

# New International Building Code: How it Affects Life & Fire Safety in America

**Passive fire protection requirements are being reduced or eliminated across the country based on the adoption of the new International Building Code (IBC).**

Isolatek International has prominently displayed the Twin Towers of the World Trade Center (WTC) on brochures, advertisements and sales releases since its completion on April 4, 1973. The Twin Towers soon became American icons along with the Empire State Building and the Statue of Liberty.

Construction began on the WTC on September 5, 1966 after years of planning and design by the architectural firms of Minoru Yamasaki and Emery Roth and Sons. Existing building codes required passive fire protection on the structural steel members. One of the products specified to protect the structural steel was CAFCO® Type D. This was subsequently changed early in construction to asbestos free CAFCO® BLAZE-SHIELD. Over 12,000 tons or 480,000 bags of CAFCO BLAZE-SHIELD were installed in the two 110 story towers. This was a monumental undertaking for the licensed CAFCO applicator and our Stanhope, New Jersey production facility.

On September 11, 2001, these two American icons were destroyed by terrorists, permanently changing the New York skyline and forever affecting the way we will view high profile structures.

Shortly following the collapse of the towers, world renowned engineers from across the U.S. and around the world were being quoted in support of the structural design and the length of time that the towers remained standing in light of the severity of the attack.

There is a consensus among structural engineers that instant exposure to 2000° F. temperatures and the impact of the

crash goes far beyond the capability of any structural design. In addition, it has been reported that the initial impact destroyed and damaged a significant number of the perimeter columns on several floors weakening the structure. By design, the structural support columns were located around the perimeter of the building. This innovative approach also utilized a center core of columns that only provided for gravity support loads around the elevator shafts. **Despite these external forces, the CAFCO BLAZE-SHIELD performed beyond expectations, thus providing valuable time that saved thousands of lives.**

It is important to understand that commercial Spray-Applied Fire Resistive Materials (SFRMs) are tested in accordance with UL 263 Time Temperature Criteria (see attached chart). Under UL 263, furnace temperatures reach 1000° F. at 5 minutes, 1550° F. at 30 minutes, 1850° F. at 2 hours, 1925° F. at 3 hours and 2000° F. at 4 hours.

More typical of a "Jet Fuel Fire" yet still not as severe as the World Trade Center explosion and inferno is the UL 1709 hydrocarbon fire standard. This is utilized in petro-chemical plants with temperatures rising to 2000° F. in 5 minutes into the test and maintaining that elevated temperature through the duration of the fire test.

The impact of a Boeing 767 fully loaded with 75,000 pounds of jet fuel is certainly not indicative of UL 263 or UL 1709. According to the engineering firm of Thornton Tomasetti, (engineers that designed the 1,450 foot Petronas Towers in Malaysia) buildings are simply not designed

to withstand "The extreme levels of heat that would be found in the situation with the amount of jet fuel and the explosion that occurred". The firm further stated that "no one designs buildings for bombs the size of 767s".

No one knows what the future holds, but we do know that passive fire protection requirements are being reduced or eliminated across the country based on the adoption of the new International Building Code (IBC). Fire safety in modern construction is of paramount importance when considering life safety and property protection. The three existing model building codes (ICBO, BOCA and SBCCI) have required fire protection through means of passive and active systems. The Codes stipulate a "balance approach" to designing fire protection systems.

The 2000 International Building Code (IBC) illustrates a very different story. Fire resistive requirements for building elements are significantly reduced when compared with the other 3 model building codes. In essence, the IBC is relying more on active systems such as sprinklers. In light of the many sprinkler recalls that have taken place and the failure rate of sprinkler systems in major high-rise fires, we have recommended and continue to promote a balanced approach.

To make matters worse, the IBC allows for "trading off" of passive protection when using sprinklers. This is clearly stated

in Table 601 of the IBC, Item D: "An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1 hour fire resistance rated construction, providing such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with section 506.3 or an allowable height increase in accordance with Section 504.2".

In simple terms under the IBC, in structures like the World Trade Center were constructed today, they would require one third less protection on the structural steel columns than required under existing codes. One third less protection -- does that mean one third less time -- one third fewer survivors?

The short-sightedness of the International Building Code development was prior to the tragedy of September 11<sup>th</sup> and was promoted through pressure from the sprinkler industry with very successful lobbying efforts. Public safety cannot and will not be compromised by what has become a political issue instead of a life safety requirement.

**Now is not the time to let down our guard.** Contact your local and state building officials and express your concern over the adoption of the new International Building Code.

For additional information about the new International Building Code and its effect on the safety of the American public, contact  
Isolatek International at (973) 347-1200.

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