



Leader Insulated Oil Arch



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Directions for a Leader Insulated Oil-Fired Arch

Preparing the Sugarhouse

There are some major decisions that go into planning and preparing a sugarhouse for a quick and smooth set up. Two of these decisions are: How much space do I need? and What kind of foundation do I need?

Space in the sugarhouse is an issue that people always think back and wish they had done differently, however there are some minimal guidelines we recommend. Leave six feet in the front of the arch for oil burners and maintenance, three feet at the back of the arch will allow room to clean out the back and put up or take down stack. Having four feet on each side will be sure to leave room for drawing off syrup and movement to do other chores within the sugarhouse. Just remember these are minimum recommended distances. Be sure to have plenty of space, it is better to have extra space, rather than not having enough. Think about possible expansions too, thinking of what space will be needed ten years from now will save aggravation in the future.

Foundations will also vary from sugarhouse to sugarhouse. There are two basic guidelines to follow for a foundation:

1. Have enough support that reaches deeper than the frost line.
2. Make all footers at least 12 inches wide planning the arch to sit in the center so it can slide a few inches in any direction (be sure to place a footer under the oil burner).

Be sure to use standard concrete for a sturdy and durable foundation. When done right the foundation is only done once.

Setting up the Arch

The first thing to do now that everything has been delivered or brought home is to check your parts list and be sure everything is accounted for. Now that everything is there you are ready to set the arch on the foundation:

1. Set the arch on the foundation, placing the leveling bolts in the center of the footers.
2. Level the arch by adjusting the bolts previously mentioned. Be sure that the arch is absolutely level, which will save time later in the set up process.

Oil Burners

The burners we recommend are the Carlin commercial oil burners, which run on either 110 or 220 volt circuits depending upon the size of the burner. Below is a chart that shows the size of the burner needed, the number of nozzles, and the firing rate in gallons of oil per hour for your arch.

All Carlin burners burn No. 2 fuel oil.

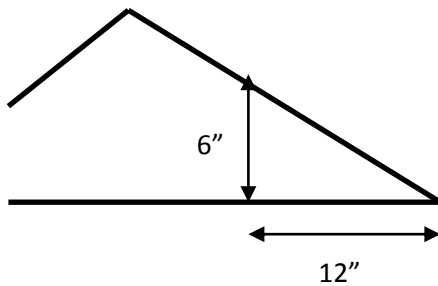
Evaporator Size	Size of Burner	Number of Nozzles	Firing Rate (GPH)
2 X 6	1 - 102	1 - 60° solid	3 - 3.5
2 X 8			3.5 - 4.5
30 X 8	1 - 301	1 - 60° solid	4 - 5
30 X 10			4 - 5
3 X 8			4 - 6
3 X 10	1 - 601 or	1 - 60° solid for 601	6 - 8
3 X 12	1 - 701(2 nozzle burner)	+1 - 45° solid for 701(45° low fire, 60° high fire)	8 - 10
40 X 12			12 - 14
40 X 14			12 - 14
4 X 12	1 - 801 (2 nozzle burner)	1 - 45° solid	12 - 14
4 X 14		1 - 60° solid (45° low, 60° high)	14 - 16
5 X 12	2 - 601 or 2 - 701(2 nozzle burner)	2 - 60° solid for 601	14 - 16
5 X 14		+2 - 45° solid for 701 (45° low, 60° high)	16 - 20
5 X 16			18 - 24
6 X 14	2 - 801 (2 nozzle burner)	2 - 45° solid	22 - 24
6 X 16		2 - 60° solid (45° low, 60° high)	24 - 30

Using the wrong nozzle combination will cause inefficiencies with your arch. Each individual set up will vary, and some will require customized set-ups, however contact us before making any major changes. A goal for efficiency with an oil fired arch is a stack temperature of 650-750 degrees F. Consult the instructions that come with the burner for wiring and installation. If you have any questions contact us here at Leader Evaporator 1-802-868-5444.

Putting up the Stack

The first thing to do is make sure you have the right amount of stack and that it is the right size according to the table below.

Arch Width	Stack Diameter (inches)	Total Round Stack (Ft)	Arch Width	Stack Diameter (inches)	Total Round Stack (Ft)
24	6	12	48	12	18
30	8	18	60	14	18
36	10	18	72	16	18
40	12	18			
**36" X 8' arch takes 8 inch diameter stack, 24" X 8' takes 15 feet of stack					



It is also highly recommended that you have a Leader style roof jack fitted for the pitch of your roof. Pitch is the rise in the roof over the run showed in a ratio, better explained if you measure in one foot along the plate from where it meets the rafter, and it's six inches from that point to the rafter you have a 6/12 pitch. The other distinguishing feature of a roof jack is whether it is a side pitch or a peak pitch. This is simple to decide, if the stack goes through the peak of the roof it is a peak pitch, if the stack goes through the side on the roof it is a side pitch.

Once you have a roof jack you have to prepare to install it. Take a string with some kind of weight tied on one end of it, and a drill up into the rafters of the sugarhouse to approximate where the roof jack will have to be. Use the sting to find the correct place for the roof jack by lowering the weighted end of the string down to the level of the arch collar at the back of the arch. Have someone else eyeballing the weight, when it reaches dead center of the collar as the person up near the roof moves the string along the roof use the drill to put a guide hole through the roof.

Now from the outside find the hole and measure from the guidehole to find exactly where to make the cuts for the roof jack. Measure the opening in the bottom of the roof jack and add 2 inches all the way around for the hole in the roof. Once you have marked and made the cuts, place the roof jack over the center of the hole and secure it down in the most watertight manner possible.

Now that the roof jack is secure start building up to it. Start by setting the taper on its collar at the back end of the arch. In some installations it may be necessary to use a spark arrester between the collar and the taper ($\frac{1}{4}$ x $\frac{1}{4}$ inch stainless steel mesh is sufficient). Now take a quick measurement of how much stack is needed to get into the bottom of the roof jack. It may be necessary to cut one length of stack down to get a proper fit. The stack should have a snug fit from the collar to the roof jack. Once the inside is taken care of, the remaining stack must be put outside from from the roof jack up.

It is highly recommended that you install stack covers for all stack (smoke and steam). The process is simple; the stack cover is secured to the top length of stack by three stainless steel bolts, one on each side and one on the back. Nylon rope or cable needs to be hooked to the swing arm for opening and closing the stack cover. Now put the length of stack with the cover already installed in place. Send your rope or cable down to the most convenient point for opening and closing and try it to be sure it works correctly.

Running the Arch

Double check all the wiring and the oil line, turn the on/off switch to the ON position and the arch is running. When you are ready to shut down simply turn the switch to the OFF position and the fire is out.

Maintenance

Maintenance is rather simple as well, change the nozzles at the beginning of the season and at the same time change the fuel filter.