

A NEW STANDARD FOR ASTM CLAY FLUE INSTALLATION C-1283

by Todd McClave and Jim Buckley

The evolution of the chimney from a smoke hole in primitive dwellings to a venting system for a variety of modern sophisticated appliances led to the development of ASTM Standard C-1283 - Installation of Clay Flue Lining.

This new standard includes prescriptive and "how to" language which is fairly new to ASTM and Committee C-4. Frankly, we, the members of C-4, are more familiar with materials specifications than with "how to" standards. Physical properties, allowable variations in dimensions and methods of testing are the things we are used to doing as ASTM committees and task groups. Why, now, the prescriptive bent?

In the case of clay flue liners and masonry chimneys we were led to develop a prescriptive "how to" standard to meet the demands of modern more efficient condensing, or near condensing, appliances that vent into chimneys at much lower temperatures than ever before. The condensation - water and corrosive liquid products of combustion - leak out of improperly built chimneys highlighting problems of construction that went unnoticed when older appliances with higher flue temperatures and less condensation were vented into these chimneys.

Early in the process of addressing the needs of modern venting systems two problems were identified.

(1) Technology is moving too fast for the various training programs that prepare masonry craftsmen to build residential masonry fireplaces and chimneys.

(2) National model building codes have ballooned in size and complexity and have become unwieldy in an attempt to include prescriptive "how to" language.

Let's look at the training of craftsmen first. Masonry fireplaces and chimneys are overwhelmingly built by non union masons. There are a few exceptions but even in traditionally strong union towns like Chicago and San Francisco, the union masons are nearly all working on commercial jobs and the residential jobs are increasingly and predominantly non-union.

The unions used to train masons. A person would go to an apprentice school to learn the basics and then work with a master mason, usually for several years, before calling themselves a mason. These days it's

far more likely that the mason working on a residential chimney got into the business casually. Maybe he worked as a chimney sweep or as a laborer. Or maybe at best he worked with a mason, as hod carrier, until he thought he was ready to go out on his own as a mason.

The masonry industry and vocational trade schools have not picked up the slack. In some cases the unions have actively worked against such non-union training, and, of course there are exceptions, but for the most part there is very little training of masons anywhere in the country. We think the same thing might well be said about the carpenters or plumbers or electricians, but that's beyond our scope.

So, that brings us to the second phenomenon - the ballooning, incomprehensible, overly complicated, unwieldy and prescriptive building codes. Have you been to a code change meeting recently? Whether it's the UBC, BOCA, SBCCI or the CABO code developing, managing and changing the code is a Herculean year-long process. The committees hear hundreds of code change proposals on a wide variety of subjects each Spring. At the plenary sessions in the Fall, after all this work has been done in committees, five to eight hundred code officials and industry and association spokespeople argue and eventually vote on each code change proposal. It's really unwieldy and overwhelming. The 1991 UBC Code was contained in one volume. Now it takes three volumes.

If this wasn't bad enough, within two years all the model codes will meld into one national model code. The 1998 code change process will involve in one city at one time all the committees and all the officials and all the industry experts and advocates from all over the country. There will be 1,500 people trying to debate, argue and vote intelligently on complicated code issues.

There are many reasons for the great complication of the nation's building codes, and one of them is probably an effort to be crystal clear and very cautious to avoid any legal liability, but we suggest that another main reason that complicating prescriptive "how-to" language and standards have found their way into the codes is because builders, crafts people and construction workers are not adequately trained. We often hear that code officials are "begging" to have this or that spelled out in the code so they can measure something or otherwise be able to know if what the contractor builds will work.

One of the things you might also notice about the building codes is that there is an increasing reliance on other national standards. ASTM, UL, NFPA, ANSI, or even within the code systems themselves the ICBO and BOCA technical reports and listings are all increasingly referenced in the building codes.

We spent three years developing the clay flue lining installation standard C-1283. We considered all the expert opinions. We had time to discuss the relevant BIA recommendations, look at test reports, read MIA and ASHRAE handbooks, etc. in a way that a busy code committee never could. Our new ASTM C-1283 standard is prescriptive. The standard does not "purport to address all of the safety concerns", as it says right in the standard under scope, and, of course, it presumes some basic knowledge of the trade on the part of the mason, but it is detailed and prescriptive.

In the process of writing the ASTM C-1283 standard it became clear that it is complementary to the building code. The building code does deal primarily with health, safety and fire issues. The ASTM standard picks it up from there and deals with the materials, dimensions and installation procedures. The ASTM standard is designed to be referenced by the building code and a mason, consulting them both, could build a chimney even if he never had built one before.

We think this is a proper relationship between ASTM and the building codes: The building codes should be concerned with health, safety and fire and not be prescriptive. The ASTM standards, which can be worked out in more detail, should be prescriptive and deal with the materials, dimensions and installation techniques and should be referenced in the building codes. We look forward to any philosophical comments anyone has as we begin the process all over again and start work on another prescriptive ASTM standard - the construction and installation of masonry fireplaces.

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