

APPROVED PRODUCT NEWS

VOLUME 29 NUMBER 2 | 2013

CPR Now EU Law

Hydrocarbon Leak
Detectors

Land Mobile Radio
Static Cleared

Total Roof Integrity



Changing the Game

Innovative new products are revolutionizing
what it means to be well-protected from flood



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PLEASE RECYCLE

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Construction Products Regulation Now a Reality in EEA

CPR simplifies CPD with transparent procedures and a clear path to CE marking



The European Union's new Construction Products Regulation (CPR) went into full effect on July 1, 2013, replacing the old Construction Products Directive (CPD) and making CE marking mandatory in all 32 countries of the European Economic Area (EEA) for products covered by a harmonized European standard (hEN).

The CPR, like the CPD before it, aims to overcome the technical barriers to trade posed by EEA countries that observe different standards, testing and labeling approaches for the same construction products. CPR is designed to fulfill this goal and help clarify, simplify and improve the credibility of the system. CPR builds on the groundwork laid by the CPD by introducing simpler and more transparent procedures, as well as some new terminology to go along with it.

The new regulation relies on four key factors:

1. A system of harmonized technical specifications
2. An agreed system of Assessment and Verification of Constancy of Performance to these specifications
3. A framework of Notified Bodies, and
4. The CE marking label

Harmonized technical specifications include more than 420 hEN standards, covering most traditional construction products, and European Technical Assessments (ETAs) issued against European Assessment Documents (EADs) for construction products not covered or not fully covered by a hEN.

Under the CPR, manufacturers of construction products that are covered by a hEN standard or an existing ETA are now required, when placing a product on the market in any EEA country, to make a Declaration of Performance (DoP; see figure above) for the product, and affix the CE mark.

The manufacturer must also:

- keep documentation for 10 years
- ensure consistent production
- monitor the product on the market
- ensure the product is identifiable
- indicate a contact point for the product
- provide instructions and safety information in the appropriate languages
- take corrective measures where necessary
- cooperate with requests from national authorities

According to Richard Zammit, CPR senior engineer for FM Approvals in Windsor, England, any manufacturer who has already complied with the requirements of the CPD prior to July 1, 2013, has minimal work to do to meet the new CPR requirements.

“For manufacturers who obtained the CE mark under CPD, so long as there are no technical changes to the product, they must only produce a Declaration of Performance document to satisfy the CPR requirements,” he notes. “I’m getting calls from manufacturers nearly every day asking what does the DoP look like? How do I prepare a DoP? It’s only natural that there will be this transition period during which there will be some teething problems. We are helping our customers understand the requirements of CPR and provide a clear path to CE marking.”

Because the new CPR is a regulation, it automatically becomes part of each EU country’s laws, making it mandatory for manufacturers of construction products to apply the CE mark (which stands for “Conformité Européenne”) to any of their products covered by a hEN standard.

There are hEN standards covering a broad range of construction products, from reinforcing steel for concrete to wood-based panels and drainage products.

Some of the hEN standards that fall under FM Approvals’ declared scope as a Notified Body and for which FM Approvals can provide CE marking services include those covering:

- Metal-faced insulated wall and roof panels
- Roof waterproofing covers (reinforced bitumen, plastic and rubber sheet)
- Pipe insulation
- Roof insulation board
- Skylights (individual and continuous)
- Sprinklers
- Wet and dry alarm valves
- Water motor alarms
- Waterflow detectors

Under CPR, the route for products not covered by a hEN will be voluntary and known as a European Technical Assessment. Although voluntary, it allows manufacturers of innovative products to obtain the CE mark if they choose to demonstrate equivalence to products falling under the scope of a hEN. The European Technical Assessment route replaces the European Technical Approval issued under CPD.

FM Approvals is both a Notified Body and a Technical Assessment Body (TAB) under CPR and therefore a member of the European Organization for Technical Approvals (EOTA) and qualified to issue European Technical Assessments (ETAs) for applicable construction products required for CE marking. This “EOTA process” is used when there is no hEN covering a construction product and there is a need for the TAB/EOTA to effectively “write the standard” to allow the product to be assessed.

For instance, FM Approvals can provide ETAs for a variety of products covered by existing EOTA standards, including:

- Internal partition kits
- Liquid applied and mechanically attached roof waterproofing
- Translucent roof kits
- Composite lightweight panels
- Fire protection products
- Cold storage kits
- Fire stopping and fire retardant products

“We are in a unique position to provide manufacturers of fire protection and construction materials with CPR services at the same time they are undergoing FM Approvals certification,” Zammitt says. “By bundling these services, the customer

saves time and money. The CE mark is the passport to trade in the EEA and EU member countries, and the FM APPROVED mark is a globally recognized quality mark signifying the highest standards.” ■

Contributing to EU Standards Development

While there are more than 1,400 Notified Bodies in the European Union (EU), including FM Approvals, only about 50 of these are members of the European Organization for Technical Approvals (EOTA). Each EOTA member must be appointed by its respective government based on its specific areas of expertise and standards development capabilities. FM Approvals is one of eight EOTA members representing the U.K.

The success of the new Construction Products Regulation (CPR) depends in large part on the availability of harmonized European Norm (hEN) standards against which to evaluate products for CE marking purposes. Standards developed by the Technical Committees of the CEN (European Committee for Standardization) become hEN standards when their titles are published in the Official Journal of the European Union (OJEU).

FM Approvals is currently active on two CEN Technical Committees related to fire protection standards:

- CEN/TC 191/WG 5/TG 1 – Sprinkler Protection Systems Components
- CEN/TC 191/WG 5/TG 3 – Water Mist Systems Components

According to FM Approvals Group Manager for Europe Jean-Philippe Roisin, the new standards must be prepared according to the new CPR format and guidelines, which call for performance-based standards rather than prescriptive standards. “For instance, it may be too prescriptive to require a part be made of metal, rather the standard might describe the required performance of the part instead,” Roisin notes.

FM Approvals has a strong interest in establishing hEN standards for suppression mode and water mist fire protection technology. While no hENs exist for these products, FM Approvals was instrumental in creating an EOTA assessment guideline for suppression mode sprinklers, known under the Construction Product Directives (CPD) as a Common Understanding of Assessment Procedure (CUAP). This CUAP, based largely on Approval Standard 2008, *Suppression Mode Sprinklers*, will hopefully serve as the basis of any future hEN standard for this product category.

“We are sharing our experience with the technical committees on which we serve,” says Roisin. “As an international authority on both suppression mode and water mist, we are providing assistance in developing harmonized EN standards for both.”

Expanded Leak Detector Standard

Primary concern is rapid detection of potentially hazardous hydrocarbon liquid leaks; requires review by early 2014



Hydrocarbon liquid such as gasoline, diesel, hydraulic fluid, heating oil and jet fuel are stored in aboveground tanks at airports, factories, farms, hotels, hospitals, municipal garages, shopping malls and office buildings. While usually stored to support ongoing operations, hydrocarbon liquid is also stored for emergency purposes, such as to power generators or emergency vehicles.

Properly engineered and installed aboveground storage tanks for hydrocarbon liquid

offer many advantages over belowground tanks. In general, leaks are easier to detect and faster to contain. Aboveground tanks can be relocated as needed or removed when a property changes hands or purposes.

Aboveground tanks to store diesel or gasoline for large-scale emergency generators, for instance, are often located in parking garages or on rooftops. Leaks in these tanks can result in discharge that not only impacts the immediate structure, but also can find its way into storm drains or nearby streams

and ponds. Leaks can occur from corrosion, broken connectors, human error, lightning strikes, vandalism, vehicle strikes and even high winds.

Many factors must be taken into consideration when planning the installation of an aboveground storage tank. Factors such as site and tank selection, proper base and containment, grounding, venting, maintenance, inspections and labeling all must be considered. The FM Global Property Loss Prevention Data Sheet 7-88, *Flammable Liquid Storage Tanks*, provides guidance for engineers, designers, contractors and building owners in many aspects of tank selection, location, venting and other factors.

Recently, FM Approvals introduced a revised version of Approval Standard 7745, *Hydrocarbon Leak Detectors*. The standard, which previously covered only diesel fuel leak detectors, now covers almost any leak detector for hydrocarbon liquid as specified by the manufacturer.

“We developed the original diesel fuel leak detector standard in 2009 in response to demand from FM Global field engineers,” says FM Approvals electrical group manager Jim Marquedant. “The devices that had been approved in the past had been tested according to our hazardous locations standard, which meant they would not start a fire, but did not verify their performance characteristics as detectors.”

In 2007, prior to development of the diesel fuel detector standard, FM Global field engineers identified nearly 500 deficiencies among insured locations, with a total loss expectancy of more than US\$10 billion.

“Our primary concern is rapid detection of the leaking hydrocarbon liquid,” explains FM Approvals senior engineer Ed Laliberte. “We require FM Approved detectors to pro-

erte notes. Approval Standard 7745 includes performance tests that subject the leak detection system to a variety of stresses, including vibration, corrosion, voltage variation

“WE REQUIRE FM APPROVED DETECTORS TO PROVIDE AN ALERT WITHIN 30 SECONDS OF EXPOSURE TO THE HYDROCARBON LIQUID. THE INTENT IS TO PREVENT A CATASTROPHIC LEAK BEFORE IT ESCALATES INTO A DISASTER.”

Ed Laliberte

Senior engineer, FM Approvals

vide an alert within 30 seconds of exposure to the hydrocarbon liquid. The intent is to prevent a catastrophic leak before it escalates into a disaster.”

The revised Approval Standard 7745 has an effective date of March 31, 2014. By that time, any hydrocarbon leak detection systems that are currently FM Approved by the hazardous locations standard only must also meet the performance requirements of Approval Standard 7745 in order to maintain their *Approval Guide* listing. New certification of leak detectors must comply with Approval Standard 7745 and the appropriate hazardous locations standards.

“We have already notified manufacturers that are required to undergo reviews,” Lalib-

and surges, dust, temperature, humidity and failure modes. “The original need was to protect diesel fuel stored on large commercial buildings, but we have extended that to meet a growing need to protect other hydrocarbon liquid in many different occupancies. The revised standard benefits manufacturers by providing a more encompassing certification and, of course, listing in the *Approval Guide*.” ■

Flood Protection Products Changing the Game

Newly expanded standard provides flexible protection options for abatement solutions



Studies show that flooding costs companies an average of US\$22 billion in insured losses annually worldwide—making it the most costly natural hazard. Each year, extreme events such as Hurricane Katrina, Superstorm Sandy, Cyclone Oswald in Australia and Tropical Storm Nock-ten in Thailand wreak havoc through storm surge, excessive runoff and riverine flooding. In addition, thousands of inland flooding events occur every year around the world, often with devastating impact.

FM Global has recorded more than 3,600 losses due to flooding since 2003. Ongoing analysis shows that a site within a published flood zone is five- to seven-times more likely to suffer a flood loss than to suffer an equivalent loss due to fire or explosion. In addition, the average flood loss is about one and a half times as great as the average fire loss.

For facilities in the planning stages, the simple solution is to locate the facility outside of the flood zone and levee/floodwall failure inundation areas, and design the site to ensure all stormwater drainage systems are adequate.

Facing flood risk

However, for the approximately one in 10 commercial facilities already located within a flood zone, the solution isn't quite as simple. Facilities at risk for flooding must prepare well in advance in order to keep water out of critical buildings and limit resulting damage if floodwater enters a structure. FM Global Property Loss Prevention Data Sheet 1-40, *Flood*, provides recommendations for the prevention and mitigation of losses due to flooding.

FM Global loss history studies show that solid, well-prepared organizations—including those with a tested flood emergency response plan (FERP)—have significantly less damage and resume operations sooner than those unprepared. Guidance in preparing a FERP is included in FM Global Property Loss Prevention Data Sheet 10-2, *Emergency Response*.

The physical preparations firms can take to reduce the impact of flood events include the permanent relocation to elevations above the flood level for electrical, computer and telecommunications equipment. If that is not possible, permanent protection of the equipment should be considered. Other preparations include backwater valves and sump pumps for drains and sewers; relocation at elevations greater than the flood level of high-value stock and processing equipment; and permanent or temporary barriers to protect buildings and building openings against flood waters.

Expanded standard provides new options

FM Approvals evaluates flood abatement products under Approval Standard 2510, *Flood Abatement Equipment*, first introduced in 2006. The standard initially covered only perimeter and opening barriers, but was expanded recently to include backwater valves and flood abatement pumps. Approval Standard 2510 now covers:

- **Temporary perimeter barriers:** Some examples of temporary barriers include water-filled bladders and barriers, soil-and-sand-filled bladders and barriers, and foldable walls.
- **Opening barriers:** These devices can be used to protect pedestrian doors, garage doors, loading docks, windows and vents.
- **Backwater valves:** The purpose of these products is to prevent water from backing up through drains.

- **Flood abatement pumps:** These specialized pumps are typically used in combination with perimeter and/or opening barriers to remove water from leakage or overtopping.

Product testing under Approval Standard 2510 includes two main phases: component and material testing and performance testing.

- **Component and material testing.** Because the materials of construction and mode of operation varies significantly among manufacturers of flood abatement equipment, specific material tests are assigned on a case-by-case basis. These tests could include hydrostatic strength, system leakage, durability, impact/wear resistance, vibration, corrosion, hail resistance, tensile strength, ultraviolet, air-oven aging and temperature extremes.
- **Performance testing of perimeter barriers** is designed to simulate actual riverine flooding conditions on full-scale barriers. Tests for temporary perimeter barriers are:
 - 1) hydrostatic loading and incidental wave
 - 2) wave-induced hydrodynamic loading conditions
 - 3) overtopping
 - 4) debris impact
 - 5) flowing water current testing
- **Performance testing of opening barriers** is designed to simulate quasi-static riverine flooding (i.e., slow rising and receding flood waters with minimal wave exposure). The tests are divided into two categories:
 - 1) hydrostatic loading
 - 2) dynamic impact loading
- **Performance testing of backwater valves** includes tests to evaluate water flow and watertightness (i.e., ability to withstand backflow).
- **Performance testing of flood abatement pumps** includes tests for clearance/interference, performance,

endurance, hydrostatic strength, cycling durability, and voltage variation and dielectric testing (for electrically driven pumps).

A new frontier in flood product certification

The prevalence of major flooding events worldwide has resulted in an increase in the number of manufacturers offering flood mitigation products of every imaginable design and quality level. “It’s very much the Wild West out there when it comes to flood mitigation products,” observes Rich Ferron, assistant vice president and director of FM Approvals fire protection group. “Approval Standard 2510 is the only standard that evaluates both the performance of the product in realistic flood conditions and the component and materials that comprise the product.”

He continues, “That’s why the Association of State Floodplain Managers (see sidebar, page 10) chose our standard as the basis for the highest level of certification in their new program. We’re working with the association and the U.S. Army Corps of Engineers to have the ASFPM certification recognized by authorities nationwide, so when an organization is specifying flood mitigation products, they’d require ASFPM certification.”

Manufacturers have shown a keen interest in both the Approval Standard 2510 and the new ASFPM certification program. “Approval of our opening barrier products is very important,” says Kevin Harris, director of field sales, Presray Corporation, based in Wassaic, N.Y., USA. This firm produces a broad array of products for flood protection (e.g., Fast-Logs® stackable opening barriers), as well as for the nuclear industry, biotech protection and security.

“Taking the extra step of becoming certified by FM Approvals and ASFPM provides a stamp of quality on our products that says to our customers and prospective customers that we’re the real deal,” notes Harris. “We

promote our certifications prominently on our website and in our presentations.”

At U.S. Flood Control Corporation, based in Calgary, Canada; Carson City, Nev., USA; and Hahnville, La., USA, the availability of certification programs for its products helps “professionalize” the industry, says Paul Vickers, company president. His firm has gained global recognition for its line of Tiger Dam® stackable flood barrier tubes. Miles of Tiger Dams were used along the Gulf Coast, for instance, in fighting the Deepwater Horizon oil spill in the spring of 2010.

“When I first started in this business 10 years ago, I looked at these giant towers and huge facilities with hundreds of millions of dollars invested in them and I couldn’t believe it when I saw they were trying to protect them from flooding with sandbags,” Vickers observes. “Everything about these facilities is engineered and properly maintained. Then, when it comes to something that could potentially put them out of business, many rely on sandbags. It didn’t make sense.”

Times are changing, and firms today realize that flood protection and preparedness is an important part of contingency and busi-

ness recovery planning. “Standardization is so important in any industry,” Vickers continues. “The FM APPROVED mark on our products is a major step toward professionalizing this industry. There are thousands of certified fire protection products on the market, but only a handful of certified flood mitigation products. I encourage all companies with flood control products to go through the FM Approvals test program. We were already well-established among oil and gas companies as well as government agencies; however, we believe that our association with FM Approvals will help us better penetrate the commercial sector.”

Certification Options

Joint program provides flood abatement product manufacturers with additional alternatives

The Association of State Floodplain Managers (ASFPF), in partnership with FM Approvals and the U.S. Army Corps of Engineers (USACE), introduced its National Flood Barrier Testing and Certification Program at the ASFPF Annual Conference in May 2012. Since that time, the program has seen growing interest from manufacturers of temporary flood barriers and opening barriers, the two product categories initially covered by the program. Other categories of flood abatement products will be added over time.

The ASFPF program provides manufacturers with four levels of potential certification. Level 1 is water-based testing only and does not qualify the participant for Approval. Level 2—based on Approval Standard 2510, *Flood Abatement Products*—includes both water-based testing as well as all other elements of Approval Standard 2510. The certification levels include:

Level 1: Consists of water testing only and must pass at least a 1-foot hydrostatic test.

Level 2 Silver: Consists of water (1-foot level) and material testing in accordance with Approval Standard 2510, plant and product inspection, and follow-up verification.

Level 2 Gold: Consists of water (2-foot level) and material testing in accordance with Approval Standard 2510, plant and product inspection, and follow-up verification.

Level 2 Platinum: Consists of water (3-foot level) and material testing in accordance with Approval Standard 2510, plant and product inspection, and follow-up verification.

One manufacturer of FM Approved flood barrier products, U.S. Flood Control Corp., welcomed the additional certification provided by the ASFPF joint test program. “We are proud of the fact that our product was able to achieve Platinum level in the ASFPF testing,” notes Paul Vickers, a long-time Calgary (Alberta, Canada) entrepreneur and president of U.S. Flood Control.

Cory Melland, vice president of PS DOORS, a producer of FM Approved opening barriers, also appreciates the ASFPF efforts to provide a level playing field for flood abatement manufacturers. “Once you have gone through the Approval process, you have essentially done everything you need to do to also meet the requirements of the ASFPF certification as well,” Melland says. “Our products achieved the Level 2 Platinum certification, which gives our customers an extra measure of confidence.”

A third manufacturer of FM Approved opening barriers, Presray Corporation, of Wassaic, N.Y., USA, is going through the ASFPF certification program now. Presray General Manager Kevin Harris, notes, “We have worked with the U.S. Army Corps of Engineers for nearly 20 years on many flood situations. We were very interested when we learned the Army Corps, FM Approvals and the AFSPM were working together on a new certification program. The fact that it’s based on Approval Standard 2510, under which we’re already Approved, makes it easy for us to achieve this extra level of certification.”

To learn more about the AFSPM certification program, visit the ASFPF web site at nationalfloodbarrier.org.

The advantages of FM Approvals certification for flood abatement products extends to everyone associated with property protection, from manufacturers to end-users and from emergency management consultants to building designers.

“We were the first company to submit our products for testing under Approval Standard 2510,” notes Cory Melland, vice president of PS DOORS, based in Grand Forks, N.D., USA. His firm produces a range of flood protection products, including the FM APPROVED Flood Plank opening barrier system and the Pedestrian Flood Door. “We saw this certification as an opportunity to gain third-party certification, which gives potential customers an added level of confidence. Our product was a perfect fit to support FM Global recommendations designed to protect customers from flood loss and keep them in business.”

Melland notes that his firm is deeply involved in helping firms in the zones impacted by Superstorm Sandy. “We’re working with many customers right now, providing services to firms that were impacted and firms that want to protect against the next Sandy,” he says. “We see flood control products pouring into that market, many of which are not tested, and building owners are wary. They want to optimize their spending and they are scrutinizing the credentials of manufacturers. To be able to provide a legitimate third-party certification such as that from FM Approvals means they don’t have to take our word for it; someone else has tested our products and validated them for performance and quality. That’s a major advantage.”

What’s next?

Since the introduction of Approval Standard 2510 in 2006, FM Approvals has been working to educate manufacturers in North America, Europe and Asia on the benefits of achieving the FM APPROVED mark for flood abatement products.



In 2014, FM Approvals plans to create a flood team to help streamline the availability of information on flood mitigation products and expedite manufacturer inquiries to help increase the availability of FM Approved flood mitigation products worldwide. The team will also serve as a resource to assist FM Global field engineers and flood specialists.

FM Approvals is also working to develop relationships with flood mitigation governmental agencies, trade associations, and AHJs in Asia and Europe to potentially develop certification programs similar to the ASFPM program in the United States.

Flooding occurs regularly in many regions. This year alone has seen extreme inland flooding in the United States, Europe, Australia and Asia. In Germany, for instance, flooding in the southern and eastern parts of the country in May and June resulted in nearly US\$4 billion in insured losses.

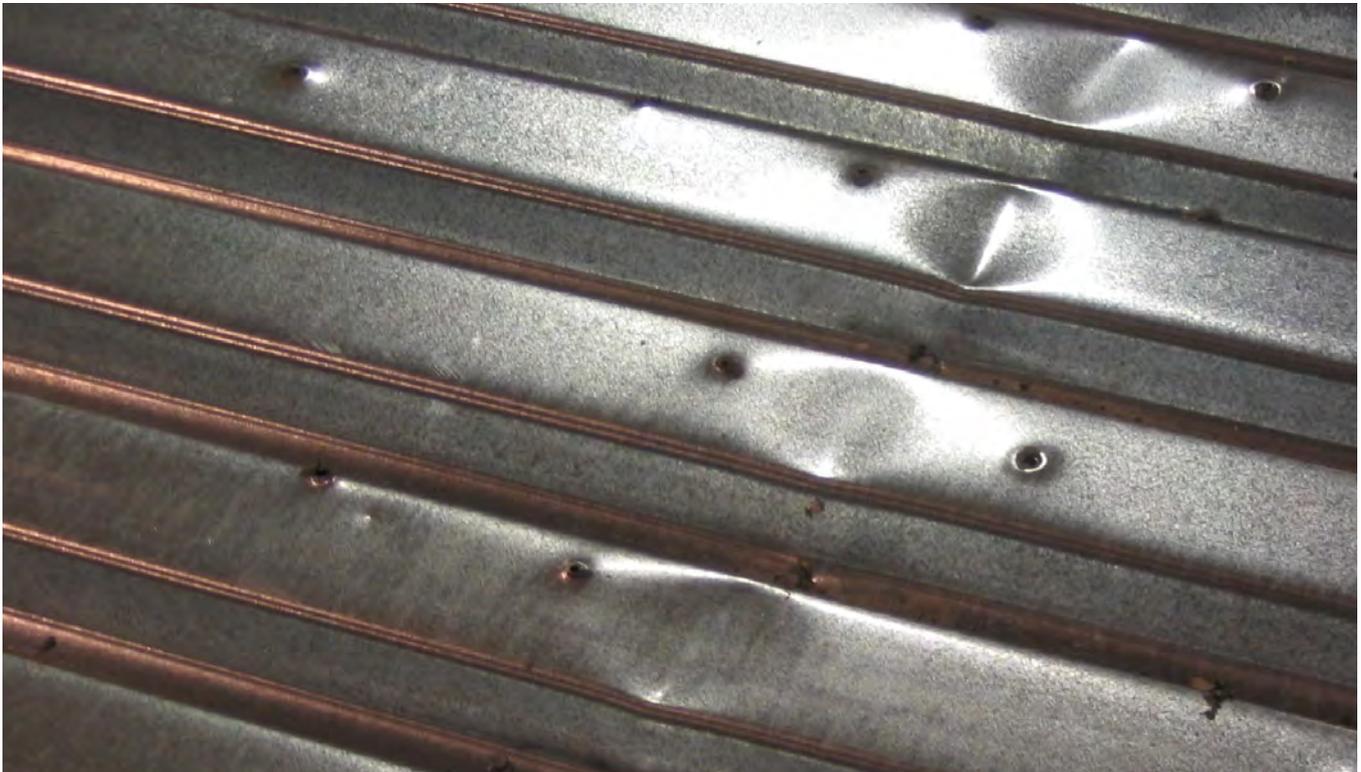
FM Approvals Group Manager for Europe Jean-Philippe Roisin, says, “We are seeing a lot of interest among European manufacturers of flood control products—which tend to be small to mid-size companies—that want not only to promote their products in

Europe, but also to enter the U.S. market, probably as a result of Superstorm Sandy. Even small companies view their market on a global basis. We will develop this interest in locally available FM Approved products in the near future. The interest is there.”

“FM Approvals is extending its reach worldwide in support of FM Global’s growth,” notes Bob Azimi, FM Approvals group manager for Asia and South America. “As always, our goal is to help make FM Approved products available in local markets around the world. We are sharing our standards and expertise wherever we can. The impact of flooding and the potential for flooding in both developed and developing countries is huge. There are many examples where regional flooding has had a global impact on commercial markets. Just look at the impact on hard disk supplies following the 2011 Thailand floods—prices doubled and didn’t recover until well into 2012. The mine floods in Australia impacted that country’s GDP. We are being far more proactive and reaching out to make contacts in every market in which we operate, always with the goal to help customers prevent losses through proper planning and certified flood mitigation products.” ■

Total Roof Integrity

Phased in over two years, the evolution of Approval Standard 4470 addresses roof deck and covering as a complete system



Roofing systems are part of the first line of defense in the complete building envelope that includes the roof, walls, windows, doors and perimeter roof flashing. Roof assemblies are designed to protect the building, its contents and its occupancy from expected hazards resulting from fire, wind, weathering and other perils for many years.

The integrity of an FM Approved roof covering system is in large part dependent on the design of the underlying deck foundation, including steel deck and its connection to purlins or joists. As roof covering systems have become increasingly more robust, with wind uplift ratings of up to 465 psf and membrane widths of up to 12 feet

(3.65 meters), the amount of stress or loading imparted to the deck must be considered in roofing standards.

Concern growing

In 2008, the Steel Deck Institute (SDI) published a position paper, *Attachment of Roofing Membranes to Steel Deck*, “in response to discussions taking place in the roofing community about the screw attachment of roofing membranes to steel deck following line patterns with large spacing.” The paper notes that the existing design methods for steel deck under wind uplift are typically based on the uniform application of the wind suction to the deck.

The paper goes on to note that “the screw fastening of wide roofing membranes (up to 12 ft./3.65 m) and the corresponding spacing of the lines of screws holding the membrane on the deck, will have a very different effect on the deck and structural supports than a membrane that is adhered over its entire surface under uplift conditions; the attachment of the roofing membrane along lines with large spacing could produce localized loads that can exceed the capacity of the deck, whereas those same loads applied uniformly on the surface of the deck would be acceptable.”

Standard revised to reflect building code

In June 2010, FM Approvals issued a revised version of Approval Standard 4470, with a new title to reflect the various types of Class 1 roof covers on the market today: *Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction*. All manufacturers of FM Approved roofing assemblies were notified of the revised standard by letter in October 2010.

Among the new requirements included in the revised standard was a provision intended to provide verification of appropriate steel roof deck design in accordance with existing standards. The new passage reads:

Assemblies that do not overstress the structural deck when subjected to service wind loads. Stresses induced to steel roof decking shall be determined by rational analysis using Allowable Strength Design (ASD) principles and shall not exceed the allowable stresses per the North American Speci-

fication for the Design of Cold-Formed Steel Structural Members, AISI S100-2007 and Approval Standard for Profiled Steel Panels for Use as Decking in Class 1 Insulated Roof Construction, FM Standard 4451. The test sponsor shall supply calculations used to determine the stresses.

The original effective date for the revised Approval Standard 4470 was the end of 2011; however, that date was extended an additional year to allow time for FM Approvals to add some additional enhancements to the standard, which was reissued in June 2012. A summary of the key changes incorporated in the 2012 revision include:

1. Checks of steel deck stress under wind loads (see passage above) and steel deck fastener stress calculations in order to verify that these elements are not overstressed. Note: This is not a change from the 2010; however, the effective date for compliance was extended to December 31, 2012.
2. Wind uplift resistance tests acceptance criteria: Some visible cracking and creasing of the insulation or cover board is now permitted at load levels less than the service load.
3. For a reroof over steel deck, rigid cover boards may be used to stiffen existing decks that do not meet wind design pressures: When a rigid cover board is used, the allowable bending stress of the deck shall be permitted to be increased by 40 percent.
4. Dynamic puncture resistance rating of roof covers per ASTM D5635 has been added to Approval Standard 4470 (as an optional rating).

5. Solar reflectance of roof surfaces rating per ASTM C1549 has been added to Approval Standard 4470 (as an optional rating).
6. Test requirements regarding combustibility from below the roof deck may now be met with either NFPA 276 or Approval Standard 4880.
7. The susceptibility to heat damage test requirement, previously in Approval Standard 4450, has been added to Approval Standard 4470. This is not a new requirement. This test has been required for roof insulations.
8. Corrosion resistance: A second test method is now offered.

Initial notices of change draw little response

While both the 2010 and 2012 versions of Approval Standard 4470 underwent normal review cycles, including industry and customer review, very few comments were received until shortly before the standard was to go into effect in late 2012. A letter to all customers with current FM Approved roofing assemblies was sent out in October 2012 detailing how FM Approvals would handle the deck overstress issue.

The customer letter stated that after identifying the overstressed assemblies FM Approvals will make the following changes:

- For the existing RoofNav assemblies, reduce the deck span, increase the deck thickness and/or the grade of steel to provide the maximum number of steel deck options available while maintaining the qualified wind rating of the assembly.

- Create new RoofNav assemblies from the existing assemblies with the wind rating reduced to a level where the roof deck is not overstressed while maintaining all parameters of the assembly, i.e., deck span, grades and thicknesses.

What does all this mean?

Here are some general guidelines:

- For 1.5-in.-deep, 22-ga., wide-rib steel deck spanning 6 ft. (1.8 m) with mechanically secured covers—mechanically attached covers have varying ratings based on roof cover securement row spacing. For example, for roof membranes secured in rows 8 ft. (2.4 m) wide:
 - 33-ksi (kips per square inch) (230-Mpa [megapascal]) steel deck is limited to Class 1-60 maximum
 - 80-ksi (552-Mpa) steel deck is limited to Class 1-120 maximum
- For 1.5-in.-deep, 22-ga., wide-rib steel deck spanning 6 ft. (1.8 m) with fully adhered covers and mechanically secured covers with row spacings less than or equal to half the deck span.
 - 33-ksi (230-Mpa) steel deck is limited to Class 1-165 maximum
 - 80-ksi (552-Mpa) steel deck is limited to Class 1-300 maximum

Ratings for assemblies previously exceeding these limits have been modified as noted.

In late 2012, once customers began to realize what the revisions to Approval Standard 4470 might mean to their listings, criticism of the changes began to rise. “One factor that many customers did not realize is that the Approval Standard 4470 requirements are not new from a building code perspective, rather they try to bridge a discon-

nect between the structural engineer (who designs the steel deck and its securement) and the roofing consultant/architect (who designs the above-deck roofing components) and the contractor (installer) and materials manufacturers,” explains Dick Davis, senior engineering technical specialist for FM Global’s engineering standards division.

“All roofing assemblies must meet the International Building Code (IBC), which references other documents, including the AISI and SDI standards. We have simply aligned our Approval Standard 4470 with the pre-existing standards in the building code. And, these changes related to the adequacy of the steel roof deck mainly impact new construction, not reroof or re-cover work, which is about 80 percent of the roofing market. Designers should remember that when reroofing or re-covering a steel deck designed several decades ago, they probably did not consider the load path from today’s mechanically fastened single-ply roof covers. There are numerous FM Approved combinations of above-deck roof assemblies that should work with the existing steel decks.”

Tom Sputo, Steel Deck Institute’s technical director, notes, “What is now in Approval Standard 4470 as far as calculation of the deck strength and fastener strength complies with the reference documents that are in the IBC, and that is the AISI S100 standard and also the SDI roof deck design standard. Whoever is designing the steel deck needs to know what type of roof covering is planned. Is it going to be a fully adhered roof that provides relatively uniform loading or a mechanically attached roof with widely spaced fasteners that may represent a series of concentrated loads?”

Lessons learned

Going forward, FM Approvals remains committed to communicating proposed new standards and revised standards with appropriate industry representatives, prior to publication. In an effort to be more proactive in these communications, we have implemented a new section in RoofNav called “What’s New” to deliver information to the roofing community faster.

“Technically, the changes we made to Approval Standard 4470 are not more conservative than the standards referenced in the IBC,” says Phil Smith, FM Approvals assistant vice president and technical team manager. “A disconnect had developed over time between the roofing covering designers and the roof deck designers. Roof coverings were gaining higher and higher uplift ratings and stronger fasteners, and roof decks were getting overstressed in the process. The revised Approval Standard 4470 is an attempt to get the two parties talking again.”

Smith acknowledges that FM Approvals could have done a better job communicating the potential impact of the Approval Standard 4470 changes. “We sent out the revised standard and letters about the standard four times, including 2010 and 2012 versions,” he notes. “In the future, we will make an even stronger effort to reach out earlier to industry. Our goal is make it as easy as possible for manufacturers products to become certified by FM Approvals for their roofing assemblies, and for designers, engineers and contractors to find the right FM Approved assembly for their project.” ■

Global View

Seeing growth and interest in multinationals seeking FM Approved products and standards

Multinational corporations face a daunting array of challenges and risks as they expand existing facilities or attempt to break into emerging markets. Political turmoil, supply chain disruption, natural and manmade disasters, monetary policies, infrastructure reliability and much more all pose varying levels of risk to multinationals seeking global growth.

FM Approvals continues to optimize its operations in order to address rapid growth both in the services it offers and the range of global markets it serves. As a member of the FM Global Group, FM Approvals plays a key role in supporting FM Global and its customer worldwide. The local availability and consistent quality of FM Approved products is a vital cog in FM Global's approach to risk management.

According to Bob Azimi, FM Approvals group manager for Asia and South America, an increasing number of multinational firms, whether FM Global-insured or not, are specifying FM Approved products, products manufactured to specifications in the Approval Standards, and *FM Global Property Loss Prevention Data Sheets* as they expand or build new facilities abroad.

"We know that many large multinationals specify FM Approved products and utilize the Approval Standards and FM Global Property Loss Prevention Data Sheets when building new facilities, even those that are not insured by FM Global," Azimi confirms. "In Asia, for instance, we see the large electronics and semiconductor firms based in Japan, Korea, the United



States and elsewhere continuing to build in their indigenous countries across Asia, in China, Vietnam, India, Indonesia and the Philippines."

He notes that in many cases when it comes to developing countries, local information on flood risk and other natural hazards is either unavailable or not easily obtained. In addition, the quality of construction and fire protection equipment is difficult to verify.

"By specifying FM Approved products for the building envelope, fire protection systems, and flood abatement, a firm can alleviate many risks associated with new construction in those regions," Azimi notes.

Many FM Approvals and FM Global resources are available online free of charge:

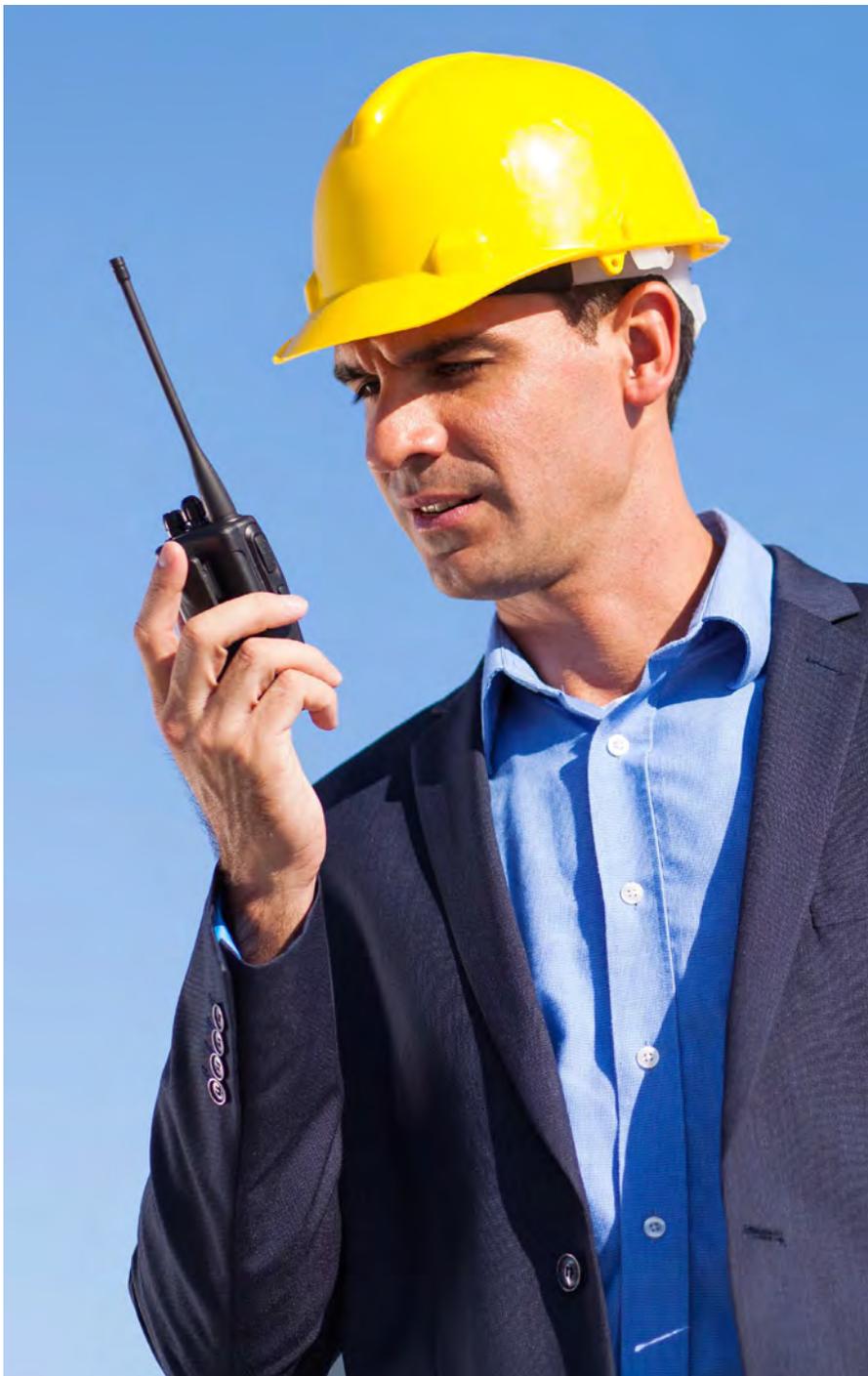
- More than 50,000 FM Approved products listed in the *Approval Guide* (approvalguide.com)
- Approval Standards can be searched: (fmglobal.com or fmapprovals.com)

- RoofNav, the FM Approvals Web-based tool for roofing professionals (roofnav.com)
- *FM Global Property Loss Prevention Data Sheets* (fmglobal.com/datasheets)

"Our original FM Approvals charter was to work with our direct customers—manufacturers—but as we continued down the path to globalization, we discovered we had to go much further to have an impact," Azimi explains. "About seven years ago we started working in emerging markets with local government officials, authorities having jurisdiction (AHJs) and standards organizations. We've conducted hundreds of seminars, for instance, to educate and try to have a positive impact on property loss prevention. More recently, we have begun to work directly with many of the large multinationals, providing guidance and information, and helping to develop local sources of FM Approved products." ■

Land Mobile Radio Conflict Clears

New Approval Standard defuses objections, gives radio manufacturers design flexibility



Portable two-way radios, sometimes known as land mobile radios (LMR) or walkie-talkies, which can both transmit and receive, have been in use since 1923 when they were first developed for use by Australia authorities. Today, private LMR systems are used by companies, local governments and other organizations to meet a wide range of communication requirements, including coordination of people and materials, important safety and security needs, and quick response in times of emergency.

Two-way radios intended for commercial or governmental use must be rugged, reliable and easy to use in a wide range of challenging situations and environments. For many applications, particularly fire, rescue, petrochemical, pharmaceutical, utilities and the gas industry, LMRs must also be certified for use in hazardous (classified) locations where a risk of fire or explosion can exist.

Since 1967, when FM Approvals first published Approval Standard 3610, LMR manufacturers have relied on FM Approvals to certify their two-way radios as intrinsically safe for Class I, Division 1 hazardous (classified) locations (FM Approvals first approved an LMR in February 1968).

Approval Standards are living documents

As with all Approval standards, periodic updates are required to reflect technological advances, new research and current best practices. The strongest standards are living documents. As such, FM Approvals has updated its Approval Standard 3610 many times since 1967 to maintain an acceptable margin of safety (see figure 1, page 18).

In 1999, Approval Standard 3610 was updated to include the international zones area classification system that had recently been incorporated in the U.S. National Electrical Code (NEC). Again, this update reflected current thinking and best practices. In 2006, FM Approvals proposed a revision of Approval Standard 3610 to adopt the internationally derived intrinsic safety standard, ANSI/ISA 60079-11:2002.

This time, however, the LMR industry objected to the revised standard on the grounds that it would impose undue hardship and impact the performance of their radios. FM Approvals eventually extended the effective date for the new standard multiple times to accommodate the manufacturers. An abridged history of Approval Standard 3610 is highlighted below.

Promises new LMR standard introduced

In addition to extending the effective date of Approval Standard 3610:2010 to Jan. 1, 2016, FM Approvals promised the LMR manufacturers and end user community that

it would develop an innovative new standard that would provide the same level of protection, but allow greater flexibility in product design.

The new standard, Approval Standard 3640, *Approval Standard for Land Mobile Radios for Use in Class I, Division 1 Hazardous (Classified) Locations*, is based on the U.S. National Electrical Code allowance in Section 500.7 (L), “Other Protection Techniques.” This concept allows various other protection concepts, in combination, to provide an equivalent level of protection for Class I, Division 1 hazardous (classified) locations.

For example, the protection concepts allowed in combination by Approval Standard 3640 include:

- Nonincendive Protection (NI)
- Pressurization Type Z
- “nR” – Restricted Breathing
- “nA” – Non-sparking
- “nC” – Protected sparking
- “ib”, “ic” – Intrinsic safety
- “mb”, “mc” – Encapsulation

- “d” – Flameproof
- “e” – Increased safety
- “o” – Oil immersion
- “q” – Powder filled
- “pz” – Pressurized enclosure

Under Approval Standard 3640, the combined protection concepts should depend on dissimilar physical protection principles in order to avoid protection defeat by a single type of failure. For example, the combination of “d” (see above) and “q” both depend on the avoidance of flame propagation and may not be useful in combination.

Examples of combinations of two independent protection concepts include:

- intrinsic safety “ib” further enclosed by encapsulation “mb”
- intrinsic safety “ib” further enclosed by a flameproof enclosure “d”
- intrinsic safety “ib” additionally protected by powder filling “q”
- nonincendive circuits enclosed by a restricted breathing enclosure “nR”
- nonincendive circuits enclosed by a static pressurized enclosure “pz”

Standards history:

1967

Approval Standard 3610 first published, based on ISA RP12.2

1979

Approval Standard 3610 republished, based on NFPA 493

1988

Approval Standard 3610 republished

1999

Approval Standard 3610 republished to include the Zone Area Classification Scheme

2006

Manufacturers provided draft of Approval Standard 3610:2007, based on adoption of ANSI/ISA 60079-11:2002

2009

FM Approvals extended effective date of Approval Standard 3610:2007 to Jan. 1, 2012

2010

Release of Approval Standard 3610:2010, based on the adoption of ANSI/ISA 60079-11:2009

LMR user community expressed concerns

2011

FM Approvals began development of Approval Standard 3640

Approval Standard 3610:2010 effective date extended to Jan. 1, 2016

2012

LMR design frozen until 2016

Including:

- Changes negatively impacting intrinsic safety
- Accessories
- New models

Excluding:

- Supply chain-related components on a case-by-case basis

2013

FM Approvals publishes LMR-specific Approval Standard 3640

According to Bill Lawrence, FM Approvals assistant vice president and principal engineer for hazardous locations, “We also looked at some of the work being done by the IEC in Europe where they were using combinations of types of protection to provide an equivalent level of protection. The IEC allows two independent Zone 1 types of protection to be used in a Zone 0. We extended this to the U.S. Divisions classification method and we allow two independent Class I, Division 2 protection concepts to be used in combination to achieve Class I, Division 1 protection for LMRs.”

LMRs currently FM Approved as intrinsically safe under Approval Standard 3610:1988, as of January 1, 2012, have not been allowed to make any substantive design changes. The design of these LMRs was frozen to maintain the margin of safety that remained. These manufacturers have until January 1, 2016 to either have their LMRs reevaluated under the new Approval Standard 3610:2010 or comply with the LMR-specific standard Approval Standard 3640.

“LMR manufacturers now have some new options, providing them additional flexibility in the design of their products for Class I, Division 1 locations,” notes Bob Martell, assistant vice president, area director, FM Approvals. “Approval Standard 3640, several years in the making, addresses many of the suggestions we received from the critical infrastructure industry and public safety communications groups. Overall, it will better ensure LMR users will have FM Approved products available that will best address their needs, as the technology in such products continues to evolve.”

New options with FM3640

One manufacturer already planning to take advantage of Approval Standard 3640 is EF Johnson Technologies, Inc. The Irving, Texas-based manufacturer produces a full line of two-way radios and communication sys-

tems, including Project 25 (an industry standard that enables communications compatibility among federal, state and local public safety agencies) compliant radios.

“FM Approvals’ new 3640 LMR standard represents a shift from what we’ve been use to,” notes John Oblak, vice president, standards and regulatory affairs for EF Johnson. A 40-year veteran of the radio industry, Oblak says, “While 3640 is not an intrinsic safety standard, per se, it allows intrinsic safety as one of its protection schemes, but also allows multiple other protection schemes to be used as well, and we think that’s a good thing.”

He continues, “The intrinsic safety standards, as they get tighter and tighter, become more and more problematic for the two-way radio industry. We see the new Approval Standard 3640 as a means to still maintain equivalent level of protection in a Class I, Division 1 environment, but do so using multiple protection methods. Of course, there will be challenges that need to be resolved, but we believe this standard represents a good path for getting a product certified in a reasonable amount of engineering time.”

Oblak says his design group has already had preliminary design meetings with FM Approvals engineers to review potential strategies and approaches. “They have been very helpful and encouraging,” he adds.

A source of guidance for the development of Approval Standard 3640 has been industry groups representing potential end users. Jim Marquedant, group manager, FM Approvals electrical group, participates on an NFPA (National Fire Protection Association) technical committee dedicated to the study of electronic safety equipment used by firefighters in hazardous locations.

“We have made presentations to the NFPA ESE committee, as well as other interested parties, and have found them to be very receptive to the approach we took with

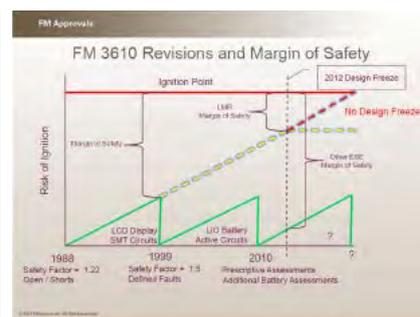


Figure 1 – Approval Standard 3610, *Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations*, was first introduced in 1967 and quickly became the recognized industry standard for intrinsic safety for land mobile radios and other electronic devices. In the above graph, technological advances in LMR devices over time is shown along the bottom axis. Each advance has eroded the safety margin, as shown by the rising dotted line. In 2012 FM Approvals applied a design freeze on LMRs FM Approved only to the 1988 version of Approval Standard 3610 in order to preserve the remaining safety margin. LMR manufacturers have until Jan. 1, 2016, to comply with the revised Approval Standard 3610 or meet the requirements of the new LMR standard, Approval Standard 3640.

Approval Standard 3640,” Marquedant says. “The real goal of Approval Standard 3640 is to provide firefighters and other end users with the best possible protection that does not adversely impact product performance. The end user community is starting to shift its thinking away from the focus on a single protection method—intrinsic safety—and think about the environment in which the LMR or other ESE will be used, and that is Class I, Division 1 hazardous locations.” ■



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APPROVAL STANDARDS AND COMMITTEE PARTICIPATION

Electrical Standards

(New) Approval Standard 3640—

Land Mobile Radios Use in Class I, Division 1 Hazardous (Classified) Locations, June 2013

This standard allows a “dual protection method” in addition to Intrinsic Safety: a combination of two independent Class I, Division 2 protection methods to achieve an equivalent level of safety. This will provide manufacturers additional flexibility in the design of these unique products for hazardous (classified) locations.

(New) Approval Standard 4121—

Fire and Smoke Door Holder and/or Release Devices, April 2013

This standard examines the ability of these devices to keep a fire or smoke door in the open position until such time that the unit receives a signal from an external source meant to test the system. The standard subjects these products to simulated normal operating conditions, environmental conditions and electrical conditions that the unit may be exposed to during its life.

(Updated) Approval Standard

5600—Clean Agent Extinguishing Systems, April 2013

This standard was revised to include specific requirements for clean agent filling stations, as well as updates and further clarification to a number of existing test requirements.

Fire Protection Standards

(Updated) Approval Standard

2510—Flood Abatement Equipment, March 2013

This standard was revised to include appropriate protocol to evaluate automatic pop-up type barriers, backwater valves, and flood abatement pumps. The standard was also reorganized and reformatted to provide better clarity to the reader.

Materials Standards

(Updated) Approval Standard

4435—Edge Systems Used with Low Slope Roofing Systems, June 2013

This standard was revised to follow the requirement of the consensus standard: Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems, ANSI/SPRI/FM 4435/ES-1, 2011. The revised standard requires full size test specimens for edge flashings, gravel stops and copings. In addition to the full size specimens, small scale tests are used to evaluate dependently terminated edge systems.

(New) Approval Standard 6056—

Dip, Washing and Rinse Tanks, June 2013

This standard establishes the requirements for products becoming FM Approved. The dip, washing and rinse tanks are produced from all steel construction. These containers and tanks are used to wash residual cutting fluids or oils from small components or sub-assemblies. The dip, washing and rinse tanks range in capacity from 1 to 22 gallons (4-83L).

(New) Approval Standard 4920—

Filters Used in Clean Room Facilities, July 2013

This standard was developed to test and approve filter units such as prefiltration units, final stage wall units and ceiling filters that are used in clean room facilities. These facilities include food preparation, pharmaceutical and computer chip manufacturers. A typical filter assembly consists of frames, filter media, gaskets, sealing gel material and potting compounds. All filter assemblies will be tested to FM Approvals Clean Room Materials Flammability Test Method for Parallel Panel Test 4910/4920.

(Updated) Approval Standard

6917—Rack Storage Flue Spacers, August 2013

This standard states requirements for rack storage flue spacers. Rack storage of combustible commodities creates a substantial hazard and potential for large fires should ignition occur in the storage area due to several issues such as large amounts of fuel that can be concentrated in racks, uninhibited airflow throughout a stable rack array, and the potential for shielding of commodity from overhead sprinklers.

The standard was revised to include two different levels of approval—Regular Duty and Heavy Duty—depending on the load set used during the test program. The Regular Duty products are intended for rack storage arrays where the commodities are subjected to lower level usually found where hand packing is normally used. The Heavy Duty products are intended for use where commodities are normally stored using mechanical means such as a forklift. The acceptance criteria measure the deformation under load which is limited to 0.25 inches (6.4 mm).

APPROVAL STANDARDS AND COMMITTEE PARTICIPATION

Committees:

Electrical Group

IECTC31

Bill Lawrence will head the U.S. delegation to the October 2013 Plenary meeting of IEC TC31 in New Delhi, India. He will also be attending the Maintenance Team meeting for TC31/MT60079-7, increased safety “e” where a Committee Draft for Voting (CDV) for the next edition of the document will be finalized. He will also be Convening a meeting of TC31/WG22 to prepare the Committee Draft for Voting (CDV) for the 4th edition of IEC 60079-5, progressing the development of the 3rd edition of 60050-426, and reviewing the status of two Interpretation Sheets (I-SH) being processed for IEC 60079-0.

IEC SC31M

Bill Lawrence will also head the U.S. delegation to the October 2013 meeting of IEC SC31M in New Delhi, India. The development of the fundamental standards, ISO/IEC 80079-36 and ISO/IEC 80079-37 continues, based on the existing requirements of EN13463-1, EN13463-5, and EN13463-8. Both documents are currently at CD stage, and publication is likely in 2015.

ISA

The Spring 2013 ISA12 (Hazardous Locations) meetings in Northbrook, Ill., were attended by Tim Adam, Steve Henney, and Bill Lawrence. Major topics addressed in the various subcommittees included the issue of an amendment to ANSI/ISA 60079-11 (new Ed 6.1) for Intrinsic Safety to clarify the application of this standard to intrinsic safety level of protection ‘ic’, continued development of the bi-national standard ISA12.12.01 / CSA C22.2 No 213 for Division 2 equipment, review of the IEC draft for the 7th edition of 60079-1 and review of the IEC draft for the 5th edition of 60079-7. ISA12 will next meet in March 2014 in Wilmington, Del.

Steve Henney attended the ISA-12.13 subcommittee and ISA-12.92 subcommittee meetings in Northbrook, Ill., on Sept. 30 – Oct. 1st. The topics addressed included the reaffirmation of Approval Standard 6325/ISA 12.13.04 open path gas detectors. All agreed there would be no changes to the path of reaffirmation. Comments were reviewed for ISA-TR92.00.03, Edition 1 and ISA-92.00.04, Edition 1. As there were technical comments, the standards will be submitted for ballot.

ISOTC 21

Ray Stacy attended the ISO TC21/SC8, subcommittee for gaseous extinguishing systems, meeting in London, U.K. the week of September 9, 2013. Resolutions included sending all ISO 14520-1 and the associated chemical agent standards directly to Draft International Standard (DIS) after the New Proposal (NP) ballot has been completed, sending the inert gas agent standards to Final Draft International Standard (FDIS), support for the re-confirmation of the ISO Halon standards, and assigning a task to develop a New Work Item Proposal (NWIP) on the venting of enclosures protected by gas systems.

NFPA 18

As Chairman of NFPA 18, Armand Brandao has agreed to a proposal from the NFPA to take NFPA 1150 into this committee’s work scope (along with the current NFPA 18 – Wetting Agents and NFPA 18A – Water Additives). NFPA 1150 originated in the Forest and Rural Firefighting Committee and is concerned with water additives for Class A firefighting. The NFPA believes that it is a better fit in NFPA 18. We have polled the committee members and it looks like this will be going forward. From FM Global’s standpoint, we have insurance customers investigating the use of these additives for coal pile fires. Obtaining better oversight of NFPA 1150 can allow us to leverage the committee’s work in developing test methods to inform our own.

APPROVAL STANDARDS AND COMMITTEE PARTICIPATION

NFPA 70

The 2014 edition of the National Electrical Code (NEC) was published in September 2013. Adoption has commenced in jurisdictions across the U.S.

NFPA 72

Walt Kessler, Paul Crowley and Bob Elliott attended their respective NFPA 72 Technical Committee meetings in St. Louis. In each case, it was a First Draft (FD) Meeting which has replaced the Report on Proposals (ROP) meeting in the NFPA's revised standard development process. NFPA 72 serves as the basis for Approval Standard Class 3010 (Fire Alarm Systems) requirements and also addresses the various detector types, smoke, heat, flame, and gas, which FM Approvals certifies per their associated Approval Standards.

Walt is an active participant on the Fundamentals (SIG-FUN) chapter TC. Many of the submissions were to address Technical Correlating Committee inputs to "improve readability." Such instruction was too vague and most proposed changes to address the TCC inputs were rejected. There was a more meaningful discussion on the present requirements for backup battery capacity margin for Fire Alarm Control Panels and Power Supplies. It was agreed to codify the value of 20 percent margin.

Paul is an active participant on the Protected Premises Fire Alarm and Signaling Systems chapter TC. Over 120 change proposals were reviewed and acted upon by the committee.

Bob is an active participant on the Supervising Station chapter TC. The previous two editions of the standard (2010 and 2013)

introduced significant changes to the document with the addition of "and signaling" to the title. This included incorporating Mass Notification Systems. By comparison, the latest planned edition (2016) so far seems much simpler. A new circuit classification appears likely to be added that will address shared responsibility of Ethernet cables that should expand its use in fire alarm signaling.

EUROPE

A new issue of the Official Journal of the European Union list of ATEX Harmonized Standards was published on Sept. 7, 2013. EN 60079-0:2012 has still not been recognized as a harmonized standard.

Fire Protection Group

AWWA

Stan Ziobro, technical team manager, attended the AWWA Annual Conference and Exhibition in Denver, Colo., on June 10 – 12, 2013, participating in Standards Committee Meetings for Fire Hydrants, Check and Gate Valves and Polyolefin Pressure Pipe and Fittings.

ISO TC 21

Claude Bosio, technical team manager, participated in the ISO TC21 SC5 international committee meeting in September 2013. Current drafts of all four sprinkler standards were reviewed – Part 1 (sprinklers), Part 7 (Suppression-Mode Sprinklers), Part 10 (Domestic Sprinklers) and Part 13 (Extended Coverage Sprinklers) – with a focus on harmonizing the four different standards collectively. A working group was also convened to discuss possible development of a test standard for all common sprinkler tests. The committee

unanimously voted to begin the process of consolidating all existing sprinkler standards (parts 1, 7, 10 and 13) into a single ISO standard.

NEMA SC10

Aaron Butler, advanced engineer, attended the NEMA SC10 semi-annual meeting in Savannah, Ga., on Sept. 10 – 11, 2013. Amongst other topics related to the fire pump controller industry, attendees discussed pressure transducer performance, interconnection between fire pump controllers and diesel engine drivers, the use of NiCad batteries with current battery chargers and NFPA 20 / FM 1333 requirement changes that pertain to FM Approved diesel engine fire pump controllers.

Materials Group

ASTM D02

In June 2013, Chris Spencer attended the summer meeting of ASTM Committee D02 on Petroleum Products and Lubricants held in Montreal, Quebec, Canada. During that meeting Chris participated in a daylong symposium sponsored by Committee D02 on Fire Resistant Fluids and presented a session on Evaluation of Fire Resistance of Industrial Fluids by FM Approvals.

Cooling Technology Institute (CTI)

Chris Spencer attended the Cooling Technology Institute (CTI) Summer Committee Workshop in July 2013. During the meeting, Chris was appointed by the Chair of the Engineering Standards and Maintenance (ES&M) Committee to co-chair a newly formed committee on Thermoplastic Products Used for Cooling Tower Components.

Intersec 2014

Dubai, UAE

January 19 – 21, 2014

Established in 1999, Intersec is the leading regional trade event for the security, safety and protection industries.

Fire Sprinkler International 2014

London, U.K.

May 20 – 21, 2014

Fire Sprinkler is the UK sprinkler industry's biannual conference and exhibition. In 2014 it will take on an international dimension when it will be jointly hosted in London by the European Fire Sprinkler Network and the British Automatic Fire Sprinkler Association.

Association of State Floodplain Managers (ASFPM)

Seattle, Wash., USA

June 1 – 6, 2014

The Association of State Floodplain Managers is an organization of professionals involved in floodplain management, flood hazard mitigation, the U.S. National Flood Insurance Program, and flood preparedness, warning and recovery.

NFPA Conference and Expo

Las Vegas, Nev., USA

June 9 – 12, 2014

National Fire Protection Association (NFPA) is an international nonprofit established in 1896. Its mission is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training and education. The world's leading advocate of fire prevention and an authoritative source on public safety, NFPA develops, publishes and disseminates more than 300 consensus codes and standards intended to minimize the possibility and effects of fire and other risks. NFPA membership totals more than 70,000 individuals around the world.

Building Test Expo

Brussels, Belgium

June 17 – 19, 2014

Building Test Expo is an international exhibition and technical conference dedicated to the latest technology, services, and equipment used in building product and materials testing and certification. The event promotes increased innovation, quality, safety and sustainability in building materials through improved and advanced testing technologies and processes.

AFSA 2014 Convention and Exposition

Orlando, Fla., USA

Sept. 27 – Oct. 1, 2014

Organized in 1981, American Fire Sprinkler Association (AFSA) is a nonprofit, international association representing open shop fire sprinkler contractors dedicated to the educational advancement of its members and promotion of the use of automatic fire sprinkler systems.

China Roofing and Waterproofing Expo 2014

Beijing, China

TBD

The largest expo of its kind in China, this expo is intended to help roofing and waterproofing professionals stay abreast of market directions, future trends and the latest technology.

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