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SAFE AND SUSTAINABLE BUILT ENVIRONMENT

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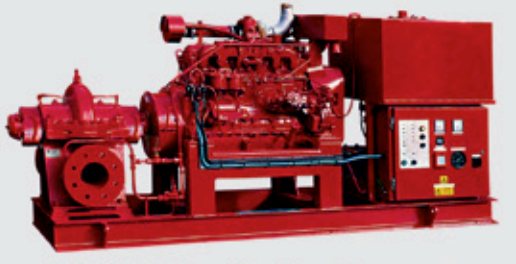

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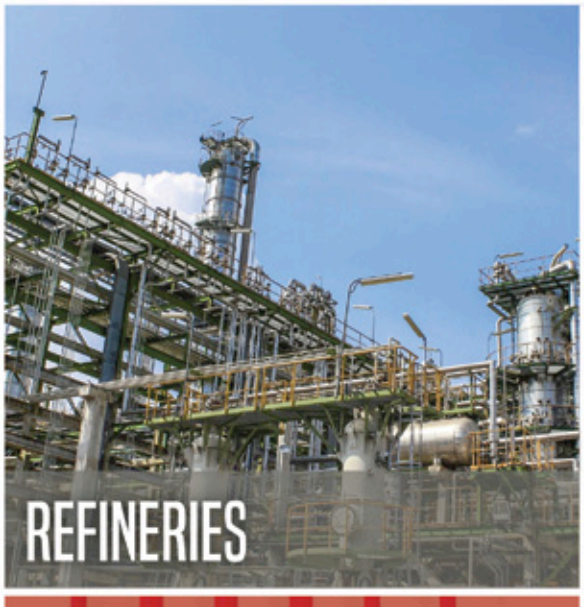

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from the President

It's a matter of great relief that finally, fire safety and security are gaining more and more momentum with each passing day, in the country. At the same time, FSAI is also leaving no stone unturned to contribute for creating awareness amongst the professionals and also the laymen. The ideal examples are the initiatives like Life Safety Marathon at Pune where kids, adults and elders participated with equal vigor or School Awareness Programmes (SAP), where hundreds and thousands of kids are given exposure on critical issues, especially related to fire safety.

While on SAP, let me share with you that FSAI has taken a huge challenge to conduct this immensely useful programme for the benefit of **one million** kids! At the same time, FSAI is also acting very aggressively to form more and more Student Chapters and induce them in the vast arena of life safety and security, surveillance and integrated building management systems. The idea is to 'catch them young' for creating tomorrow's India, what we call - **Surakshit Bharat!**

We at FSAI have initiated this movement for safe keeping of our fellow citizens through the building service professionals; be it builders, architects, consultants, fire department officials, hospitality consultants, project heads, enforcement agencies, hoteliers, large utilities hospital administrators and so on. All the FSAI chapters are working relentlessly to organize interesting programmes like panel discussions, presentations and networking of stakeholders. Let me add here that during the year ended on 31st March 2017 as many as 108 programmes at different levels were organized at various locations across the country, under the umbrella of FSAI! This, in simple mathematical terms, means **one programme, every third day!!** While new teams with new ideas and fresh initiatives have taken over at all the chapters, I am sure that the tally for this year will be much better!!!

Right now, my team is neck-deep in making arrangements for organizing FSAI's highly successful event –Project Heads, Architects & Consultants Conclave 2017 - PACC 2017 to be held at Bangkok in August 2017. I am very buoyantabout this ambitious event, which is aimed at bringing the major stakeholders of the building industry together for brain-storming on how we all can make SAFE & SECURE INDIA. Because, it is our collective responsibility and the members of FSAI are committed with clarity of vision and integrity of action.

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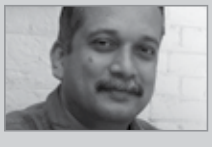

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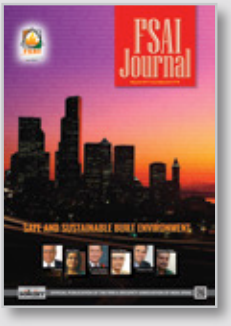

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I am delighted to connect to you all with this issue of the Journal which carries a few more articles on the National Building Code of India 2016. As all of you are aware, the proactive approach of NBC 2016 would certainly help in providing information in a more structured and systematic manner, which in turn, takes care of various critical aspects of the building industry like fire prevention, life safety, fire protection, integration of services, security aspects of exits & egress, electrical resilience and so on. I have no doubts, whatsoever that NBC 2016 is going to be the most referred publication by the building service professionals for seeking guidance and solutions for safe and secure built environment. We are hopeful that with a more practical, adaptive and viable design approach, the designers would benefit in having the provisions adopted in the designs, which will provide additional and enhanced safety to the occupants.

FSAI, through its various attempts and focused approach, is spreading knowledge and creating awareness by providing platform to professionals and designers for bringing excellence in planning, designing and execution of fire, life safety and security systems. It is also educating corporates, school children and public at large in developing better understanding on critical importance of these services and its adoption in their places of living, working or visiting.

FSAI senior management is working tirelessly in creating more and more awareness through effective programmes like School Initiative Programmes, Life Safety Marathon, Panel Discussions, Seminars and so on. At the same time, it is also working for expanding the FSAI net by launching new chapters and enrolling more professionals, corporates, OEM manufacturers, system integrators & individuals and is also working closely with other allied industry bodies for having more interactive opportunities to yield better results.

One of the recent initiatives put forward by FSAI National President - Mr. Pankaj Dharkar was with respect to revision in GST rates on fire safety equipments and security systems. Mr. Dharkar has worked closely with his senior colleagues at FSAI and heads of other industry bodies to communicate to the Government towards consideration of reducing GST on these life savingequipments, enabling affordability of these systems, which are not “Luxury” but “Requirement” for a safe and secured society. We are hopeful of a positive outcome on these efforts by FSAI.

It goes without saying that in an era of ‘Zero Tolerance’, safety and security can be achieved only through comprehensive understanding, knowing the requirement, avoiding the path of least resistance and being more proactive in resolving respective tasks and goals towards excellence. Because, the right design and approach would not only make our own life safe but, would safeguard the lives of our loved ones, as well.

Sandeep Goel
Chief Editor
editor@fsai.in

The National Building Code of India for **Safe and Sustainable Built Environment**

- by V Suresh

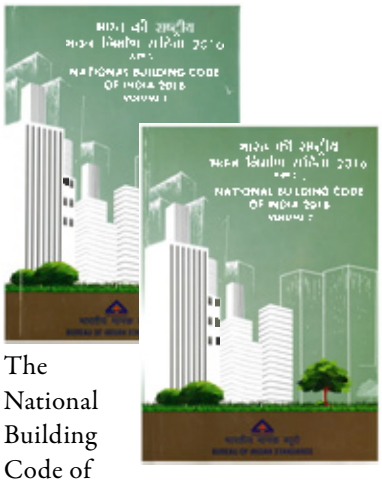
The Indian construction industry registered an average annual growth rate of 3.5% during 12th plan. This growth was supported by the government with investment in infrastructure, industrial parks and residential buildings. In addition, government flagship programme such as the Jawaharlal Nehru National Urban Renewal Mission, the National Rural Health Mission (NRHM) and Indira AwasYojana supported review-period growth.

This will be further expanded in the 13th plan.

The industry is expected to continue to expand driven by investments in residential, infrastructure and energy projects under flagship programme such as the 100 Smart Cities Mission, Housing for All 2022, the Atal Mission for Urban Rejuvenation and Transformation (AMRUT), the National Skill Development Mission (NMSD), PradhanMantri Gram SadakYojana (PMGSY), Make in India, and Power for All (PFA) by various governments.

In 2015, the government launched the Smart City Mission and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme. Under the Smart City Mission, the government plans to develop the infrastructure of 100 selected cities with an investment of INR480 billion, whereas under the AMRUT scheme it plans to spend INR500 billion to develop 500 cities by 2022. The PMAY is expected to provide 20 million Urban Housing units under Housing for All by 2022.

All these contribute in a big way to the built environment and construction sector. These need the right development and regulatory frame work, which is provided by the New National Building Code of India 2016.



The National Building Code of India (NBC), a comprehensive building Code, is a national instrument providing guidelines for regulating the building construction activities across the country. It serves as a model code for adoption by all agencies involved in building construction works be they public works departments, other government construction departments, local bodies or private construction agencies. The Code mainly contains administrative regulations, development control rules and

general building requirements; fire safety requirements; stipulations regarding materials, structural design and construction (including safety); building and plumbing services; approach to sustainability; and asset and facility management.

The Code was first published in 1970 at the instance of Planning Commission and then first revised in 1983. Thereafter three major amendments were issued to the 1983 version, two in 1987 and the third in 1997. The second revision of the Code was in 2005, to which two amendments were issued in 2015.

Due to large scale changes in the building construction activities, such as change in nature of occupancies with prevalence of high rises and mixed occupancies, greater dependence and complicated nature of building services, development of new/innovative construction materials and technologies, greater need for preservation of environment and recognition of need for planned management of existing buildings and built environment, there has been a paradigm shift in building construction scenario. Considering these, a project for comprehensive revision of the Code was taken up under the aegis of the National Building Code Sectional Committee, CED 46 of BIS and its 22 expert panels; involving around 1 000 experts. As a culmination of the project, the revised Code has been brought out in 2016 as National Building Code of India 2016 reflecting the state-of-the-art and contemporary applicable international practices.

The comprehensive NBC 2016 contains 12 parts some of which are further divided into sections totalling 33 chapters as given below and brought out in two volumes (Part 1 to 6 and Part 7 to 12).

PART 0 INTEGRATED APPROACH – A PRE-REQUISITE FOR APPLYING THE PROVISIONS OF THE CODE
PART 1 DEFINITIONS
PART 2 ADMINISTRATION
PART 3 DEVELOPMENT CONTROL RULES AND GENERAL BUILDING REQUIREMENTS
PART 4 FIRE AND LIFE SAFETY
PART 5 BUILDING MATERIALS
PART 6 STRUCTURAL DESIGN
- Section 1 Loads, Forces and Effects
- Section 2 Soils and Foundations
- Section 3 Timber and Bamboo
  - 3A Timber
  - 3B Bamboo
- Section 4 Masonry
- Section 5 Concrete
  - 5A Plain and Reinforced Concrete
  - 5B Prestressed Concrete
- Section 6 Steel
- Section 7 Prefabrication and Systems Building and Mixed/Composite Construction
  - 7A Prefabricated Concrete
  - 7B Systems Building and Mixed/Composite Construction
- Section 8 Glass and Glazing

PART 7 CONSTRUCTION MANAGEMENT, PRACTICES AND SAFETY
PART 8 BUILDING SERVICES
- Section 1 Lighting and Natural Ventilation
- Section 2 Electrical and Allied Installations
- Section 3 Air Conditioning, Heating and Mechanical Ventilation
- Section 4 Acoustics, Sound Insulation and Noise Control
- Section 5 Installation of Lifts and Escalators and Moving Walks
  - 5A Lifts
  - 5B Escalators and Moving Walks
- Section 6 Information and Communication Enabled Installations

PART 9 PLUMBING SERVICES (INCLUDING SOLID WASTE MANAGEMENT)
- Section 1 Water Supply
- Section 2 Drainage and Sanitation
- Section 3 Solid Waste Management
- Section 4 Gas Supply

PART 10 LANDSCAPE DEVELOPMENT, SIGNS AND OUTDOOR DISPLAY STRUCTURES
- Section 1 Landscape Planning, Design and Development
- Section 2 Signs and Outdoor Display Structures

PART 11 APPROACH TO SUSTAINABILITY
PART 12 ASSET AND FACILITY MANAGEMENT

The salient features of the revised NBC include, apart from other changes made, the changes specially in regard to further enhancing our response to meet the challenges posed by natural calamities as given below.

The major changes incorporated in this third revision of the Code are as follows:

- Provisions for association of **need based professionals and agencies** have been updated to ensure proper discharge of responsibilities for accomplishment of building project.

- With a view to ensuring **ease of doing business in built environment sector**, a detailed provision for streamlining the approval process in respect of different agencies has been incorporated in the form of an integrated approval process through single window approach for enabling expeditious approval process, avoiding separate clearances from various authorities.

- Further, with a view to meeting the above objective, the provision on **computerization of approval process** has been detailed, enabling online submission of plans, drawings and other details, and sanction thereof, aiding in speedier approval process.

- The mechanism of ensuring **certification of structural safety** of buildings by the competent professional and peer review of design of buildings, have been further strengthened.

- Requirements for **accessibility in buildings and built environment for persons with disabilities and the elderly** have been thoroughly revised and updated.

- Provisions on **fire and life safety** have been thoroughly revised to meet the challenges of modern complex building types including the high rises.

- Latest structural loading and design and construction codes including those relating to wind load, **earthquake resistant design** of buildings, steel design and foundations have been incorporated with a view to ensuring structural safety of buildings including against a disaster.

- Provisions relating to all **building and plumbing services** have been updated keeping also in view the latest international practices as related to the country.

- Provisions have been updated to ensure utilization of number of **new/alternative building materials and technologies** to provide for innovation in the field of building construction.

- **Construction management** guidelines have been incorporated to aid in timely completion of building projects with desired quality in a safe manner within the budgeted cost.

- Guidance has been provided for making buildings and built environment energy efficient and environmentally compatible, through the newly introduced and updated chapter on sustainability, namely Part 11 'Approach to Sustainability'

- **New chapters** have been added on structural use of glass; escalators and moving walks; information and communication enabled installations; solid waste management; and asset and facility management.

Salient Features of National Building Code 2016 (NBC 2016)

- Detailed provision for **streamlining the approval process** in respect of different agencies in the form of an integrated approval process through single window approach thereby avoiding separate clearances from various authorities, with a view to ensuring **ease of doing business** in built environment sector.

- **Progressive computerization of approval process**, for enabling online submission of plans, drawings and other details, and sanction thereof.

- Updated mechanism of ensuring **certification of structural safety** of buildings by the competent professional and peer review of design of buildings.

- Defining the roles and responsibilities of all professionals and contractors involved in a building construction project.

- Comprehensive planning norms for minimum amenities to be provided in a city/town.

- Detailed provisions relating to requirements for **accessibility in buildings and built environment** for persons with disabilities and the elderly.

- Planning and development norms, such as, Transferable Development Rights (TDR) and Accommodation Reservation (AR).

- Provisions for underground or multi-storeyed parking as also mechanized **parking** of vehicles.
- Norms for **solar energy** utilization.
- Requirements for buildings on podium for ensuring fire and life safety in such buildings.
- **Fire and life safety in modern complex buildings** including the high rises, glazed buildings, atria, commercial kitchen and car parking facilities.
- Updated **structural design provisions** for wind and seismic loads, imposed load due to helipad, and blast loads, for safe design and construction of buildings with due focus on ductile detailing.
- Latest research and development inputs and provisions on concrete, steel and masonry buildings with a view to ensuring **disaster resilient buildings**.
- Assessment of liquefaction potential of a site and ground improvement techniques for maximum utilization of land resources including at seismically vulnerable sites.
- Updated provisions on engineered use of **bamboo in housing** and other building construction.
- Promotion of use of **agricultural and industrial wastes** including **construction and demolition wastes** in building construction without compromising the quality and safety.
- Inclusion of provisions on self compacting concrete, high performance concrete and steel fibre reinforced concrete.
- Updated provisions on **prefabricated construction technique** for speedier construction.
- New chapter on structural **use of glass** in buildings.
- **New and alternative building materials, and technologies** for building construction such as, reinforced masonry, confined masonry building construction and masonry wall construction using rat-trap bond.
- Construction **project management guidelines** for timely completion of building projects within the budgeted cost with desired quality.
- Habitat and other welfare **requirements for workers** at construction site.
- Inclusion of modern lighting techniques such as **LED and induction light** and their energy consumption.
- New provisions on compact substations and updated provisions on installation of energy meters.
- Comprehensive provisions relating to **lightning protection** of buildings.
- Provisions on aviation obstacle lights; **electric vehicle charging** and car park management.
- Protection of human beings from electrical hazards and against fire in the building due to leakage current.
- Use of **refrigerants** for air conditioning addressing zero ozone depletion potential

The revised NBC include, apart from other changes made, the changes specially with regard to further enhancing our response to meet the challenges posed by natural calamities

(**ODP**) and ultra-low global warming potential (**GWP**).

- Inclusion of new and **energy efficient options of air conditioning**, heating and mechanical ventilation, such as variable refrigerant flow system, inverter technology, district cooling system, hybrid central plant using chilled beams, radiant floor components, and geo-thermal cooling and heating.

- Thrust on **envelope optimization** using energy modelling, day lighting simulation, solar shade analysis and wind modelling software to optimize the air conditioning load.

- Air conditioning, heating, and ventilation (HVAC) provisions considering **adaptive thermal comfort conditions** for energy efficiency.

- Provisions pertaining to **metro trainways and metro stations** with respect to fire and life safety; and air conditioning, heating and ventilation for metro stations.

- HVAC requirements for **data centres and healthcare facilities**; refrigeration for cold stores; efficient strategies for winter heating using reverse cycle operation, solar heating systems, ground source heat pump and electric heat pump; and modern system of mechanical ventilation for industries, commercial kitchen and underground car parking.

- Updated provisions on **building automation system** to include the latest practices for web-based monitoring and control of performance parameters.

- **High speed lifts** for tall buildings.

- New chapter on **escalators and moving walks** for comfortable and safe movement of people.

- New chapter on **information and communication enabled installations** in buildings.

- Updated provisions on water supply, drainage and sanitation for modern high rise buildings and complexes.

- Provisions relating to **swimming pools** covering hygiene and safety.

- Updated provisions on **rainwater harvesting**.

- New chapter on **solid waste management** covering various solid waste management systems within the building and building complexes.

- Updated provisions on **piped gas supply** in houses, and in hospitals for medical purposes.

- Promoting quality of outdoor built environment through updated provisions on **landscape planning**, design and development.

- Promoting **sustainability** in buildings and built environment in tandem with relevant sustainable development goals.

- New chapter on **asset and facility management** to cover provisions relating to management of building assets and associated services, also covering responsibilities of occupants for maintenance of facilities, such as structures, equipment and exterior property.

Conclusion

With the release of NBC 2016 it is hoped that the Building Bye-laws, Development Control Rules, Planning Standards and Fire Regulations of local bodies and Construction Codes of construction departments and agencies will be revamped in line with NBC and implemented for Safe, Secure, Sustainable and Green Built Environment.

Acknowledgement

This document has been prepared with substantial inputs from Bureau of Indian Standards (BIS) from SP 7 publication.

Vasudevan Suresh is a Civil Engineer with 52 years of professional experience in the Housing, Infrastructure, Rural and Urban Development, Real Estate Development and Built Environment sectors, leading to Sustainable Development. He is associated with the formulation of leading National Standards and Codes and National Building Code and is Vice Chairman, NBC 2005 and the 2016 revision, and Chairman, Housing, Planning and Prefabricated Construction Sectional Committee and Member of Smart Cities Committee of BIS. He is member of the NBC Panel dealing with New Part 11 Approach to Sustainability. V Suresh has worked in various Government of India expert groups on Housing, Urban Development, Building Technologies, Disaster Mitigation and Sustainable Development. With eminent portfolios to his credit, he has represented India on various international forums with various facets of Sustainable and Safe Human Settlements for different global context initiatives. He has received distinguished awards and accolades for his eminent contribution and manifold capabilities.
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Aspects of Fire Safety:

Revision in NBC 2016, Part 8 Building Services Section 2 Electrical and Allied Installation

- by Shruti Goel

Electrical supply and distribution in any building is an essential service enabling functioning of the important aspects of lighting, water supply, comfort conditions, air flow, ventilation, aspect of air conditioning, heating, vertical transportation and other services in the building.

Requirement of electrical power in a building/ complex increases over the time span of the building with ever increasing requirements of ancillary services and it is prudent to have the electrical supply and distribution services well designed considering future expansion, flexibility, scalability and most importantly, professional and well organized electrical installation ensuring owners/ users' understanding and propose use of installation without burdening the system beyond the proposed requirements.
While in most cases, the cause (or initiation) of fire is attributed to electrical installation which may or may not be correct in consideration, it is a known fact that fire initiated due to any reason will involve the electrical installation and can result in failed functioning of the life safety services, which are so crucial towards requirement of life safety aspects of evacuation annunciation, creating of compartments, pressurization and ventilation of exits, vertical transportation and importantly, fire protection services.

In the revision of the Code, approach to align the 2016 Code with the provisions of the relevant regulations, particularly, Central Electricity Authority (measures relating to Safety and Electric Supply) Regulations, 2010, amended in 2015. In the revision, the following major modifications have been incorporated:

a) Various new terms and their definitions have been added and existing terms and definitions have also been updated based on current developments at national and international level.

b) Provisions related to location and other requirements relating to layout, environmental and safety aspects for different substation apparatus/ equipment and generating sets have been reviewed and updated.

c) Provisions related to location of

compact substations have been added.

d) Requirements for electrical supply system for life and safety services have been included.

e) Provisions related to reception and distribution of supply and wiring installations have been updated with due cognizance to Indian Standards formulated for various wiring systems.

f) Provisions related to installation of energy meters have been updated.

g) Discrimination, cascading and limitation concepts for the coordination of protective devices in electrical circuits have been introduced.

h) Socket outlets with suitable circuit breakers, conforming to latest and updated Indian Standards have been recommended for industrial and commercial applications.

i) Provisions related to earthing/ grounding have been substantially revised and updated.

j) Provisions related to lightning protection of buildings have been revamped based on the current national and international developments.

k) Provisions related to renewable energy sources for building, such as solar PV system, aviation obstacle lights, electrical supply for electric vehicle charging and car park management etc., have been included.

l) New provisions related to electrical installations for construction sites and demolition sites have been included.

m) New provisions related to protection of human beings from electrical hazards and protections against fire in the building due to leakage current have been included.

n) Typical formats for checklists for handing over and commissioning of substation equipment and earthing pit have been included.

Aspect of safety of substation and switch room with respect to location has been specifically addressed in the Code with learnings from the unforeseen rainwater situations, eg. the calamity in Chennai, which resulted in jeopardizing the overall electrical supplies of the building. The revised code states the following aspects:

- In case there is only one basement in a building, the substation/ switch room shall not be provided in the basement. Also, the floor level of the substation shall not be lowest point of the basement.
- In order to prevent storm water entering the transformer and switch rooms through the soak-pits, the floor level of the substation/ switch room shall be at least 300 mm above the highest flood water level that may be anticipated in the locality. Also, facility shall be provided for automatic removal of water.
- Substation shall not be located immediately above or below plumbing water tanks or sewage treatment plant (STP) water tanks at the same location.
- For dry-type installation, electric substation has to be located within the main multi-storeyed building itself for unavoidable reasons, it

Aspect of safety of substation and switch room with respect to location has been specifically addressed in the Code

shall be a dry-type installation with very little combustible material, such as, a dry type transformer with vacuum (or SF6) breakers as HT switchgear and ACB or MCCB as medium voltage (MV) switchgear. Such substations shall be located on the ground level or on first basement, and shall have direct access from the outside of the building for operation and maintenance of the equipment.

- For buildings where dry type substations are installed/ provided at upper floor, the base substation shall be located in such a way to provide direct access to the firemen in case of any emergency. The power supply control to any substation or transformer located at upper floors shall be from the base substation so that in case of fire, the electrical supply can be easily disconnected to avoid additional losses. The power supply HV cables voltage shall not be more than 12 kV and a separate dedicated and fire compartmented shaft should be provided for carrying such high voltage cables to upper floors in a building.

- Horizontal routing of HT cable through functional/occupied areas should be avoided in view of safety.

Towards the aspects of Installation Circuit which leads to cause of fire, the Code addresses the aspect of safety towards the design aspect leading to provide inherent safety to the principal design approach.

The Code particularly with respect to the Installation Circuit states that the nominal cross-sectional area of copper phase conductors in AC circuits and of live conductors in DC circuits is supposed to be not less than the values specified respectively for identified types of circuits. The Code states that aluminum conductor cables in sizes less than 16 sq. mm cause termination problems leading to heating at the terminals and enhance the possibility of a fire. For conductor sizes that are less than or equal to 16 sq. mm, only copper conductor cables should be used. The Code also states, in existing buildings where aluminum wiring has been used for internal electrification, changeover from aluminum conductor cables to copper conductor cables is recommended as it has been found that aluminium conductors below 10 sq. mm size pose a number of hazards. Further, the Code states that it is advisable to replace wiring which is more than 30 years old as the insulation also would have deteriorated and will be in a state to cause failure on the slightest of mechanical or electrical disturbance.

Conductors for all the internal wiring shall be of copper.

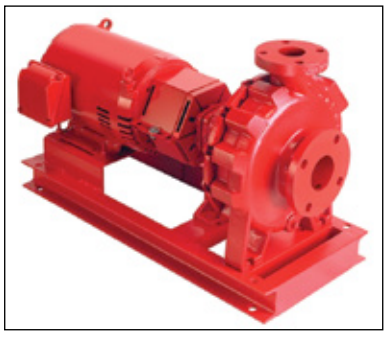
Conductors for power and lighting circuits shall be of adequate size to carry the designed circuit load without exceeding the permissible thermal limits for the insulation. For final section wiring to larger loads, the current carrying capacity will preside. The conductor size shall also be based on the voltage drop in the line so as to provide a terminal voltage not below the prescribed voltage requirement. The conductor for final sub-circuit for fan and light wiring shall have a nominal cross-sectional area not less than 1.50 sq. mm copper. The cross-sectional area of conductor for power wiring shall be not less than 2.5 sq. mm copper. The minimum cross-sectional area of conductor of flexible cord shall be 1.50 sq. mm copper.

The Code recognizes the aspect of electrical power supplies to critical services required for fire and life system operations.

The Code states:

Power supply to emergency fire and

Correct design and correct use of Electrical Distribution Circuit prevents the onset of electrical fire in a building



Fire Pumps

Smoke Mitigation Fans

Smoke Mitigation Fans

Some of the specific systems to function with reliable power during outbreak of fire

life safety systems and equipments for accurate functioning shall be planned for efficient and reliable power and control supply to the following systems and equipments:

i) Fire pumps

ii) Pressurization and smoke venting including its ancillary systems such as dampers and actuators

iii) Fireman lifts (including all lifts)

iv) Exit signage lighting

v) Emergency lighting

vi) Fire alarm system

vii) Public address (PA) system (relating to emergency voice evacuation and annunciation);

viii) Magnetic door hold open devices; and

ix) Lighting in fire command centre and security room.

Power supply to these systems and equipment shall be from normal and emergency (standby generator) power sources with changeover facility. It shall be ensured that in case the power supply is from HT source/ HT generation, transformers should be planned in standby capacity to ensure continuity of power to such systems. Wherever transformers are installed at higher levels in buildings and backup DG sets are of higher voltage rating, then dual redundant cables shall be taken to all transformers. The generator shall be capable of taking starting current of all the fire and life safety systems and equipment as above.

Where parallel HV/LV supply from a separate substation fed from different grid is provided with appropriate transformer for emergency, the provision of generator may be waived in consultation with the Authority. The power supply to the panel/ distribution board of these fire and life safety systems shall be through fire proof enclosures or circuit integrity cables or through alternate route in the adjoining fire compartment to ensure that supply of power is reliable to these systems and equipment. It is to be ensured that the cabling from the adjoining fire compartment is to be protected within the compartment of vulnerability. The location of the panel/distribution board feeding the fire and life safety system shall be in fire safe zone ensuring supply of power to these systems. Cables for fire alarm and PA system shall be laid in metal conduits or armored to provide physical segregation from the power cables.

While the revised code approaches towards the aspect of higher level of safety in design and distribution to bring efficiency in the distribution, to minimize heating, overheating and situations arising towards unsafe conditions, the Code also adequately and systemically addresses the aspect of operation of systems and equipments at the time of fire to provide occupancy and building safety.

Shruti Goel is electrical engineer and has over 20 years of experience in Building Services Engineering. She is hands on Design Engineer in Electrical Discipline and has overall comprehensive knowledge in MEP services. Shruti has worked as senior design engineer for over 150 projects in last 20 years of varying types and occupancies. She has experience in commercial buildings, institutional buildings, residential buildings, hotels, industries such as automobile, manufacturing, plotted developments, schools, SEZ's, exposition & exhibition areas, etc. She is Committee Member in Electrical Panel - Bureau of Indian Standards (BIS), Ministry of Home Affairs, Govt. of India. She was actively involved in revision of Electrical Chapter - National Building Code of India 2005 and now 2016. She is Visiting Faculty to MBEM Students at School of Planning and Architecture since 2010.

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24X7 Monitoring System **for Safe Goa**

- by Ashok Menon

The Directorate of Fire and Emergency Service is entering into its 33rd year of existence. The mission of Fire and Emergency Services is to prevent Fire and Emergency incidents. We have always been doing this through public awareness. In the age of technology and digitalization the Fire and Emergency Service, being a multi hazard response force have to change and be "SMART". In order to be well prepared for the safety challenges, the Fire and Emergency Service as the first responder to any incidents, have now become more proactive than reactive.

It is this proactiveness that has enabled the Directorate of Fire and Emergency Services to conceive and develop a state-of-the-art 24x7 Emergency Monitoring System that uses M2M Technology. The project is titled "SAFE GOA 24X7 EMERGENCY MONITORING SYSTEM". It is developed by using IOT based platform utilizing technological advancements, integrating IT application and digitization.

Emergency Monitoring System

The vision of Safe Cities is to provide the citizens with a safe and secure living environment. An IOT framework is used to develop the "SAFE GOA 24x7 Emergency Monitoring System". It would provide for remotely monitoring in real time the functional status of Fire Protection System i.e. Fire Detection, Fire Suppression, Gas Detection and Fire Alarm of all the stake-holders/ facilities/occupancies such as industry, hospitals, hotels, banks, high rise buildings etc.

The 24x7 real time connectivity starts from the design of IOT Gateway, the GPS/GPRS communication medium and also the cloud based service of data collection, analytics, dash boarding, reporting and dispatching of fire fighting vehicles which completes the full cycle of the service. The State Fire and Emergency Services Control Room provides a proactive approach to the First Responders on the location and type of incident enabling intelligent decision-making and then reducing and minimizing loss of life and loss of physical assets thereby aiming at "SURAKSHIT GOA".

Objective and Benefits

- All facilities (Industries, Hospitality, Hospitals, Banks, High Rise Buildings, etc. having independent Fire Protection Systems will connect with SAFE GOA 24x7 Emergency Monitoring System (EMS).

- The Emergency Monitoring System (EMS) will help to

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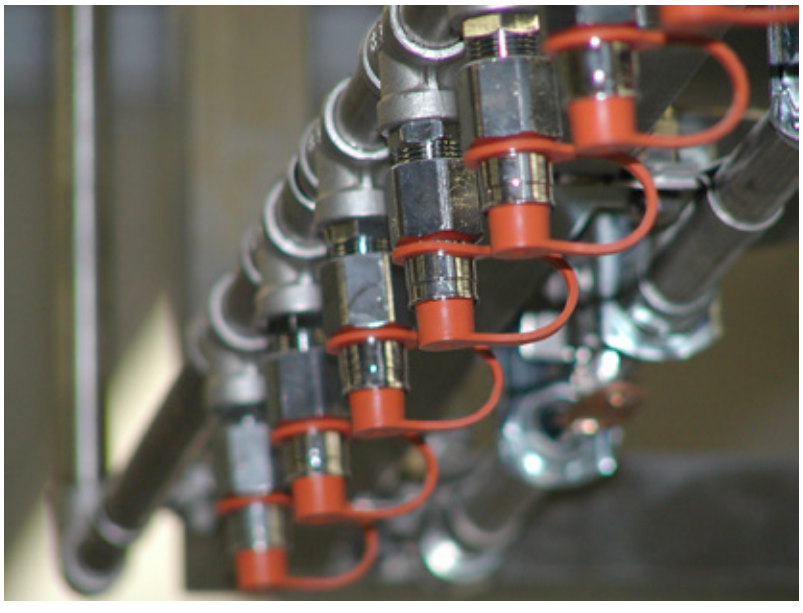

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monitor the health of the Fire Protection System (Fire, Detection, Alarm and Fire Fighting System) in real time and facilitate immediate dispatch of appropriate resources, thus saving the time lost in different rounds of response.

- Ensure all facilities in Goa have a functional Fire Protection System on 24x7 basis.
- Optimize use of manpower needed for periodical Fire Safety Audit and limiting it to first physical inspection and thereafter on line monitoring of the functional efficacy of the Fire Protection System.
- This will enable the department to issue online No Objection Certificate (NOC) for those occupancies who have compliant with the requirement thus facilitating the "Ease of Doing Business".
- Minimize loss due to business/ activity disruption due to fire incident through Automated Compliance Monitoring System.
- Integration of Global Positioning System (GPS) with the Emergency Monitoring System (EMS) to facilitate optimum utilization of fleet of Fire Fighting Appliances (FFA).
- Integrate the Emergency Monitoring System (EMS) with the "SMART CITY" Scheme.

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Preemptive Action Using Knowledge Tools

As part of the continuous efforts of the department to incorporate technological advancements in its planning and execution of development action we are collaborating with Prof. Kotha Mahender, Department of Earth Science, Goa University to utilize their expertise in Statistical and Time Service Analysis.

This project would aim at developing 2 important analytics knowledge tools i.e. (1) Hot Spot mapping of recorded fire incident

The Safe Goa 24X7 Emergency Monitoring System would provide for remotely monitoring in real time the functional status of Fire Protection Systems across varied occupancies

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(2) Creating a New Fire Hazard Index (FHI) to help identify locations that face higher exposure to fire causing factors.

Every Fire and Emergency leader wants every individual in their care to be safe from fire, be it intentional, due to electrical equipment (which is a major cause of fire in older cities) or due to natural causes. But they often do not have the resources to reach everyone at once for greatest effectiveness. This data analytics/ knowledge based approach increases public safety from fire because it helps to understand, assess, and measure fire incidence and its patterns leading to cost effective solutions in line with the old adage ***"what you can't measure you can't manage".***

Goa Disaster Response Cadet Corp

At the stage of setting up of Goa Fire Service, the function of the department was limited to fire fighting. Later on in conformation with the National policy and guidelines from the Standing Fire Advisory Council, Emergency Services were added to the departments role and accordingly it was re-christened as Fire and Emergency Services. Such work involving major operations invariably need deployment of large number of trained manpower, all of whom need not be expert fire fighters but will need to have basic knowledge of Disaster Preparedness and Response.

Globally, it is seen that the local communities raise their own team of volunteers and the organized services provide appropriate training to these volunteers. The trained volunteer can considerably close the gap in the manpower in the State Fire and Emergency Services. Such skill development training can also be helpful for the industry and other organizations who require manpower for their internal Fire Safety and Prevention and other Disaster Response activities. A balance between volunteer support and regular establishment has to be maintained so that best possible results are achieved at the minimum possible cost.

Being enrolled as Disaster Response Cadet Corp Volunteer provides the young cadet an opportunity to acquire certain technical skills which includes Fire Safety, Fire Prevention, Medical First Responder and Disaster Preparedness. This will enhance his/her employability and will also provide to the department a dependable set of citizens in every fire station jurisdiction who can be relied upon to assist the fire and emergency service personnel responding to any incidents. More focus will be on the young volunteer being better informed, more physically fit and capable of taking up specific task as per the training provided to them. It is known universally that informed intervention by the community is the key to minimize loss of life and property in a disaster situation, big or small. It is for these reasons the government has considered raising of a Volunteer Corp to be named as Goa Disaster Response Cadet Corp (GDRCC) in the State.

The training programme is being drawn up in a manner akin to the National Skill Development Programme. This will enable the volunteer cadets to secure employment in related fields.

On this occasion of National Fire Service Day, we re-dedicate ourselves to our mission "We Serve to Save". We also avail of this opportunity to pay our homage to valiant martyrs of fire services in the country who made the supreme sacrifice in the process of saving others lives and property.

As in every year, the theme for this year for creating public awareness is;

"Firemen – Your partner to save life and property".

As ever we look forward to achieve optimum efficiency with the help of well informed citizens extending all possible help to the department in its endeavour to serve the state.

Mr. Ashok Menon, is an alumnus of National Fire Service College, Ministry of Home Affairs, Government of India. He joined Goa Fire & Emergency Services in 1986 and presently is the Director of Fire and Emergency Services, Government of Goa, since August 2010. He has 30 years of professional experience in Fire Prevention, Fire Extinction and Training. He holds a Post Graduate Diploma in Disaster Management. He has undergone Incident Command Training for South Asian Association for Regional Co-operation (SAARC) Countries held at Colombo, Sri Lanka. For his contribution and relentless efforts, he has been awarded with the 'President Fire Service Medal' for Meritorious Service, Government of India, in December 2014. He is also the recipient of 'Chief Minister Gallantry Medal', Goa State in August 2014.

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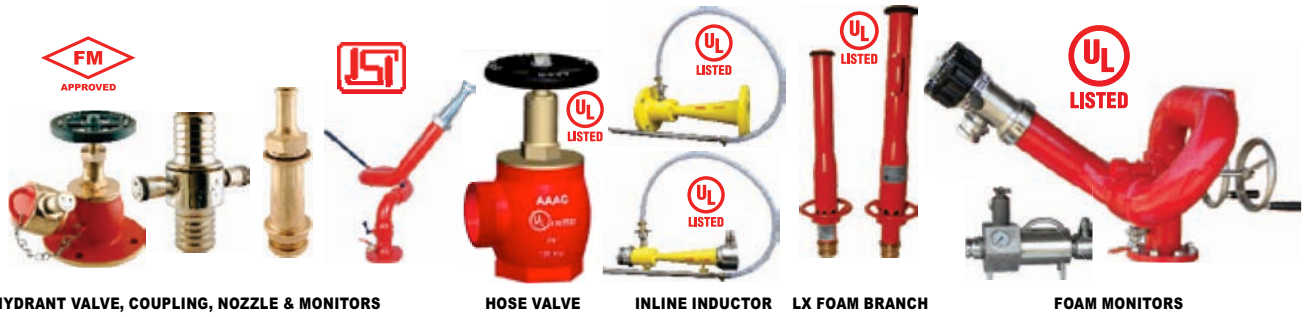

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Gaseous Systems Leak – it's Official

- by Dr. Carl Stephen Patrick Hunter

Abstract

In this Article Dr Carl Stephen Patrick Hunter admires the progress in the fire industry and the BS EN ISO Gaseous Extinguishing & Calibration Standards that underpin automatic extinguishing systems. Carl calls for greater progress to integrate the needs of all stakeholders in the assets that protect them, the public who use them. He considers it a 21st century need to constantly monitor the gaseous systems & the room integrity of the protected spaces they are designed to protect.

Gaseous Systems Leak – it's Official

Gaseous extinguishing/suppression systems are installed to protect against special hazards in critical infrastructure as their key objective. They deliver the infrastructural resilience our advanced society requires. If the hazard is special and the infrastructure critical, then this is the case for the constant monitoring of the suppression systems that aim to deliver their protection.

The assumptions in the installation, commissioning and maintenance of gaseous extinguishing systems is that they are highly pressurised but risk leaking and discharging. The regulations that sensibly underpin this assumption aim to identify their leak identification at an interval of every 6 months. A cup of water stands at 1bar pressure – approximately 14.5 psi. Gaseous systems vary in pressure from FM-200® or NOVEC™ 1230 at 25-30 bar, CO2 at 50 bar or 720 psi to Inergen at 300 bar or 4,500 psi. These are very highly pressurised systems. In engineering terms, they are "dynamic" systems, not passive ones.

So why then does the fire industry not constantly monitor them?

The core regulation enshrined in BS EN ISO 14520 -1:2015(E) and we should be proud it exists. But let us examine what it says.

Marine Environments

Shipping, Naval and Oil and Gas sectors are all safety critical, with possible catastrophic and expensive results in the event of fire. Incidences of fire on ships have been

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increasingly reported in the press [written in November 2016]. For example, the International Maritime Risk Rating Agency (IMRRA) have declared fire safety to be the most common deficiency on tankers in October 2016, with 126 incidences (IMRRA November 2016 Newsletter, URL<http://www.marinerating.com/documents/IMRRA-Newsletter-201610.htm> last accessed 15.12.2016). A white paper has been published by the International Union of Marine Insurance (IUMI) suggesting methods for improving fire safety standards on container ships. IUMI's Loss Prevention Committee Vice Chairman Uwe-Peter Schieder advocated in IHS Safety at Sea that "Major fires on container vessels count among the worst hazards in global shipping". This was published in article arguing "Fire risk grows as ships get bigger" which also highlighted the United States Coast Guard's awareness of the need for improved fire safety (Gallagher, John, IHS Fairplay, article published 09.12.2016, URL <http://fairplay.ihs.com/safety-regulation/article/4279126/fire-risk-grows-as-ships-get-bigger>, last accessed 15.12.2016).

Proud of British Standards

British Standards are some of the most rigorous in the world and we should be proud that the UK and the USA leads in much of their development. The British Standards Institute anecdotally suggest that the UK generate over 50% of all European Standards. We can be very proud of that. Clean Agent fire fighting systems of this type are governed by BS EN ISO 14520 Gaseous Fire Extinguishing Systems. They are designed to provide a supply of gaseous extinguishing medium for the extinction of fire. Several different methods of supplying extinguishant to, and applying it at, the required point of discharge for fire extinction have been developed in recent years, and there is a need for a fuller understanding of information as to the available systems and methods by the industry certainly but as importantly, by the people it is designed to protect.

BS EN ISO 14520 -1:2015(E) reasonably assumes that the execution of its provisions is entrusted to people qualified and experienced in the specification, design, installation, commissioning, testing, approval, inspection, operation and maintenance of systems and equipment, and who can be expected to exercise a duty of care to avoid unnecessary release of extinguishant. Attention is drawn to the Montreal Protocol on

Gaseous Extinguishing Systems are installed to protect against special hazards in critical infrastructure being their key objective, as they deliver the infrastructure resilience our advanced society requires

substances that deplete the ozone layer. It is important that the fire protection of a building or plant or any other critical infrastructure be considered as a whole. Gaseous extinguishant systems form a part of the available facilities, but it should not be assumed that their adoption necessarily removes the need to consider supplementary measures, such as the provision of portable fire extinguishers or other mobile appliances for first aid or emergency use, access by a Fire Rescue Service or any other measures that can be applied as part of a wider fire protection plan.

Are Stakeholders, Insurers, Government & the Fire Sector Working Together?

A facility needing a clean agent system is a critical one. It protects the facility, its operating performance, its occupants and its digital information – a collection of priceless and vulnerable assets that necessitate a clean agent gaseous system. Couple this to a value being extended on business continuity and the combined value becomes a priceless one. So the stakeholders comprise the asset owners and it's the leadership team, but critically it involves the people who occupy its spaces, the insurers who safeguard their lives, their consequential loss or injury and the damage to their families, the asset value itself and the fire company who design, install, commission and maintain the clean agent system.

Do we all know that 40% of facilities experiencing a business discontinuity do not survive in business 12-18 months after it or understand when FM Global say that a third of businesses affected by fire go out of business within 3 years? Who amongst all of these could describe the operational workings of a fire extinguishing system and why is that ? Why can information on a fire system not be found by customers on the facility website of say London Underground or the New York Subway ? An engineered fire system typically lasts 20 years, longer than some buildings ! And more automatic fire protection systems mean fewer fires develop requiring the FRS to mobilise. But we understand the Fire Rescue services far more than the fire sector or its engineering solutions.

Or look at it another way. All over the world we concern ourselves with privacy and protection of data. Legislators agonise over its preservation and governance. Governments tremble in a media obsessed by it. If we are denied it we fear our way of life will be dramatically altered. But what care or attention is given to the fire protection of it ? For too long the fire sector has hidden itself in the shadows. One day customers will question the fire safety systems of the assets they depend on. Shake the hand of the fire servicing technicians next time you see them ! Ask your utility companies to give an overview of the fire systems. Customers expect 100% availability of the asset and when they use it reasonably expect 100% safety in it. Should it not be monitored 100% of the time ? It isn't.

Why Clean Agent Gaseous Extinguishing ?

Gaseous extinguishants have a specific design purpose as an effective medium for the extinction of flammable liquid fires and fires in the presence of electrical and ordinary Class A hazards, but it should not be forgotten, in the planning of comprehensive schemes, that there may be hazards for which these media are not suitable, or that in certain circumstances or situations there may be dangers in their use requiring special precautions. The appropriate fire authority, the health and safety authorities and insurers all have valuable input to the consideration of these. As indeed do the prevailing national standards and statutory regulations of the particular country.

These clean agents are designed to operate in limited spaces where there is a need for speed of suppression given the asset risk and where the space is occupied by people. They have to extinguish a fire without damaging the asset they protect. They must extinguish the fire and enable business continuity of the asset whilst power is maintained to the asset so it continues to function. They must be easily maintained in-situ. They must comply with NFPA 2001 standards demanding fast discharge in 10 seconds and fire extinguishing within 30 seconds. Protecting humans and equipment alike whilst doing so in an environmental manner in regard to ozone depletion and governed by the Montreal Protocol. They must be non-flammable and non-toxic. Contained in a design parameter which is "state of the art" and deliver confidence to the operator that it delivers "Best Fire Safety Practise". But the ISO standard specifies its accidental discharge/leakage potential without calling for its constant monitoring. Any other pressurised system is permanently monitored but not the active fire system which "stays in its own shadows".

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Cylinders accidentally discharge. CO2 can cause fatalities if it does. 1% of pressure gauges fail and 25% of valves too. In Germany they constantly monitor at the cylinders weakest point – the cylinder neck. This is a haphazard approach to the complex engineering world a dynamic pressurised fire system exists in.

So Properly Maintain Them

It is essential that gaseous extinguishing systems be carefully maintained to ensure instant readiness when required. Routine maintenance is liable to be overlooked or given insufficient attention by the owner of the system. It is neglected to the peril of the lives of occupants of the premises and at the risk of crippling financial loss to the facility comprising the critical infrastructure. It is usually the case of systems like these that they are out of sight and out of mind, as they are located in some plant room which only the maintenance contractor visits, if at all. Add to this the priceless nature of data and whether the special hazard is at a nuclear power station, an electricity distribution sub-station, a data centre, complex server room, library, museum or high rise building, and these collectively provide the reader with some insight as to the critical needs of the gaseous extinguishing system. Is it enough for a fire service contractor to inspect and maintain them every 6 months? Why are they not constantly monitored if they are expected to be constantly ready to actuate when needed?

The importance of maintenance of such systems cannot be emphasised enough. Installation and maintenance should only be done by qualified personnel. Inspection preferably by a third party, should include an evaluation that the extinguishing system continues to provide adequate protection for the risk (protected zones, as well rooms built for room integrity, can change over time as they age or are modified). But as importantly the gaseous system should be maintained not just in relation to itself but in regard to the "Protected Space" into which its extinguishing agents discharge on actuation. If that space cannot "hold" the agent on discharge, or its walls and bulkheads or indeed its distributing pipework, cannot sustain the pressures of the gaseous agent on discharge, then the agent will disperse and the fire grow unimpeded. So why not constantly monitor the Room Integrity too?

This is essential under ISO 14520 where gaseous extinguishing systems have to be designed in relation to the discharging agent hold-time (if the room cannot hold the agent because of leaks the agent will disperse and not extinguish the fire) and discharging agent peak pressure (if the pressure is too high for partition walls or suspended ceilings they will be blown apart or damaged and possibly destroying the room integrity). At the design stage of a fire extinguishing system protected spaces are tested for room integrity by positively pressurising a room and detecting escaping pressure, to verify that the room itself into which the gaseous extinguishant discharges on actuation, can both hold the agent after its discharge and hold its pressure on actuation. The fire system is then installed and commissioned. A building is like a ship at sea. It turns and bends as any structure does. It ages and leak sites develop. Regulations may require the protected space to be tested every year, but it should be tested after every major change to the room, and preferably constantly monitored 24/7, 365.

Implement ISO 17025 to Calibrate Maintenance & Test Instrumentation

If it is accepted that maintenance of a system is fundamental to its future operation then it must also be understood that the calibration of the test equipment that enables its maintenance should be done to

It is essential that gaseous extinguishing systems be carefully maintained to ensure instant readiness when required, as they are most of the times, out of sight, therefore, out of mind.

a "standard" too – and there is one. It is called ISO 17025. Why is it then that the fire industry accepts using testing equipment from manufacturers who say they need only be calibrated every 5 or 10 years when BS EN ISO 17025 General Requirements for the Competence of Testing and Calibration Laboratories Standard specifically states that such equipment be calibrated every 6-12 months ?

At Rolls Royce the test cell for their Trent XWB engines are calibrated every 3 months. In the gas industry, customers are recommended to calibrate their detectors every 6 months, especially if they are using them in confined spaces, in order to ensure they are maintaining their accuracy as per technical specifications. There are serious consequences if customers do not value the understanding of their tools or equipment, which unfortunately renders them at risk. But, what about 5 year calibration certificates? On calibration and as a manufacturer of quality, we are clear that it is unsound, unsafe and unprofessional to compete on calibration just because some manufacturers are offering 5 year calibration certificates. We do not wish to contravene ISO 17025. Nor do we wish customers to believe that it is the manufacturer that dictates calibration standards, which is not the case. It is an international ISO standard. An obligation too.

We are often asked about calibration, why it is important, how often it should be done and why. The reason we know calibration to be important, and recommend its annual service is because our equipment is designed to improve safety and best practice, so ensuring the equipment used to conduct such inspections is necessary. But don't just listen to us: our manufacturer's recommendation is based on clear cut regulations. Under ISO 17025 standards the calibration of any monitoring or measuring equipment must be at least once a year. And this is what we do.

There are few who understand the fire sector

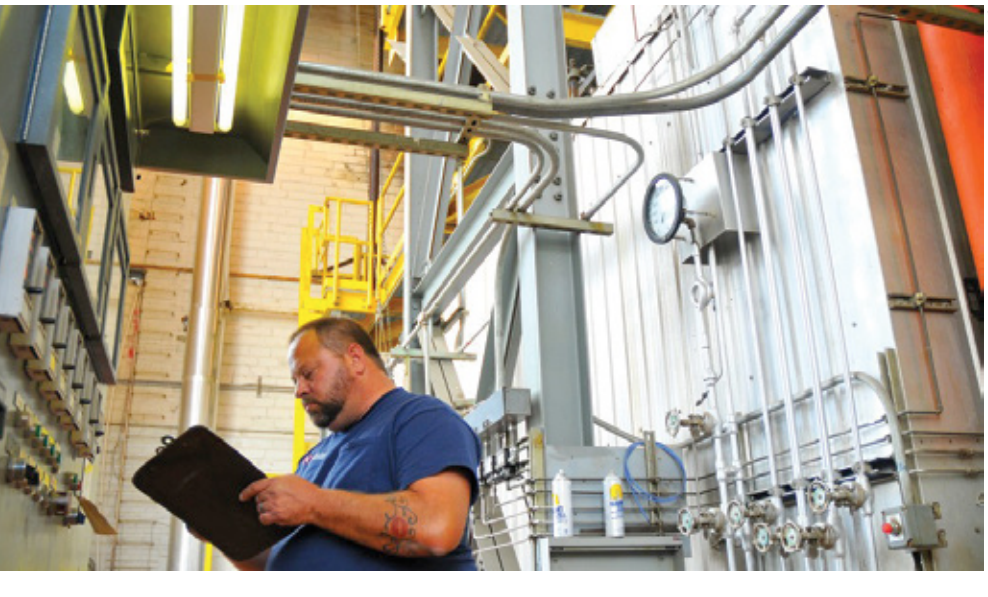
There exist very few engineers in our industry who fully understand the design, installation, testing, maintenance and safety of gaseous firefighting systems in buildings, plants or other structures, and the characteristics of the various extinguishants and types of fire for which they are a suitable extinguishing medium. It covers total flooding systems primarily related to buildings, plants and other specific applications, utilising electrically non-conducting gaseous fire extinguishants that do not leave a residue after discharge and for which there are sufficient data currently available to enable validation of performance and safety characteristics by an appropriate independent authority. These are all common definitions in ISO 14520 :

- **Defining Liquefied Gas** - gas or gas mixture (normally a halocarbon), which is liquid at the container pressurization level at room temperature (20 °C)
- **Defining Non-Liquefied Gas** - gas or gas mixture (normally an inert gas), which, under service pressure and permissible service temperature conditions, is always present in the gaseous form
- **Defining Maintenance** - thorough check, comprising a thorough examination and any necessary repair, adjustment or replacement of system component, to give maximum assurance that the extinguishing system will operate as intended
- **Defining Inspection** - to give reasonable assurance that the extinguishing system is fully charged and operable
- **Contents Indication** - Means shall be provided to indicate that each container is correctly charged; replace or refill any showing a loss of more than 5
- **Liquefied Gases** - Check weigh or use a liquid level indicator to verify correct content of containers

But are they always applied?

Designing the system and maintaining the room integrity into which it may discharge

ISO 14520-1:2015(E) specifically states in 6.2.4.2 Contents Indication that - Means shall be provided to indicate that each container is correctly charged and in 9.2.1.1 At least annually, or more frequently as required by the authority, all systems shall be thoroughly inspected and tested for proper operation by competent personnel. In 9.2.1.3 The storage container contents shall be checked at least every six months as follows : a) Liquefied gases: for halocarbon



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agents, if a container shows a loss of agent in quantity of more than 5 % or a loss of pressure (adjusted for temperature) of more than 10 %, it shall be refilled or replaced. b) Non-liquefied gases: for inert gas agents, pressure is an indication of agent quantity. If a container shows a loss of agent quantity or a loss of pressure (adjusted for temperature) of more than 5 %, it shall be refilled or replaced.

So the risks of accidental discharge or leakage is recognised.

In ISO 14520 9.2.4 Room or Protected Space Enclosures 9.2.4.1 states that - At least every 12 months it shall be determined whether boundary penetration or other changes to the protected enclosure have occurred that could affect leakage and extinguishant performance. If this cannot be visually determined, it shall be positively established by repeating the test for enclosure integrity in accordance with Annex E. **9.2.4.2** Where the integrity test reveals increased leakage that would result in an inability to retain the extinguishant for the required period, remedial action shall be carried out. **9.2.4.3** Where it is established that changes to the volume of the enclosure or to the type of hazard within the enclosure, or both, have occurred, the system shall be redesigned to provide the original degree of protection. It is recommended that the type of hazard within the enclosure, and the volume it occupies, be regularly checked to ensure that the required concentration of extinguishant can be achieved and maintained.

So the risks to a building structure ageing and generating leak sites is recognised.

3.2 Engineered systems - For engineered systems, the end-user shall be provided with the manufacturer's system design and maintenance information. Details of the system shall include the following: a) information and calculations on the amount of extinguishant; b) container storage pressure and extinguishant quantity. But to know the contents you need to monitor it, and checking it every 6 months is not monitoring it.

So might we not just constantly monitor all of them and be in full compliance to them and the risks that are so clearly described in our own core standard ?

System Performance Verification

We know that metals corrode and pressure gauges stick. Of course they do, as will anything that is held under pressure risks doing. It is basic engineering. And Annex F of ISO 14520 specifically guides our industry as to these risks. A suitable procedure for verification of the system is as follows. a) Every 3 months: Test and service all electrical detection and alarm systems as recommended in the appropriate national standards. b) Every 6 months: Perform the following checks and inspections: 1) externally examine pipework to determine its condition; replace or pressure test and repair as necessary pipework showing corrosion or mechanical damage; 2) check all control valves for correct manual function and automatic valves additionally for correct automatic function; 3) externally examine containers for signs of damage or unauthorized modification, and for damage to system hoses; 4) check pressure gauges of extinguishing containers; liquefied gas should be within 10 % and non-liquefied gases within 5 % of correct charge pressure; replace or refill any showing greater loss; 5) for liquefied gases, check weigh or use a liquid level indicator to verify correct content of containers; replace or refill any showing a loss of more than 5 %; c) Every 12 months carry out a check of enclosure integrity using the method described in 9.2.4.1. If the measured aggregate area of

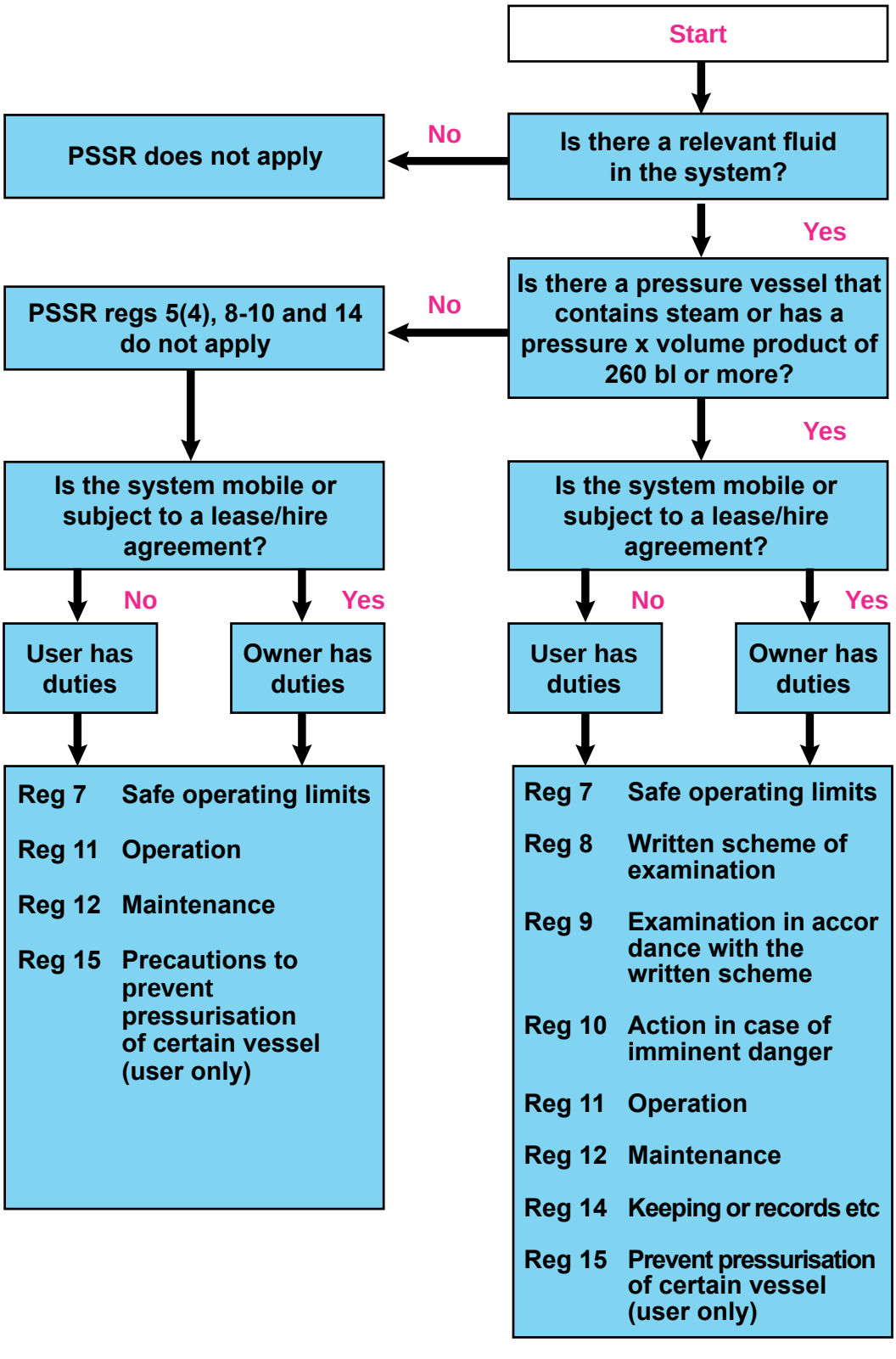
A suitable procedure for verification of the system is ideally to be done quarterly as well as half yearly

leakage has increased from that measured during installation which would adversely affect system performance, carry out work to reduce the leakage. d) As required by statutory regulations, but otherwise when convenient, remove the containers and pressure test when necessary.

Why "when convenient" ? Let us apply 21st century science to a 100 year old issue and be done with it. A dynamic system needs monitoring.

Pressure Systems Safety Regulations 2000

Except for pressure vessels at sea, then all those installed in the UK will come under the Pressure Systems Safety Regulations 2000 and as such other than the ISO standards the user/ owner of such installations have certain responsibilities which are summarised in a user/owner flowchart below:



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It is time to constantly monitor the fire system delivering our resilience

Gaseous fire systems deliver the very resilience we need. But resilience means the permanence of capability and functionality. That permanence can only be delivered by constant monitoring of the systems that enable it.

The science of a gaseous extinguishing system is a complex one. The mathematics that underpin its science are demanding ones. But in simple terms gaseous systems are pressurised and in that they are dynamic not passive ones. They are there to protect critical infrastructure in a a safe and expeditious manner in the only way that a gaseous system can. We would not imagine an alarm system exists without monitoring it 24/7, but why are we still leaving unattended the very automatic gaseous clean agent extinguishing systems that protect us when even the core regulations of its installation and maintenance specifically allude to its potential to accidentally discharge or leak its contents ?

Fortunately lead elements of the critical infrastructure community are asking the same question. So are the world's insurance companies.

But should our own fire industry not answer the question by implementing constant monitoring 24/7/365 before it is asked of them by the very people it is helping protect ?

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- Every single person returned back to their respective headquarters with everlasting and cherishing memories with a promise to meet again next year at another exotic location with performance par excellence!!!
- "Viva la our togetherness."

Careful **Networking**

- by Christian Kühn

The networking of technical safety systems with one another and with building technology delivers numerous advantages above all in large buildings and industrial complexes. However, it also brings with it significant risks. Until uniformly applicable standards and regulations exist, planners and installers should implement networked solutions with the greatest of care.

One of the numerous advantages offered by the networking of technical safety systems is that the information received from sensors in individual systems can be utilised by other groups throughout the building. This makes visualisations, central control and monitoring, as well as (partial) automation solutions and multidisciplinary application scenarios, possible as a result. Users benefit overall from improved functionality, greater energy efficiency and lower costs. For example, fire detectors can pass on their information about room temperatures and air quality to a building management system. A smoke and heat extraction system (SHE) can be utilised in normal operation for energy efficient ventilation. The cost effectiveness of these systems also increases, e.g. by remotely carrying out initial fault analysis, by allowing commissioning and servicing calls to be handled more efficiently.

Safety First

Yet networking also brings additional risks. This is particularly true in the case of safety systems designed to protect life and limb e.g. hazard detection systems (HDS). It is vital that their safety-relevant functions are not negatively impacted under any circumstances (freedom from interference). Therefore, a network – where possible with remote access – must take data protection aspects such as protection against sabotage e.g. by cyber attacks or computer viruses just as much into account. However, the risk of interference with core safety-relevant functions

Even large industrial halls can be comfortably ventilated in an energy-saving manner using a bus-based natural smoke and heat extraction system

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of networked system also grows as the number of interfaces and possibilities for remote access rises.

Networked safety systems have already existed for some time; extinguishing systems are already controlled e.g. by fire detection systems and danger management systems are linked into building management systems. However, the interfaces and transfer protocols are strictly managed by standards and/or regulations to guarantee freedom from interference. The functionalities and data volumes are generally severely restricted and only intended for very narrow range of applications.

Requirements are Increasing

However, programmable intelligent safety systems, which exchange bidirectional data with a variety of network components via standardised interfaces, are required to achieve interdisciplinary networks that deliver added value and enable flexible scenarios. The large volumes of data and the number of components requires the digital transfer of standardised data packets. In existing approaches, protocols and buses from building automation, such as EIB/KNX, or from industrial automation, such as CAN-Bus, LON or Bacnet, have been utilised because standardisation

Planners and installers must take the networking of technical safety systems with great care as it is a multi-layered phenomenon with huge risks involved

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Remote access makes the control panel for a fire detection system accessible from a faraway location even on a tablet

and networking have already been promoted in these fields for a long time.

However, the protocols or buses from the field of building automation in particular often lack safety functions such as incident prioritisation, fault recognition or authentications because they were not developed for use in safety-relevant environments.

Are IP Networks the Silver Bullet?

IP networks, where the systems are networked using the highly standardised TCP/IP protocol via Ethernet, are in ever greater demand. This solution places almost no limits on the diversity and quantity of the transmitted data. Many standardized products from the area of data technology can be economically integrated, including sharing data-based IP networks. However, there are currently limits to its use in the field of safety technology because there is a lack of, amongst other things, applicable standards and guidelines that could guarantee a sufficient level of safety and security for these networks.

A pioneer in this field is video technology due to the sharp increase in data volume of higher resolutions that must be transmitted in accordance with the DIN EN 62676 [1] standard for secure IP video transmission.

In addition, numerous other standards and guidelines on the subject of networking that focus on individual trades or certain functionalities exist that have been developed by a variety of different rule-making bodies.

Uniformly applicable rules for all trades and standardised interfaces or transmission channels are not currently on the horizon in Europe.

Nevertheless, it is already possible to achieve significant added value by networking technical safety systems, as the two examples below demonstrate. The prerequisite is that planners and installers also have specialist expertise in the field of data processing, so that sufficient safety and security is guaranteed alongside all of the added benefits.

Ventilation of Industrial Halls

It is possible to achieve energy efficient and comfortable ventilation control during normal operation with natural smoke and heat extraction systems (NSHE). Depending on the weather, temperature and other influencing factors, the smoke and heat extraction openings can be controlled during normal operation to ensure ideal ventilation at all times.

However, conventional SHE systems reach their limit above all in sophisticated industrial halls. On the one hand, they do not allow for the programming of complex scenarios in which numerous motor-driven windows need to be individually controlled. On the other hand, the length of the cables for conventional SHE systems increases sharply as the size of the building increases because motor and control cables must be more or less individually routed to the SHE control unit.

Bus-based systems, which have been available on the market for some time, do not suffer from these disadvantages; systems based on the LON or CAN-bus are available. The cabling costs are drastically reduced here because the cables to the motors and control elements are laid decentrally via bus nodes to the SHE control unit. Each bus device can be addressed individually via a unique address so that even complex programming is possible. This means that e.g. individual fully automated night cooling is more economically feasible compared to mechanical ventilation.

Remote Inspection of Fire Detection Systems

Remote access to fire detection systems enables economic operation. Amongst other things, commissioning and servicing calls can be handled more efficiently and higher levels of availability can be achieved. The specific details are regulated by DIN VDE 0833-1 [2]. According to this application standard, various types of access are permitted under certain circumstances, from accessing status reports and management tasks (switching off detection lines) through to loading updates and reprogramming remotely. Yet if there is an error, the risk of

system malfunction right through to total failure increases, which could have fatal consequences if there are no service personnel available on-site [3].

It is currently advisable for safety reasons to access these systems in read-only mode e.g. when maintaining fire detection systems equipped with remote access. Software changes (including updates) or interventions into the detection structures should generally only be carried out on-site so that any errors made by the service technician can be quickly resolved – if necessary with remote support. The tests required during a service or following a repair can also be effectively supported with the aid of a mobile application. This strategy makes it possible to significantly optimise the organisation of service provision – without compromising on safety.

Summary

Networking safety systems with one another and with building technology systems gives planners and installers great opportunities to offer their customers economical and intelligent applications that deliver a high level of added value. Yet in the absence of standardised

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Messages from the alarm system are also immediately sent to the mobile device of the service technician

interfaces and transmission protocols, planners and installers should however take great care when realising networked safety solutions for their customers. The reliable functionality of the technical safety systems must always be the priority. Great expertise is demanded of those involved in the construction of these networks because not all of the systems on offer meet with this requirement.

Networking safety systems with one another and with building technology systems offers huge opportunities with respect to economical and intelligent applications

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Ransomware
WannaCry Implications for Critical Infrastructure

- by Pavithran Rajan

The past couple of weeks have brought cyber security or rather the lack of it into the living room of the daily citizen. Social media introduced 'ransomware and WannaCry' in the the daily lexicon of millions. Memes on our banking system and ATMs being shutdown dominated social media.

Ransomware is malicious software that denies access to the victim's data or threatens to publish or delete it until a ransom is paid. A variety of actions can happen once a device or system is infected and there is no guarantee that paying the ransom will return access or not delete the data. Less advanced ransomware may lock the system in a way that is not difficult for an expert to unlock it. More advanced malware uses a technique called cryptoviral extortion, in which it encrypts the victim's files, making them inaccessible, and demands a ransom payment to decrypt them. Ransomware may encrypt only the files or the entire hard drive. Ranomware can thus be broadly classified as a denial-of-access attack that prevents computer users from accessing files since it is computationally difficult to decrypt the files without the decryption key.

Key characteristics of Ransomware:

- Features encryption, which means that you can't decrypt the files on your own.
- Encrypts all kinds of files, from documents to pictures, videos, audio files etc.
- Scrambles file names, so the target doesn't know which data was affected. This is one of the social engineering tricks used to disoreint and coerce victims into paying the ransom.
- Displays a message that lets the target know the data has been encrypted and that he has to pay a specific sum of money to get it back.Payment incrypto-currency is the preferred method as this cannot be easily tracked by cyber security researchers or law enforcements agencies.
- Ransom payments usually have a time-limit, to add another level of psychological pressure to this extortion scheme. A clock showing the deadline approaching is a very effective psychological pressure method. Going over the deadline usually means that the ransom amount will increase or the data will be destroyed and lost forever.
- Complex set of evasion techniques is usually incorporated to go undetected by antivirus software.
- Can spread to other PCs connected to a local network, creating further damage.
- Recruits the infected PCs into botnets, so the cyber criminals can expand their infrastructure and fuel future attacks.

- Sometimes includes geographical targeting, in this the ransom note is translated into the victim's language, to increase the chances for the ransom to be paid.

- Frequently features data exfiltration capabilities. Can also extract data from the affected computer (usernames, passwords, email addresses, etc.) and send it to a server controlled by cyber criminals for further crimes.

Common Infection Methods

- Email campaigns that contain malicious links or attachments.

- Internet traffic redirects to malicious websites and drive-by downloads.

- Security exploits in unpatched software.

- Botnets.

- Worms. WannaCry, used an exploit kit that scanned a user's PC, looking for a certain vulnerability, and then launched a ransomware attack that targeted it.

The evidences that have surfaced on WannaCry are significant. The ransomware was made by unknown actors who used a leaked vulnerability of the Windows OS stockpiled by a US Govt. entity. EternalRocks, a new strain of malware, has since been identified by the researchers that targets the same vulnerability that wrecked havoc worldwide by 'WannaCry' ransomware.[1] EternalRocks exploits the same vulnerability in Windows that helped WannaCry spread. The malware includes far more threats than WannaCry, making it potentially tougher to fight. Like the original Ransomware, known as WannaCry, EternalRocks uses a leaked NSA tool known as EternalBlue to spread itself from one computer to the next through Windows.[2] But it also uses six other leaked NSA tools, with names like EternalChampion, EternalRomance, and DoublePulsar (which is also part of WannaCry.

Ransomware was made by unknown actors who used a leaked vulnerability of the Windows OS stockpiled by a US Govt. entity

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In its current form, EternalRocks does not have any malicious elements that lock or corrupt files, or use compromised machines to build a botnet.[3] But EternalBlue leaves infected computers vulnerable to remote commands that could 'weaponize' the infection at any time.

WannaCry, has hit over 150 countries, including India and affected over 240,000 machines, primarily those running unpatched versions of Windows 7. It encrypts files on infected machines and demands payment for unlocking them.[4] EternalRocks is stronger that WannaCry because it does not have any weaknesses, including the kill switch that a researcher used to help contain the ransomware.[5] EternalBlue also uses a 24-hour activation delay to try to frustrate efforts to study it.

EternalRocks has not spread widely yet, but it's just one example of a wave of new malware based on the NSA-authored exploits.[6] The consequences of maintaining the Windows OS have already been serious, and they could get worse. Sufficient documented evidences have also surfaced since 2013 with the Snowden revelations that Microsoft is a partner of US intelligence agencies and such partners are paid for inserting vulnerabilities and also maintain unpatched vulnerabilities that can be exploited at a time of choosing. Microsoft and other Western MNCs have documented histories of using FUD (Fear, Uncertainity, Doubt) as a marketing strategy. Thus MNCs in the ICT domain can be described as part of the InfoWar apparatus of the parent country.

The only method for stopping these infections are applying patches released by Microsoft. Relying so heavily on a company that is part of the intelligence apparatus of a foreign nation has huge implications for our national security and society. Imagine a scenario if Microsoft can selectively patch as per Geographical locations of users etc in times of war or to disrupt our national banking system or steal our economic, IPR etc. This weaponisation of cyber space by using secret laws to govern commercial entities by democratic countries of the West with so called transparent legal systems has profound and far reaching impact for nations, societies and national security. In effect this undermines and nullifies the WTO rules governing ICT. It also undermines globalisation and calls for a relook at the economic and governance structures between nations in the Information age. This also provides huge opportunities for our domestic industry to step up and innovate to fill the emerging gap in the critical infrastructure wherein non indigenous appliances and software are not going to be trusted. Our nation especially the industry should fund initiatives so that this awareness is raised in society, policy makers and in our educational instituitions.

Such awareness will open up huge opportunities not only in the ICT domain, but also in the IOT space wherein huge opportunities exist for the Fire and Safety industry. This is an opportunity which needs to be seized immediately as huge funds are being currently spent by the government for capacity buiding in the smart city initiatives. Allowing this to be built using foreign manufactured appliances has huge national security implications and needs to prevented at all costs.

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Fire & Security Association of India (FSAI) is organising the fifth edition of **Project Head, Architects & Consultants Conclave 2017 (PACC 2017)**, to be held between 11-14 August 2017 at Anantara Riverside Resort & AVANI, Bangkok, Thailand.

This Conclave is aimed at creating very effective meeting place for Architects, Builders, Services Consultants, Project Managers, System Integrators and End users on a common platform for 3 nights / 4 days in one of the finest property in Bangkok, Thailand.

Our aim is to collaborate to delibarate on diverse topics like – Technology Evolutions, Best Practices, Implementation, Standards & Codes, Challenges & Growth Opportunities in the Industry. This knowledge-sharing will be by means of panel discussions and presentations. Besides, there will be Big Fight - Awards Night and fun-filled Cultural Evenings for networking. There will be a Motivational Talk too, as a part of the programme!

ADVANTAGES & OPPORTUNITIES

- **MEET & GREET:** Meet the Builders / Consultants / Architects / Project Heads
- **CONFERENCE & SYMPOSIUM:** Two full day Discussions / Presentations / Debate
- **UNDIVIDED ATTENTION:** Builders, Consultants, Architects and Project Heads will be away from disturbing phone calls, ongoing projects, urgent appointments, fire fighting emergencies etc.
- **EASY TO NETWORK:** Face to Face interaction with professionals for Networking and Business Opportunities on all the 3 days.
- **STRATEGY MEET:** They will be there exclusively for you without any other business agenda.
- **CREDIBLE COMMON PLATFORM:** Invitation from FSAI, being an association, is better accepted with an open mind by PACC Community rather than an invitation from a single brand.

Surakshit Bharat
A Step towards Safe & Secure India

TOPICS@PACC 2017

SAFE BUILDINGS
- What's New in NBC 2016
- Designing Effective Safe Buildings
- Integration of Building Utilities in IoT

LIFE IS BEAUTIFUL
- How to achieve all your goals? An inspirational talk by Mr. Vivek Bindra

AWARD NIGHT
- Best Performing Chapters
- Outstanding Personalities
- Life Time Achievement

The Conclave will bring together 100 Top Builders, Consultants, Architects and Project Heads under one roof. Owners of Building Community, Consultant Firms or Influential Consultants and Architects of large consultant / Architect firms (80% of the Security and Safety business in India is executed by them!) In a nutshell, the Conclave is targeted towards building long-term business relationship in an informal environment at Bangkok. For Partnerships, please contact: **Renu - +91 9844005709 – renu@fsai.in**

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Sharad Yadav

FSAI BENGALURU CHAPTER

INTERNATIONAL SEMINAR ON FIRE & LIFE SAFETY

Lighting of the Lamp by S. K. Dheri. Also seen in the picture (L to R) : K. P. Dominic, Ajit Raghavan, D. K. Shami and Pankaj Dharkar

An International Seminar on Fire & Life Safety in Hotels was held on 28th April 2017 at Hotel Shangri'La Bengaluru. This unique and august gathering included about 300 delegates from hotels and fire safety industry. The objective of this seminar was to familiarize the technical community of hotel industry with the fire and life safety risks and issues in hotels and the technological means to mitigate the risks with focus on technical, codal and technological discussion points. Several dignitaries from hotel industry including ITC Hotels, Hilton hotels and the experts from consulting organisations like Jenson Hughes spoke on various subjects including fire safety risks and mitigation strategies, design challenges, evacuation strategies, smoke detection technologies etc

The seminar started off by the Welcome Address by Mr. K. P. Dominic, Chairman FSAI Branding, Marketing & Events and the Inaugural Address by Mr. Pankaj Dharkar, National President, FSAI, followed by lighting of the lamp by dignitaries.

Eminent speakers gave deep insights into various topics like Integration of IBMS with Fire & Life Safety in Hotels by Mr. Sharad Yadav, General Manager, Honeywell Security & Fire India, Home & Building Technologies; Fire & Life Safety Risks in Hotels & Mitigation Strategies by Mr. Lalit Gabhane, Vice President, Safety & Fire United Spirits Ltd.; Evacuation Strategies by Ms. Shamim Rashid Sumar, P. E. Director, Business Development, Middle East, Jensen Hughes, Dubai; NBC 2016, Part IV, Impact on Hospitality Sector by Mr. S. K.Dheri, Chairman & Convenor, NBC Part IV and Head, Fire Safety, DLF Group; Design Challenges on Hotel Fire & Life Safety in Tall Buildings by Poornabodh Kashyap, Senior Consultant, Jensen Hughes, Dubai; Fire Detection Design Using Current Technology & Innovation by Mr. Dennis Mak, Regional Sales Manager, Fire Detection – SEA, Hong Kong, Macau & Mongolia, TYCO, Singapore; Passive Fire Protection & Compartmentalization by Raman Kapur, Director & Managing Partner, Orient Fire Curtains, India; Fire Prevention by Mr. Markandeya, Deputy Director, Karnataka State Fire & Emergency Services; Emergency Voice Evacuation Systems by Jimmy Bhutani, Vice President, International, Edwards, Mississauga, Ontario, Canada; Case Study of Upcoming 5 Star Hotel above Gandhinagar Railway Station by Ar. Ravi Ramparia, Chief Architect & Designer, Kamlesh Parekh Architects and Case Study on Kitchen Fires & Prevention by Dr. Amer Magrabi, Director, Lote Consulting, Fire/ Risk/ Security Australia.

Pankaj Dharkar as Moderator.
Also seen on the dais (L to R) : Prem Thakur, Jatin Shah, BSA Narayan, Alwyn Noronha, D K Shami, Chandrashekar Kanetkar and Chander K Baljee

Sandeep Goel, Moderator addressing the gathering.
Also seen on the dais (L to R) : Govindan Nair, Poornabodh Kashyap, T. V. Prasad, Prashanth Gururaj, H C Vinayaka, Sanjeev Jain and Jimmy Bhutani

An MoU was signed by FSAI and AWESOME (Academics With Excellence - Spectrum of Maintenance Engineers)

An MOU was signed by BMS College of Engineering and Fire & Security Association of India

Jimmy Bhutani

Ar. Ravi Ramparia

Poornabodh Kashyap

Raman Kapur

An MOU was signed by BMS College of Engineering and Fire & Security Association of India. An MOU was also signed by FSAI and AWESOME- (Academics With Excellence - Spectrum Of Maintenance Engineers).

This unique event also hosted two Panel Discussions. The first panel discussion was on Integration of Critical Utility Services with Mr. Pankaj Dharkar, MEP & Green Building Consultant, PD Associates & National President FSAI as Moderator and the panelists were Mr. D K Shami, Fire Adviser, DGFS, CD & HG, Ministry of Home Affaire, Govt of India, Mr. Chandrashekar Kanetkar, Principal & Chief Designer, Chandrashekhar Design Inc., Mr Alwyn Noronha, Executive Vice President, Projects, ITC Ltd. – Hotels Division, Mr. B S A Narayan, Managing Director, Maple Engg- Design Services (India), Mr. Chander K Baljee, Chairman & MD, Royal Orchid Hotels Ltd., Mr. Prem Thakur, Director Design & Project Management Global Design Asia Pacific, Mumbai, and Ar. Jatin Shah, Director-Devlopments, Synergy Property Development Services Pvt Ltd, Bengaluru.

The second panel discussion moderated by Sandeep Goel, Founder Director, Prion Consultants & Chairman FSAI, Standard Codes, was on "Best Practices in Fire & Life Safety of Hotels" with Mr. Govindan Nair, Senior Director, Technical Services, Hilton, Mr Poornabodh Kashyap, Senior Consultant, Jensen Hughes, Dubai, Mr. T V Prasad, Architect, V.K.Thyagarajan & Associates, Mr Prashanth Gururaj, Technical Director Fire & Life Safety, Design Tree Service Consultants, Mr. H C Vinayaka, Head of Technical & Sustainability, ITC Ltd., Hotels division, Mr. Sanjeev Jain, Regional Vice President (Technical & Projects), Premier Inn South Asia, Gurgaon, & Mr. Jimmy Bhutani, Vice President, International, Edwards, Mississauga, Ontario, Canada, as panelists.

With power-packed discussions and talks, the seminar turned out to be a grand success, receiving an overwhelming response.

Dennis Mak addressing the gathering

FSAI CHANDIGARH CHAPTER
CHANDIGARH SUB-CHAPTER LAUNCH

Rakesh Arora lighting the lamp. Also seen in the picture (L to R): Anuj Agarwal, D. K. Shami, Balwinder Sandhu, M. L.Sharma and J. C. Sharma

After the successful launch of Nasik and Amravati Chapters, FSAI made its way and expanded its roots to Chandigarh. On, 18th, February, 2017 Chandigarh Sub-Chapter was launched by eminent Mr. D.K. Shami, Fire Advisor to the Govt. of India, Ministry of Home Affairs at Hotel Shivalik View. He was the Chief Guest at the event. The fresh positive energy and full enthusiasm was spread across by Mr. Rakesh Arora, Chairman, Membership and he persuaded 16 people to join the league as a member on the spot. The responsibility of spreading the fire safety awareness and growing the Chapter was given to Mr. Anuj Agarwal as FSAI Joint Secretary of Chandigarh along with his Core Working Committee members – Mr. Pankaj Sareen, Mr. Rajan Mittal, Mr. Gaurav Pajni, Mr. Sundeep Kumar Yakhmi and Mr. Money Khanna.

Mr. P. S. Saini, Superintending Hospital Engineer, PGI; Mr. Gaurav Pajni, GM- Projects, Sushma Buildtech; Mr. Rajan Mittal, Chief Engineer, North Country Mall; Ar. Surinder Bahga, Founder Saakaar Foundation along with Mr. J. C. Sharma, CFO of Shimla, Mr. M. L. Sharma, Chandigarh Fire Service and Mr. Balvinder Sandhu, CFO of Punjab, were on the panel to discuss and throw some light on the topic "Fire Safety Standards in India".

Kartar Valves was the sponsor of the event. Vote of thanks was given by Mr. Pankaj Sareen.

D. K. Shami appointing Anuj Agarwal as FSAI Joint Secretary

Certificate of Appointment for Anuj Agarwal

Anuj Agarwal addressing the gathering. Seen on dais (L to R) : P. S. Saini, Gaurav Pajni, Rajan Mittal, Balvinder Sandhu, Surinder Bahga, J. C. Sharma and M. L. Sharma

फायर एंड सिक्योरिटी एसोसिएशन ऑफ इंडिया के चंडीगढ़ सब-चैप्टर की शुरुआत

New clipping

FSAI CHENNAI CHAPTER
INSTALLATION OF NEW OFFICE BEARERS

K. P. Dominic addressing the gathering. Also seen on dais (L to R) : Liyaquat Ali Khan, Namachivayam, Ganapathy, Balachandran D.

Mr. Ganapathy

C. N. Raghavendran

Balachandran D.

Srinivasan Sivaraman

The Networking Meet with the purpose of the installation of new office bearers was held at Hotel Savera on 21st April, 2017. The event began with the auspicious lighting of lamp by Mr. Ganapathy, IPS Retd. DGP; Mr. Balachander, Founder President and Mr. Namachivayam, Retd. TNFRS DGM-Fire Safety – DLF IT Park.

Mr. K. P. Dominic, Chairman, Branding, Marketing and Events, gave the Welcome Address. Mr. Ganapathy, IPS, Retd. DGP, was the Guest of Honour at the event. He assured all out support to FSAI for its success in all endeavours. Mr. Balachander, Founder Member, was the installation officer at the event. Other founder members of FSAI included Mr. Khan, Mr. Anatharaj, Mr. Rajiv Mechari and Mr. Ravishankar.

Padmashri Shri. C.N.Raghavendran joined as Special Invitee and gave an inspiring and motivating speech on the inclusion of a curriculum on fire and security for the architecture students.

The speakers appreciated the work and significant growth of FSAI and its future plans for spreading awareness on fire and security to the masses at large. The sponsor presentations included Reactra – Distributor for Tyco, Diamond Electricals – Distributor for GST, Ansul, Simplex etc., Krystal Electricals – Stockist & Distributor for Dataflex Cables.

More than 120 members and non members attended this event. Personnel from TNFRS, Honeywell, Schneider, Consul etc. attended the event. Post event, there were more than 20 individual members and 4 corporate members who confirmed their membership enrollment. Mr. Srinivasan Sivaraman, Chapter Secretary, gave the Vote of Thanks.

Audience

FSAI DELHI CHAPTER
PAINTING COMPETITION COMMEMORATING FIRE SERVICE WEEK

Painting Competition observing Fire Service Week

The FSAI Delhi Chapter observed the Fire Service Week by organizing a painting competition on the theme of 'Surakshit Bharat' for school students (of class V to VIII) on 20th April, 2017 at Navyug School, Sarojini Nagar. The event was supported by the Office of District Magistrate, New Delhi; the Delhi Disaster Management Authority & the Delhi Civil Defence. Eleven Schools participated in the event with an enthusiastic participation from 120 students.

The venue had been completely decked with the FSAI posters on the theme of 'Surakshit Bharat'. The event was presided by Mrs. Juhi Mukherjee (IAS), District Magistrate (New Delhi), Mrs. Sujata Rai Sapolia (Deputy Director – Education), Mr. Jasbir Singh (Sr. Chief Warden – Delhi Civil Defence), Mr. ZS Lakra (Director – Delhi College of Fire & Safety Engineering), Mrs. Savita Jhakmola (Principal, Navyug School, Sarojini Nagar) and Vikas Saxena (President – FSAI Delhi Chapter).

The school children recited a welcome 'vandana' (prayer) while all the honorable guests did the lamp lighting. Thereafter, Vikas Saxena, on behalf of FSAI, welcomed all the guests with bouquet and a memento for gracing the occasion. The competition kick started with Mr. Jasbir Singh letting the floor open formally with a brief opening speech. The FSAI DWC judges included Mr. Lakra, Dr. Mukta Girdhar& Vikas Sharma. The event included information on the importance and history of Fire Service Week, tips on fire safety in daily life and some interactive sessions which were conducted by various DWC members.

Finally the event was concluded the prize distribution ceremony. All the participants were also given consolation certificates for their keen interest and participation in the event.

The event concluded with Vikas Saxena's Vote of Thanks to all the participants, the guests of honor and all the other officials and DWC members for making the event successful.

Students engrossed in painting

Winner Collage

FSAI GUJARAT CHAPTER
INSTALLATION OF CENTRAL GUJARAT SUB CHAPTER

Pankaj Dharkar addressing the gathering. Also seen on dais (L to R) : Mukesh Shah, Nimit Sheth, Deepak Gunjal

Felicitation of Deepak Gunjal by Nimit Sheth

Felicitation of Bharat Dangar by Pankaj Dharkar

Installation of New CWC

FSAI Gujarat Chapter had organized the Installation of Central Gujarat Sub-Chapter on 18th March, 2017 at Hotel Surya Palace, Vadodara. The objective of this programme was the launch of the Central Gujarat Sub chapter along with appointing Joint Secretary and new CWC members for the period between March 2017 to March 2019.

180 members attended the event. Mr. Nimit Sheth, President, FSAI Gujarat Chapter, welcomed all members. National President, Mr. Pankaj Dharkar addressed the gathering with his vision about FSAI and how the organization could serve the society vis a vis fire safety and security. Mr. Deepak Gunjal, Chief Fire Officer, Vadodara City was the Guest of Honor at the event. Special Guest was Mr. Bharat Dangar, Mayor, Vadodara City, who addressed the audience giving meaningful insights.

Mr. Pankaj Dharkar then called upon Mr. Akshay Sheth,Joint Secretary and whole new CWC team to take oath and thus formed the new Central Gujarat Team.

Later Mr. Akshay Sheth shared the planning of the upcoming year 2017-19 about the events – School Awareness Programmes , Training Programmes , Technical Seminars etc. Mr. Yash Majithia expressed his paramount support to make FSAI Central Gujarat Chapter a huge success and to grow without any barriers.

Vote of thanks was given by Mr. Mukesh Shah, Secretary, FSAI Gujarat Chapter. The event received an overwhelming response.

FSAI Gujarat Chapter Team

NETWORK MEET ALONG WITH MUSICAL NIGHT AND INSTALLATION OF NEW CWC MEMBERS

Lighting of lamp by (L to R): Mukesh Shah, Nimit Sheth, Dipen Mehta, Yash Majithia and Pankaj Dharkar. Also seen in the picture is Sanjay Pathak

FSAI Gujarat Chapter organized the Network Meet along with Musical Night and Installation of New CWC Members on 15th April, 2017. The objective of this programme was Installation of new Gujarat Chapter President & Secretary along with new CWC Members for the period between April 2017 to March 2019. 180 members attended the event.

Mr. Nimit Sheth, Past President, FSAI Gujarat Chapter welcomed all members. FSAI National President, Mr. Pankaj Dharkar, addressed the gathering elaborating his vision about FSAI and its main focus of being helpful to society at large. Mr. M.F.Dastoor, Director, Fire and Emergency Services, Gujarat State, was the Chief Guest at the event.

Mr. Pankaj Dharkar called upon Mr. Dipen Mehta, FSAI Gujarat Chapter President, Mr. Yash Majithia , Gujarat Chapter Secretary along with the new CWC team for the oath and formed the new Gujarat Team.

Thenafter, Mr. Dipen Mehta elaborated on the planning of the upcoming year 2017-19 regarding the events lined up which included School Awareness Programmes, Training Programmes, Technical Seminars etc. Mr. Yash Majithia expressed his unstinted support for the growth of FSAI Gujarat Chapter by leaps and bounds.

Vote of thanks was given by Mr. Mukesh Shah, Past Secretary, FSAI Gujarat Chapter.

This was followed by dinner along with musical night which was a delightful experience.

Oath Ceremony done by Pankaj Dharkar
Seen on the dais (L to R) : Mukesh Shah, Nimit Sheth, Dipen Mehta, Yash Majithia, Dharmesh Panchal, Kiran Thakkar, Anand Kumar, Suketu Patel, Gurdeepsingh Kundi, Asha Parmar and Shirish Bhavsar

M.F.Dastoor and Pankaj Dharkar performing at the event

Dipen Mehta appointed new Gujarat Chapter President

Yash Majithia appointed new Gujarat Chapter Secretary

FSAI MUMBAI CHAPTER
CURTAIN RAISER TO FSIE 2018

Dilip Vengsarkar being felicitated by Pankaj Dharkar and Ajit Raghavan

Krishna Prakash being awarded the Honorary Membership Certificate By FSAI

K.P.Dominic extending a gesture of gratitude to Abhishek Dani

The Sponsors of the Title Cup i.e. Vimal Fire Nalin Doshi and Yogesh Doshi being felicitated by Milind Rane, Jitu Mehnot, Ajit Raghavan, Ashwin Ijantkar and K. P. Dominic

Cerificate being awarded to Shazed Lehry , Director of "Ceasefire Extinguishers and Systems India Pvt. Ltd" for accepting the Mumbai CWC Chair for Government Relations and Regulatories

Glimpse of the audience at Grand Hyatt, Mumbai

Induction of the Mumbai Chapter President, Ashwin Ijantkar and Secretary, Jitu Mehnot by Pankaj Dharkar. Standing next to him is K. P. Dominic and Ajit Raghavan

The event was basically to provide a glimpse of a combination of several events coming up in the Mumbai Chapter in the upcoming months. The MC for the evening was Mr. Dominic, Chairman, Branding, Marketing and Events, Mr. Pankaj Dharkar, FSAI National President, gave an indepth and interesting presentation on FSAI. Thenafter Mr. Satyendra presented the Curtain Raiser of FSIE 2018.

Mr. Dharkar then conducted the installation of the new appointed President, Mr. Ashwin Ijantkar and the new Secretary, Mr. Jitu Mehnot of Mumbai Chapter for the term of coming two years. Mr. Ashwin conducted the introduction of the commitee members. Each commitee member had two subsequent sub committee members.

This was followed by felicitation of Pune Marathon Team for hosting a hugely successful initiative, with significant participation. Next in line was the introduction of the Mumbai Fire Service Week to be held in April. There was launch of PACC 2017, which is soon to be held in Bangkok in August.

The Guest of Honour for the evening was Mr. Krishna Prakash, Special Inspector General of Police - Vip Security who was given the Honorary Membership by FSAI.

After this Mr. Dilip Vengsarkar was invited on dais to speak a few words of motivation to the audience as to the usefulness of FSCL and such kind of cricket activity and encouraged all to participate. It had a significant impact as when the Auction activity was started dynamically by Mr. Dominic, all the participants were bidding with full enthusiasm.

There also was a great gesture shown by Mr. Abhishek Dani of M/s. Supremex Equipments to encourage new members. He announced giving one Fire Extinguisher free to every new member joining FSAI.

An impressive line up indeed of events in the coming with an enthralling aura of the show itself!

Felicitation of Pune Marathon Team by Pankaj Dharkar

MUMBAI FIRE BRIGADE RALLY

Prabhat Rahangdale with officers and his team with the Gateway of India backdrop

The Mumbai Fire Service Week was held between 14 - 20 April 2017. This event is held every year from the year 1944 in honour of the 66 brave but unfortunate firemen who lost their lives in the Bombay Explosion, and is celebrated since then with a lot of pride and dignity by the fire force men. An integral part of this grand and important week is the Mumbai Fire Brigade Rally which showcases all the preparedness and updated equipments of the fire department. The idea is to create fire awareness amongst masses.

The Rally was held on 16th April at the BMC HQ premises in Mumbai. The event was flagged off by the Mayor of Mumbai, Mr. Vishwanath Mahadeshwar, after this there was an opening speech by Mr. Prabhat Rahangdale, Director of Maharashtra Fire Services & CFO, Mumbai. The Rally was then flagged off which included around 24 fire engines and a mix of other vehicles, which together moved towards Matunga Five Gardens. It was a sight to watch for the first timers as there were assortment of fire engines which were all garlanded with the firemen atop and all moved in a very disciplined manner.

The ride continued till Matunga where all halted for a break for lunch. Lunch was organised and served for almost 500 people by FSAI with invaluable sponsorship of our esteemed corporate member M/s. Cease Fire Extinguishers and Systems (I) Pvt. Ltd. Mr. Shazed Lehry, Director of Cease Fire, was very helpful in coordinating this entire initiative.

After lunch the rally continued and proceeded in the same fashion to the delight of all bystanders waving excitedly towards the firemen. This continued till it reached Vikhroli.

Here the entire Fire Brigade team assembled in a hall where Mr. Rahangdale gave an inspirational speech highlighting the achievements of the Mumbai Fire Brigade and also praised the efforts of FSAI for bringing about awareness about fire safety. Mr. Ashwin Ijantkar, FSAI Mumbai Chapter President, gave an informational speech on the role of FSAI and its invaluable support to the Fire Brigade Department across the country. The Rally concluded generating the desired impact and appeal.

As a consummation to the event, a mega event was organised at The Gate of India, Mumbai on 20th April, 2017 where few dignitaries from the Government were invited along with some fire officers and staff of the Mumbai fire brigade and deserving fire brigade employees were given awards for various categories. Special Bravery Award was given to Mr. Nesrikar who gave his life in line of duty. The special attraction for the evening was the live songs being sung by the impressive duo of "Vishal and Shekhar". The location, lighting and video display were worth a mention and very impressive indeed!

Prabhat Rahangdale with the FSAI Mumbai team (L to R) : Tejaswi, Shrreyash, Shazed, Pankaj Dharkar, Suresh, Shirke, Dani, Pai, Sameer

Prabhat Rahangdale's birthday, coincidentally on the same day, being celebrated by fellow officers and colleagues

Vishwanath Mahadeshwar and Prabhat Rahangdale flagging off the Rally

The Rally of fire tenders and bikes proceeding in great numbers across Mumbai

FSAI Mumbai team at the event

CIDCO FIRE BRIGADE RALLY

Fire officers on bullets being flagged off for the rally

Fire tenders being flagged off by Arvind Mandke

Ankush Chavan, Additional Commissioner, NMMC doing the honours

All fire tenders starting the rally

Cidco fire officers leading the rally on their bullet bikes

The Cidco Fire Brigade Rally was held on 15th April, 2017 at the Cidco Fire Station and was inaugurated with an inspiring speech by Mr. Arvind Mandke, CFO, Thane. Later, he felicitated the enthusiastic FSAI team and appreciated its efforts in creating fire safety awareness amongst the masses.

This was then followed by the main event i.e. the Flag Off Ceremony, with 11 fire engines, headed by a team of almost 50 bikers, comprising of officers and firemen donning T-shirts provided by FSAI, which had the Fire Brigade and FSAI logos printed on them.

The rally began from the Cidco Fire Station and continued through the residential areas with people cheering all along the way. The firemen were distributing leaflets to people on the way, highlighting fire safety awareness and propogated the preparedness of the Cidco Fire Brigade to confidently ward off any eventuality. The rally covering several roads finally ended at the Kharghar Fire station. It was followed by lunch being sponsored by FSAI Mumbai Chapter.

Vote of Thanks was given by Mr. Mandke, appreciating the efforts of the members of FSAI Mumbai Chapter.

Ankush Chavan being felicitated by Mandke

Jitu Mehnot receiving flower bouquet by fire officer

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CALENDAR OF EVENTS

NATIONAL

Employability & Skill Development Expo
Dates : 16-17 June, 2017
Venue : Bharati Vidyapeeth's College of Engineering, Lavale, Pune
Website : www.fsai.in

International Seminar on Security in Hotels
Date : 26 July, 2017
Venue : Goa Marriot Resort & Spa, Miramar, Panaji, Goa
Website : www.fsai.in

Automation Expo 2017
Dates : 09-12 August 2017
Venue : Bombay Exhibition Centre, Mumbai
Website : www.automationindiaexpo.com

Project Heads, Architects & Consultants Conclave
Dates : 11-14 August 2017
Venue : Anantara Riverside Resort & AVANI, Bangkok, Thailand
Website : www.pacc2017.in

20th India International Security Expo 2017
Date : 05-07 October, 2017
Venue : Pragati Maidan, New Delhi
Website : indiatradefair.com/india-security-expo

Fire & Security India Expo 2018
Dates : 22-24 February, 2018
Venue : Bengaluru International Exhibition Centre, Bengaluru
Website : www.fsie.in

Run for Life, Safety & Security
Date : 4 March, 2018
Venue : Pune
Website : www.fsai.in

International Fire & Security Exhibition and Conference (IFSEC) India Expo
Date : 06-08 December, 2017
Venue : Pragati Maidan, New Delhi
Website : www.ifsec.events

CALENDAR OF EVENTS

INTERNATIONAL

China Fire
Dates : 5-8 September, 2017
Venue : New China International Exhibition Centre, Beijing, China
Website : www.fireexpo.cn

IFSAC Southeast Asia
Dates : 07-09 September, 2017
Venue : Kuala Lumpur Convention Centre, Malaysia
Website : www.ifsec.events

International Security Assistance Force
Date : 14-17 September, 2017
Venue : Istanbul Expo Centre (IFM)/ Yesilkoy, Turkey
Website : www.isaffuari.com

Securika Siberia
Date : 27-29 September, 2017
Venue : IEC Novosibirsk Expo Centre, Russia
Website : sips.siberia.ru

International Water Mist Conference
Date : 25-26 October, 2017
Venue : Barcelo Aran Mantegna, Rome, Italy
Website : iwma.net

CAIPS/ Securika
Dates : 15-17 November, 2017
Venue : Uzexpocentre Tashkent, Uzbekistan
Website : www.caips.uz

Intersec
Dates : 21-23 January, 2018
Venue : Dubai World Trade Centre, Dubai, UAE
Website : www.intersecexpo.com

International Exhibition for National Security & Resilience 2018
Dates : 06-08 March, 2018
Venue : ADNEC, Abu Dhabi, UAE
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India is one of the oldest civilizations of the world, with well laid traditions and अतिथि देवो भव: is one of those many ethos of Indian culture. The Taittiriya Upanishad, Shikshavalli says – "मातृ देवो भवः, पितृ देवो भवः,आचार्य देवो भवः,अतिथि देवो भवः". (Be one for whom the Mother is God, be one for whom the Father is God, be one for whom the Teacher is God, be one for whom the Guest is God). These four sentences are the epitome of a civilized society, where mother, father, teacher and guest are considered supreme!

Government of India made this verse, a tag line for tourism campaign simply because, it reflects the richness of Indian culture to consider the guest as God and extend them warm hospitality, for creating 'Home away from home' for the guests...

While talking of hospitality, we are certainly not referring to only lodging and boarding since the word hospitality encompasses many components like restaurants, fast-food chains, hotels, rail travel resorts, amusement parks, air travel, transportation and so on. If we look from a larger perspective, tourism involves hospitality in one way or the other and at the same time, hospitality can't be thought of, without tourism!

"FSAI is showing the ways and means for making our hotels safe and secure so that, we all can save our guests - the 'deva', from the 'danavas'; be it terrorists, thieves or even hackers to respect out cultural ethos of अतिथी देवो भव:"

While professionalism has taken the tourism sector to a new pinnacle the world-over, unfortunately it is badly affected by another 'ism' and that is, terrorism! Although tourism and terrorism phonetically sounds similar, they are antagonists and terrorism has affected entire hospitality industry, rather badly! The example of Kashmir is before us to see, how terrorism can ruin a place, which is like an *el-dorado* on earth!

It is because of so many incidents of terrorism, fire, theft, burglary, hacking, etc. fire safety & security have come to a center-stage for the hospitality industry. But because of the large floating population of guests, visitors, service providers etc., safety and security are becoming critical factors for planning and managing the hospitality activity without hassle or panic! Remember the 26/11 attacks on Mumbai hotel & cafe or recent fire in Dubai hotel ? All such incidents are like testing times for hoteliers, as they have to work with 'iron hands aprender silk gloves' because, they have to remember अतिथि देवो भव: and have to be courteous, all the time!

Recently held FSAI seminar on 'Fire Life Safety in Hotels' at Bengaluru, was indeed, a mega event with the 'movers & shakers' of the industry be it from Marriott, Taj, Hilton, Ritz Carlton, Royal Orchid etc. rubbing shoulders with consultants, realtors, architects, fire department officials, OEM manufacturers and system integrators, for exchange of ideas on how to ensure safety and security in hotels.

With another back-to-back event on Security in Hotels scheduled in July, at Goa, I think FSAI is showing the ways and means for making our hotels safe and secure so that, we all can save our guests - the *'deva'*, from the *'danavas';* be it terrorists, thieves or even hackers to respect out cultural ethos of अतिथि देवो भव:

KAMAL KHOKHANI
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