



# **FIRESTOPPER**<sup>®</sup>

*"Bringing Firefighting Into The 21st Century"<sup>SM</sup>*

## **THE NOVEL 21<sup>st</sup> CENTURY SOLUTION TO HIGH-RISE FIREFIGHTING AND OTHER DIFFICULT APPLICATIONS**



**Marketing Department: Technical**

**WHITE PAPER**

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**FIRESTOPPER<sup>®</sup>**  
Industrial - Commercial  
Government

# **INTRODUCTION**

**FireStopper® International Limited**, a transnational Registered Company, is the developer of the world's most advanced and powerful firefighting and anti-explosion **"Proprietary Technology"**, within the meaning of the *Uniform Trade Secret Act* ("UTSA") *Cal. Civ. Code Sec. 3426*, Common law, *Business and Profession §17200* and all other applicable U.S. and International statutes, which also produce environmental remediation and other supporting applications.

**FireStopper®** initially devoted the first 25-years of its existence to R&D and subsequently is the recipient of the stand-alone testing results in fire ratings, usage and environmental certifications. Said superior performance is evident over all others as granted by the most recognized and respected third-party testing and Listing facilities in the world.

Moreover, this unique **Technology** has rendered the only available **"all fire class"** effective and **"anti-explosive"** products, which are all **Non-Toxic, Non-Irritant, Environmentally Safe and Non-Hazardous**. These stand-alone achievements, as granted per the most demanding environmental and life exposure testing and certification, make the **FireStopper® "Brand"** the undisputed best over all other existing and available products in the explosion/fire and safety channel of business.

In addition and in pursuit of stability, **FireStopper®** has secured supply lines for its raw material needs to meet its current production capacity of 1-Mil gallons per month and 50k units/month in the handheld portables product line. As for delivering its portable systems and fixed systems, **FireStopper® International Limited** is dedicated to meet or exceed the client expectations at every juncture.

**FireStopper®** liquids and concentrates are additionally recognized as the only all fire class and subclass effective liquid suppressants and due PFE-FR's freeze resistance of -73.3°C (-100° F) without employing hazardous glycols, this line of portable extinguisher systems can be deployed in all environments in the planet.

## **DISCUSSION:**

This presentation focuses on spotlighting the game changing merging of two *21<sup>st</sup> Century* technologies designed to deliver a quick, safe and economical life and property safety solution to the devastation presented in high-rise fire events.

The indelible images of 9/11 leaves in the minds of every citizen of the world the horror of high-rise fire events, which brings forth to light how limited and helpless municipal fire services are in delivering their services under such dangerous and difficult conditions.

When a high-rise fire event is in play today, the fire services are limited by the equipment available and how it is deployed. Limitations inherent in their equipment platforms clearly depict the difficulties and dangers these brave men undertake when trying to deliver extinguishment efforts to the fire location while rescuing the inhabitants of said building.

In addition to the inherent dangers to the fire personnel built-in by the structural constraints, access to the source of the fire is often hampered by the location of the initial fire, the byproducts and high

temperature produced and the delay at ground level while determining and implementing the strategy.

By the time the local fire company is deployed to the high-rise and the fire brigade deploy their usual common devise and equipment, the fire most likely has grown, both in heat, area and toxicity, rendering the effort to the prevention of expansion of said fire. Not good for the rescuers, occupants of said structure or the structure itself.

Generally, the fire services today have 2-major weapons in which to rely upon, water and equipment. High-rise buildings can house residents and/or businesses. Hence, the flammable materials present within the structure can create an additional obstacle in delivering a quick end to the fire. Water being the main source for extinguishment, is the most limited media, which unfortunately is the go to extinguishment media.

## ***THE NOVEL SOLUTION:***

In order to enhance the ability of the municipal fire service to efficiently deliver safety during this very serious event, a new approach to high-rise fire fighting *must* be implemented. Ladder fire vehicles are limited to 100-ft (10<sup>th</sup>-floor). If the fire's origin is in a higher level of the structure, it is up to the fire personnel to reach the fire and deploy whatever available water source is nearest to the fire.

This common deployment requires heightened exposure of fire personnel. They must then enter the high-rise building through the stairwell, which depending on the location and length of the fire event, which most likely will produce a massive smoke and heat environment elevating the level of difficulty to begin the task at hand.

Notwithstanding the above, extremely expensive additional higher reaching but still limited equipment has been made available with no clear greater effect in the quick and safe delivery of fire extinguishment.

Now, with the advent of the environmentally safe, non toxic, non aggressive **FireStopper® Technology's** all fire class effective, anti explosive liquid product **PFE-FR FFC (Fire Fighting Catalyst)** and its supporting supplemental firefighting concentrates, Municipal fire services can now extinguish the fire event faster, safer and efficiently eliminating catastrophic potentials. With this new opportunity to deploy a leap in technology to save life and property while increasing the safety of the fire personnel all levels of fire event can become rudimentary.

The ability to safely, economically and quickly extinguish any fire event is at hand. Statistics<sup>1</sup> show that the average water usage on structural fires, in the U.S., is about 20k-gallons to 30k-gallons per structural fire. The enormous volume of water creates additional structural damage far beyond the actual cost of the fire damage, which then is reflected on insurance premiums spread across the insured pool (which is everyone who carries fire insurance).

Post fire cleanup is another hidden upcharge for water usage – the cost to the water district from drainage/transportation of the contaminated water employed in the fire event, which is washed

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<sup>1</sup> NFPA; U.S. Fire Administration

<sup>2</sup> Fig. 1 below is derived from real world applications and world-class demonstrations of **FireStopper® XL "PLUS FFC, XL FFC & AB**  
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away into the drains leading to the water reclamation plants (**which is also included in consideration for the cost of water used in firefighting**).

### **The Merger of Two Great Technologies:**

The *Drone Technology* is now evolved to such an extent that their deployment for high-rise fire fighting can now, for the first time, be usable alongside the **FireStopper® FFC Technology** to produce results never before possible.

The efficacy of all **FireStopper® Branded Products** but more specific to this “White Paper”, **PFE-FR FFC**, is far greater than any other product available anywhere as attested by its international certification as offered below:

- **FireStopper® PFE-FR FFC** (a premix exclusively available for use in conjunction with **FireStopper® Trademarked Systems**)

#### *Advantages:*

- Full efficacy on all fire class (ABCDK) and subclasses
- Massive cooling capability (>1500°F reduced to ambient temp. in <40-sec)
- Massive smoke reduction, suppression and elimination
- Massive reduction of water use; **ameliorates water damage**
- -100°F freeze resistance while in use without harmful antifreeze additives
- Viscosity: water-thin
- Anti-explosive properties
- Highest ratings in the world both: EN3-7 & NFPA10; ANSI/UL711; ULC
- Highest Eco-Safety testing results under HOCNF, and meet or exceed FHSA regulations, 16 CFR 1500 and California Proposition 65
- Ideal for use where extreme cold temperatures may be a factor
- The ideal product for use in concert with **FireStopper® CAC** (Compressed Air Catalyst) units, which is de delivery system intended for use in conjunction with the Drone delivery system (for additional information, please consult the **FireStopper® CAC Catalog**)

Additionally, **FireStopper®** produce the most reliable and safe hardware in the industry:

- Designed to sustain greater pressure for a more reliable and focused application stream
- All stainless steel construction for greater durability and reliability  
Designed
- 20-Limitd Warranty (best in the Industry)

A single firefighting Drone can easily deliver 30-gallons plus payload to any location in the high-rise building or wherever needed. We propose that every municipal fire department, whose responsibility is to deliver its service within an area zoned for high-rise building, should seriously consider upgrading their department with the adequate number of **FireStopper® Firefighting Drone™**. In addition, the *Drone* unit can be fitted with ingress tools to breach windows and/or any exterior entryway to deliver the stream of *PFE-FR FFC* to the fire.

Notwithstanding the above, Drones of different size and payload can play a part of the robotic armada deployed to fit the purpose, e.g.:

- *Depending on the intensity and/or size of the initial fire, a smaller Drone can be inserted into the space to deliver the necessary payload (let's say 5-gal), which may be enough to extinguish the incipient fire.*
- *Another scenario, which a Drone attack would be proper, is a vehicle fire that could produce an explosion causing serious injury, or death to the fire fighters on the scene*

### **Class A Fire Examples:**

- *In 1998 FireStopper® was invited to demonstrate its concentrate AB 40002 FFC by the Los Angeles County Fire Services during their county wide training exercise in San Bernardino County where a very large complex of condemned duplex units were donated for said exercise:*
  1. *In 2-identical spaces, LA County fire prepared a head-to-head demonstration between FireStopper® and their standard applied protocol using water*
  2. *FireStopper® was applied to a pallet fire inside the living room space in the duplex unit, temperature monitored. At 1500°F, FireStopper® was deployed using one 1 ½-inch line @ the standard GPM through an exterior application protocol (*
  3. *AB 40002 FFC extinguished the fire in 54-sec & reduced the temperature to ambient temperature*
- *The LA County standard firefighting protocol using water produced the following results:*
  1. *The exterior attack on the identical fire in the adjacent identical unit was fought for 20-min with little or no effect, causing the 3-man fire crew to enter the unit and tear up the rafter since the fire had grown through the eaves into the roof...this was a total loss.*

***(Please note: this event took place at a time when FireStopper® was in its early stage of development and was firmly entrenched in R&D with the UK Ministry of Defense and the only product it had developed was AB40002 FFC)***
- *During the same year, FireStopper® working with Loss Prevention Council (UK) (LPCB Approved Products & Services) rated and had approved the highest class A fire rating to date on a 9-liter extinguisher premixing AB40002 FFC (a 43A rating: a 4.3-meter long pine wood crib according to EN3-4) further proving the superior class A capability of this new Technology and type of foam concentrate*
- *In addition Gloria GmbH, a Kidde company, commercially made available a line of specialized class "A" extinguishers distributed throughout the world employing our concentrate further supporting the stand alone position of FireStopper®.*

- **Class “B” Flammables (AFFF via water is the choice application by fire services):**
  1. *Basics - in the past years many lawsuits are on record to remediate the toxic effects caused by the used of AFFF foam requiring mass water use:*
    - a. *AFFFs’ are not biodegradable and are eye and skin irritants opening the Municipality to justified injury claims from fire personnel*
    - b. *Non Fluorinated replacements are a new source of potential major claims against the Municipality for potentially more egregious claims*
    - c. *Private citizens and community groups who have filed lawsuits for injury claims due to the residue of AFFF in their water systems and the surrounding ground where the contamination originated from its use*
  2. *The water treatment plants have to enhance their ability to recover and clean the water that contains the foam contaminants and the additional massive amounts of contaminants carried away by the burnt byproducts created in the fire and contained in the runoff. The fact remains that there are other costly considerations born out of the blind principal use of water in firefighting.*

**We propose that new and powerful technology exist that will massively reduce the overall use of water, thus greatly reducing and/or eliminating most of the above liabilities. In this paper we offer the following fix when FireStopper® is implemented:**

- Based on 1-min @ 90/GPM/1000-ft<sup>2</sup> real world application and performance<sup>2</sup>, FireStopper® will reduce water usage in such a dramatic way that cost savings will be realized immediately

*(Please note: FireStopper® Concentrates are the only firefighting concentrates in the World designed to certify in multiple percentages and perform their efficacy equally in any of the certified percentages of use; thus reducing and/or eliminating the need for costly specialized equipment as an added cost saving bonus)*

**Fig. 1**

## **COMPETITIVE COMPARISON WITH ALL AFFF**

<b>FireStopper® PRODUCTS</b>	<b>TESTED &amp; CERTIFIED USAGE</b>	<b>APPLICATION RATE/ APPROX. AREA</b>	<b>APPROX. EXTINGUISHMENT TIME</b>	<b>AFFF</b>	<b>APPLICATION RATE/ APPROX. AREA</b>	<b>APPROX. EXTINGUISHMENT TIME</b>
<b>AB 40002 FFC</b>	6%	90/GPM/1000-ft <sup>2</sup>	<b>&lt;15-secs</b>	6%	90/GPM/1000-ft <sup>2</sup>	<b>4 to 6-min</b>
<b>XL FFC</b>	3%; 6%	90/GPM/1000-ft <sup>2</sup>	<b>&lt;10-secs</b>	3%	90/GPM/1000-ft <sup>2</sup>	<b>4 to 6-min</b>
<b>XL “PLUS” FFC</b>	1%; 3%; 6%	90/GPM/1000-ft <sup>2</sup>	<b>&lt;5-secs</b>	1%	90/GPM/1000-ft <sup>2</sup>	<b>4 to 6-min</b>

<sup>2</sup> Fig. 1 below is derived from real world applications and world-class demonstrations of **FireStopper® XL “PLUS FFC, XL FFC & AB 40002 FFC** concentrates

**Fig. 2**

## VERIFIABLE ECONOMIC COMPARISON

PRODUCT**	ACTUAL COST BY USAGE^	AFFF (Chemguard)	ACTUAL COST BY USAGE
<b>AB 4002 FFC</b> 6%	1-min @ 90/GPM/1000-ft <sup>2</sup> \$60.95/gal=\$329.13 ÷4= <b>\$82.28</b>	<b>6%</b>	1-min@90/GPM/1000-ft <sup>2</sup> @ \$20.95*/gal=\$113.13 x4= <b>\$452.52</b>
<b>XL FFC</b> 3%	1-min@90/GPM/1000-ft <sup>2</sup> @ \$74.95/gal=\$374.75 ÷6= <b>\$62.45</b>	<b>3%</b>	1-min@90/GPM/1000-ft <sup>2</sup> @ \$32.99*/gal=\$171.54 x4= <b>\$686.19</b>
<b>XL "PLUS" FFC</b> 1%	1-min@90/GPM/1000-ft <sup>2</sup> @ \$97.50/gal=\$487.50 ÷6= <b>\$40.62</b>	<b>1%</b>	1-min@90/GPM/1000-ft <sup>2</sup> @ \$44.20*/gal=\$229.84 x4= <b>\$919.36</b>

^Calculations are based on the actual % of concentrate required to mix 90-gals of premix for each example

\*ALL CHEMGUARD FOAM UNIT PRICING ACQUIRED FROM AMAZON.COM and extended cost calculations favor the best performance of AFFF

\*\* FireStopper International Limited is keenly focused on providing Government, industry, and the public the most advanced products its Technology has to offer

**Fig. 3**

FireStopper® PFE-FR <i>(All Flammables/Fire Class Extinguishing Premix Media)</i>			Water <i>(The Generally Go To Fire Application Media)</i>		
Fire Class Applications	Environment Impact	Economic Impact	Fire Class Applications	Environment Impact	Economic Impact
ABCDK	Low volume usage/no runoff impact	<ul style="list-style-type: none"> <li>▪ Little or no cleanup</li> <li>▪ Low man-hour usage</li> <li>▪ Reduce cost of incident response</li> </ul>	A	Require large volumes to be effective	As stated above and also in Fig. 2
<b>Sub-Classes</b> <ul style="list-style-type: none"> <li>▪ Alcohols</li> <li>▪ Plastics</li> <li>▪ Rubber</li> </ul>	Non-Toxic; Non-Irritant; Environmentally safe	<ul style="list-style-type: none"> <li>▪ No runoff municipal impact*</li> <li>▪ Reduced liabilities</li> </ul>	<b>Sub-Classes</b> <ul style="list-style-type: none"> <li>▪ Alcohols</li> <li>▪ Plastics</li> <li>▪ Rubber</li> </ul>	Great collateral water damage large runoff	
YES	Fast cool-down minimal cleanup	<ul style="list-style-type: none"> <li>▪ Equipment reduction</li> </ul>	NO	Extensive cleanup	

**Class C Fire Efficacy:**

- Likewise this technology was put to task, using the same extinguisher, to pass the "C" (E in the UK) testing and rating...it did

### **Class D Fire Efficacy:**

- *While working with the UK MoD, FireStopper® demonstrated the additional class D capability of its Technology product AB 40002 FFC on various type of magnesium and aluminum fires*
- *Today, we have demonstrated the stand-alone efficacy of all the **FireStopper®** products against all flammable metals including nuclear. **FireStopper International Limited** is the only company in the world to provide a firefighting product that will extinguish all flammable materials in the planet*

## **Conclusion**

In the interest and service of the public, the *Municipal Fire Services* must engage in providing the best and most effective fire and fire related protection possible. Within the scope of said mandate, fire services should also provide for the safety of its personnel in the act of the intended task and within this pursuit. It is incumbent upon said service to investigate and identify the most reliable new technologies and products that will enable them to deliver the best and most reliable results available.

In the current profound social and economic conditions, *Government, Industry and the Consumer* cannot afford the risk of loss both materially and the ever present risk to life. **FireStopper®** offer the only real security against the ever present danger of catastrophic fire and or worst, the possibility of the added explosion event.