

# CHANGING PERSPECTIVES. CREATING RESILIENCE.

INTERNATIONAL CODES AND STANDARDS REPORT 2019

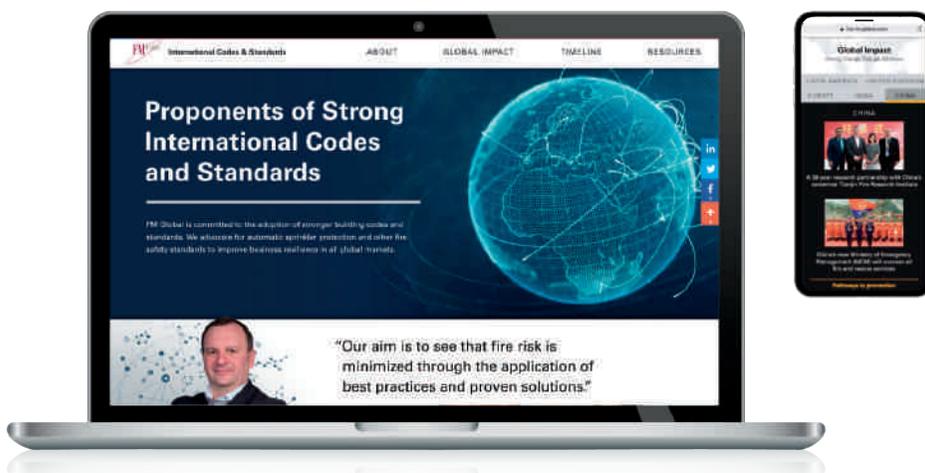
**FM** Global<sup>®</sup>

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# MEET THE TEAM



## **INTERNATIONAL CODES AND STANDARDS TEAM**

(LEFT TO RIGHT) **Srikanth Yajjala**, codes and standards consultant; **Felipe Melo**, codes and standards consultant; **Ermanno Spina**, assistant vice president, senior engineering specialist; **Marcelo Lima**, assistant vice president, senior codes and standards consultant; **Rachel Yin, Ph.D.**, assistant vice president, senior codes and standards consultant; **Tom Roche**, assistant vice president, senior codes and standards consultant; **Christopher Wieczorek, Ph.D.**, vice president, manager, international codes and standards



# CHANGING PERSPECTIVES. CREATING RESILIENCE.

This is my fourth annual message as the manager of this group. It's worth reflecting on how far we have come in that period. From our 2016 Annual Report theme of paving the road forward for our clients, to windows of opportunity for positive change the next year, followed by an emphasis on global connections and local actions in 2018, then leading us ultimately to this book's focus on changing perspectives and creating resilience, the sequence reads like the unfolding of a story. This year's chapter describes how the momentum we had built by 2019 helped lead to passage of new legislation and expansion of loss prevention education on several continents.

Among the 2019 highlights are a national model fire code in Brazil, the translation and adoption of Property Loss Prevention Data Sheets in Indonesia, where building continues at an accelerating pace, and the introduction of a hands-on training center at India's National Fire Service College. These noteworthy achievements illustrate how the tenacity of our team and our strategic partners continues to change perspectives and create resilience.

Partnership could easily be the theme of this book every year: Our role is to provide research expertise and industry knowledge to our partners in the languages they speak. We have gotten faster, and better, at this. In 2019, we produced two influential

white papers that were promptly translated. We also translated the Business Sprinkler Alliance's pocket guide on how an automatic fire sprinkler operates, which is now widely distributed in several countries. Other initiatives chronicled in this report fill in a narrative of outreach that touches influencers of codes and regulations at every level and touch point.

Creating resilience is a cycle that begins with awareness. Then, once codes are adopted or strengthened, we turn our focus toward providing the training necessary to implement change successfully and ensure compliance.

We see ourselves as agents of change. Our partners see us as trustworthy advisors. Authorities see us as reliable providers of information. We thank all of them—the advocacy groups that share our mission, the researchers and educational institutions that collaborate with us, and the government officials who continued to make progress in 2019 to improve building integrity and boost loss prevention standards.

These relationships are the pulse behind our accomplishments. The breakthrough for our data sheets in Indonesia would not have happened absent a strong rapport in the region. Our estimable progress in Brazil is a credit we share with the Fire Service in São Paulo.



In the United Kingdom, our regular presence at hearings and committee meetings has earned us a reputation for trust and recognition for our expertise—while on the Continent we continue to forge new ties.

Large or small, every step to improve codes and standards provides a benefit to the business infrastructure in the region, which invariably includes FM Global clients. These improvements are integral to helping them maintain continuity of business operations and minimizing the financial impact of loss—both of which are tenets of FM Global’s mission statement. When our standards become code, it is easier for our clients and others to obtain the services and materials they need to be resilient in all the jurisdictions where they do business.

A handwritten signature in cursive script, reading "Christopher Wiczorek".

Christopher Wiczorek, Ph.D.  
VICE PRESIDENT, MANAGER,  
INTERNATIONAL CODES AND STANDARDS

# A GROWING IMPACT ON IMPORTANT POLICY DECISIONS

In 2019, International Codes and Standards (IC&S) completed the final phase of the cooperative project with the Tianjin Fire Research Institute (TFRI) on the Evaluation of the Fire Hazard of Class D and E Warehouses. Full-scale tests with sprinkler protection on Class E warehouse configurations were conducted—two took place at the TFRI lab and the other at the FM Global Research Campus (in West Gloucester, Rhode Island), with a live broadcast to TFRI. The tests proved the necessity of sprinkler protection and the effectiveness of sprinklers in controlling fires in such facilities. The results will inform the work of the committee which is responsible for GB50016, the Code of Design on Building Fire Protection and Prevention.

GB50898, the Technical Code for Water Mist Fire Extinguishing Systems, is being revised; IC&S is supporting the development of the new version of the standard by sharing pertinent research with the committee.

FM Global shared its deep institutional knowledge at the 2019 China International Fire Protection Equipment Technology Conference & Exposition (aka 2019 China Fire) in Beijing in October. One of the largest fire shows in the world, it features exhibitors from more than 30 countries, and was the first event organized by the China Fire Protection Association under the Ministry of Emergency Management (MEM) since the realignment of the fire system in 2018. FM Global presented a Building Fire Safety Seminar in conjunction with the China Academy of Building Research. Vice President and Manager of Research Louis Gritz, Ph.D., gave a speech on “Trends and Solutions in Warehouse Fire Protection;” Christopher Wiczorek, Ph.D., vice president and manager of IC&S, discussed “The Impact of Automatic Smoke and Heat Vents on Sprinkler System Performance”; and Rachel Yin, Ph.D., assistant vice president, senior codes and standards consultant, led a session on “The Evaluation of Fire Hazard in Class D and E Warehouses.”

Unfortunately, most of the codes and standards work was on hold in 2019 while the new chain of command was being finalized following the overhaul of the fire system. A new Fire Law was officially enacted at the National People’s Congress in March. The fire design approval and construction acceptance functions have been removed from the Bureau of Fire and Rescue of the MEM and combined into the general building design approval function under the Ministry of Housing and Urban-Rural Development. Progress has also been delayed because the National Council is still working on its “Three Set Plan,” which will establish departmental responsibilities, internal structure, and staffing for the new fire system; it is expected to be issued in 2020.

It is difficult for IC&S to meet directly with government officials to discuss pertinent issues. But Yin says that “we will strengthen our cooperation with the Fire Technology Innovation Committee under the China Safety Industry Association (we are an executive member of the committee) and use the platform to organize meetings that invite government officials, fire research institutes, and the FM Global team to sit at the same table to discuss codes and standards issues.”

Another hurdle is presented by the Chinese government’s evolving approach to fire-related issues. Yin says that “it recently changed the certification of fire products from mandatory (CCC) to voluntary compliance. It is also expected to reduce government control on building fire approval and inspection. The government is promoting organizational and industrial standards that may be more widely used in the future. Building owners will assume greater responsibility for fire safety and will incur harsh punishment if there is a fire.”



Rachel Yin presents on collaborative fire prevention research with TFRI at 2019 China Fire.

“We will strengthen our cooperation with the Fire Technology Innovation Committee and use the platform to organize meetings that invite government officials, fire research institutes, and the FM Global team to sit at the same table to discuss codes and standards issues.”

RACHEL YIN, PH.D., ASSISTANT VICE PRESIDENT,  
SENIOR CODES AND STANDARDS CONSULTANT, FM GLOBAL

But IC&S gained notable new representation in China in 2019. Yin was appointed as a council member of the Fire Division of China Civil Engineering Society and the Standardization Working Committee of Shanghai Fire Protection Association (SFPA). Yin also serves as vice president of the Society of Fire Protection Engineers (SFPE) China Chapter; SFPE is one of the few active international fire organizations in China. In Shanghai, we will be consulting on the drafting of a local standard on warehouse fire protection with the SFPE China Chapter and SFPA, which is expected to start in 2020. And IC&S strengthened its standing with the Confederation of Fire Protection Association-Asia with an upgrade to Gold Sponsor Member status (we were formerly an associate member), which allows us to sit on executive committees and have input on important policy decisions.

## INDONESIA ADOPTS FM GLOBAL DATA SHEETS

The Indonesian Fire & Rescue Foundation (IFRF) was formed by members of the Indonesian Fire Services Association, which represents 582 fire chiefs and their approximately 36,000 members. Its mission is to enhance and upgrade fire and rescue services, including codes translation, standards, handbooks, exhibitions, seminars, training, and benchmarking with overseas fire and rescue organizations.

Through the Confederation of Fire Protection Associations-Asia, FM Global's International Codes and Standards (IC&S) group forged a strong relationship with IFRF. In recent years, we have shared our knowledge and experience at forums in China, Singapore, Malaysia, and elsewhere in Asia. Our mutual commitment to improve property protection and resilience against fire led to the resolution to make FM Global Property Loss Prevention Data Sheets available in Indonesia.

On August 21, a new agreement was signed between FM Global and IFRF. Under the partnership, FM Global will translate the fire- and sprinkler-related engineering guidelines into Bahasa Indonesia (the country's official language) for distribution by the IFRF across the national fire services network.

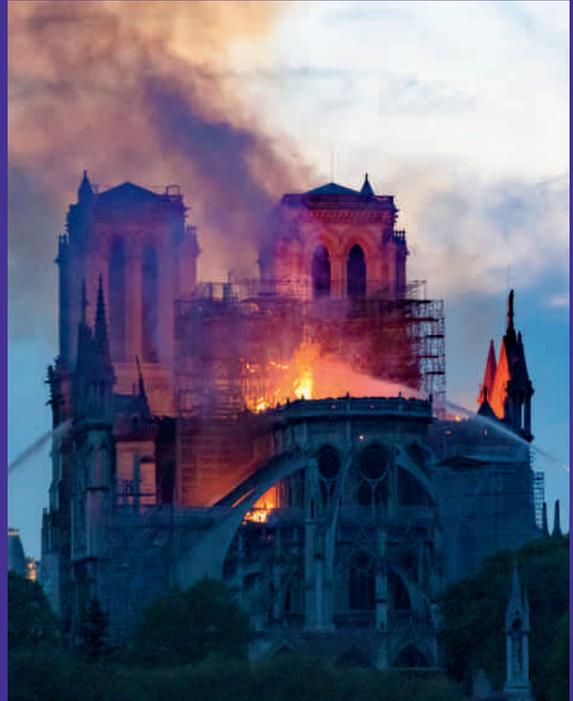
The fire chiefs will adopt the translated data sheets in their respective regions in the Indonesian archipelago. The initiative gives fire professionals access to FM Global's extensive fire-based loss prevention research, including unique solutions to prevent, control, and mitigate property losses through the application of sprinkler systems. The Indonesian Standardization Agency is in the process of adopting this provisional agreement.



David Johnson, operations senior vice president, operations manager, and Peter Placidus Petrus, chairman and CEO of the Indonesia Fire & Rescue Foundation signing the agreement between FM Global and IFRF



Photovoltaic installations and battery systems are introducing new challenges for the IC&S Team.



The fire at the Notre Dame Cathedral in Paris heightened the ongoing debate about the use of sprinklers in heritage buildings in Europe and worldwide.

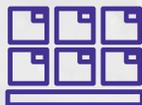
“The immediate challenge is to continue to grow the acceptance of active fire protection systems within several key countries.”

TOM ROCHE, ASSISTANT VICE PRESIDENT, SENIOR CODES AND STANDARDS CONSULTANT

## THE PRACTICALITY OF SPRINKLERS



savings in construction budgets



increases in usable space



comparable maintenance expenses



# STRIVING FOR UNIFIED PREVENTION

In 2019, International Codes and Standards (IC&S) continued to push for a unified fire prevention approach among sprinkler proponents throughout Europe. FM Global and its partners are working on revisions to the European standards pertaining to the installation of sprinklers and product standards. Tom Roche, assistant vice president, senior codes and standards consultant, says, “The IC&S team made presentations at conferences across the Continent to share knowledge and research and foster essential changes to promote resilience and fire protection. And IC&S has continued to forge new connections throughout Europe with organizations that are promoting all aspects of fire safety.”

There were notable small but significant changes this year. Updates were enacted in key sections of the German Model Technical Building Regulations (MVVTB) and the Italian Fire Code. And our determined effort and presence in the market, coupled with the strength of our standards, were manifested: In both codes, references to sprinkler standards included FM Global Property Loss Prevention Data Sheets—a significant step forward in terms of recognition.

The fire at the Notre Dame Cathedral in Paris heightened the ongoing debate about the use of sprinklers in heritage buildings in Europe and worldwide. The vintage structures are very combustible, and their contents are irreplaceable. The goal is to protect the magnificent buildings, preserve their unique character, and limit the damage from fire events. The effectiveness of sprinklers should be pursued, balancing the concern of potential water leakage damaging paintings and other vulnerable artifacts with the benefits of preventing catastrophic blazes.

Throughout the year, FM Global promoted its sprinkler advocacy at many European fire protection events. SUPFIRE19, the first conference organized by the newly formed Polskie Instalacja Gaśnicze, was held in January at the Main School

of Fire Service in Warsaw, Poland; the theme of the international conference was “Water-Based Fire Suppression Systems: Science, Engineering, Applications.” Christopher J. Wieczorek, Ph.D., vice president and manager of IC&S, gave an address on “Status of Sprinkler Technologies: Insurers’ Commentary on the Benefits of These Systems;” and Roche led a session on “Modelling of the Interaction of Sprinklers and Smoke Vents.”

Roche also made presentations in April at the Fire Protection Association’s “Building a Safer Future” seminar in London (“Technical Review of the Regulatory Guidance—A Response”), and in September at the Safety Expo in Bergamo, Italy, which raised FM Global’s profile with regulators and practitioners regarding the need for research and the use of water-based automatic fire protection systems, emphasizing vital statistics and unique testing and modeling approaches.

The diversity of fire protection approaches in Europe—which encompasses 44 countries—presents an array of formidable hurdles for the IC&S team. “The immediate challenge is to continue to grow the acceptance of active fire protection systems within several key countries,” Roche explains. “The building codes and regulations recognize their use in warehouses’ compartments based on fuel load and, in some instances, within high-rise buildings. However, they are not as readily accepted as the more traditional passive fire protection systems of firewalls and there are cases when they can be replaced by alternatives like active smoke venting systems.”

“There are growing challenges due to countries embracing different construction techniques,” Roche adds. “This spans from the introduction of wood construction and increased levels of building energy efficiency, plus new items like photovoltaic installations and battery systems, which are catching the attention of fire services and regulators.”

EUROPE



Launch of FLPMI's sprinkler Z-card at Fire India 2019



The Fire Loss Prevention Forum of India (FLPMI) addressed warehouse protection and initiated work on a white paper to study loss prevention in warehouses.



D K Shami, Fire Adviser, Government of India and G S Saini, Director, National Fire Service College, at the inauguration ceremony of the new hands-on training facility at the National Fire Service College of India.

"The new training facility will provide fire engineers with the opportunity to study various types of sprinklers and flow patterns. The curriculum includes real-life scenarios to help identify and manage risk."

SRIKANTH YAJJALA, CODES AND STANDARDS CONSULTANT



Srikanth Yajjala gives opening remarks at the FLPMI workshop on fire hazards and protection for warehouses.



Santosh Warick, CFO and Fire Advisor, Maharashtra Industrial Development Corporation speaking at FLPMI's workshop on fire hazards and protection of warehouses

# FOSTERING GREATER AWARENESS OF LOSS PREVENTION PRACTICES

A consulting agreement between FM Global and India's National Fire Service College (NFSC) led to the planning and design of a state-of-the-art knowledge center in Nagpur. The hands-on-training facility, located at the NFSC, opened in 2019. It will provide services annually to approximately 240 students of BE Fire (which focuses on engineering) and around 180 fire officers from state, municipal, and industrial establishments across the country, with courses for sub-officers, station officers and division officers. The facility consists of a fire pump lab, an automatic fire sprinkler lab, and a sprinkler riser lab. Srikanth Yajjala, codes and standards consultant, says, "Many fire engineers in India have completed four-year degrees but have never seen a sprinkler operation. This training facility gives them the opportunity to study various types of sprinklers and their flow patterns, and the curriculum provides the knowledge and critical thinking skills to identify and manage risk by experiencing real-life scenarios."

The facility was formally opened in November at the fifth Meeting of the Fire Loss Prevention Forum of India (FLPFI), whose members include current and retired fire chiefs and codes and standards writers from various states. The forum addressed warehouse protection and initiated work on a white paper to study loss prevention in warehouses.

The Fire India 2019 International Exhibition & Conference was held in New Delhi in September. It is one of the largest fire shows in Asia, with more than 160 exhibitors and 330 delegates; FM Global was the official knowledge partner at the event. Shri M Nageswar Rao, the Director General of Fire Safety, Civil Defense and Home Guards, launched the sprinkler Z-card, a foldable guide produced by the FLPFI. The card aims to raise awareness and educate fire professionals on how

sprinklers work and provide insights into their reliability and effectiveness. A highlight of the expo was a presentation by IC&S's Yajjala titled "Automatic Fire Sprinklers—Protecting You and Your Property Day and Night." Yajjala, who serves as executive secretary of the FLPFI, says, "Fire India is an important event which enabled us to drive greater awareness of loss prevention practices and solutions against fire and explosions and provided us with excellent networking opportunities."

India's fire prevention community was also enriched by increased awareness of the website ([flpfi.com](http://flpfi.com)), which was designed by FLPFI and IC&S. The site features updated information on regulations, events, and research resources, plus a valuable myths-vs.-facts discussion about automatic fire sprinkler systems.

In other developments, the Bureau of Indian Standards continued its revision of the code of practice for the design and installation of fixed automatic sprinkler fire extinguishing systems (IS 15105). FM Global is a member of all of the BIS committees working on fire safety codes and standards; IC&S shared its expertise and knowledge in preparing the draft and resolving concerns that were received by the BIS during the public consultation process. The new standard will help to ensure better design and installations in the country and is expected to be published in 2020.

Due to India's 28 discrete states and eight union territories, FM Global faces challenges in its drive to update regulations, encourage effective implementation and share its industry-leading knowledge. IC&S' essential partnership with the Bureau of Indian Standards will further strengthen fire services, academic institutes, and industry associations to foster a fire-safe environment for citizens and businesses.

# INDIA

## CODE CONSISTENCY IN BRAZIL, STEADY PROGRESS IN REGION

In December 2018, the São Paulo State Fire Protection Law Decree was enacted. The new code had far-reaching effects throughout Brazil. Marcelo Lima, assistant vice president, senior codes and standards consultant, says, “The fire codes adopted by the majority of the country’s states—19 out of 27—are heavily based on the São Paulo fire code. Considering that these 19 states represent more than 90% of the Brazilian GDP, we can say that the majority of the country now has the same fire code.” Concurrently, the recent publication of the model fire code by the National Secretariat of Public Safety (SENASP), which is based on the São Paulo decree, will further encourage the remaining states to adopt similar legal requirements for fire protection. Lima notes that “this scenario is now much more favorable to the end users, fire protection industry, fire services, and insurance companies because it allows consistent treatment in all Brazilian states, which will maintain their constitutional autonomy to introduce specific requirements as they see fit to meet local needs.”

Another new model fire code was approved by Brazil’s Justice Ministry in July. This upgrade was the result of a three-year drive led by the Congressional Fire Safety Caucus, with the support of SENASP, state fire services, and various organizations of the civil society. “For many years the idea of a national fire code was seen as a solution to the problem of lack of uniformity of fire protection requirements in the country,” Lima explains. “However, the Brazilian constitution reserves the responsibility of legislating fire protection for the 26 states and the federal district. The answer was to create a model fire code, to be adopted voluntarily by states. The response was extremely favorable and the outlook is that all 27 states will adopt it.”

There was also major progress fostered by the online training program, created by Instituto Sprinkler Brasil (ISB), SENASP, and International Codes and Standards (IC&S), to share knowledge and research with Brazil’s Authorities Having Jurisdiction about fire protection, with an emphasis on sprinkler technology. “For years we traveled to different states to present training sessions,” Lima says, “but we reached a relatively small number of firefighters, maybe 200 to 300 a year.” Since the launch of the online initiative, the “Fundamentals of Sprinkler Technology” course has been taken by more than 3,000 students; a new offering, “Testing and Maintenance of Hydraulic Fire Protection Systems,” will be available in 2020.

“Fire codes worldwide tend to leave protection of industrial buildings to owners and insurers. In Brazil, Mexico, Colombia, and several other countries, we are focused on changing these practices.”

**MARCELO LIMA, ASSISTANT VICE PRESIDENT,  
SENIOR CODES AND STANDARDS CONSULTANT**

In Mexico, the National Council of Fire Protection (CONAPCI) proposed revisions to NOM 002, the document that defines safety and fire protection in the workplace. The current text is very generic with regard to fire protection; the proposed text would require the use of the Mexican NMX sprinkler standard and mandate that systems be designed by professionals certified by the Mexican Sprinkler Association (AMRACI) and equipment be approved by renowned certification bodies. AMRACI and CONAPCI have also prepared drafts of standards for fire pump installations, alarm and detection systems, and life safety that will be placed under public consultation in the first half of 2020. It should be noted that Mexico did not have any local fire protection standards up to two years ago.

## PARTNERSHIPS IN LATIN AMERICA



**3,000+** students took the “Fundamentals of Sprinkler Technology” course in 2019



In 2019, IC&S expanded its outreach to Colombia.

In other regional developments, IC&S expanded its outreach to Colombia, and we became an associate member of ANRACI (Colombia's National Association of Automatic Fire Sprinklers). Felipe Melo, codes and standards consultant, says, “In 2019 we led a three-day engineering training seminar in Bogotá, in partnership with FM Global's Enterprise Learning team and ANRACI, and made presentations at conferences in Bogotá and Medellín [the country's two largest cities]. We also initiated discussions with the Medellín Fire Department to sign a Memorandum of Understanding to establish an engineering training center at their educational facility. The document is under revision and we expect to have it signed in 2020.”

In 2019, Chile established ANAPCI, its first national association of fire protection. IC&S is in negotiations to become a member of the group to help advance its safety goals.

The work done by IC&S in Latin America has clearly driven improvements in the fire protection sector, but there is more to accomplish. Lima says that “one particular issue, which is not a Latin American problem per se but prevalent in most of the countries where FM Global is active, is the absence of mandatory requirements for the use of sprinklers in industrial occupancies. Fire codes worldwide tend to leave protection of industrial buildings to owners and insurers. In Brazil, Mexico, Colombia, and around the world, we are focused on changing these practices.”

## SPRINKLERS EMERGE AS A KEY OPTION FOR FIRE SAFETY AND PROTECTION

Significant work and progress is happening as a result of the British government's response to the Grenfell Tower fire in 2017. For the first time, the focus has shifted to signpost sprinklers, with an Appendix being introduced in the English regulatory guidance regarding where to install sprinklers and what standards should be utilized. Tom Roche, assistant vice president, senior codes and standards consultant, says that "the changes within the guidance in England are part of the overall shift toward sprinklers being discussed prominently in our Parliament, in the media, and within the construction press. If there is a significant fire, there are now questions over the lack of such protection."

This breakthrough followed work on clarifying the technical guidance, which led to the titling of sections, clearer language about sprinklers, and the new Appendix—aspects of the overall shift signaling sprinklers as a key option. The submissions from across the wider sector supported the elements that FM Global has promoted with our partners, among them the Business Sprinkler Alliance (BSA)—property protection and compartment and threshold changes that will include the increased use of sprinklers. The government has not yet passed any legislation which would aid with the cost of installing sprinklers in high-rise residential buildings; however, several agencies are not waiting for the government and are taking that step themselves.

Roche cites another important development: "In the last quarter of 2019, a government consultation was launched to reduce the height threshold at which sprinklers are required in high-rise residential buildings—from the current 10 stories to at least six. The question is whether this standard should be lower, and there is a willingness to accept that change."

The other ongoing major concern is the regulation of construction allowed on high-rise buildings. At the start of 2019, the government enacted a ban on combustible materials for such properties. Separately, the work to remediate buildings with aluminum composite materials (ACM) continued, with the English government announcing a further £200 million to help with the cost of renovating private buildings in 2019, in addition to the £600 million promised for social housing in 2018.

The government released testing on high pressure laminates (HPL), which have been used on several buildings; the results indicate that certain combinations should be removed as they do not comply with regulations. Several high-profile fire events in the summer involved combustible construction featuring timber frame and forms of timber cladding; the conflagrations have raised further questions over the guidance, fire strategy, and clarity of enforcement of construction regulations.

As International Codes and Standards (IC&S) continues to support the promotion of resilience within the building regulations, Roche says that many challenges still lie ahead: "The delivery of solid evidence for policy change, ensuring that industrial/commercial buildings are addressed, is our goal. We must continue to shine a light on the myths around sprinklers to dispel them, and to seek clarity for the outcomes delivered by regulations."



The BSA won the Best Digital Campaign at the 2019 Construction Marketing Awards in London. The campaign used an online education tool to promote awareness of the need for fire resilience and the use of sprinklers.



The fire safety guidance in England was clarified with a refreshed Approved Document B. Importantly, this clarification gave more prominence to the area of use for sprinklers.

“The delivery of solid evidence for policy change is our goal. We must continue to shine a light on the myths around sprinklers to dispel them, and to seek clarity for the outcomes delivered by regulations.”

**TOM ROCHE, ASSISTANT VICE PRESIDENT,  
SENIOR CODES AND STANDARDS CONSULTANT**

“It is that latter point that has come into a very sharp focus during the year,” Roche continues. “The recent fire incidents stunned people, since they could all be viewed as regulatory successes—the fires did not spread to other buildings. However, in each case, a significant building was lost. It has helped all concerned to question whether more resilience is needed from regulations and not just escape.”

Roche concludes that one of IC&S' most vital roles is being a technical advisor. “If the government sees your positive technical input and evidence they invite further input. Then, as policy changes, we can support positive changes and contribute to making the U.K. a safer place to live.”

# GLOBAL PERSPECTIVES ON A DECADE OF ADVOCACY

International Codes and Standards assesses  
its accomplishments and defines future goals



State-of-the-art scientific and engineering research is the backbone of FM Global’s business structure and approach to resilience and property loss prevention. The same benchmark of rigorous fact-finding and proactive practices imparted valuable guidance for the founding of the International Codes and Standards (IC&S) group.

In 2009, FM Global commissioned Research Associates, a business-to-business market research firm based in Staffordshire in the United Kingdom, to produce a Landscape Assessment to help develop a long-term worldwide strategy to influence the revision of building codes. Three separate surveys were conducted—in the U.K., France, Germany, India and China; in the European Union (covering the European Commission and Parliament); and in Brazil and Mexico. The Landscape Assessment helped to define IC&S’ core mission—to propagate the use of sprinklers into jurisdictional building codes in major markets outside the United States.

In 2019, the same firm conducted a follow-up survey of 97 key policymakers—drawn from government bodies, federations, nonprofit organizations, manufacturers and distributors of equipment and systems, and other industry experts and consultants—in the U.K., France, Germany, Brazil and Mexico (surveys were not done in two of IC&S’ regions: China and India). Richard Brace, director of Research Associates, says, “The respondents offered candid and insightful comments. IC&S was not revealed as the sponsor of the survey until questions about the image and

performance of the group were asked—addressing the development and strengthening of building standards and codes; the challenges of merging regulatory recognition and property resilience; the perception and integration of sprinklers; and the impact of IC&S’ efforts in the diverse markets.”

Christopher Wieczorek, Ph.D., vice president and manager of IC&S, says, “To navigate where we are going, we need to understand where we started and what progress we have made. Working with Research Associates has helped us trace that journey, determining where we are achieving our goals and where more resources are needed, and to understand the landscape of where we want to expand.”

Here is a detailed summary of the respondents’ views regarding the fire prevention developments in their countries, the accomplishments of the International Codes and Standards team in its first 10 years of advocacy, and the specific issues that need to be addressed so the team can continue to change perspectives and create resilience in the next decade. Each entry concludes with a composite comment from survey participants about IC&S’ impact—and future challenges—in their country.



## UNITED KINGDOM

In the wake of the Grenfell Tower fire, the use of automatic sprinklers is on the rise. IC&S works closely with the Business Sprinkler Alliance (BSA), plus the British Automatic Fire Sprinkler Association (BAFSA), the National Fire Sprinkler Network (NFSN), the European Fire Sprinkler Network (EFSN), and the National Fire Chiefs Council (NFCC), which has significantly advanced its influence on code policy. Respondents noted that IC&S should continue to promote its data to a wider audience outside of the sprinkler and insurance industries.

“I have had a lot of interaction with FM Global—I have been to their headquarters in the States. They do fantastic research work which is independent and reliable. They emphasize where sprinklers worked, comparing when a building was quickly back in business with minimum loss to a similar property where there was a severe loss.”

## FRANCE

The relatively limited implementation of automatic sprinklers in France has been hampered by an adherence to more passive fire prevention technologies, since the country’s codes do not require sprinklers. Most of the respondents said that IC&S needs to raise its profile in France and improve its relationship with the codes community, particularly the governmental groups and committees of Regional Departments of Environment, Planning and Housing (known as DREAL, an acronym for Directions Régionales de l’Environnement, de l’Aménagement et du Logement).

“IC&S needs to be mindful of the French way of doing things—the French have a holistic approach to managing fire protection and don’t like being told what to do, and they view sprinklers as just one tool in the armory, in addition to fire partitions and passive systems.”

## GERMANY

There has been little change in the process of the development and writing of building codes and standards in Germany over the last 10 years—and many industry leaders do not believe the guidelines need to be revised. Life-safety is the primary influence on building codes; property protection, perceived as prohibitively expensive, is a secondary issue. But respondents who advocate sprinkler use in the country said that IC&S should focus on working with the Building Ministers Conference (ARGEBAU) and engage with the German Insurance Association (GDV), which founded the Association of Property Insurers (VdS) to promote sprinkler systems, plus the BVFA (Federal Association for Technical Fire Protection), the VFDB (German Fire Protection Association), and the consortium of fire brigades.

“The construction law in Germany is focused on escape routes, firewalls, structural fire protection and fire doors. It is difficult to bring the issue of sprinkler systems into construction law, but that’s our goal. IC&S should detail the effects of sprinkler use in other countries, stressing what the rules are and how they succeed, to promote those fire protection concepts to code development stakeholders and influencers.”



◀ In addition to legislative and educational progress in countries throughout the year, 2019 was a year in which IC&S shared its knowledge globally through the production of new white papers and videos. You can find these on [risk.fmglobal.com/codesandstandards](https://risk.fmglobal.com/codesandstandards).

## BRAZIL

Brazilian authorities have made vital changes to codes and standards and shortened the implementation process, addressing life-safety and property protection concerns. Unfortunately, many of the advancements were driven by high-profile cases, including the Kiss nightclub fire in 2013 and the fire at the National Museum in 2018. The country's significant increase in mandating the use of automatic sprinklers in the last decade is also attributable, in large part, to IC&S' work with its partners in the Brazilian Sprinklers Association (ABSpk), the Instituto Sprinkler Brazil (ISB), the National Secretariat of Public Safety (SENASP), and state fire departments. Respondents said IC&S should build on its achievements and advocate for further policy improvements by promoting its data, hosting more conferences and training seminars, and widening its focus beyond industrial and large commercial sectors.

"I'm an academic, so I appreciate the technical work that FM Global develops, performing practical tests to show how systems work—or their flaws, which is also important. Their coordination regarding studies and research has been very well-conducted and contributes to the overall progress in Brazil."

## MEXICO

The use of automatic sprinklers has surged in Mexico, largely due to the advocacy of IC&S and its partners. The Mexican Sprinkler Association (AMRACI) established local installation standards, including a fire pump benchmark; there were also important revisions of building codes, led by the National Fire Protection Association (NFPA). The National Council of Fire Safety (CONAPCI) takes a broader view of the fire-safety mission, specializing in suppression systems, alarm and detection systems, passive protection systems and fire research. But there is still much work to do, since building codes follow a broad national code but are written and controlled at the country's 32 states, and there is little mandatory compliance required for sprinkler use. IC&S is well-known and respected in the fire protection community, earning praise for its data and proactive engagement. Respondents suggested that IC&S focus its efforts on highlighting the sprinkler's importance with government officials and committees to get them written into new codes and offer more seminars for designers, installers and inspectors on the application of its standards.

"FM Global created a body of specifications that have influence worldwide, setting the groundwork for a universal code. They can help us to comply with the standard requirements and improve fire protection and prevention and concurrently reduce risk; the economic impact is also reduced and the continuity of business operations increases. They are doing a superb job."



## IAIN COX: ADVOCATING SPRINKLER PROTECTION IN THE UK

Iain Cox, chair of the Business Sprinkler Alliance (BSA) and vice chairman of the National Fire Sprinkler Network in the United Kingdom, was the recipient of FM Global's second annual International Codes and Standards Advocacy Award.

Cox was honored for his commitment to promoting technical competence within the U.K.'s fire safety community, and for his efforts to champion the benefits of automatic fire sprinklers along with new regulations to bolster their increase use. He retired as the chief fire officer of the Royal Berkshire Fire and Rescue Service in 2009 following 34 years in the service.

Thomas A. Lawson, FM Global's chairman and chief executive officer, said, "We believe the majority of property loss is preventable, not inevitable. We applaud Mr. Cox for going above and beyond his duties to promote, educate, and advocate the use of automatic fire sprinklers in industrial and commercial properties in the U.K."

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