



On Campus

A fearful master

Environmental protection regulations, at least in the United States, are half-baked to begin with and have never fully fit the laboratory experience. Occupational safety regulation speaks much, and demands little, in the way of protecting from dangerous exposures. Regardless of what we think of regulatory schemes targeting environmental protection and occupational safety in laboratories, we are wise to acknowledge the fire code.

These other regulations acknowledge simply the laws of man – it is imprudent and cavalier to pollute someone else's water, to shorten their life, or to instill in them a chronic disease. Fire code acknowledges the laws of nature – fuel begets flame, flame begets death. In all things, the laws of man are subordinate to the laws of nature. Argue as we might about whether a fume hood should draw more than 80 linear feet per minute or that a waste jar must have a lid firmly in place, we cannot ignore the fatal finality of fire.

Chemical health and safety managers on campus need not look to round holes for our square pegs. They need not rely on processes that wait until a death to come to life. When it comes to creating superior outcomes for building occupants, the fire code has all the harsh lessons of history we should ever need.

We can look to fire code to instruct our occupants on the proper use of ventilation equipment, including doors (and, is that the first you have heard of a door serving as ventilation equipment?). Fire code contains the wisdom necessary to limit quantities of fuel and other hazards in a space. Fire code describes the industry's best guess at how to protect other occupants and the whole structure from destruction.

Fire code is honest – brokered, but honest. It is true that code officials develop the International Fire Code, one of the prevalent sets of standards. Conversely, stakeholders, and not just code officials, get to discuss the NFPA Fire Protection Codes and Standards, the other of the prevalent sets. Between them lies wisdom.

Giving oneself over to fire code creates some jeopardy for existing programs. Laboratory occupants who never before trifled with the quantities of toxic gases they store in a space might shiver when they see the IFC maximum allowable quantities for control areas. Occupants in older buildings will certainly tremble when they realize the ramifications of four

floors of science laboratories without fire separation barriers between rooms or even levels. Embracing fire codes requires dramatic change for new programs – engineering efficiency drives chemistry labs to the level below the roof and fire code puts them on the ground. The fifth floor lab suite is, or will soon be, a thing of the past.

External schemes for managing risk in laboratories have either been mismatched and heavy-handed (EPA's hazardous waste regulations) or dangerously vague (OSHA's Lab Standard) as it relates to, say, pyrophoric materials. Generally, fire code has been indifferent about laboratories, not understanding either the work that goes on there or the complexities of the inventories therein contained. The exception has been, and will continue to be well past 2010, NFPA 45, *The Standard for Fire Protection in Laboratories*.

As flexible and workable as NFPA 45 has been, it is now an anachronism. Reconciliation between NFPA 45 and the hazardous materials management concepts in either the International Fire Code or NFPA's Uniform Fire Code creates a tangle of Gordian proportions. And we have no sword to solve it. Make no mistake – the latitude the NFPA 45 drafting committee has allowed for laboratories nears its end, and chemical health and safety managers would do well to be working in the new model.

Fire codes have compelling features. They derive their basis from actual experience. They are logical and well-reasoned. They see frequent updates, so are generally responsive to the needs of the occupants. Firefighters believe in them. This last should create more interest in laboratory occupants than it probably does. Local firefighters might be sufficiently comfortable with the fire risk in a science facility that they will make entry, perform rescues, and protect the structure. The occupants of those structures, then, will have a reduced chance of facing near total devastation of their work and workspace following a fire. Surely, their best interests include adoption of the principles at work in fire codes.

However, as many reasons we have to embrace fire codes as a process to manage risk in laboratories, we must recall that reason and logic underlie them. Because of that, we must remember George Washington. Restated: fire codes, like government, are a dangerous servant and a fearful master.



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