

From MHA News, 1992:

Top Down Fever Hits North America!

Top down burning seems to be taking off. You read about it first right here in MHA News last summer. At that time, we translated a report in "Klima und Raum" (Indoor Climate), the Austrian stovebuilding and ceramic monthly. David Lyle had sent it in, and the major news was the new Rath "Bio-Firebox". It also mentioned experiments with an old technique of kindling the fire from the top.

The Finns are familiar with this as well. Tom Trout reports learning about it several years ago from Erkki Saalmela, Tulikivi's head mason. Royal Crown has added it as standard procedure in their owner's manual. Fred Schukal and Chris Prior started playing around with it in their Rosin fireplaces and gave it rave reviews - no smoke at all, even from start-up!

SNEWS, the magazine for chimney professionals, picked it up and ran a half page article on it in their Jan/Feb 92 issue. It stated: "Sleepy Hollow's Fred Schukal says, "We should teach it to our customers and preach it like gospel!"...
...The principle at work here is that as the large logs on the bottom heat up and start to release their volatiles, there's enough heat and fire above to ignite them. Otherwise, those first gases to be driven out of the wood usually travel unburned up the stack.

Intrigued by the whole idea, mason Jerry Frisch put it to the test in one of his own masonry heaters.
'We built the fire upside down and in a criss-cross pattern, lit it off and then ran outside. By the time we got out and looked up, there was no smoke coming out of the chimney!'

Soon SNEWS started getting pretty much the same story from sweeps who tried it in their woodstoves.
I ran into Chris Prior and Fred Schukal at Wood/Gas Forum 92 in Toronto recently. Chris said that he had recently been camping with his family and did a top down bonfire. What's nice is that you stack all the wood at once and get a nice long, even burn. Well, the next night everyone in the campground got religion and was doing it the same way!

Several of the underfire-air heater manufacturers are experimenting with new air systems. At Toronto we talked with Tempcast, who told us that they have abandoned their underfire air completely and are developing a new air system based on top down burning. They said they were getting very

significant reductions in PMs, in the sub-1 gram range. One of the advantages is a cooler burn overall, allowing the use of steel doors instead of cast iron. They said that heat transfer efficiency is up as well, due mainly to less excess air. The unit in their booth had a solid floor, but didn't have the new air system yet.

At the Phoenix meeting, we had the opportunity to talk with Dr. Rath, who had made a special trip just to meet MHA members. He said that when they were out in the backwoods of Austria demoing the new firebox to the local stovemasons, one of them asked him why they didn't try lighting it from the top, like they used to do in the old days. Dr. Rath said that when they tested it, they found that the top down approach gave them an additional 50% reduction in (CO) emissions from their already clean firebox.

Elsewhere in this issue you'll find a report on some initial testing we did on contraflow heaters at Jerry Frisch's new lab. Although results are preliminary, it is pretty clear that nearly ALL of the PM's are created during the start-up. When we reloaded into a hot firebox, we got down to 0.3 g/kg, even with standard underfire air. When we completely messed up the air supply (underfire through a front slot only so that the back of the load couldn't get air) we were able to get up to 11 g/kg. in a pre-heated firebox.