Building A **Resilient Future**

Fire-rated aluminum framing in use at the Collin College Technical Campus, Allen, TX.

Fire protection systems are being tailored to more than exceed safety requirements

by **ROBIN BRUNET**

With detection, prevention, fireproofing, and other elements coming into play, the broad category of fire protection amounts to huge business. However, like every other segment of construction, fire protection was impacted by the pandemic; specifically, there was a reduction in new systems due to supply chain disruptions.

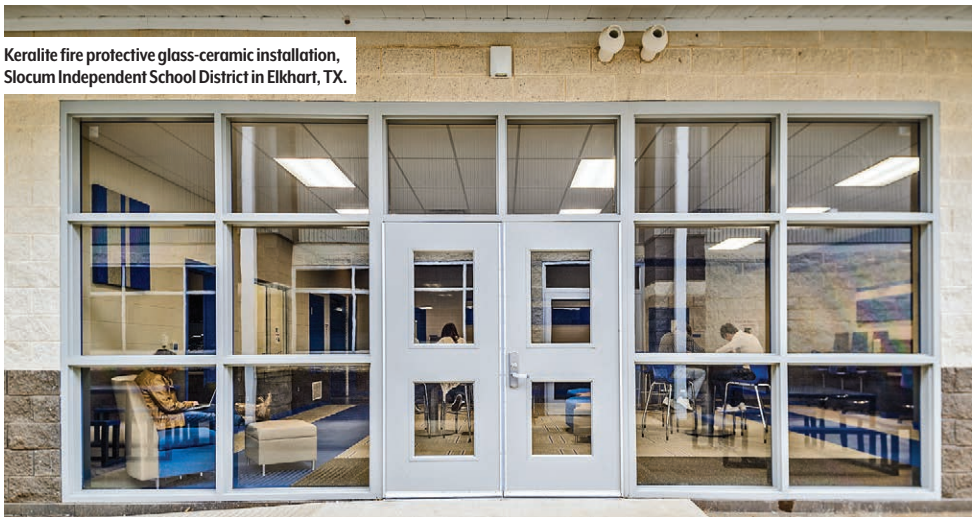
Still, the need to safeguard life and property is expected to boost product demand moving forward, and even though COVID is still a concern, some companies view the coming year as rife with opportunity.

Kevin Norcross, general manager of Vetrotech Saint-Gobain North America, explains, “Now is the time to focus on opportunity and how to take the lessons learned from the pandemic to build a more resilient future. After all, we’re watching the global economy return to pre-pandemic levels. We see design and construction demand setting records on a regular basis, and it seems like AIA is tracking record high billings each month.”

Accordingly, Vetrotech has, as usual, been busy responding to customer needs. “They were looking for an extra-clear, 45-minute, fire-protective product that passes the hose stream test and fits into standard openings,” Norcross says. “So early this year, we expanded the listings for our 19-millimetre Pyroswiss fire-protective product. It’s been part of our listings for two decades, and now it’s been tested and listed for 45-minute fire-protective window/sidelite/transom applications, passing the hose stream test.”

Norcross adds, “When we work with our customers on design assist solutions we’re always finding interesting ways to use our products. Whether it is a curved fire-resistive glass in specialty applications like elevator enclosures and stairways, or providing multifunctional solutions that incorporate bullet-, blast-, or seismic-protection with fire-ratings, the possibilities are endless.”

Vetrotech glazing solutions are either fire-protective or fire-resistant. For example, Keralite is a fully code compliant UL-listed fire protective glass-ceramic able to resist high temperature and thermal shock up to 180 minutes. This cost-effective and wire-free product is ideal for fire windows and fire door vision-lites. In the fire-resistive realm, Contraflam is a single or multi-chamber glass containing an environmentally friendly intumescent interlayer: in the event of fire, it offers full heat insulation for the compartmentalization of fire.



Keralite fire protective glass-ceramic installation, Slocum Independent School District in Elkhart, TX.

Increasingly, companies such as Aluflam North America are providing advisory services in addition to the provision of solutions (which in Aluflam’s case consists of fire-rated aluminum/glass construction, with the company highly sought for its top-of-the-line vision doors, windows, and glazed wall systems).

Jerry Cucchi, sales manager Aluflam North America, explains, “Certified and labelled products are what everyone demands, but they still have limits since regulations vary from region to region. That’s why we place a focus on consulting with clients, to ensure that the type of product they require also lives up to their specific regulatory requirements.”

Cucchi goes on to note that, “One trend we’re seeing more of is smoke and draft control in commercial spaces, large offices, and multi-residential buildings. The requirements are far more stringent than ever, and we supply the appropriate labelled products to ensure that our clients achieve compliance. Fortunately, all of our products are pre-labelled and tested independently for smoke and draft performance, which makes the challenge a little easier.”

Unsurprisingly, Aluflam, which first drew attention in the fire protection realm for its patented technology that made aluminum framing fire rated, is the preferred choice for glazing contractors, partly because its frames are delivered

PHOTOGRAPHY BY PERKINS&WILL/COURTESY ALUFLAM NA; ROBERT BRAYTON/COURTESY VETROTECH SAINT-GOBAIN NA

as completed units: factory finished, pre-drilled, and ready for installation. Plus, unlike hollow metal frames, Aluflam's frames are narrow, sharp, and blend much better with existing non-rated designs.

The importance of consulting is also very much a focus of MCW Consultants Ltd., and MCW principal Rob Gregg notes that with regard to sprinkler design, "We're shifting in recent years to becoming increasingly pro-active. In other words, it used to be that the detailed fire protection design would be completed during construction, almost as an afterthought. Now, however, we lend our expertise much earlier and spend weeks on detailed design work."

But what caused the shift from sprinkler design being an afterthought in worst-case scenarios to an early requirement? Gregg isn't certain, but he suggests it took place in the halls of bureaucracy. "The cities of Vancouver and Surrey are trailblazers in requiring detailed sprinkler designs be ready when design permits are submitted," he says. "Whatever the reason, it's a much welcomed development because now there is active dialogue between all parties of a project – and architects love it. In fact, in other jurisdictions where early development of sprinkler systems isn't required we offer the service anyway, and the response has been very strong."

Umbra Engineering, a sister company to Williams Engineering, specialises in life safety, security, and fire detection and protection; it provides design, engineering, and commissioning solutions in virtually every building sector from highly secure facilities to hospitals, from shopping centres to airports, from mixed-use buildings to mines, and from universities to policing environments.

On the premise that life safety systems are more complex than ever and require full integration, Umbra has been focusing its attention on promoting and teaching the particulars of the National Standard of Canada's CAN/ULC-S1001 Integrated Systems Testing of Fire Protection and Life Safety Systems process.

Joseph Rebstock, electrical engineer for Umbra, says, "S1001 will play a huge role in how fire protection systems are documented and tested, and its emergence is most welcome because given the complexity and diversity of these systems, at present the different people responsible for the different components wind up testing their own particular component, but there's no guarantee all elements of the entire system will work together."

Rebstock adds that CAN/ULC-S536 and S537, which are the key standard to which fire alarms are tested, only test to the relay or input to a fire alarm system: it does not test the function of the interconnected system. "This left a large margin open for failure and was a danger to life safety," he says.

Umbra is staging S1001 learning seminars that are reportedly growing in popularity, partly because they drill down into specifics such as smoke control and door hold-open devices. "Adopting S1001 will be a great benefit to the building sector, and the proper documentation of all life saving systems contained in a facility will be a huge asset down the road when systems need to be replaced or upgraded," Rebstock says.

Finally, the customization of consulting services is a key aspect of fire protection for facilities governed by stringent regulatory requirements. Such is the case with the Cameco Fuel Manufacturing facility in Ontario. Safety on site is critical to Cameco and full compliance is required at all times, therefore it required a service provider adept at customizing service offerings and reporting standards to match what is required by the company's governing bodies, and Vipond Inc. was the solution.

Vipond consulted with Cameco operations staff and insurance providers to learn their specific service, inspection and reporting needs, and then developed a specific tailored process that included performing monthly/annual inspections on fire alarm systems, extinguishers, fire hoses, sprinkler and security systems. Vipond also committed to assist in all on going projects, in whatever capacity necessary, such as consulting, engineering, and fire alarm/sprinkler work.

As the largest authorized notifier engineered system distributor in Canada, Vipond is also heavily relied upon to provide fire protection for new build and retrofit projects, one case in point being the Sun Life Financial Centre in Ontario. This commercial complex consists of three towers interconnected by a shopping concourse on ground floor and four levels of underground parking, and Vipond was tasked with performing a major fire alarm retrofit of the entire complex without disturbing operations as well as migrating from the old system to the new system with no downtime.

Vipond responded by providing a Notifier-Net Fire Alarm System consisting of 21 Notifier Onyx series panels (which were installed first using new wiring), a Central Alarm and Control Facility, and a Graphical ONYXWorks workstation. The emergency evacuation portion of the project used distributed digital amplifiers and automatic digitized messages. New addressable devices were installed throughout the building, and existing speakers were reused. After the system was fully configured, the transfer from old to new was performed one floor at a time during the night shift, as was testing and sounding of alarms. **A**