

DALE'S QUICK AND DIRTY OIL GUIDE

“It's as much (or more) about the connectors as it is about the chimney”

Keep these things in mind when lining oil flues

- The rules are in NFPA 31. Get it and read it. Most of them are in the NFPA 211 in fact.
- Most of your draft problems will come from the connectors, not so much the chimneys.
- Don't downsize the connectors or the chimney from the flue collar size even if the size is sufficient to handle the BTU input.
- The chimney has to be at least as big as the connector that comes into it (and presumably the same size)
- Generally speaking, jump up one size when adding a water heater and two sizes when adding a second burner. Checking the charts is best.
- Keep connections as short as possible; your connector run is supposed to be no more than 75% of the chimney height above the crock. Eg: If it's 15 feet above the crock to the top, then connectors should be no more than 10 feet. Good luck; a 6"x90 is worth 11' itself!
- Connector runs have to have a 2% incline to the wall (1/4" per foot)
- A good policy is to never use tees inline, and use 45s instead of 90s.
- Use smooth transition increaser/reducers rather than step style.
- Seal the pipes with high temp silicone and at least three screws.

BTU Input and Output

- BTU Input per hour is the nozzle size times 140,000 (or thereabout; it varies little with what oil is being used) So a unit with a .85 nozzle has a BTU input of 119,000 per hour. (140,000 x .85)
- BTU Output is the Input times the efficiency of the unit. There will be a metal tag someplace that tells you one or both of those numbers. Say the unit has an input of 119,000 per hour and is 80% efficient. The BTU output is 95,200 (119,000 x .80)
- If there's a service tag or sheet around, verify the nozzle size, just in case it's changed.
- Trying to use the charts and you don't have the needed figure, you can usually figure it out if you have some other numbers. Take what you can get of
 - BTU Input
 - BTU Output
 - Nozzle Size
 - Efficiency
 - Remember: fuel oil is about 140,000 BTU per gallon

BAROMETRIC DAMPERS

- It's a good idea to make the barometric damper one size bigger than the stovepipe
- Make sure you always go up one size with the barometric damper on chimneys over 16 feet tall (above the crock)
- Keep the barometric damper 18" from an el where possible.
- Closer to the chimney is better than closer to the appliance.

- Never install the barometric damper in the end of a tee (used as an elbow.) In fact, put it right in the chimney before you do that.
- Don't be afraid to change them out when you do a liner. They don't last forever and a new one is a good plan.

OTHER THOUGHTS

- It doesn't take much carbon monoxide to make people sick; if you clean or line oil flues, you'd be smart to take a draft reading when you're finished and record what it was on the customer's receipt. Carbon monoxide effects are cumulative. For people who don't go out side much or often, it only takes a little to get them very sick.
- Don't install power-venting equipment yourself. And it has to be wired back to other switches; way too easy to mess up. If you can't make the chimney and connectors right yourself, call in the oil guy. You aren't licensed or trained for it.
- I bought a good book that has all this plus a lot more. Advanced Residential Oilburners by George Lanthier; get it at www.firedragonent.com
- George says get a real manometer (draft guage) instead of one of the little pocket sized ones. Apparently they're so inaccurate that they're worthless.

Use the Right Thickness of Stovepipe

Galvanized Pipe Diameter	Use this Guage	
Up to 5"	26	
Sizes 6"-10"	24	
Sizes 12"-16"	22	
Over 16"	16	

How Many Feet of Run Do I Add for Fittings?

	3	4	5	6	7	8	9
Tee	19	25	31	38	44	50	56
Y	10	13	16	20	23	26	29
90	5	7	9	11	12	14	16
45	3	4	4	5	6	7	8
Reducers	See Chart	See Chart	See Chart	See Chart	See Chart	See Chart	See Chart

Capacity of Common Vents (multiple appliances) on Various Height Chimneys (Combined BTU Input Capacity)

Height of Chimney Above the Crock	Common Vent Size						
	4"	5"	6"	7"	8"	10"	12"
10	60	95	135	190	240	395	560
15	70	115	165	225	305	480	690
20	80	130	185	269	340	550	790
30		145	215	300	400	650	940
50				360	490	810	1190