or at the top of the chimney. Make sure that the flue size required for the appliance to be served does not exceed the maximum size you can install.



Minimum thickness of Supaflu liner.

NOTE: Underwriter's Laboratories tested the Supaflu liner system to UL1777 with a zero-clearance to combustible materials. The minimum liner thickness was 5/8".

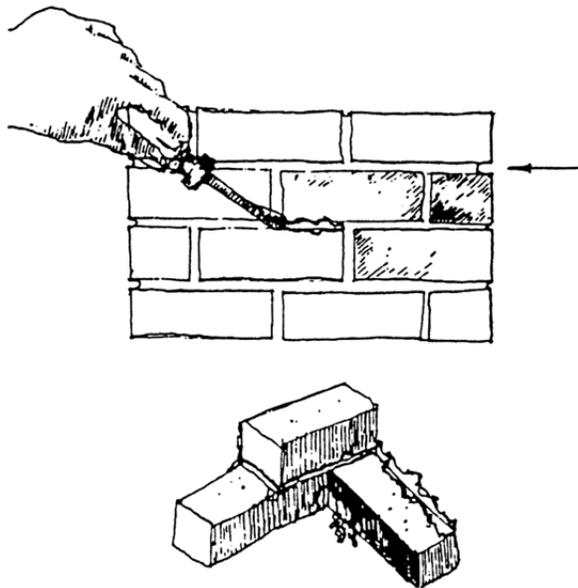
Voids in the Wythes

When you are inspecting the chimney from the roof, look for damage to the wythes. If voids are found, you will need additional Supaflu material to fill in these voids.

Fireplace Opening

For a flue servicing a fireplace, measure the frontal opening of the fireplace and estimate the height of the flue above the smoke chamber. This information is required to calculate the proper flue size for fireplace.

Condition of the Stack



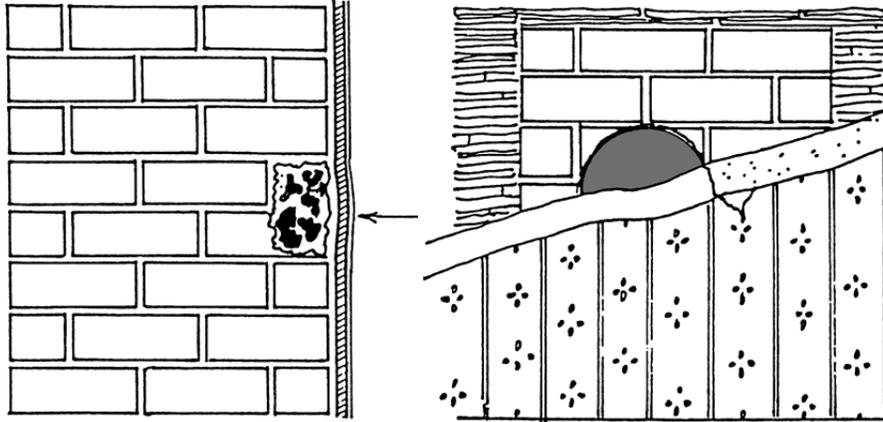
Make a note of any defective brickwork on the chimney, which should be repaired or repointed. Look for areas where creosote has leaked through or where the customer has knowledge that smoke has entered the living space. If bricks are loose, repair/replace this section. If the bricks are solid but the mortar has been depleted by more than 1/2" on the outside, this area will need repointing. Where smoke has leaked or where a large amount of seeping creosote is evident, interior erosion of brick and mortar joints has probably occurred. Take a knife and rake a "head" or vertical joint between bricks. If the knife can break through to the interior in less than two inches, this area is unsafe and must either be repointed or adequately braced prior to the Supaflu lining being installed.

Note the condition of the stack above the roof. Is it sound enough to be lined without being repointed or re-bricked first? If not repair must be done prior to lining.

Missing/soft mortar should be replaced before lining

Location of Thimbles

Be thorough when noting the number and location of thimble openings whether active or not. Ask the owner if they know of any holes that have been sealed up. Look in each room that the chimney passes. Shine your flashlight on the chimney wall, particularly walls that have been plastered over. Look for raised oval areas. This is an indication of old thimble openings. Tap on the wall to find hollow areas. Many times thimbles are merely plugged with metal caps. If you find such a hole you must brick the hole closed. Such places are weak areas and should be watched carefully during a pour. Note all active thimbles and those that the customer wants eliminate. [See figures below]



Suitability of Supaflu for Gas-Burning Appliances

With the advent of high efficiency gas appliances, a question is often asked whether we can install a Supaflu liner into a masonry chimney serving a gas appliance.

To answer this question, you must first determine if the appliance can be vented in a masonry chimney. If so, then the answer is yes, the chimney can and should be Supaflu lined. NFPA 54 "National Fuel Gas Code" permits use of a masonry chimney with category I appliances, as specified in the following table:

| Appliance Category ++ | Vent Pressure | Temperature Difference (Flue Temp – Dew Point)* | Comment |
|-----------------------|-----------------|---|--|
| I | Non-Positive ** | Over 140 F | Natural draft Venting |
| II | Non-Positive ** | Under 140 F | Materials must be corrosive resistant. Condensate must be drained. |
| III | Positive + | Over 140 F | Vent must be gastight. |
| IV | Positive + | Under 140 F | Vent must be liquid and gastight. Condensate must be drained. |

* Dew point is the temperature at which the water (or dew) in air will condense. Typical gas appliances operate at a dew point of about 140 F undiluted, and about 100 F if diluted.

** Non-positive vent pressure means that even if fans or blowers are used in the appliance or vent systems, venting is accomplished by natural draft. (The vent pressure is lower than the atmospheric pressure.)

+ Positive Vent means that fans, blowers, or other means are used to propel vent gases through the vent at above atmospheric pressure.

++ The newer models of appliances will be identified as Category I, II, III or IV on the nameplate on the appliance and will be stated as such in the manufacturer's installation instructions.

The equipment manufacturer must specify chimneys for Categories II, III, & IV. You may find the appliance category on the nameplate. If not, you may have to call the supplier. Generally, most conventional gas appliances are Category I.

Review Estimate

It is vital to review your estimate with the customer. In consultation with him, specify on the estimation form all the work to be done on the chimney. Notify the customer of all preexisting conditions that may issues after the work is completed such as missing shingles, broken windows, etc.

CHAPTER 2: JOB ESTIMATE

After you have completed the customer interview and your job survey, you can now prepare an estimate of what the job is going to cost the customer.

Base Price

This is the price for lining a single-flue straight chimney with a height of up to 30 Feet. This will require only a standard Supaform, one access hole, and the travel distance of twenty-five miles.

Cost Factors

You may need to adjust the base price for a lining job by including the some of the following cost factors:

- Building Permit
- Extended Chimney height
- Removing existing liner system
- Additional access holes
- Tuckpointing existing brickwork
- New chimney cap
- Debris removal
- Stage pour
- Multiple flues
- Roof scaffolding
- Building scaffolding
- Cold weather installation
- Offset flues
- Temporary flue
- Casting smoke chamber
- Insert positive vent
- Cleanout doors
- Thimbles
- Top & Wash
- Repair/Install roof flashing
- Travel & lodging

CHAPTER 3: MATERIAL ESTIMATE

1. Chimney flue cross section "C"

"C" = Width _____ x Depth _____ = _____ sq. in.

2. Find former cross section "A" (From Table 1)

"A" = _____

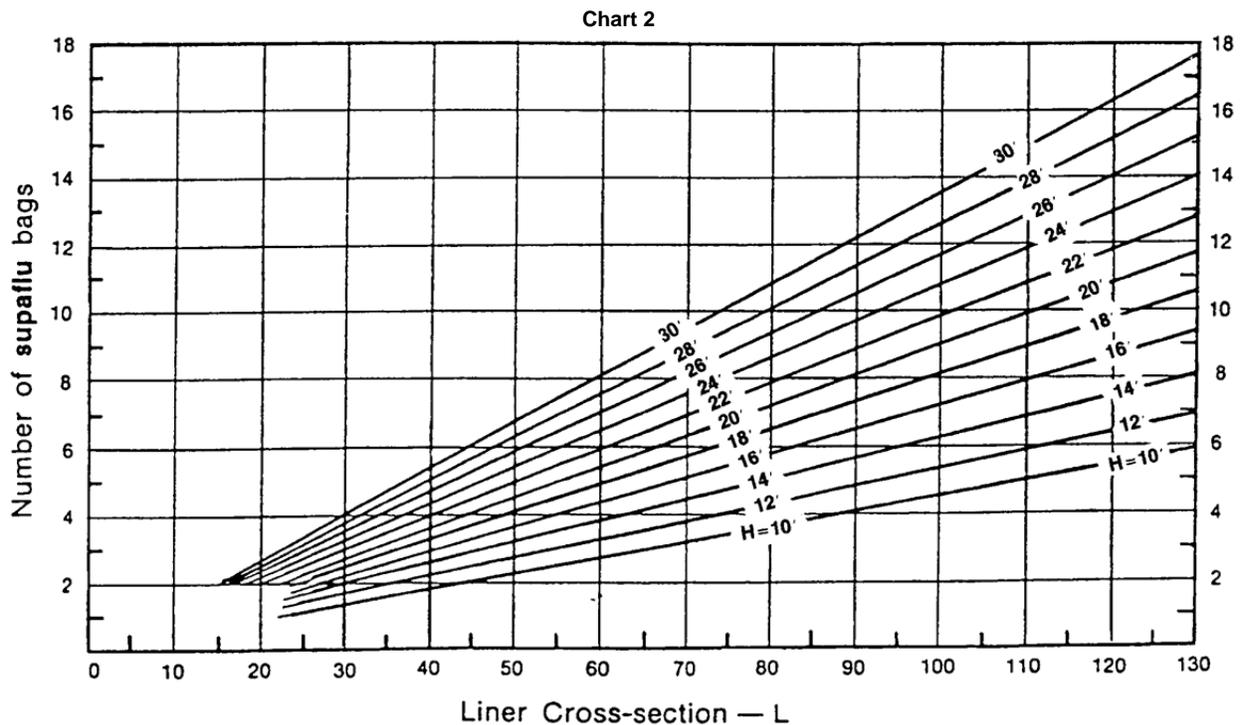
3. Calculate liner cross section "L"

"C" - "A" = "L" _____

4. Calculate Material Quantity from Chart 2 by locating the intersection of liner cross section "L" by the corresponding height of the chimney. Note: For chimneys over 30ft. in height, divide the height into two or more sections and add the total together. For "L" over 130 sq. in. divide "L" into two or more parts and add the total together.

Table 1

| Former Size | 4" | 5" | 6" | 7" | 8" | 9" | 10" | 11" | 12" | 14" | 16" |
|--------------------------|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| Former Cross Section "A" | 12 | 19 | 28 | 38 | 50 | 63 | 78 | 95 | 113 | 154 | 201 |



Example 1

Appliance: Fireplace with dimensions of 36 x 30

Flue Size: 12" x 12"

Chimney Height: 35'

Total Material: _____

Example 2

Appliance: Oil Furnace with 6" collar size

Flue Size: 8" x 8"

Chimney Height: 30'

Total Material: _____

Example 3

Appliance: Gas Furnace of 150,000 Btu

Flue Size: 8" x 8"

Lateral: 10'

Chimney Height: 20'

Total Material: _____

Example 4

Appliance: 2-sided fireplace: 1st side is 18 x 30, 2nd side is 36 x 30.

Flue Size: 12" x 16"

Chimney Height: 40'

Total Material: _____

Example 5

Appliance: Wood stove with 8" collar size. Oil Furnace with 6" collar size, no wythe.

Flue Size: 12" x 20"

Chimney Height: 25'

Total Material: _____

Example 6

Appliance 1: Gas water heater of 45,000 Btu, rise = 1'

Appliance 2: Gas furnace of 100,000 Btu, rise = 2'

Flue Size: 8" x 8"

Chimney Height: 15'

Total Material: _____