FROM THE FIELD

Code issues

BY DAN FOLEY CONTRIBUTING WRITER

A proposed change to the code was made with little notice, peer review or input from the HVAC industry. The intent was to bring the duct table into compliance with a SMACNA standard for commercial duct. This makes absolutely no sense. Why would you apply a commercial standard to a residential code?

I recently received a phone call from the GC on a new custom home project we are currently working on. He was calling to inform me that we did not pass the close in inspection. He mentioned that the mechanical inspector rejected the inspection because we used the wrong gauge sheet metal on the duct distribution system. This did not make sense because we used the same sheet metal supplier on this project that we had used for many years.

We typically use 24 or 26 gauge sheet metal for our trunklines depending on the duct size. We use 30 gauge round duct for the supply runouts, typically 4 to 8 inches round, depending on airflow requirements. We seal all joints and seams with a code approved mastic and insulate with foil faced fiberglass duct wrap. I prefer to use galvanized sheet metal over flex duct as it is sturdier and allows for nice straight, neat duct runs. It also allows for greater airflow for a given size over flex duct due to its lower friction loss.

This particular job was located in the City of Alexandria, and the current code in effect was 2009 International Mechanical Code (IMC). Unknown to me, a change was made in table 603.4 that specified duct gauge for a given size duct. The previous code allowed for 30 gauge thickness for round duct 14 inches or less in diameter. The new code currently in effect called for 28 gauge thickness.

The 28 gauge round duct is not standard in my market. The 30 gauge is readily available and 26 gauge is available in most sizes. But, good luck finding the 28 gauge duct specified in the current code. In effect, this code change would require us to use 26 gauge duct. Keep in mind that I am only referring to space conditioning ductwork. We already use 26 gauge for dryer vents, bath fan venting, and residential kitchen ventilation ductwork.

I have to plead ignorance to this code change. Why was it done? What was the intent? ACCA does a good job answering those questions here: tinyurl.com/jwucp24

In summary, a proposed change to the code was made with little notice, peer review or input from the HVAC industry. The intent was to bring the duct table into compliance with a SMACNA standard for commercial duct. This makes absolutely no sense. Why would you apply a commercial standard to a residential code? No thought was given to those who would actually be installing the duct systems.

When we didn't pass the inspection, the project came to a screeching halt. The insulators were put on hold. Sheetrock was rescheduled. Tile and flooring subs were held off. The GC and architect were questioning me. The owner was asking why we did not use code-approved ductwork. I'm sure he was wondering where else we were taking shortcuts or cutting corners. This stung the most because we take pride in our work and do our jobs to the best of our abilities.

TABLE 603.4
DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESSES FOR SINGLE DWELLING UNITS

DUCT SIZE	GALVANIZED Minimum thickness (in.)	GALVANIZED Equivalent galvanized gage no.	ALUMINUM MINIMUM THICKNESS (in.)
Round ducts and enclosed rectangular ducts			
14 inches or less	0.0157	28	0.0175
16 and 18 inches	0.0187	26	0.018
20 inches and over	0.0236	24	0.023
Exposed rectangular ducts			
14 inches or less	0.0157	28	0.0175
Over 14 inches[a]	0.0187	26	0.018

For SI: 1 inch = 25.4 mm, 1 inch water gage = 249 Pa.

a. For duct gages and reinforcement requirements at static pressures of ½-inch, 1-inch and 2-inch w.g., SMACNA *HVAC Duct Construction Standards*, Tables 2-1, 2-2 and 2-3, shall apply.

Source: Table 603.4 from the 2009 IMC code book.

I spent the better part of a day making phone calls and researching the issue. I called the inspector and scheduled a meeting at the job site. We met and surveyed the job. He was polite, professional, and even complimented our workmanship. But, he also noted that the 30 gauge duct we used was not in compliance with the current code. I could have installed flex duct that I could poke my finger through and been in compliance. But 30 gauge sheet metal was in violation of the code.

He could sense my frustration.

"Dan," he said, "I did not write the code. I only enforce it."

I had to respect that. He was only doing his job. He didn't create the mess, but he had to deal with it. So did I, with an

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increasingly impatient GC turning up the heat. While I did not fault the inspector, I knew I had to resolve this problem quickly.

At this point, ripping out the ductwork and redoing it with 26 gauge duct would be a major undertaking and would hold up the project for a week or more. It would require extensive re-framing and the GC was already hinting at the cost of this. I was hoping it would not come to that. The most frustrating part was the fact that IMC realizes the error and will revert back to the previous code requirement in the next edition. The problem is that this will not go into effect until the 2015 code update. Until then, the current code would be enforced. In all fairness, what else could the inspector do?

After discussing my options with the inspector, we decided that the best course of action was a code modification. I downloaded and filled out the form and included all my supporting documentation. I submitted it to the chief inspector and awaited his ruling. To my surprise, he responded very quickly and in my favor. They approved the code modification and passed the close in inspection. The job could proceed and I breathed a sigh of relief.

What chapped me was that I spent many hours of my time dealing with this and it held the job up for almost two weeks. GC's, architects and clients don't want to hear about code modifications and who is right. They just want the job to proceed smoothly. My integrity was questioned and the other trades on the job had to reschedule their work. All because someone on the IMC code committee thought it would be a good idea to change the duct gauge requirements.

How can a code like this be changed without thinking through the ramifications of this change? Where was the industry oversight and peer review? I serve on several industry association boards and I have to admit we were asleep at the wheel. Nothing was done until after the code was already in effect. It is amazing that a code change that affects so many contractors can slip through undetected.

I understand that codes exist to set minimum standards and protect the health and safety of the general public. This change does neither, and in my case halted work on a project while the code issue was resolved. We as contractors need to become more involved in the code process. We need to serve on code committees, where allowed, and our trade associations need to stay on top of this. We need to better understand how code changes will affect our projects and our businesses. In my case, I was not vigilant and I let this code change bite me in the back end.

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