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"IFSY" 2021 KICKSOFF WITH A GRANDEUR

FSAI had the special privilege of hosting Dr Pramod Sawant, honourable Chief minister of Goa as chief guest at the India Fire and Security Yatra (ifsy') - one of the significant events among three pertaining to this years' mega Mahayatra held at Taj Resort and Convention Centre, Vainguinim beach, Dona Paula, Panaji on 27th August.

Delivering the inaugural address, Dr. Sawantji gratefully complemented FSAI for choosing Goa as the main centre amongst all their 24 chapters across India for organizing ifsy as well as the pivotal Finest India Skill and Talent (FIST) Awards presentation ceremony. Being Chief Minister, he considered it a great moment of pride that Goa could take the lead at the execution of this great national level festivity. He took up the Fire & Security Industrial Expo (FSIE)'21 as the first agenda. According to him, this has been a great bonanza for leading manufacturers in the country to gain a prestigious platform like this and exhibit as well promote many quality products under a common roof under the aegis of FSAI thereafter, Shri. Pramodji straightway exhorted the custodians of all commercial complexes in the State to understand more about FSAI Suraksha Index concept and get their facilities audited by the association's expert technical fraternity. It would definitely serve the purpose of a most essential cum independent review and certification which is the need of the hour. This would as well turn out as a true fire safety surveillance exercise which is highly desirable. After covering the buildings related to Medicare units in the first phase, other establishments like hotels, school/college campuses, residential locations and many other areas of occupancy can follow suit. He voiced the dire necessity of FSAI leadership to set up an exclusive team in Goa itself to conduct this important task.

The CM felt this gathering as an appropriate forum to laud the efforts put in by FSAI's specially constituted Covid19 task force under the ablest leadership of Mr. Pankaj Dharkar. In fact, the team extended an excellent service by engaging themselves at the premises of Fire service and Police stations around the country during the first pandemic spell to carryout mass sanitization and disinfection drive. According to Sawant saheb, Goa case study bears testimony to it. He also mentioned how this service initiative was extended

again during the second wave by way of rendering yeomen help to the needy through constantly monitoring and ensuring the availability of additional Oxygen cylinders as well as concentrators. The target zones included hospitals, nursing homes, primary health centres (especially in rural areas), ambulances etc.,

Further, he went on to applaud the efforts of the women wing of FSAI as well which has been established in Goa under the Surakshit Naari concept. It vouches to address the basic cum highly relevant concerns of women's safety and security.

Shri. Pramodji also called upon FSAI to train/develop more professionals and technical personnel in Fire/ security service as well as related automation engineering segments. This will help enhance specific level of competence and additional skills among them. In the process it becomes highly helpful as an access to more employment opportunities, business entrepreneurships, trading, after sale service/ maintenance/upkeep segments etc., The efforts put in this direction by the association to set up student chapters at educational institutions (like Don Bosco and Goa college of engineering) is praiseworthy. The CM promised all required support from the Government to FSAI for setting up skill development labs in the state. A call for creating an"Atmanirbhar Bharat" concept has already been given by Hon. Prime Minister.

In this context, the FSAI's 'Surakshit Bharat' mission can as well join hands such that a 'Navbharat' dream becomes a reality sooner than later, Dr Sawant opined. On this auspicious occasion, the CM was felicitated with a "Patron and FSAI honorary membership" certificate.

Shri Ashok Menon, Director, Fire & Emergency services, Goa as well as FSAI Goa chapter advisor was also felicitated for the dedicated services being rendered by his directorate with consistency and sustainability.

S/Shri. DK Shami, Fire advisor to Govt. of India and Director, National Fire Service College, Nagpur adorned the dais as Special guest of honour Pankaj Dharkar, Former International President and now Presidential member at the National Executive council of FSAI. Truly befitting as a sequel to an important issue of FSAI Suraksha Index raised by the chief guest, Shri. Dharkar explained all nuances of this concept and the audit scheme carved out of it. He made an earnest appeal to builders and occupants of different types of installations to get their assets audited and rated so as to ensure fire safety surveillance as well as enhance the healthiness cum reliability factor of the properties

Suresh Menon, National President, FSAI delivered the opening address covering many domains of the functioning of the association and the facilitation services it undertakes in the field of Fire, Life safety, Security and automation.

Ms. Rakhi Deepak, National secretary, FSAI. gave an introductory speech

Others who graced the occasion included:

C. Venkatesu, National treasurer.

Dr. Jennifer Lewis, President, FSAI Goa Chapter

Mr. Rajkumar Kamat, leading entrepreneur and first president of FSAI Goa Chapter,

Rajnish Agarwal, Convenor, FSAI Mahayatra '21 organizing committee

In his technical talk, Mr. Ashok Menon, appreciated the efforts of FSAI in the fire prevention and risk management arena. He elaborated on how the association is actively involved in fostering and spreading the message of fire safety cum security and inculcating a proactive mindset among public in retrospect. Besides, Menonji explained about the role being played by FSAI to strengthen the resolve towards building up a safer and more secure Goa especially being one of world's largest tourist destinations. FSAI Goa chapter is seriously pursuing the mission of spreading life safety and security aspects in the society in general and specifically industrial establishments across the state having higher fire risk potentials. End of the day public at large are benefitting from such contributions. Mr. Ashokji urged FSAI to work more on skill upgradation, competency build up and higher professionalism towards the fulfilment of self - reliance in fire safety and security segment.

Dr Jennifer Lewis gave the welcome address while Shri Rajkumar Kamat proposed a hearty vote of thanks. Shri Rajnish Agarwal compered the whole event. Daylong Technical sessions and Panel discussions centred around attributes like safe and secure hospitals/ hospitality industry/ educational institutions/ other zones coupled with e-surveillance for better security etc., They touched newer heights thanks to the quality of contents, active engagement by experts in different walks of life and earnest participation of elite audience.

The late evening FIST Award function flagged off at Goa and linked to chapter level participation of winners across the length and breadth of the country was a glittering treat to be watched!

In all a dedicated inspirational engagement by sponsors numbering more than 60 in different categories and handling the event management at its different phases was exceptionally great and highly supportive. FSAI gratefully acknowledges the same.

From the PRESIDENT

Dear Friends,

15th of August always brings the best national fervour amongst all of us. This year it was more important as independent India touches 75! Celebrating this day provides us an occasion to pay rich tributes to the freedom fighters for their patriotism, grit, determination, valour and sacrifices. Therein we demonstrate solidarity, take pledge to exert more and put the nation on to higher pedestals of resilience, development and prosperity. This year's August has again been exceptionally spectacular thanks to our young Olympians. The tri-colour flag was rising toward sky when they stood at the podium adorning medals. Country's National anthem also echoed all around the Tokyo stadium. Hearty congratulations to all who were part of this biggest show on earth depicting physical stamina and confidence and passion to settle for nothing less than the best. Let their feats percolate to future generations so that India becomes one of the leading nations in all types of sporting events.

Incidentally, August '21 is also a month of great landmark for FSAI. It will be etched in the annals of association's 2 decades as a spell of many achievements. We could meticulously plan, clinically organize and successfully execute three Mega events as part of "Mahayatra" – the 5th Edition of Fire & Security India Expo (FSIE) as well as Finest India Skill and Talent (FIST) Awards function and 'India Fire & Security Yatra (IFSY) spread over three days - 26th to 28th. Interestingly, this was a unique one of its kind hybrid events and also the first after Covid struck us last year.

In the process we could convert certain pandemic related restrictions (specifically with reg. to the ensuring of smaller gatherings and social distancing) into an opportunity.

Gratefully, end of the day, the overall participation was astonishingly phenomenal breaking all records of previous years. Number of participants, seminars, panel discussions, interactive sessions and exhibition booths soared higher. The nominations for FIST Awards contest were also exceptionally larger this time around. All of these bear testimonies to the success story – i.e., "Mahayatra" in reality.

I feel delighted to inform the readers that we had the gracious presence and blessings from a galaxy of dignitaries across the country at respective event locations. Leading from the front was

Dr. Pramod Sawant, Hon. Chief Minister of Goa , who inaugurated the Goa Edition of IFSY. Others among the galore included many leaders representing central as well as state Govt. administration, Civic bodies and social service fields. Besides Fire advisor to the Govt. of India, Heads of various fire and security directorates across the country, Corporate chiefs, Entrepreneurs, Academicians, Technocrats, wizards, Automation specialists, Medical professionals etc., across the landscape were also part of this motivational drive

The panel discussion moderators, members, session chairs and speakers/ faculties were top level experts representing different walks of life and echelons in respective segments. They could raise the agenda to different levels. Exhaustive coverage on this mega event will appear in the next edition of the Journal.

As indicated earlier, this issue marks the launching of a long - awaited exclusive column titled "Chetna-An Arena for Surakshit Nari". Let us all join together to promote this powerful initiative. The voice of women concerning their safety as well as security should clearly and loudly be heard through this featured segment.

Signing out for now,

Yours sincerely,

Suresh Menon
President – FSAI

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FROM THE CHAIRMAN'S DESK

Dear Friends,

August is undoubtedly the most significant month of the year for all Indians being commemorative of the freedom from colonial anarchy. 2021 also marks the 75th year of independence.

This month was fairly healthier and happier for all countrymen. Covid-19 looks to be under good control and life is returning to normalcy. Let us sustain the strict compliance of safety guidelines to prevent yet another wave.

After many years, thanks to the efforts of our sportspersons, coaches and administrative machinery, we won the largest number medals so far in the Olympics as well as the subsequent Paralympics at Tokyo. A big round of applause for all winners and other participants for giving their best and making the nation proud. We wish a bright future for all the sports and sports stars across the subcontinent. Let more victorious people emerge and the tricolor fly high. The bottom line is 'when the going gets tough the tough gets going'. Opportunities are plenty and takers need to be more in number.

Fire and life safety cum security attributes need to be addressed in more detail and with additional caution. Increasing number of fire incidents and intermittent security threats bear testimony to this undisputed fact. Society must always aim at staying clear of risks which are in 'unacceptable category' as well as handle others by learning to identify the inherent problems, control and mitigate them. We know that every soldier is trained to first understand the strengths and weaknesses of the enemy columns before pouncing on them. Accordingly understating and awareness creation on all fire/ security fronts is equally important. There is enough scope for plugging the gaps in this arena.

In the above context different facilitation efforts as per the guiding principles of FSAI would be of immense help. The tools we adopt could be mass level knowledge enhancement, and implementation of technological cum administrative safeguards at ground level. Yes, nurturing of safety culture and behavior correction are equally significant. The recently executed 3 days' mega festivity (26th to 28th August) under the aegis of FSIE, IFSY and FIST Awards'21 could showcase India's great talent, expertise and technological capability on all fronts and means of preventing, reducing, controlling and even mitigating fire and security threats.

I feel very happy to notify about the carving of yet another new chapter in the Journal - rather one more feather to its cap - with the release of an exclusive feature – "Chetna- Arena for Surakshit Naari". Come, join the initiative by sharing articles, success stories, case studies or any other types of reading materials as deemed fit.

Ensuing festival season should motivate is to come out of overconfidence myth and not to ignore any of the essential precautionary measures which are essential to avoid another round of pandemic spell. There is a dire need to maintain balance between celebrations and precautions. Enough avenues are there to reduce / avoid manmade disasters.

Together we can take up the cause of many more inspiring issues like this and make them happen.

With warm regards,

Dipen Mehta
Chairman – FSAI Journal

EDITOR'S PAGE

Dear readers,

Welcome back!

August 15th means a lot for India. Witnessing the Independence Day celebrations, listening to the leaders, hearing the narratives from those hailing from pre1947 era and dipping into the pages of history will help the younger generation to know many things about the freedom movement as well as the sacrifices rendered by those directly or indirectly involved in it. In parallel they must also review the progress achieved so far and deliberate on how to sustain and improve upon. This year's festivity became more cherishing. Yes, you rightly guessed! Our Olympic stars returned just in time with many laurels from Tokyo and participated in the Red fort festivity, thereby inspiring the whole country and specially its energetic youth wing. The immediate next world Paralimbic at the same venue has also been very encouraging by way of Indians bagging a number of medals!

It would be worth mentioning here that every year on this day, the great contributions from Fire service and Security personnel (domestic segment) across the country are being recognized. In fact, they too are waging an altogether different battle while on duty to keep the country safe and secure. Accordingly based on the performance rating either President' Gallantry or Meritorious service medals are being awarded. This time 1,600 personnel from a large number of nominees constituting different cadres - 125 from the Fire service and the rest in Security wing (covering Police, CISF, Home Guards as well as other allied groups) were the recipients of these honors. Their dedication to duty and brave efforts shall imbibe citizens at large. In this context the first step would be to get ourselves duly trained. Thereafter it is our mandate to abide by all guidelines and codes of conduct on fire /life safety and security. Wherever possible we must also be part of response functions by supporting the fire/security agencies in their efforts. Here, it is worth gratifying to note that the voluntary services rendered by citizens from all other walks of life are also equally being considered and outstanding performers are awarded on each republic day.

Specifically, from FSAI's perspective this August marked the highly successful execution of a "Maha Yatra'21" spanning three days and constituting equal number of mega events. Next edition of Journal will have a separate segment depicting various highlights on this.

The regular "Listening to a Luminary" segment of this issue features interviews from two dignitaries – Mr. Santosh Warick, Director, Maharashtra Fire Service and Mr. Terrence R Brady, CEO of Underwriters Laboratories.

A new chapter will evolve for the Journal as we commence an exclusive feature from this edition at the behest of FSAI women wing titled "Chetna- Arena for Surakshit Naari". The mission is to offer deserving space for women to raise a number of current and relevant issues related to their safety as well as security concerns and gain fruitful remedies cum solutions as applicable. We earnestly look forward to inspirational support from all in this social endeavor

Safety attributes pertaining to Hospitals need to be of prime importance and again this aspect has been chosen as the thematic for this issue. It will help refresh the memories of unfortunate incidents and explore better safeguards for future. There are six 'must read" scholarly articles in this segment

We wish to extend a happy festive season to all readers in the upcoming months by ensuring adequate safety and security norms.

Sit back, relax and enjoy the pleasure of reading.

Yours sincerely,

KNK Murthy
Executive Editor

Fire & Security Association of India

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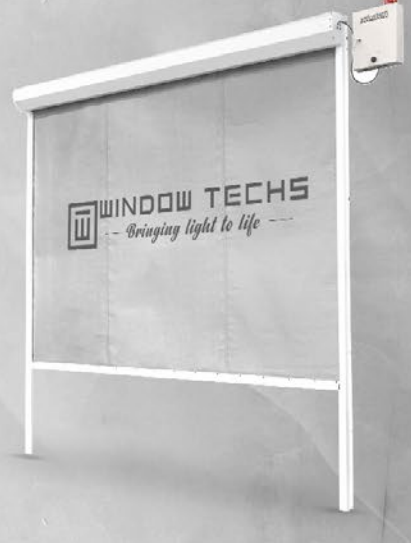

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FIRE & SECURITY ASSOCIATION OF INDIA

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LISTENING TO a LUMINARY

EXCERPTS OF THE SPECIAL INTERACTIVE SESSION OFFERED BY

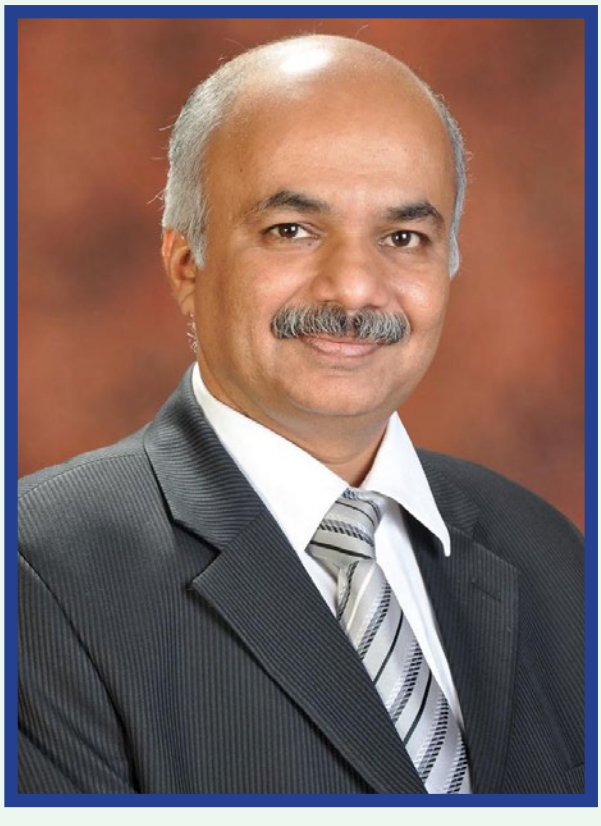
Mr. SANTOSH WARICK,

DIRECTOR, MAHARASHTRA FIRE SERVICE

to the FSAI Journal team represented by
Iswar Iyer, Editorial Board member &
K.N.K. Murthy, Journal Executive Editor

Welcome Shri. Santosh Warick Saheb to FSAI Journal fraternity: Sir, you possess an excellent academic background being a science graduate, Fire service Engineer as well as MBA in Finance and Law. You had been holding a number of senior level cadres related to Fire Safety and Emergency Response services and currently adorning the coveted position of Director, Maharashtra State Fire service. In this background your open minded, critical and cryptic views on certain highly significant challenges being faced by the society with regard to Fire risk, life cum asset safety and their remedies will be of great importance to our readers.

Sir, you have always been like an inspirational icon for Fire & Security Association of India (FSAI) with gracious presence and engagement with most of our Training initiatives, Regional, National and international level Seminars, Conclaves, Congregations, Expert Panel reviews etc.,
Now it is a great honour for us have an interview session with you in the most popular column of "Listening to a Luminary" in our Journal Questionnaire



Q1: Sir, having served MIDC for during major spell of professional career would have been altogether a unique and exceptionally delightful as well as challenging experience for you. This is in comparison to the functioning of many of the city Fire service chiefs who normally are required to manage the operations of a single fire station (main) with few sub stations but in closer vicinity. In your case it has been a special and more critical responsibility to take care of all industrial estates spread out among the segregated zones in a large as well as populous state like Maharashtra. It could be inferred that starting the with Just two fire stations, the number has grown up to 34 within thirty years in MIDC. In this context what were all the specific tasks you had to shoulder? Once a fire spreads out of an industrial installation, it can as well turn out to be an "off-site" emergency wherein the 'smaller' fire brigade has to tackle a 'bigger' calamity affecting both the industrial unit and public areas. Please share a brief account of the situations and that too most difficult ones to handle but successfully taken care of during your tenure for the benefit of readers

A1: As we are well aware, there

is no 'state govt. level' fire service in Maharashtra or other regions in the country. Mostly this responsibility is handled by different Urban Local Bodies (ULBs) such as Municipal Corporations or Councils, Nagar Panchayats and Special Planning Authorities (SPAs). In case of Maharashtra they could be MIDC, CIDCO, PMRDA etc. As you rightly mentioned, our state being one among the most Urbanised and Industrialised in the country, the potential fire risk in these locations is very severe to deal with. Accordingly, under Section 21 of The Maharashtra Fire Prevention and Life Safety Measures Act 2006 it is the responsibility of ULBs and SPAs to provide fire services in respective areas. MIDC has got 289 functioning industrial estates and 143 of them are in the 'major' category. MIDC fire service was established in 1987 with just two fire stations in Roha and Tarapur industrial zones. Today we have 32 operational fire stations. Two more shall be commissioned by year end. They will cater to the need of Akola and Amravati industrial estates respectively.

As per the policy of MIDC, basically we provide one Water Tender and one Foam Tender for every fire station. Depending upon potential of fire risk in certain locations, additional fire appliances are also provided like Water Bowsers, Aerial Ladder Platforms, Turn Table Ladders, Ambulances, Jeeps etc., With regard to MIDC, we get enough cooperation from industries as many of them have own firefighting arrangements with dedicated water tank as well as pumping arrangements. Some companies also depute their safety teams as first responders in case of any emergency. This has proved to be of great help in minimising injuries, loss of lives and/or property. Specifically, along the chemical industrial belts, Mutual Aid Response Groups (MARG) have also be been set up. This segment comprises of experts who are capable of undertaking different types of chemical release incidents (including flammable/ toxic solvents or gases). They have been rendering great support to our department during fire or explosion related emergencies. In addition, they share their resources and this arrangement is working wonderfully well in all chemical belts in the state. In this context, the Directorate of Industrial Safety and Health (DISH) which is the nodal statutory body also extends us nice facilitation support

During last 5 years there was many unfortunate incidents in serious fire/explosion category in our Tarapur- Palghar, TTC- Thane, Taloja- Raigad, Roha- Raigad, Mahad- Raigad, Lote Parshuram- Ratnagiri, Kurkumbh- Pune industrial areas etc., Most of them could be effectively and successfully handled by our fire service teams with help of local and industrial fire services as mentioned earlier. Many times, we were also able to contain the spread of fire and not allowing it to spread to adjoining industries. Sometimes the harmful gases/ vapours emitting out the fires or leakages happen to drift to surrounding areas creating panic situations among local residents or villagers.
In fact, the flammable and toxic gases leakages from industrial units or road tankers also were matters of serious concen. With reg. to both the above, we have also been able to control and mitigate these scenarios by way of proper information sharing, and rescue cum evacuation efforts. In this task the support from police, local administration and other ancillary segments have been very helpful.

Q2: What were all the specific challenges which a dedicated Fire service brigade located in an Industrial estate have to face? How Equipment, technology, Administration, Human resource and Infrastructure wise we are equipped with to tackle them now in our country?

A2: The industrial fire services have to deal with different types of raw material as well as finished goods They could be flammable and/or toxic to human. In case of fire and explosion you can also be exposed to dangerous fumes/ gases. Accordingly, you need to be very cautious while approaching the accident spots by wearing protective clothing including BA sets. The chemical data sheets and inputs from company officials as well as experts are very helpful to deal with situation.

As per the 13th Finance Commission Report published by Govt. Of India, the paucity of fire services in terms of Number of Fire stations, Control appliances and Trained Manpower is more than 90 percent! The industrial fire services too are not in any way better in this aspect. The Maharashtra government has coined a scheme plan titled "Maharashtra Agni Suraksha Abhyan". This ensures funding to ULB'S for the creation fire stations and procurement of right type and adequate number of appliances. In this context, the Government has already provided financial assistance for the construction of more than 100 fire stations. Under 15th Finance commission report, the Govt. of India has allocated Rs.5000 Cr for strengthening of fire services through NDRF and SDRF. In this regard, Maharashtra has been allocated a share of Rs 330 Cr

Due to globalisation and the development of latest technologies, now a days,

number of fire service appliances are available in India. What is furthermore required is the creation of proper infrastructure at least up to the block level or wherever potential fire risk is more. In that area the infrastructure shall cover the basic fire station which should have two to three bays to house fire appliances such as Water Tender and Foam tender with some rescue equipment's, communication equipment. Besides, we also created additional number of fire training schools and academies to train our fire staff and officers. This is very significant from the point of skill cum competency development. The first responders are also to be empowered to deal with natural and manmade disasters.

Q3: Based on your experience, do the industrial units (especially in high hazard category as stipulated under Factories' Act) possess their own fire stations with all types of capabilities as covered in the previous question and maintain them in functional order? Trust these are also part of the prerequisites while seeking NOC from fire departments? Kindly elaborate.

A3: As per the Factories Act and Maharashtra Factories Rules there are no direct provisions with regard to the need of appointing Qualified Fire Officer and Fire Appliances. But for factories having certain built up area, electrical power consumption and number of employees deployed, there some specific guidelines and recommendations. They also include the availability, operation and maintenance of their own fire stations along with required manpower and appliances. The Maharashtra Fire Act has also a set of provisions under Section 45 with reference to the need to appoint of Fire Officer in few specific some occupancies. Beyond that the Oil Industry Safety Directorate (OISD) fire safety guidelines which are made mandatory for all hydrocarbon processing industries. The requirements include the availability of fire tenders along with trained response staff especially to deal with serious to fire and explosion emergencies. Both the Acts also undergo periodic reviews and revisions to ensure the availability of adequate facilities. In larger projects like petrochemical plants, power plants, cement plants, sugar factories etc., we insist for fire appliances on the site considering the potential risk of the plant.

Q4: You will agree that Fire emergency preparedness, prevention, Control ability and adequate response planning are primarily the essential attributes to be imbibed among society? In this aspect, what is your take based on the ground level observations as well as the feedbacks being received from own brigade personnel and also various other governmental and private fire brigades? Are they up to the expectations and satisfaction levels?

A4: Awareness about fire and life safety is a very challenging issue for fire and emergency services across India. The basics of fire safety shall be included in school curriculum. Beyond that the provisions of Part 4 of NBC shall be included in syllabus of Architects/ Civil Engineering. Unfortunately, the fire prevention and protection arrangements provided in various types of buildings are not properly maintained by owners or occupiers of the building. Therefore, in case of real emergencies these defunct systems are of no use. Ultimately, the non- operability and/or non-usage the systems in a real emergency situation can result in the loss of precious human lives as well as hard earned assets.

The awareness about basic fire safety among the masses is very important, we have to inculcate a fire safety culture in our society by creating more awareness and better education cum training. We need to teach people of all ages about the basics of fire triangles, fundamentals of electrical system, prevention of gas fires, safer methods of fire crackers handling, how to use first aid (hand held) fire appliances, right ways of handling fire hose reels etc.,
You might have come across stories of untrained people just throwing the extinguishers in to fire for controlling it! This is not at all a 'laughing matter". There lies an inherent danger of the device exploding since it is a 'compressed gas cylinder' containing CO2 under pressure. Training, skill as well as competency build up are very essential and highly important.
As per official crime reports of India we lose 35 people per day in fire accidents and huge property loss due to fire which is not at all affordable to developing country like India.

To overcome that more awareness creation among society through various means is a must. Fire services alone cannot achieve this target without the participation of people from all walks of life. Organizations like FSAI are doing wonderful job in this aspect. Creation of FSAI student chapters in various part of India is a major initiative in this regard. This will definitely help spread more knowledge among society. Besides, events like Suraksha Yatra, Ganesh Mandal and Durga Puja fire safety and security competition etc., also enhance the interest public in this noble endeavour. The FSAI journal also can and should play a leading role to inculcate a fire safety culture among reader community.

Fire services across nation carryout continuous awareness

campaigns during the yearly fire service day related weeklong campaign. They utilise this opportunity to organize more demonstrations and practical drills for the benefit of society at large. Mock exercises depicting rescue/evacuation and operations are also being undertaken. Special drives are taken for fire safety audit in Hospital buildings – (post pandemic) to ensure about basic safety needs in Covid treatment facilities.

Q5: In general is the public adequately becoming aware of inherent fire hazards which exist in many of the facilities, materials, gadgets etc., which have already become part of day to day life in current scenario especially because they facilitate specific comforts and convenience besides being instrumental in providing better quality of life e.g., Energy fuels (Transportation & cooking), electrical appliances, furniture/ furnishers, textile products, paper, plastic etc., What are your suggestions to enhance such awareness and better compliance of preventive as well as control measures especially at individual and group levels in society? Are the stakeholders being advised initially and periodically trained/ refreshed about the safe use of the above facilities by their marketers as part of customer safety and social responsibility? (e.g., Oil and Gas companies, Electric gadget manufactures as well as distributors of other specific 'hazardous goods'/ machinery suppliers etc.,)

A5: As mentioned earlier, we are yet to develop a good behavioural pattern in the country. Still a lack of respect to safety and poor culture prevail all around. This aspect is clearly visible both on and off the jobs. They could be with regard to the indiscriminate use of electrical appliances, un safe handling of chemicals and other hazardous materials, home and office safety, vehicular traffic etc., just to name a very few. In contrast, many of the modern gadgets and appliances are marketed by notifying about their risk features and corresponding safeguards with respect to their installation, use, upkeep as well as maintenance. Unfortunately, we deliberately ignore and start using them which may lead to accidental or even disastrous situations. The builders and developers are also strictly notifying about fire load factor vis-à-vis related risk factors of every structural work- –residential, commercial, educational, hospitals, hotels etc., But after occupancy is granted we start flouting all fire safety norms by way of accumulating huge amounts of flammable materials like wood (furniture)/ furnishing clothes, adhering to unsafe electrical wiring practices, misuse/abuse of false ceiling, overloading of electric systems (by adding number of electric gadgets which lead to short circuits) etc., . All these become causation factors leading to serious fires and resultant loss of lives and property. As we hear on daily basis, short circuit triggers a number of fires which thereafter spread around beyond control.

Now a day every company shares the probable fire risk factors of their products along with the prevention control measures as part of safety, consumer protection and above all business responsibility matrix. They also provide such promotional information through respective websites besides video clippings and other training programs through internet (YouTube and other media) In the interest of safety, it is always better that final users of product shall become more aware about basic safety attributes. It is also the responsibility of manufacturers and other stake holder that they pass on such important information to end users or owner or occupiers of residential flat or office unit.

Use of ISI marked equipment and appliances specially the electrical wire and LPG rubber tubes is a good example in this regard.

Q6: Based on the excellent reputation garnered over the years by Maharashtra state Fire service directorate, kindly share few of the new milestones you wish to project and get executed. This is in view of the fast changing and tougher performance targets being set for fire service personnel. Needless to mention about the inevitable pandemic situation which is severely testing the endurance of fire service personnel. Future may throw up more such obstacles.

A6: From 2005 we have been persuading a 'four pillar approach' for strengthening of fire services in the state of Maharashtra which functions around the main domains of

- 1. Fire Act & Rules
- 2. Capacity Building
- 3. Academia and
- 4. Creation of Public Awareness.

The Fire act got enacted in Dec. 2008 now we wish to carryout significant amendments on it to include the provision of Fire Safety Audit as per recommendations of NBC 2016. For capacity building we are also providing funding through State Plan Scheme of Maharashtra Agni Suraksha Abhiyan to Municipal Councils and Nagar Panchayats. This would be utilized for the construction of fire stations and procurement of more fire appliances. In parallel, we are also planning to raise a proposal as per 15th Finance commission for the strengthening as well as capacity build- up of fire services in Urban and Rural areas. As far as Fire Academy

is concerned we have got good infrastructure at Kalina, Mumbai for conducting two to three fire safety courses, but we want to create an advanced fire service academy near MMR Region Mumbai with hot fire training modules and better infrastructure. Beyond that, there is a plan to have regional fire training centres at Nagpur and Aurangabad. For public awareness creation, we have website with lot of information to share on fire safety and it would be our endeavour to seek the participation of different stake holders. They would constitute architects, electrical engineers, glass industry experts, builders' associations etc., This will help implement adequate fire safety norms of related to buildings.
As per directives of Central and State Governments our directorate has taken up special initiatives to execute Fire Safety Audits of Covid hospitals around the state with the help of National Safety Council, retired fire officers and our licensing agencies to carryout inspections.

Q7: The present working conditions of fire brigade personnel being very tough and difficult (like police), do you have any new ideas for empowering and motivating them (like phased out working hours through increase in manpower, stress management clinics, issue of adequate number and best available quality of protective clothing, special welfare schemes for them and their families etc.,)? Kindly share your views on current scenario and as well as suggestions on the anvil for further improvement.

A7: As already explained earlier there is a huge shortage of fire services facilities across India in terms of Fire Stations, appliances and trained manpower. Almost all are facing common issues such as related to budget allocation for required facilities, manpower enhancement etc., In fact recruitment is not happening to cope up with increasing challenges of urbanisation and industrialisation. In such a scenario, work pressure and stress among available staff increases. The standardisation of personal protective equipment and need of continuous training to build confidence level to deal with various types of disasters are on the rise. We wish to have yoga training classes to combat such situations. Simultaneously the services of voluntary personnel and organizations (NGO'S) are to be roped in to assist the fire brigades. Fire service is a highly disciplined service entity. If we keep learning and exert additional efforts, there could be scope for career growth. Training needs also have to be addressed in this direction by engaging with National Fire Service College Nagpur and other State level Fire Academies. In Mumbai there are duly accredited centres offering IFE UK courses. Through the Maharashtra Fire Services Welfare Association, we also try tom implement some beneficiary schemes for the children of fire service personnel. They include scholarships and other supports

Lot of things can be done to sustain the spirit and motivation of fire service personnel by offering opportunity to visit manufacturing facilities, deputing to reputed training centres at state, national as well as international levels etc., During the Covid situation, number of experts from various disciplines have shared lot of useful tips and tips on the subject through webinars. All these have helped fire service personnel to gain knowledge, thereby inspiring to lead their day to day life with more confidence. Recently KDMC, PCMC and MIDC fire personnel who lost their lives during fire fighting and rescue operation were posthumously honoured as "Shahids" and their families could become the beneficiaries of associated benevolent schemes. This boosted the morale of everyone concerned and others.

Q8: According to a survey conducted by the Brihanmumbai Municipal Corporation have 1,324 hospitals, nursing homes and maternity homes around this mega city as on March 2021. However, more than 50 per cent—701— of them were found to be non-compliant with the Maharashtra Fire Prevention and Life Safety Measures (FPLSM) Act, 2006.
On April 28, Chief Justice Dipankar Datta of the Bombay High Court asked the state government to conduct fire-safety audits of all hospitals and ensure "fire safety compliance at every hospital, nursing centre and Covid centre."
What measures are being taken to ensure stricter compliance and when can we expect the hospitals to fully fall in line with the above act?

A8: The Maharashtra Fire Act came in force from 6th Dec. 2008 which mandates fire and life safety arrangements as prescribed in Part 4 of National Building Code of India. In Mumbai and other major cities in the state there were Nursing Homes having 20 to 25 beds which are located in residential or commercial buildings. Besides some hospitals are in independent buildings and were approved as per the then Development Control Rules of the city and as per rules and regulations of the city. Now it is a very unique issue before fire services to implement provisions of NBC Part 4 which deals with design pertaining the requirement aspects such as more width of staircases and passages, provision of diagonally opposite exits,

requirement of sprinklers etc.

As on date, we cannot implement the current NBC Part 4 provisions in total especially in case of old hospitals which are in existence since last 15 to 20 years. We have to provide fairly reasonable fire and life safety arrangements which are feasible in the prevailing set up of nursing homes and small hospitals.

Covid centres are also being created by converted in few big halls and warehouses or exhibition sheds with minimum fire protection requirements. The Central and State Governments have issued various advisory guidelines for fire safety of temporary Covid hospitals which includes minimum fire safety systems, electrical safety, structural safety and oxygen bulk storage safety, which was implemented by various fire services in the state.

Q9: Mumbai is reported to have most short-circuited fires and deaths in India and according to the Mumbai fire brigade, this amounts to about 75% of fires that have occurred
Short-circuiting takes place because of use of electrical equipment of poor quality, faulty wiring, high temperature, lack of maintenance and/or higher load on the internal wirings within the facilities, leading to fire incidents and consequential loss of life and essential infrastructure.
A core team comprising of certified and trained electrical safety auditors working under the Fire Brigade can certify the building electrical drawings and audit the premises to check the electrical safety so that the Final NOC is issued by the Fire brigade only after approval of the electrical drawings and installed electrical equipment by the certified electrical engineers can significantly reduce fires caused by short circuit.
Solicit your views.

A9: I fully agree that like fire safety; the electrical safeguard do not get the deserving attention in India. At the time of sanctioning the electrical load builders and developer share the data on minimum load to get quick and easier sanction because it costs less. However, the most important factor in electrical installation is standardisation with reg. to wiring and equipment but let go that and purchase cheaper and non-standard equipment which lead to disaster. The haphazard use of electrical appliances and equipment at home or office by tapping out energy from single socket and using multi point extension boards lead to over loading and short circuit.

There is little or no awareness about need of frequent electrical safety audit. The PWD approved electrical contractor or electricians must only be deputed main cabling and wiring work.

Unfortunately, we do not have any forensic department which carryout detailed investigation of fires in India. This is a highly specialised subject calling for expertise. After most of the incidents, all electrical installation and wiring get damaged and it becomes truly tough task to identify the exact cause of fire incident. Normally no one challenges the 'electrical short circuit theory (rather discovery)' as a soft (though evasive) reasoning which get endorsed by all concerned agencies / authorities such as the insurance, police, factory inspectorate etc. Therefore, it also gets digested by service personnel as well though not correct!

We the fire officers would not be experts in electrical system and therefore it becomes a compelling situation to depend upon third party certification at the time of granting final fire NOC. If some mechanism is created for verifying the credentials electrical engineers involved at different stages of installation followed by periodic checking, maintenance and upkeep, the auditing will have more impact and shall help enhance fire safety.

Q10: Regular checking of earth wires, circuit breakers and fuses, can prevent equipment malfunction and fire hazards.
It is noted that Infrared electrical inspection techniques are now available using thermal imaging. These can be applied to scan electrical cabinets, fuses, connections, etc.; They would also be useful to detect potentially dangerous hotspots and provide information needed to repair or replace affected equipment thereby being instrumental to avoid equipment failure or fire and keep building premises and building occupants safe.
Do you think it will be a good idea for the Fire brigades to make infrared electrical inspection mandatory and submittal of an electric safety audit report with infrared scans together with Form B.

A10: As we have discussed earlier the Indian Electricity Act and Rules are the central statutes and they do not have the provision of regular electric audit as such. In the market various fire and electrical safety related equipment are now available with alarm facility so that corrective actions can be taken before anything is likely to go wrong in the electrical systems. We should have such monitoring system for all critical applications. These provisions can be incorporated in Electricity Act and Rules through appropriate amendments.

Q11: BMC is reported to have drafted a fire safety policy for buildings up to 30 meters high or low rise which will be submitted to the Municipal Commissioner for his opinion and administrative approval. In the draft proposal the BMC is reported to be looking at making a provision for self-certification like the one being followed now, which they can submit to the Mumbai fire brigade.
Many feel that the responsibility of conducting the fire safety audit to the "licensed agencies" has become a bi-annual ritual and that the licensed agency lack the expertise in conducting an effective fire safety audit especially for complex systems.
Is the fire brigade considering training and empanelment of private 'fire safety officers (FSOs)' to carry out periodic inspection, testing and maintenance of fire safety systems in buildings and renewal of certificates, like the one that is put in place in Gujarat on 26th Jan 2021? This has been done by bringing in the process online through a portal Fire Safety Compliance Portal called Fire Safety COP, that will provide complete solutions starting from facilitation and empanelment of 3 categories of FSOs -viz general, advance, and specialist for approval and renewal of FSC (Fire Safety Certificate) along with provision of online payment

A11: The Government of Gujrat has taken good initiative under GSDMA to have such a training program empowering local fire officers and management of industries which will make all fire and safety staff members educated about basic requirements of fire safety.

The license agencies registered under Maharashtra Fire Act are for the purpose of integration of respective fire prevention and protection systems as specified in Part 4 of NBC and as per respective Indian Standard. They have to submit Form A at the time of granting Final Fire Approval. Accordingly, the owner and occupier has to give Annual Maintenance Contract for the fire systems; maintain it as per respective Indian Standard and give certificate on Form B in the month of January and July of every year to the local fire service, which will ensure that the systems provided in the building are in good working condition.

The Fire Audit provisions are not made in current Maharashtra Fire Act but as per the recommendations of NBC Part 4. In fact, we have proposed amendment to the Fire Act. This will ensure periodical checking of fire protection systems as per local hazards.

Q12: New environmental factors are driving demand for highly efficient water mist fire suppression systems.
Efficient use of water mist system brings several benefits namely significantly smaller water tanks, smaller pump units, minimal water consumption less water damage within the building and its contents. Water mist systems will be an ideal solution in old buildings where the terrace cannot withstand the load of mounted tanks with water for conventional systems.
Will Maharashtra fire service approve High pressure Water mist hose reel units, especially for old buildings?

A12: The water mist systems is very effective for small area, but it is costly as compared to conventional sprinklers. If the society is ready to invest so much for fire protection, we can consider it for approval as per international standards. Already we have accepted such systems for protection of areas dealing with paint storage, mixing, engine test beds in automobile companies and also for data centre and battery room protection in such locations Now a day there are so many technologies which are available for fire protection. An appropriate and duly tested system as per National or International standards would be acceptable one for fire protection. Definitely water mist is also very effective for usage in confined areas and special application but considering the cost of system it may not be acceptable as replacement of sprinklers (as the situation stands today)

Q13: Sir, can we think and introduce special powers with the traffic police or other governmental agencies for stricter checking on those members of public who either overtake ambulances/ fire vehicles or block their traffic on busy roads? This is in view of the dire need of facilitating the movement of emergency vehicles on higher priority as compared to the general traffic flow administration which can definitely wait!

A13: As we have already discussed a couple of times earlier, first of all safety must become a cultural concept among all citizens. Yes, we have numerous acts and rules but implementation is very challenging as there are many among us who do not want abide by law. They also search for loopholes and short cuts on everything which are made mandatory. Therefore, it boils down again on good education and cultural growth to gain a mindset which should morally motivate us to give priority access to ambulances, fire service and other emergency vehicles. By making special rules it is very difficult for implementation as we do not have that much manpower

and technology to check and monitor the effective functioning of CCTV's at certain intervals and control all traffic related activities. So cultural change is required at mass level

Q14: What are the specific problems being faced in a mega city like Mumbai reg. the evacuation of people who occupy tall buildings and enabling the trouble - free entry for fire service personnel.? Please elaborate on the types of specific gadgets being used to gain access to tall locations and executing rescue process.

A14: Parking of public, commercial as well as private vehicles on both the sides of the narrow lanes is a great menace for fire services in a cities like Mumbai. Awareness is required to ensure minimum 6 mtrs. Clearance approach around any building round the clock to ensure fire control, access to rescue appliances and evacuation of affected people within least response time. The Aerial Ladder Platform (ALPs) and Turn Table Ladders (TTLs) are used for external firefighting and rescue operations in case of emergency. But for the super tall buildings above (100 mtrs), we have to depend upon Fire Tower as provided in Part 4 NBC 2016. This comprises of one Fire Lift and one Fire Escape Staircase which are protected with two hours' fire rated doors and entire system is pressurised such that no heat transmission or entry of smoke takes place towards the fire tower path. Once this provision is accomplished, the tower can be safely used by occupants for subsequent evacuation as well as providing access to firefighters to reach the upper floors.

Q15: Coming to Hospital fires (including those involving specially created Covid19 treatment facilities are recurring at regular intervals – mostly triggered of by electrical energy and aggravated by the storage of highly combustible materials, oxygen enrichment, lack of proper smoke extraction and its safer release . According to you what could be most workable and faster safeguard system to bring in prevention, control and mitigation measures?

A15: The fire incidents occurring in various Covid hospitals were due to different causation factors, some due to electric appliance failure, others due to over loading and/or overheating of electrical systems which again lead to short circuits. Besides oxygen enriched areas were also important factors to reckon with. The leading attributes were improper maintenance of various facilities around those hospitals especially during the lockdown period (mostly because of negligence from higher management) which finally led to the outbreak of fires. Continuous usage of AC's round the clock created risk situations. Normally, no AC (spilt or Cassette) should not be used for more than 12 hrs as it might lead to overheating of the compressor unit.
Periodical maintenance and checking of all critical services is the only solution for avoidance of fire incidences in hospitals. Proper monitoring system shall also be ensured for smooth working of various systems provided around the facilities.

Q16: Sir, please highlight any exemplary fire safety related achievements or records set up during your long service spell. This can work as an inspirational indicator for future fire service personnel as well as safety conscious public to emulate.

A16: In my 29 years of service I would say following are achievements that we could achieve as team with the help of bureaucracy and political support. They are:

- 1. Creation of Maharashtra Fire Academy
- 2. Enactment of Maharashtra Fire Act 2006 and Rules 2009
- 3. Plan Scheme of strengthening of fire services
- 4. Establishment of an independent and dedicated Directorate for Maharashtra Fire Service aimed at the strengthening of fire services in the state. This serves as a an important mile stone

Q17: In conclusion, would you like to share any additional or specific information or updated data in relation to Fire safety aspects as issued periodically by your dept. as well as other authorized agencies and expected to be in public domain? This can also include sharing of website link or other sources with reg. to any newly introduced ban on the procurement/ use/ application of any fire or toxic materials with higher hazard potentials in homes as well as public places.

A17: time and again circulars and office orders are issued by this office pertaining to general awareness in the public. They are duly updated and uploaded on our official website www.mahafireservice.gov.in. More emphasis is also being given in creation of awareness among all the license agencies for proper installation of firefighting system as per requirements of respective Indian Standards and to be complied with by the owners / occupiers. They are also to be maintained in good working condition. Additional information are available with reg. to fires service website at https://dgfscdhg.gov.in. The disaster management related guidelines are available on National Disaster Management Authority Website https://ndma.gov.in/Governance/Guidelines. These are all very useful for regulators and implementors.

Dear Warick Saheb, Thanks for expressing your frank, cryptic and critic views on few of the significant aspects. We are optimistic that beloved readers will be able to reap maximum benefits out the same as well as find them in a better and competent position to comply with the predictive, preventable and controllable solutions besides in a position to effectively communicate about those to others with whom they regularly interact – family members, neighbours or others in the society.

THANKS : JAI HIND : JAI SURAKSHIT BHARAT

"We should know this
The Federal Bureau of Investigation (FBI) in the 1960's introduced the indentimat, which started checking for FINGER PRINTS to maintain criminal records"

Source https//en.wikipedia.org/wiki/Biometric _device
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LISTENING TO A LUMINARY

EXCERPTS OF AN EXCITING CONVERSATION BETWEEN

Mr. TERRENCE R. BRADY,

PRESIDENT & CHIEF EXECUTIVE OFFICER, UNDERWRITERS LABORATORIES INC. &

K.N.K. Murthy, Journal Executive Editor

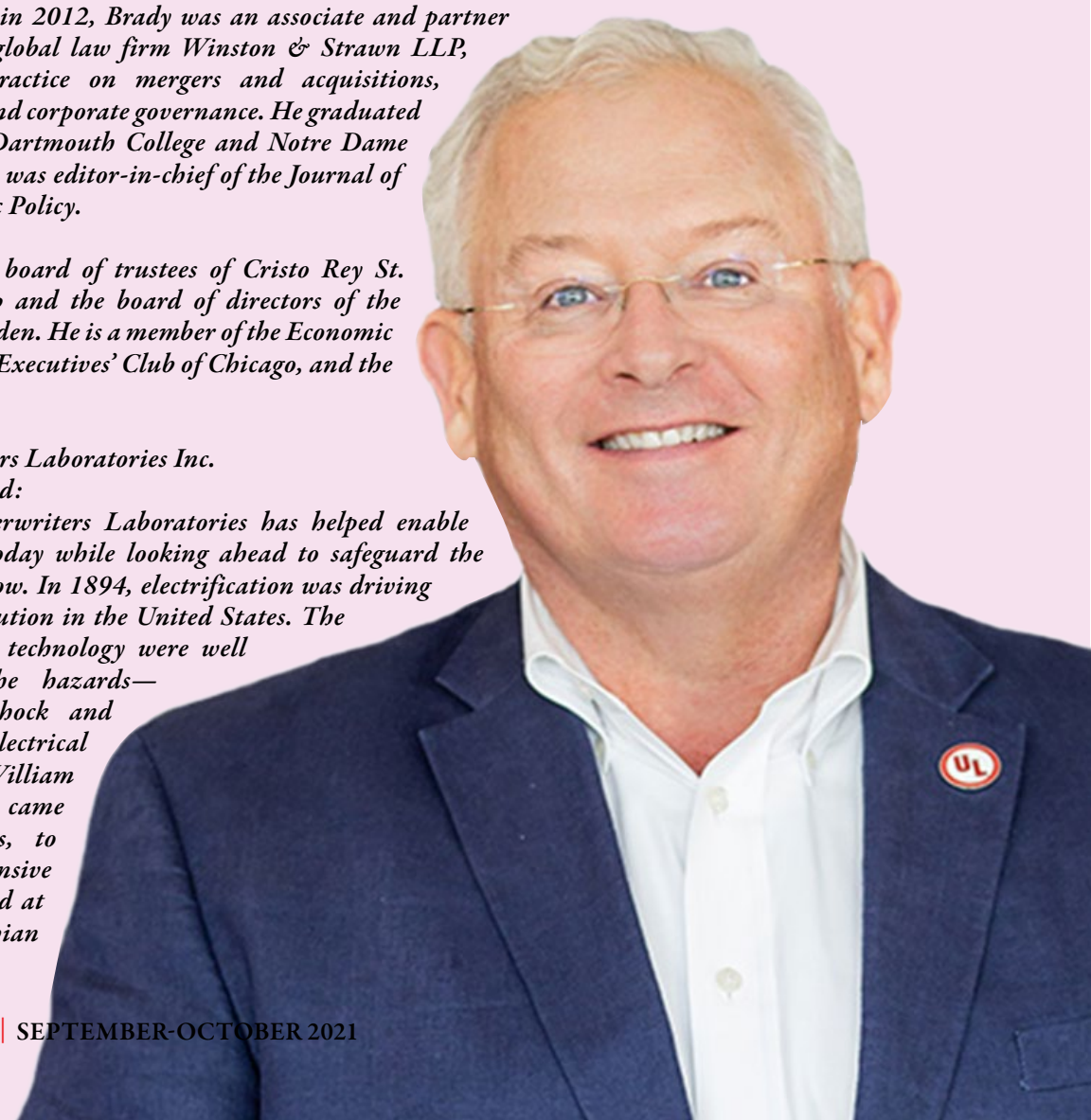
I: Introductory Segment
a) About the leader at centre stage
Terrence R. Brady is chief executive officer, president, and a trustee of Underwriters Laboratories Inc. In his role Brady sets the direction, priorities and strategies for Underwriters Laboratories' standards development, scientific research, education, and public outreach activities. He is a recognized thought leader in global safety science and a frequent speaker and author on empowering trust in a world of increasingly complex supply chains and technologies.

Before assuming the role of CEO in January 2020, Brady served as UL's senior vice president and chief commercial and legal officer. He managed key functions, including legal services, ethics and compliance, government affairs, global security and brand protection, corporate marketing, and enterprise strategy.

Prior to joining UL in 2012, Brady was an associate and partner for 27 years in the global law firm Winston & Strawn LLP, concentrating his practice on mergers and acquisitions, securities offerings, and corporate governance. He graduated with honours from Dartmouth College and Notre Dame Law School where he was editor-in-chief of the Journal of Law, Ethics & Public Policy.

Brady serves on the board of trustees of Cristo Rey St. Martin College Prep and the board of directors of the Chicago Botanic Garden. He is a member of the Economic Club of Chicago, the Executives' Club of Chicago, and the Asia Society.

b) About Underwriters Laboratories Inc.
Historical background:
For 127 years Underwriters Laboratories has helped enable the possibilities of today while looking ahead to safeguard the unknowns of tomorrow. In 1894, electrification was driving a technological revolution in the United States. The benefits of this new technology were well understood, but the hazards—including electric shock and fire—were not. An electrical engineer named William Henry Merrill, Jr., came to Chicago, Illinois, to evaluate the new, extensive electrical systems used at the World's Columbian



Exposition in 1893. After Merrill successfully evaluated and mitigated the fire risks posed at the exposition, he founded the Underwriters' Electrical Bureau in 1894 (later renamed Underwriters Laboratories in 1917) and built the first laboratory to study and test these risks on electrical devices before they were sold to consumers. Underwriters Laboratories published its first standard—for tin-clad fire doors—in 1903, and the techniques that Merrill and his team developed became the foundation of modern safety science research. Ever since, Underwriters Laboratories has carried Merrill's legacy forward—and his contributions continue to save lives today.

Journey forward:
Today the global enterprise is a world leader in creating safer living and working environments, and its legal structure offers flexibility as well as access to the funding needed to grow, maintain independence, and further its mission of working for a safer world.

Underwriters Laboratories Inc. is a 501(c)(3) nonprofit organization and the parent company of UL Inc. It is dedicated to creating a safer, more secure and sustainable future, advancing the UL mission through the discovery and application of scientific knowledge.

The company has grown into a global organization engaging in four principal activities. The organization:
1. Conducts and disseminates scientific research on public safety issues
2. Engages in education and outreach activities to promote public safety
3. Develops standards for public safety with a wide variety of products and services
4. Provides testing, inspection, verification, certification and auditing services as well as digital tools and applications that support the safety, security, and sustainability needs of the marketplace.

In 2012, UL transferred its testing and certification activities to a group of for-profit subsidiary companies under the umbrella holding company UL Inc. This separation has allowed the two organizations to grow and focus on their respective goals.

Today, Underwriters Laboratories Inc. continues to engage in the first three activities outlined above, while the UL Inc. business focuses on the fourth, offering a significantly expanded suite of testing, inspection, audit, certification, verification, advisory, training, analytical, and digital application services around the globe.

The nonprofit organization conducts rigorous independent research and analyzes safety data, convenes experts worldwide to address risks, shares knowledge through safety education and public outreach initiatives, and develops standards to guide the safe, sustainable commercialization of evolving technologies.

Underwriters Laboratories also fosters communities of safety—from grassroots initiatives for neighborhoods to summits of world leaders—and shares its findings broadly to encourage awareness and adoption of safety research. By collaborating with scientists, safety professionals, policymakers, and industry leaders, the organization helps drive transformative change in pursuit of a safer and more resilient society.

Q1: Dear Mr. Terrence R. Brady, hearty and warm welcome to FSAI Journal.
You have been very kind by consenting to our request for offering an interview in this highly popular and prestigious column. As could be understood through the illustrious resume including academia, professional and career development, you bring in a blend of long-term experience and rich expertise. That would prove complementary while leading UL from the front.
In this context, we are eager to know what inspired your transition from a high profile career spanning 27 years, which was directly related to merger, acquisitioning practices, security offerings and corporate affairs, to an institution like UL that focuses on Scientific Research oriented Laboratory experimental cum Testing followed by Auditing, Inspecting and Certifying work among various clients and that too gauged against the standards/ codes created by UL with due recognition from Govt. and other regulators?

A1: I knew of the important work happening at UL and was very much aware of the company's reputation and its mission of working for a safer world. When I joined Underwriters Laboratories, I had the opportunity to make an

impact at a pivotal juncture in the organization's history.

Underwriters Laboratories is the world's oldest nonprofit, nongovernmental safety organization. We are a magnet for expertise in science, technology, and standards, and we have the rare privilege to do objective, evidence-based research, free from bias or influence. We envision a world where technology protects and promotes human society. But new technologies often bring unintended consequences, which is why we work collaboratively with stakeholders from all over the world. Our network of partnerships—in academia, industry, and government—spans the globe.

The challenges in front of us are multiplying—running the gamut from hazardous chemicals in our environment and autonomous vehicles that will reshape our cities—to high-potential batteries that will soon power every part of our society. Complicating matters further, emerging technologies are interacting with one another in ways that are both dynamic and unpredictable. Independent research and standards development will continue to be crucial, and the growing influence of safety science holds enormous potential to transform society for the better.

Q2: : Before we come to your current role in UL, it would be prudent to ask one pertinent question about the long stint at Winston & Strawn LLP, where you excelled by availing the opportunity to work across geographies in the world. Do you now find a big difference in the adoption of standards and attaching importance to compliance among developed economies, emerging nations and the ones sincerely trying out the development routes? This is in view of the fact that India is a developing economy.

At this phase of ours a crucial debate takes place with regard to competitiveness cum cost effectiveness vis-à-vis adequate compliance to codes as well as standards. To elaborate, let me give the example of our reliance on coal for generating power, which is cost-effective as compared to cleaner energy that could definitely be expensive. The argument is in relation to the developing economies who require some more time to completely change over to cleaner fuels and remain competitive in the short run. Do you see any parallel in the adoption of standards as well by other developing countries? Kindly elaborate:

A2: Prosperity, well-being, and safety are deeply connected. As a global safety science leader, we embrace our responsibility to impact the planet positively by acting to preserve prosperity for future generations. Correspondingly, we support modes of governance that prioritize policy coherence and compliance linked across sectors. As countries manufacture or adopt new technologies and products, consensus-based standards help ensure greater public safety and ensure that new technologies meet standards of quality.

Whether a country is considered developed or developing, international cooperation among nations can lead to significant progress in achieving healthier, regenerative, and ecologically connected societies. Public-private partnerships can also help advance initiatives as diverse as installing fiber-optic cables, improving air quality, and supporting more sustainable cities. Both public and private groups can work together to create co-regulatory approaches and improve standards for safety. Importantly, the collaborative efforts of researchers, policymakers, and industry leaders serve as a critical lever of transformation, while enabling both standards and technological developments to move forward in a way that supports healthy economic growth.

Q3: What's been UL's journey objectives, with regard to countries like India since you had already established a base in these locations? Accordingly, what could be road map for growth in the coming years?

A3: Our work throughout India encompasses a wide range of activities that advance safety through research, standards, and education and are designed to address the country's areas of opportunity. Underwriters Laboratories Inc. has a strong presence in India, and we work closely with our Indian colleagues—as well as with our regional partners—so that we can better understand the safety, security, and sustainability issues posed by emerging technologies. Our staff in Bengaluru provides first-hand insights into the current environment, and, as we've done for many years, we work collaboratively to address those issues most pressing for our partners in India.

For example, we convene fire safety council meetings that foster discussion between regulators and implementation authorities, helping to identify and solve India's fire safety challenges. And, our thought leadership around the safety of electrical energy storage systems helps to ensure best practices are incorporated into the safe use of lithium-ion energy storage systems. In a final example, our National Safety Science Quiz and National Safety Science Campaign helps advance a safety mindset and encourages

India's next generation to focus on, discuss, and think creatively about relevant safety issues.

Q4: In your opinion, did Globalisation – i.e., the crossover of products, services, and people across the world - pose any challenge to an organisation like Underwriters Laboratories? Because, in such a scenario, you are all the time required to be pro-active and be ahead of time, trying to evaluate what's coming up new, from where while pursuing, defining and establishing of appropriate standards. The follow up question would be "Are globalisation and global standardisation at loggerheads?"

A4: We do not necessarily view globalization as challenging to our organization; rather, it creates opportunities for us to share knowledge, better understand the risks and hazards that require attention in a specific region, and build impactful, new partnerships to help advance our mission of working for a safer world.

We share the belief held by many in the global standards community that standardization is essential to ensuring that globalization can occur safely without hindering its remarkable progression. Global standards offer a path to safer, more secure, and sustainable living and working environments in a rapidly advancing world.

By harmonizing standards, we can identify commonalities as well as critical national differences. This practice enables our teams to contribute their expertise and help streamline the requirements contained within standards. It is a responsive approach to the world's evolution toward becoming a more singular marketplace. Further, it lowers the barrier of entry for producers in developing countries by helping them to compete globally and grow. This final point aligns with the principles of the World Trade Organization's Technical Barriers to Trade Agreement, which Underwriters Laboratories supports.

Q5: Do you think that adequate focus and attention are being given to "Safety, Security and Sustainability" in engineering curriculum the world over? Is there a need to review this in the present context? Your take.

A5: Going forward, we plan to involve Underwriters Laboratories in even deeper conversations with the scientific community. We will continue pooling our knowledge with world-class institutions, such as IIT-Gandhinagar, with whom we have a longstanding relationship. With partner organizations, we have been targeting our inquiry strategically: on questions where safety science will make a meaningful difference for technology and society. As supporters of the IIT-Gandhinagar Safety Centre, we help advance its mission to promote safety in public and private spheres. We've worked collaboratively to conduct fire safety research and better understand how fire behaves in commercial and residential structures and have presented talks on electrochemistry and the safety of lithium-ion batteries.

If what we learn is going to make an impact, we must translate our findings more broadly and put them into language that policy-makers, industry leaders, educators and decision-makers worldwide can use to solve the world's most complex safety problems. What we do at Underwriters Laboratories can catalyze the field of safety science, making it integral to academic inquiry and learning.

I envision a future where we will inspire engineers, scientists, inventors, and students to weave safety into the fabric of innovation. We will work alongside the scientists and engineers who are inventing tomorrow's technologies. And I sincerely hope a growing cohort of scientists will push our field in new directions. Together, we will address safety risks from the start. This is our ambitious vision.

Q6: As we speak, the whole universe is in the midst of the Covid19 pandemic that has disrupted lives and our way of living like never before. As a torch bearer of safety and sustainability, what are the changes an organisation like UL would contemplate to address a similar situation like this in future should one unfortunately erupt?

A6: COVID-19 has exposed how all countries remain deeply vulnerable; however, we've also seen how cooperation across borders can foster innovation during moments of great crisis, enabling scientific and technological developments to move forward at a rapid pace.

Although the study of infectious diseases is not one of our focus areas, we contributed to the global effort to mitigate the spread of COVID-19. For example, we identified 23 standards in our catalogue that could be applied to virus mitigation efforts, and we provided free access to these documents to share the best practices and research that they contain.

In another example, our standards and sharing of engineering expertise to global initiatives support safety in the research, development, and storage of vaccines for COVID-19 and other diseases:

o ANSI/UL 471, Standard for Commercial Refrigerators and Freezers

o CAN/UL 2984, Standard for Management of Public Risks – Principles and Guidelines
o UL 61010, Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use

Q7: Sir, your most important responsibility matrix at UL is related to the offering of directions, setting up of priorities and strategies for its scientific research and standards. Looking specifically at the standard segment referred above, how do you desire to collaborate with similar as well as potentially strategic organizations to be associated in our country; for example, BIS (Bureau of Indian Standards) and CII (Confederation of Indian Industries). Besides, how do you see the relationship evolving in the future?

A7: Underwriters Laboratories has strong, longstanding relationships with these organizations and others in India. Our partnership with BIS and CII includes information-sharing and the convening of conclaves, roundtables, and workshops to foster the development of a robust, high-quality ecosystem that focuses on global standards while addressing locally relevant issues and standards' alignment with these issues.

Our working relationship with BIS was further strengthened through the signing of a Memorandum of Understanding (MOU) earlier in 2021, formalizing what was already a strong and productive partnership. We work closely with industry associations and have MOUs with CII – IQ, the Indian Society of Heating Refrigerating and Air Conditioning Engineers (ISHRAE), the India Energy Storage Alliance (IESA), and other organizations.

Underwriters Laboratories is a proud contributor to the Indian National Standards Strategy as well as the Standards National Action Plan (SNAP) for implementing the strategy. We look forward to continuing our work with these partners to develop globally harmonized standards, eliminate duplication of work, and facilitate advancement of safer technologies while supporting India's growth in technology, infrastructure, and commerce.

Q8: In your energy & utility vertical, like many other industries, technology has significantly increased asset life of products (cables, solar panels, wind turbines, transmission towers etc). What has been Underwriters Laboratories' approach to these fields and others which experience so much rapid advancement?

A8: As products and technologies become increasingly sophisticated, assuring their performance, reliability, and safety criteria over an extended period can be a daunting task that is not to be taken lightly. Consistent regulation and oversight are critical. Advancing and maintaining complex critical infrastructure technologies requires collaboration across sectors, not only to advance the safety and performance of photovoltaic, electrical, and wind power technologies, but also to establish a solid foundation for defining safety and performance over the increasing design life of these systems.

For example, Underwriters Laboratories research, engineering, and standards development teams have identified the need to evolve a standard test protocol that can address the increasing use and reliability of photovoltaic systems in India, and we are working with academia, private industry, and governmental agencies to bring key stakeholders together. The project will consider photovoltaic system design, materials specification, manufacturing of all components, integration, operation, and maintenance.

Fundamental research can also help to address potential challenges, and the team has already established the groundwork for this effort by monitoring photovoltaic power plant performance to assess energy production and degradation under realistic field conditions.

Q9: UL operates as a leader across many different industries from healthcare to energy to construction to chemicals. In your experience, which industry has been the fastest, and which has been the slowest, in embracing the change of stricter compliance and higher safety standards, and why?

A9: These are all complex industries with extensive, multifaceted requirements, and while some have tighter regulations and compliance standards built into their manufacturing and development process, others do not have the same restrictions. Regional laws and regulations have also made a big difference, which means that in certain regions, chemical safety may be much more tightly regulated, while in other regions the same can be said of healthcare technology or the construction industry. Certainly, public policy has made a difference for some industries. So has public opinion— consumers recently have been demanding greater accountability from industry leaders.

The good news is that we're seeing increased attention paid to higher safety standards across all these industries. Businesses now

know that they need to support compliance and safety standards to realize their long-term growth goals. Leading companies pursue compliance strategies and higher safety standards because they produce real results. Correspondingly, investors and stakeholders often expect companies to establish programs that meet and exceed high safety standards.

Q10: Standard organizations like yours, as many other core functionaries in our society, remain in the background and create a strong foundation for other entities to flourish. If UL does its work well, which it is well known for, it will never be in news, as most safety concerns gain attention only after an accident. Given this reality of the nature of the job, how do you instil a sense of impact and purpose in your team?

A10: While our staff appreciates public recognition of its work, we are far more motivated by, and committed to, the UL mission of working for a safer world. We are driven by the impact of our efforts—the UL mark appears on more than 22 billion products annually. Furthermore, the insights that emerge from our research have pioneered changes to practices and habits that have saved lives and reduced injuries. As it relates to standards, our team is highly enthusiastic about maintaining and growing our library of nearly 2,000 standards and other documents as we expand into new programs and build upon our knowledge base in core legacy focus areas.

For example, we support India's efforts to modernize its energy infrastructure, provide greater access to electricity, and invest in renewable energy and smart grid technology. We recognize these needs will require the safe deployment of energy storage systems and increased usage of lithium-ion batteries. In response, UL Standards proactively supported the development of a standard for India based on one of our existing standards: ANSI/CAN/UL 9540, Standard for Energy Storage Systems and Equipment. By sharing the content of our Standard and other information used in the United States and Canada, we intend to affect the safe deployment of energy storage systems in India.

Q11: We are fairly acquainted with the great service being rendered by UL since its inception in late 19th century. The entity is widely known and respected especially among sectors like business entrepreneurship/ corporates/industrial/building construction, infrastructure development etc., In addition consultant professionals from different branches of engineering, risk insurance companies as well as Fire/ Life Safety/Environment service personnel are also richly benefitted by your standards and codes. Accordingly, what are the additional challenges that you are likely to address with reg, to amendments/changes in existing documents or the formulation of new standards/ codes looking at the aspirations of stakeholders?

A11: As technologies and the supply chain for products and systems evolve, standardization must also adapt to change. We are leaders in the development of standards for legacy sectors, including fire and life safety, because we have a proven ability to adapt to advancements and changes in demand. We apply that same adaptability when we seek new areas of standards development with the intention of assuring safety in areas of new and rapid development, including those of autonomous vehicles, photovoltaic systems, and the impact measurement of circular economy efforts.

Our standards development process is essentially continuous. Anyone from anywhere in the world may submit proposals for the development of a new standard or the revision of a standard that already exists in our catalogue. Further, we convene panels of experts (including experts from India) who participate in the review and balloting of these proposals.

To ensure we are in the best position to address the world's safety needs now, and in the future, we are undergoing a comprehensive modernization of our systems, operations, and approach to stakeholder engagement. We believe that standards are more important than ever and remain determined to be leaders in our field for many years to come.

Q12: What types of reviews and research are being undertaken to ensure that each standard becomes more reader as well as user-friendly? This relates to a larger cross-section of end users with different educational and professional backgrounds

A12: Standards are highly technical documents that require precise wording and methods of presenting information to engineers, product designers and others involved in a product or system's life cycle and supply chain. Because of this, standards traditionally have not been easily read by people who are not immersed in the subject. We anticipate that user-friendliness will evolve over time for two primary reasons:
1. We are working to expand the diversity of the participants in our Standards Technical Panels (STP)

and Technical Committees (TC) to include more users, consumers, and international members. Their participation will likely expand the readability of the content for a broader audience.

2. We are researching the use of natural language processing tools to analyse the content of our standards to provide objective scores for readability. The scores can then be used by the STP or TC to determine whether the standard is presented in a manner suitable for the target audience.

We are also working to improve the accessibility of our standards because we believe it is important to share this information with the world, which is in line with our global safety mission.

Our Digital View program allows anyone registered on our standards sales site, (https://www.shopULstandards.com), to view at no cost, any of the nearly 2,000 UL and ULC standards and other documents in our catalogue. We launched this functionality in 2018, and since then it has provided free access to thousands of people around the world. We are exploring even more ways to advance the accessibility of our standards, including additional languages for translation, acceptance of additional world currencies and further expansion of our digital documents' functionality.

Q13: Undoubtedly automation has helped reduce safety incidents significantly across many industries, however as automation and AI takes on roles that traditionally humans used to perform in ensuring safety compliance, how should we look at the trade-off between automation and job loss specifically from a safety and sustainability standpoint?

A13: If we can commit to creating safer working environments and retraining our workforce so that people can find meaningful employment opportunities and live safer lives, the rise of automation can potentially empower workers.

The question we pose—is how can the benefits of automation and artificial intelligence (AI) be maximized while minimizing any potential harmful effects? Put another way: how do we use these technologies to solve problems without introducing serious unintended consequences?

There's no denying that this is a challenging problem and one unlikely to yield to quick fixes or easy answers, particularly given the breadth of application areas to which AI and automation are (and will be) applied. Our experience has taught us that arriving at solutions takes careful cooperation between a wide range of experts.

It requires us to work together to find solutions that advance everyone's interests—and, most importantly, that serve the public good. Merging social science, ethics, and public policy, along with fundamental and applied research, can propel our understanding of the trade-offs. This is how we can together weave safety and sustainability into the fabric of innovation.

Q14: In conclusion, do you have any special advice, message or counsel that would benefit our readers? This is regarding how organizations like Underwriters Laboratories can be instrumental in enhancing the growth of organizations like FSAI through strategic partnership.

A14: As a nonprofit organization, we are committed to working for a safer world, and we are steadfast in our pursuit of a more secure and sustainable society. Underwriters Laboratories prides itself on its ability to convene global experts and organizations united by a shared desire to improve safety through science. However, even the best research and standards cannot save lives on their own, which is why we place special emphasis on collaboration, outreach, and education.

Using the deep connections Underwriters Laboratories has built across the global safety community, we bring knowledge to the people who can put it into practice.
We welcome the involvement of partners from throughout the world for the purpose of sharing knowledge with one another. I encourage anyone interested in learning more, or in partnering with us to advance our work in safety science research, standards development, and safety education to visit us online at UL.org and contact us about working together.

Sir, this interaction experience threw a pleasant surprise as we came to know that you had also adorned the chair of 'Editor-in-Chief' of the "Journal of Law, Ethics & Public Policy" at University level as part of your passionate efforts to complement the academic excellence.

Before drawing the curtain, FSAI would like to gratefully acknowledge the kind gesture of commencing the contribution of scholarly articles to our journal penned by senior officials of Underwriters Laboratories.

KNOW YOUR NATIONAL TEAM

Jitu Mahnot

Chairman - Branding, PR & Communications

Jitu Mahnot has been associated with FSAI for more than a decade in various capacities especially in the Mumbai Chapter. He has been actively involved in promoting "Surakshit Bharat" through different events of FSAI like Seminars, Safe Secure Ganesh Mandal awards, FSAI Corporate Cricket Jung and many others.

Academically, he is an Electronics Engineer from the University of Mumbai and certified marketing professional from the Chartered Institute of Marketing (UK).

He is the Founder CEO of Startech Engineers which provides turnkey integrated solutions in Fire Safety, Electronic Security and Building Management Systems. He is also the CEO of Aigua Sprinkler & Hydrant India P. Ltd., which he acquired from Tyco Fire & Security and provides specialized fire protection solutions to industries, warehouses, airports and other infrastructure.

With a passion to make FSAI as one of leading associations in its domain across the world, he is working towards enhancing the brand with effective communications and relationship management with the entire eco system.

Ramkumar S.

Vice Chairman - Branding, PR & Communications

He is an engineering graduate (B.E Mech.) from VREC, Nagpur (Currently known as VNIT, Nagpur). Currently working with Astral Poly Technik Ltd as Regional Manager – Marketing (New Product Division). He has an experience of more than 15 years in Fire and Safety Systems. In addition, he has been actively participating in BIS CED 22 meetings and was involved in bringing out the standard for CPVC in sprinkler application.

Shabdsheel Sinha

Vice Chairman - Branding, PR & Communications

Shabdsheel Sinha has been in the Fire and Security Industry since 1995. He joined Tyco (now part of Johnson

Controls) in 2006 as Sales Manager and progressively held multiple roles with increasing responsibilities. Currently leads Johnson Controls Fire Suppression Products business in India region. Prior to Tyco, he worked for Honeywell, Firepro, and Security Information Systems. He has graduated from St. Stephens College, and post graduate in Business Administration from Amity Business School.

Sudhir Mathur

Chairman - Technical Committee

Sudhir Mathur, is an engineering graduate from MNIT (Malviya National Institute of Technology, Jaipur) has over 30 years of experience in the field of HVAC, Electrical, Fire and Plumbing. He has been responsible to look after all the engineering aspects of building projects. An expert to the core and one of the brains behind "SHRESHTHA" the MEP Consulting Organization, has deep understanding of building services. He has been associated with the largest commercial project & many renowned hospitals and hotels of Rajasthan. He has worked for a variety of building projects including, heritage buildings, monuments, residential, hospitality, institutional and industrial. He has been first President/Chairman of all the major professional societies ASHRAE section, FSAI, ISHRAE & IPA Rajasthan. Presently he is Secretary of GEM ASSOCHAM, Rajasthan Chapter.

Before joining the consultancy he was Assistant Professor in Government Polytechnic College. He is a visiting faculty to various architecture colleges and universities.

Vinod Kapse

Vice Chairman - Technical Committee

A Mechanical Engineer, with more than 20 years of experience of the Industry. Spent his formative years in gaining valuable experience Design of Fire Protection systems for complex Industrial/ Commercial requirements, serving International Organizations. He has gained tremendous amount of experience designing to strict international codes & standards for varied Fire protection requirements from Warehouses, Data centers, High hazard Storage, High rise buildings. Other than Fire protection, his expertise in Life Safety – NFPA 101 for Industrial, Commercial & high rise is unparalleled.

NFPA Certified Fire Protection Specialist (CFPS), NFPA Certified Hazard Recognition Specialist (CHRS), UL Certified Fire Forensics Professional, Member of Fire & Security Association of India and Founder Member of SECONA – Security Consultants Association.

M. Namasivayam

Vice Chairman - Technical Committee

M. Namasivayam, is a Dynamic Fire Safety Professional with 33 years of experience in Fire Safety Management, Fire Fighting and Rescue activities, Fire Prevention, Fire Audits, Fire Risk Mitigation, Fire Investigation, Emergency Planning & Preparedness and Incident Command.

Presented papers in seminars and workshops on various topics of Fire Safety Management conducted by reputed Institutions and Organizations. Received more than 15 'Good Service' Entries, more than 30 'Cash Awards' towards the professional recognition in the TNFRS.

Recipient of the Chief Minister's Gallantry Medal (2 times) in 2005 & 2008 for Exemplary Rescue Service.

Trilokinath Tiwari

Chairman - Security & IoT

Dynamic professional in the field of Process Automation (10 Years), IBMS and Security Industry for almost 21 years, has served in Various National and Multinational Organization etc., and currently Heading DDS Ltd, an Israel based MNC as Regional Director, South Asia.

A very active member of FSAI and initiated various strategic programs along with the FSAI team like FSAI Life Marathon, FSAI Job fair and Skill development center.

Puneet Garkhel

Vice Chairman - Security & IoT

Puneet is the leader of PwC's Forensic practice in India, PwC Forensic is a highly inventive practise that works on complex and sensitive problems and it is lead by cutting-edge experienced individuals providing high-value, high-quality forensic services to clients.

He also leads the Corporate Intelligence and Strategic Threat Advisory verticals and has worked on major multinational complex investigations, white collar crimes, fraud risk assessments, due diligence, digital forensics, mystery shopping, brand protection and crisis management assignments acting as a trusted advisor for over 22 years.

Puneet holds the certifications of Certified Fraud Examiner (CFE), Anti-Money Laundering and Forensic Accounting Expert, and Certified ISO 27001 Lead Auditor. Currently a member of the ACFE Advisory Council in the United States and Vice Chairman of the Fire & Security Association of India's Security Committee (FSAI).

He is a skilled expert who continues to represent corporate India in national and international forums, sessions, and workshops. At several panel discussions, webinars, and events, he has been a notable speaker. He has also served on the prestigious FIST (Finest India Skills and Talents) Awards as a member of the jury.

Puneet is a natural leader who excels at devising sales strategies and contributing to increased business volumes, growth, and profitability. Exceptional at handling all sales and marketing efforts, evaluating market trends, and building long-term relationships with clients.

Strong organiser, motivator, team player, and decisive leader with a track record of successfully directing from concept to implementation to deal with a variety of market dynamics.

Avinash Trivedi

Vice Chairman - Security & IoT

Mr. Avinash J. Trivedi has been part of the core management team of Videonetics since 2013. He is responsible for formulating the company's strategy for business development and sales & marketing, driving revenue growth, managing relationships with system integrators and end-users. He is responsible for all government and enterprise businesses across India and the overseas markets, contributing significantly to the growth and development of the company.

Before joining Videonetics, Avinash has worked with Sony India as the Head of Visual Security Group. He played crucial role in establishing Sony Security Business in India and the SAARC region.

Avinash has over 24 years of experience in organisations such as Informatics Computer Systems (ICS), IEC Softwares, Score Information Technologies. He is well-known in the partner community, having strong relationships with resellers, regional/ global system integrators, distributors and alliance partners.

He has been instrumental in establishing and growing different businesses of the companies he has worked for, right from their start-up stage.

Avinash is active on various forums including CII, ASSOCHAM, SPGI, FSAI, and is a frequent speaker at various industry platforms. Among his other hobbies, he enjoys music and travelling the most.

FIRE HAZARDS IN HOSPITALS AND RISK CONTROL

- Prof. T. Samuel Ravi Kumar

Health care facility, in simple term is described as an Institution which cares for the sick through different dimensions such as Clinic, Nursing Home, Hospital and specialized Health care Institution. Hospital's by virtue of its nature has many potential hazardous threats which can hamper the very purpose of the hospital that is Healing. One such commonly seen hazard is Fire. With so many potential hazards such as Chemicals, Electronic and electrical equipment's the vulnerability of Fire Hazard becoming a risk to be a disaster is imminent. This paper focuses on the probable Fire hazards and the needed risk control in Hospitals. Let's recap with some basics.

✓ **Fire hazard** -- a condition or material that may start or contribute to the spread of fire.
✓ **Qualified instructor** -- a person with specific knowledge, training, and experience in fire response or fire watch activities
✓ **Risk management** in healthcare comprises the clinical and administrative systems, processes, and reports employed to detect, monitor, assess, mitigate, and prevent risks. Risk management in healthcare organizations proactively and systematically safeguard **patient safety** as well as the organization's assets, market share, accreditation, reimbursement levels, brand value, and community standing.
(https://catalyst.nejm.org/doi/full/10.1056/CAT.18.0197)
There are vulnerabilities that strike hard when it amplifies the Fire Hazard in Hospital

1. People:
a. The hospital within its premises is flooded with people such as the Patients, Health care personnel, Visitors and Health care associated personnel. This increases the viability of being at risk for multiple Hazards
b. The vulnerability level increases as there are more and more new people every day within the premises
c. The average length of stay in hospitals (ALOS) of patients are minimal

2. Zones: Critical and Non Critical Zones
a. Critical Zones: ICU, Operation Room, Nursery, where more number of people whether with limited space for evacuation (OPD), where large number of patients are to be evacuated who are Dependent category (ICU, Orthopaedic Ward etc.) Special population (Children, Elderly Visually and physically Challenged etc.

3. Material: Electronic, Electric Equipment, Combustible material highly used in the hospitals such as Gas (OT), Chemicals, Stored and used in Pharmacy, Labs etc. In the current pandemic, high usage of disposable material, sanitizers, Chemicals which has incidentally increased the events of Fire in Hospital at high scale in India. As quoted by Rajendra Uchake, Chief Fire Officer in Nagpur. "Hospitals are increasing beds, equipment and staff to admit more CoVid patients, but it is not possible to immediately expand the electrical wiring system. Medical equipment or wires carrying current beyond their capacity can overheat. That is what is happening in many hospitals. We don't need just a fire audit, we also need an electrical audit,"

(https://indianexpress.com/article/explained/behind-frequent-hospital-fires-covid-patients-death-toll-7302274/)

24 fire incidents in hospitals since August have killed 93, mostly Covid patients. A look at how a high patient load and arrangements for the pandemic have stressed the hospital system, making it vulnerable to fire.

India Hospital Fire Statistics during CoVid pandemic

MAY 1: Fire in laboratory of Mazumdar Shaw Hospital, Bengaluru: no death

APRIL 28: Prime Criticare Hospital, Thane: 4 deaths (not Covid patients)

APRIL 25: Ayush Hospital, Surat: 3 deaths

APRIL 23: Vijay Vallabh Hospital, Virar: 15 deaths

APRIL 18: Rajdhani Super-Specialty Hospital, Raipur: 5 deaths

APRIL 10: Fire in Well Treat hospital, Nagpur: 4 deaths (non-Covid)

APRIL 6: Fire in Nashik's Chandwad Covid care centre in a private building: no deaths

APRIL 4: Fire in Dahisar jumbo centre: no deaths

APRIL 4: Patidar Hospital, Ujjain: no deaths

MARCH 31: Safdarjung Hospital, Delhi: no deaths

MARCH 28: LPS Institute of Cardiology, Kanpur: no deaths

MARCH 17: Shree Vijay Vallabh Sarvajanik Hospital, Vadodara: no deaths

JANUARY 9: Civil General Hospital, Bhandara: 10 deaths

JANUARY 6: Government General Hospital, Guntur: no deaths

DECEMBER 9, 2020: Little Flower Hospital, Ahmedabad: no deaths

SEPTEMBER 28: Chhatrapati Pramila Raje Hospital, Kolhapur: no deaths

NOVEMBER 27, 2020: Uday Shivanand Hospital, Rajkot: 6 deaths

SEPTEMBER 21, 2020: Sadguru Hospital, Cuttack, : no deaths

SEPTEMBER 8,2020: SSG Municipal Hospital, Vadodara: no deaths

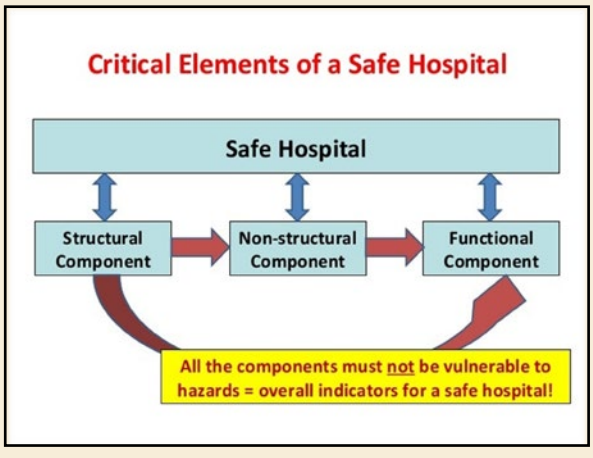
AUGUST 25, 2020: Guru Gobind Singh Hospital, Jamnagar: no deaths

AUGUST 9, 2020: Swarna Palace hotel converted into isolation facility, Viijaywada: 10 deaths

4. System: The Caveats in the system of Fire prevention plays a crucial factor in the list of Fire Hazards. The absence of Trained Fire fighting team is yet another pitfall in the system. Need for the professionally trained Safety and Fire fighting teams are vital for the Hospital Safety

5. Human Behaviour: Having stated the above, the hazard level increases in the absence of safety Culture within the Hospital.

Risk Control and Management



World Health Organization

A. Structural Elements of Fire Safety

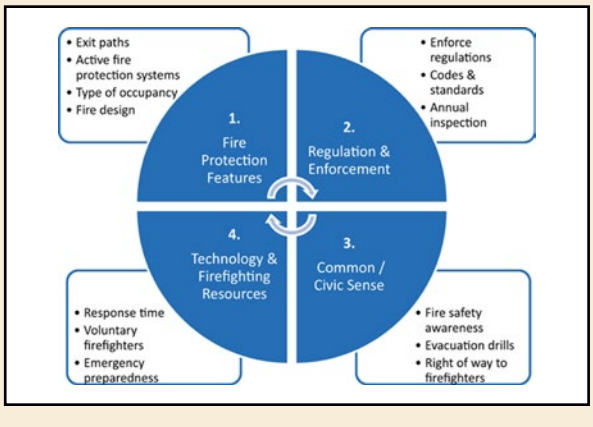
a. Open Spaces: Sufficient open space in and around the hospital building to enhance free movement of patients and emergency/fire vehicles in the event of Fire.

b. Basements: Safety Norms as per NBC Code
c. Means of Escape/Egress
d. Internal Staircases
e. Protected Staircases
f. External Staircases Ramps
g. Horizontal Exits
h. Exit Doors
i. Corridors and Passageways
j. Ramps
k. Compartmentation
l. Service Shafts/Ducts
m. Openings in Separation Walls and Floors
n. Fire Stop or Enclosure of Openings

B. Non-Structural Elements of Fire Safety

a. Underground Static Water Tank for Fire Fighting
b. Fire Pump Room
c. Yard Hydrant
d. Wet Rising Mains
e. Hose Box
f. Automatic Sprinkler System
g. Emergency and Escape Lighting

C. Functional Element in Risk Control & Management

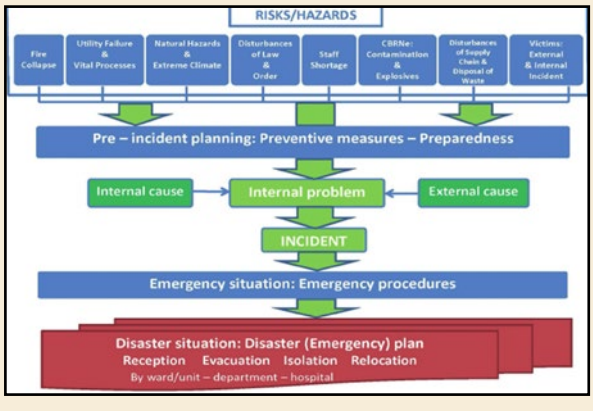


(Fire hazard in buildings: review, assessment and strategies for improving fire safety Venkatesh Kodur, Puneet Kumar, Muhammad Masood Rafi PSU Research Review, 25 September 2019)

The most crucial aspect of the Risk Control is fulfilment of the stipulated norms by the Hospital with regard to the National Building Code India.

The 'part 4' of 'National Building Code of India – 2005' on 'Fire & Life Safety' covers the requirements for fire prevention & life safety in relation to fire and fire protection of buildings. The Code specifies construction, occupancy and protection features that are necessary to minimize danger to life and property from fire.

Optimal method of Disaster Risk reduction with reference to Fire incidence as an example is aptly described in this schematic diagram.



https://www.researchgate.net/publication Principles of hospital disaster management an integrated and multidisciplinary approach

Summary:
Fire prevention and Risk Control is Vital in Hospital environment since Fire Management Response is challenging in a health care setting. It is vital to fulfil the National guideline and the utilization of the Fire team which is professionally trained from developing the Hospital Fire Disaster Management Policy to its implementation.

Brief Hospital Fire Safety Checklist

FIRE SAFETY ITEM
1. Operations (plans, training, drills)
2. Fire Sprinkler Systems
3. Fire Pumps
4. Fire Alarm Systems
5. Fire Extinguishers
6. Compartmentation and Egress
7. Generator Sets/Alternate Power

Each task shows you where the specific code reference is located within NFPA 101: Life Safety Code, NFPA 99: Health Care Facilities Code, and the Environment of Care (EC) Chapter in the Joint Commission's 2018 Hospital Accreditation Standard.

1. Abbasabadi Arab M, Khankeh HR, Mosadeghrad AM, Farrokhi M. Developing a Hospital Disaster Risk Management Evaluation Model. Risk Manag Healthc Policy. 2019;12:287-296. Published 2019 Dec 10. doi:10.2147/RMHP.S215444.
2. Hendrickx, Christel & D'Hoker, Steve & Michiels, Guido & Sabbe, Marc. (2016). Principles of hospital disaster management: an integrated and multidisciplinary approach. B-ENT. 12. 139 - 148.
3. https://data.oecd.org/healthcare/length-of-hospital-stay.
4.https://www.osha.gov/laws-regs/regulations/standardnumber/1915/1915.509
5.https://www.qrfs.com/wp/wp-content/uploads/2020/03/QRFS-Hospital-Fire-Safety-Checklist.pdf
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- ✓ CMC Hospital Emergency Response Team Coordinator
- ✓ Multiple Field Disaster Responder

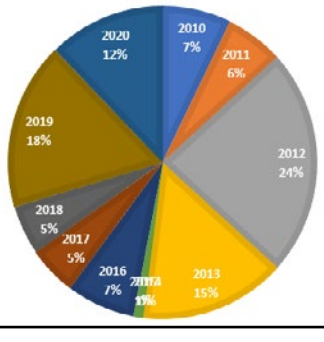
We would like to know if the Journal offers a good reading experience. For that feedback from all stakeholders is very essential. Sometimes the editorial board feel like a person writing messages in bottles, throwing them into the sea and wondering if they ever reach land!

WHY THIRD PARTY AUDITS ARE REQUIRED IN HOSPITALS

- Ms. Keerthi D Souza

India has a mixed healthcare system. It has public, private, and both public and private healthcare service system including the teleservices activated by Govt. of India in the wake of the Pandemic. Fire occurrences have been happening from time to time. A quick look into the trend of last decade's fire events in India indicates that there is a lot of attention needed to be given by various stakeholders to ensure the hospital is prepared to fight fire and work towards preventive measures.

Fig 1 - Fire occurences in Indian Hospitals over the last decade

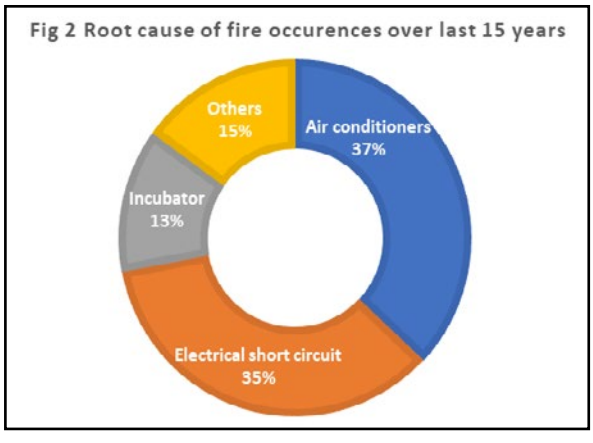


Source: Compilation done through various research papers and media

All these fire occurrences come to light mostly through media reports. Media reports only big fire incidents while there are hundreds of fire incidents in smaller or remote areas that is unreported.

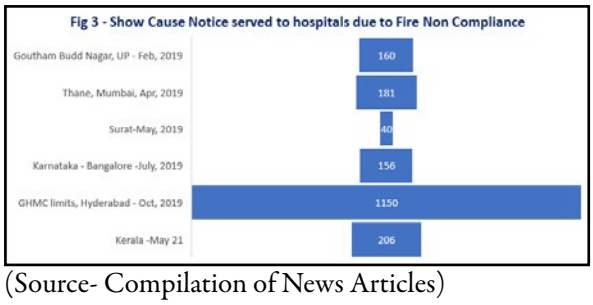
Most of the media reports have not mentioned the root causes, few linked it to short circuits, and few did mention on compliance to the emergency preparedness response system. The researchers who studied the causes of fire worldwide and studies conducted in specific india1 have hypothesized that oxygen (O2) enrichment of air is primarily responsible for most fires, particularly in intensive care units. As the ignition energy needed to initiate fire reduces in the presence of higher O2 concentration, any heat or spark may be the source of ignition when the air is O2-rich. The split air conditioner is the source of many such fires in the ICU, neonatal intensive care unit (NICU), and operating room (OR), though several other types of equipment used in hospitals having similar vulnerabilities. While it does wake us to the fact that we need serious focus on safety through a systematic approach that serves as a preventive tool. The Health care sector's priority to invest in Fire safety is not visible in many cases, and patients never make it a demanded priority. Such investments towards

preparedness would be hitting profitability for hospitals, but it's an essential ingredient of delivering patient safety offered by the health care system. Hospitals only get to know safety violations and deviations related intricacies only after occurrences of fire or external audits or accidents or when authorities conduct an inspection and issue show cause notice. Fig 3 gives an overview of the number of events of show cause notices served



Source: Compilation done through various research papers and media.

Glimpse of Fire Compliance incidents across some sample cities across India



(Source- Compilation of News Articles)

Role of fire safety audits in hospitals as a preventive tool:

Hospitals, irrespective of the size, need to evaluate and monitor their fire safety preparedness progress periodically. It takes them a long way to assure reduction in accidents and minimize loss potential delivering patient safety.

Safety audits need to be a significant part of a Hospital's preventive control system. These audits detect the deteriorating standards, which show an impact on safety. In addition to examining safety violations and work conditions, an audit examines top management's attitude towards safety. It enables the organization to ensure the safety of the employees, patients, and contractors working in the hospital and acknowledge the review results. Regular safety audits can be beneficial to detect the failure in design requirements and routine safety controls implementation in advance and enable the hospitals to take action before the accident occurs.

Consortium of accredited hospital organizations – CAHO understanding the need and bringing in uniformity in the approach of conducting safety audits introduced third party audit module.

Unique features of the CAHO third party audit module:

1. Brainstormed by Consortium of Fire experts (Pic1, Pic 2, Fig 4)
2. Self-assessment followed by Site audit
3. > 250 questions tailored to category of hospital based on – Level, height and No of beds 4. Audit requirements are derived from National Building Code
5. Empanelled Auditors- chosen through set criteria

Picture 1

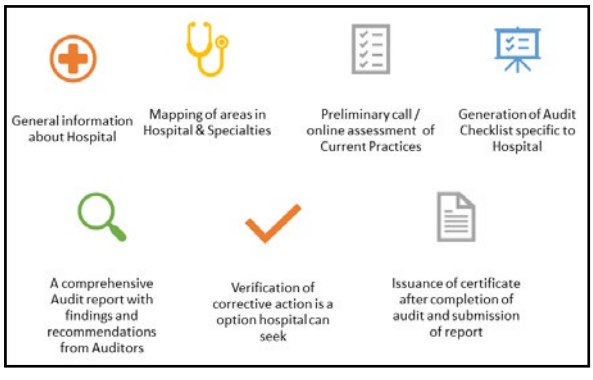
Picture 2

Fig.4: List of various stakeholders involved in making of the module

The significant objectives of CHAO fire Safety Audit Module are

a)Ensure that Fire safety awareness is enhanced
b)Verify that the facility for fire safety compliance following government regulations/ NABH requirements / Other requirements
c)Assess current practices to identify and correct safety actions to prevent injuries and accidents.
d)extend a uniform standardized module tailored under the type of hospital, height, and number of beds.

Fig 5. The sequence of the CAHO third party fire audit module



The requirements of the audit module are compiled from various sources such as –

National Building Code defines the Fire and safety requirements for Hospitals buildings
Legal Compliance

- National electrical Code – SP 30 reaffirmed 2016
- Electricity Act/Rules/ CEA requirements
- AERB/ PESO requirement
- Requirement from Accreditation Board - National Accreditation Board of Hospitals

Fig. 6: requirements captured in the Questionnaire of Safety audit

Self Audit:
Intent of the site audit is basically to enable the improvement in understanding of the safety requirements within the hospital.

The design of the Questionnaire
Questionnaires is designed very specific to every hospital based on three parameters

- Type of hospitals -(Class I,II, III, IV –according to clinical establishment act)
- Height of the hospital - <15m, >15-<25m, >25-45m, >45m
- No of beds – 0, 100, 300, >1000

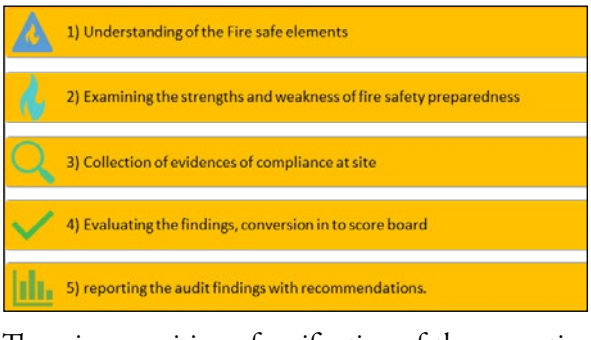
Questions are prepared in order to improve the understanding of the Hospital core team taking up the assessment and covers all the elements described in Fig. 6.

Site Audit: Site audit is conducted by qualified CAHO empanelled auditors refer Fig. 7 for the selection criteria for the empanelled auditor. The auditors would have gone through the self assessment report and come prepared to verify the points claimed in the self assessment.

Fig. 7: Empaneled auditors selection criteria set by CAHO third party audits
Audit findings and Outcome:

Site audit outcome is entered by the auditor in the tool with findings and recommendations. The result of the fire safety audits findings is scored and final report is generated and shared with the hospital.

These findings are include:



There is a provision of verification of the corrective actions taken by the hospitals. When hospitals opt for this option auditors get in to the details of how the corrective actions are taken and closed.

References:

1.Fires in Indian hospitals: root cause analysis and recommendations for their prevention, Journal of Clinical Anesthesia (2014) - https://bit.ly/3eCNKRt

2.Burn Treatment, Deadly hospital fires are frequent occurrences around the world. Experts say economic globalization is driving new approaches that could change that NFPA Journal, Dec 2019- https://bit.ly/3eCNYYP.

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4. Fire Risk Assessment in High-Rise Hospitals in Accordance With NFPA 101 at Tehran, Iran, 2018- https://bit.ly/3eCNG4b

5.Summary of recommendations from the National Institute for Occupational Safety and Health – NIOSH- Fire Fighter Fatality Investigation and Prevention Program, 2006–2014 -Feb, 2019, https://doi.org/10.1016/j.jsr.2018.10.013

6.Fire Safety and Alcohol-Based Hand Sanitizer (ABHS) Hand Hygiene and Fire Safety in Healthcare Facilities Go Hand in Hand - https://bit.ly/2ROkygw

7.PAHO Health Emergencies -September 2018 - Hospitals Don't Burn! Hospital Fire Prevention and Evacuation Guide - https://bit.ly/3cnZTrI

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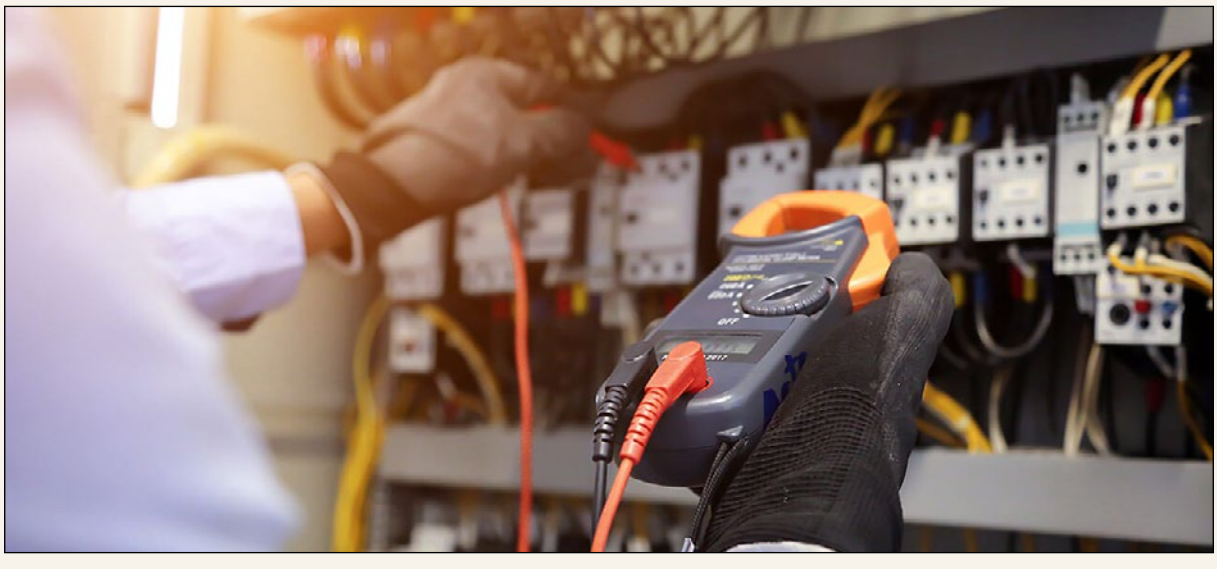
- **Executive Forum member – Dialogue – Healthcare Digital Magazine**
- **Co- Chairperson –CAHO Student Research Committee, Consortium of Accredited healthcare organization**
- **Lead auditor – ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 27001:2013**
- **Lead Assessor - Sustainability CII - CESD**

BREATHING APPARATUS — OLD STYLE Breathing apparatus has been developed over the past 200 years but the very first respirator of all was a fireman's beard and moustache. A face full of whiskers was an essential qualification for every fireman and one of his orders in action was, 'Wet your beard, take it in your teeth, and in you go through the smoke'. The value of the burp was recognised in the old fire service, whenever the wet whiskers failed. Firemen suffering from the effect of smoke were advised to drink highly carbonised beer and to eat fresh warm rolls because 'the ensuing eructation will cause the smoke to be withdrawn from the lungs and stomach'. From "Safety", the accident prevention magazine of the British Steel Corporation, May 1971*

*Special note" : *Belching or burping (eructation) is the voluntary or involuntary, sometimes noisy release of air from the stomach or esophagus through the mouth. Burping 3 or 4 times after eating a meal is normal and is usually caused by swallowing air.*

ELECTRICAL INSTALLATIONS, ALTERNATE SOURCES & ELECTRICAL SAFETY IN HOSPITALS

- Mr. Vinod Kumar



A well-defined hospital Policy:
Hospitals shall take all possible actions to ensure that the Electricity utility services are provided on an uninterrupted, continuous basis, its buildings and systems are monitored on an ongoing basis, its building and utility emergencies are responded to in a timely manner, and the building systems and fixed equipment are maintained in a way that minimizes risks and ensures acceptable building environmental conditions, cost effectiveness and safety. The Hospital shall ensure that new utility systems meet all codes and regulations. The electrical installations in the Hospital, helps to provide Electrical power to all electromechanical, Electronic and Bio medical equipment without any interruptions.

Fire in buildings has become too common nowadays, and the blame finally falls on short circuiting in the electrical systems. Hence a full knowledge of the building electrical requirements, a full-fledged design and implementation, followed by a well-maintained system, would ensure that uninterrupted power is made available and also provides safe electrical power supply to the building.

The best method is to have proper design of the electrical systems in coordination with the architects and builders, to ensure sufficient building space is allotted for the electrical installations. A detailed format in the next part of this document indicates the process of establishing a robust system, thereby reducing the dangers of unwanted break downs and safety issues.

The document explains the following:
- Sources of power supply
- Alternate sources of power supply
- Disruption of power services
- Restoration of services
- Power Management in the event of prolonged power disruption
- Strong Maintenance activity, with a Planned preventive Maintenance
- Process for minimising breakdowns

The Scope of this document also highlights the following:
a) HT – LT conversion, 11000 V to 415 V supply.
b) Operation and Maintenance of HT substations, LT MSB panels and SSBs and DB'.
c) Maintenance of all Electrical installations & Equipment
d) Build a safe Electrical system, to ensure this protects the persons and the building at all times
e) Planned preventive maintenance checks of all safety systems, and document the same.

The Main source of Electrical Supply to the Hospital includes the following:
a) The State Electrical department power supply, and

this is the Primary source of electrical supply to the hospital
b) Standby Diesel Generators for full back up
c) Un-interrupted power supply (UPS) for all critical equipments and services

The electrical power supply is to be available around the clock, un-interrupted. In case of a failure of supply from the State department, the alternate source of electricity which are the sound proof Diesel Generator sets should provide electricity to the facility. These DG sets, are to be inspected and approved by the Electrical Inspectorate. These DG sets are to be frequently checked for their functioning by the Facility Management, and well documented.

All critical equipment is to be in synchronization with the Uninterrupted Power Supply units (UPS). Hence the time lag of the few seconds before the DG sets take over on State department power failure is also to be catered for. The UPS is to be checked once a day and the records maintained by the Facility management department.

Disruption of Electrical supply:
a) The Facility Management team to notify the power supply service failure and educate all specific personnel about the steps to be taken in the event of failure. This is more important as the UPS systems would drain out within 30 minutes of full load on them.
b) Procedure
In the event of commercial electrical service failure, check to make sure the diesel generator is functioning, sufficient diesel supply is ensured and that adequate emergency power is provided to the following essential services:

1) Life Support Systems are connected to the UPS.
2) Air conditioning Systems for all critical areas.
3) Data & Voice Communication Systems: CCTV, PA systems, ACCESS control, BMS connected from UPS
4) Lifts: Automatic rescue device (ARD) provided in all lifts for safe landing.
5) Contact the State electricity department, to enquire cause of failure and likely duration of power breakdown.
6) Notify all departments of likely duration of power breakdown, in case of longer duration of power shut down from the State department.
7) Assess quantity of Diesel available / required and make up storage / shortage, as appropriate.

After Power is Restored:
After power supply is restored, the Engineering team to check the status of all working equipment, such as:
i. Water supply Pumps
ii. Motors.
iii. Air Compressors
iv. Air Conditioning system
v. Vacuum Pumps.
vi. Heat Pumps
vii. Boilers
viii. RO plant
ix. Elevators
x. STP

Power Management for effective use of power and save energy costs:
o The Hospital should have an APFC (automatic power factor correction) panel for improving the power factor.
o All Dept. in Charges to instructed switch off unnecessary lights, fans, AC units, Computer systems and other power consuming equipment when in not in use.
o Air conditioning systems shall be set to "SET-BACK" mode during off peak hours (eg, chillers, pumps, cooling towers, AHUs, CSUs)
o Pumping to be set to auto tank level controls, and with the pumping scheduled to run at times other than the 6pm-10pm format.
o Lift running schedule to be set to patient movement load.
o Building Management systems (BMS) to be used for effective setting and operating the hvac systems in the auto mode.

Breakdown Maintenance, a systematic approach to ensure proper care is taken and that which reduces the downtime:

The user department shall intimate Engineering services through a Breakdown Complaint Register about the nature of defect / breakdown. The complaints are entered in the register maintained at the Maintenance office.

The process of repair will be as follows:
a) Engineering Dept. personnel visit the equipment location and inspects / troubleshoots and updates details in complaint register.
b) The complaint is actioned in house and defective parts are replaced as necessary.
c) In case equipment can't be repaired in house, check for equipment AMC / Warranty details. Service Engineer repairs equipment and monitors equipment performance
d) Engineering supervisor / Vendor conducts operational functionality testing of equipment and monitors performance of repaired equipment. Maintenance Engineer updates repair details in equipment history card / complaint file.

Planned Preventive Maintenance (PPM)
Preventive maintenance of all installed equipment is consolidated and schedules are prepared on the basis of periodicity of maintenance checks.
a) Internal PMs. Supervisors inform user departments and conduct PPM as per schedule with duty personnel. In case of any change in the Maintenance Schedule, reschedule the same. Arrange for the spares, if required, by raising an indent on the Stores department / carry out cash purchase.
b) External PPMs. Identify the equipment for external PM and inform the vendor / user. Conduct the PPM as per maintenance schedule. Generate the Service Report with details of PPM done.
c) Update details in preventive maintenance Checklist & Equipment History Card for both Internal & External PPMs. Periodically review and update the Equipment History Card for half yearly and yearly PPM done. Review the schedule regularly to ensure that maintenance is carried out as per schedule.

Electrical safety:
System protection:
The design is intended to ensure the safety of the person, and property against any damages which may arise in the reasonable use of the electrical installation. There are two major risks, one due to shock currents and another due to excessive temperatures, both of which are likely to cause burns, fires, and other injuries.

Certain protections that are needed to be followed are as follows:
Protection against direct contact- This refers to the protection against the danger that may arise from contact with live parts of the electrical installation.
Protection against indirect contact-This refers to the protection against the damages that may arise from contact with exposed conductive parts. This may be achieved by preventing a fault current from passing through the person, or by limiting the fault current, and by automatic disconnection of the supply on the occurrence of a fault.
Protection against thermal effects in the Normal service-The system shall have no risk of ignition of flammable materials due to high temperatures or an electric arc. Also during normal operation of the system, there shall be no risk to the person.
Protection against over current-The systems shall be protected against damages due to excessive temperature or electromechanical stress caused by over currents likely to arise in live conductors. This protection can be achieved by automatic disconnection on the occurrence of an overcurrent, before this attains dangerous proportions, thereby limiting the maximum overcurrent.
Protection against over voltage- The systems shall be protected against any harmful effects of a fault between live parts of circuits supplied at different voltages or other causes like atmospheric phenomena or switching voltages.

System assessment:
It is recommended to have assessment of the general characteristics of the buildings, from the point of view of the design and the protection for the safety of the electrical installations. The assessment points include maximum demand, diversity from the point of view of economic and reliable design, type of distribution system, type of systems of live conductors and types of systems of the earthing, supply characteristics such as nature of current, nominal voltage, prospective short circuit currents for main supply, and standby supply.

An assessment shall be made of the frequency and quality of maintenance the installation can be reasonably be expected to receive during its intended life. This ensures proper maintainability.

Selection and erection to minimize the spread of fire:
It is highly recommended to select the appropriate material and execute the implementation in the right manner.
The cable containment or routing is through floors, walls, roofs, partitions, and the remaining of which shall be sealed suitably, according to the degree of fire resistance of that element through which the containment has been taken. This is passive fire protection.

The following attachments indicate the formats that are used for preventive maintenance, preparation of service reports etc.

Planned preventive Maintenance

	Location	Substation		Jan				Feb				Mar				April			
Sl No	Equipment details	PM Schedule	Description	w1	w2	w3	w4	w1	w2	w3	w4	w1	w2	w3	w4	w1	w2	w3	w4
1	Transformer	Yearly	1600 KVA 11KV/433V, 2 Nos																
2	VCB	Yearly	800A 350MVA HT EDO VCB ,3 Nos																
3	Protective device testing	Yearly																	
4	MSB Panel	Yearly																	
5	Capacitor panel 1	Yearly	400 kvar																

6	Capacitor panel 2	Yearly	400 kvar																
7	Bus Coupler 1	Yearly																	
8	Bus Coupler 2	Yearly																	
	Location	**Near Substation**																	
1	Diesel Generator 1	Quarterly	1250 KVA																
2	Diesel Generator 2	Quarterly	1250 KVA																
	Location	**SSB Electrical Room**																	
1	SSB 1	Quarterly																	
2	SSB 2	Quarterly																	
3	Equipment Panel 1	Quarterly																	
4	Equipment Panel 2	Quarterly																	
	Location	**AC Plant**																	
1	Chiller 1	Quarterly																	
2	Chiller 2	Quarterly																	
5	AC pump panel 1	Quarterly																	
6	AC pump panel 2	Quarterly																	
	Location	**UPS Room Cellar 2**																	
1	OT UPS	Monthly	2x40 KVA																
2	Cath lab	Quarterly	1x100 KVA																
3	Light UPS	Quarterly	2x15 KVA																
4	IT UPS	Quarterly	3x40 KVA																
5	MRI UPS	Quarterly	1*160 KVA																
6	CT UPS	Quarterly	1*120 KVA																
	Location	**Fire pump Room**																	
1	Fire pump 1	Quarterly	55 KW																
2	Fire pump 2	Quarterly	55 KW																
3	Jockey Pump	Quarterly	9.3 KW																
	Location	**Basement Floor 2& 3**																	
1	Switching Room	Monthly																	
2	Tower 1 PDB & LDB	Monthly																	
3	Tower 2 PDB & LDB	Monthly																	

Electrical system - Preventive maintenance service report

Dept. of Maintenance & Engineering	
Electrical- Planned Preventive Maintenance - Service Report	
Asset No. :	
Asset Category :	
Location :	
Equipment Name:	
Initial Preparations / Pre PPM Procedure.	***Work status***
1. Notify the end user , Check with Area end user for deficiencies / complaints.	
2. Use necessary Personal Protective equipments & arrange for the proper tools	
Tasks & Qualitative Checks.	
1. Check controls ,switches and observe the unit for normal operation.	
2. Check for unusual heat & loose conection.	
Quantitative Checks	
1. Check for Input voltage:	
2. Check Starting and operating Current.	

Safety Procedures on Completion of PPM	
1. Ensure that the Electrical supply restored / isolating switch working	
2. Clean the area	
3. Notify the end user.	
4. Report to the immediate supervisor about the equipment status	
5. Revisit required or not.	
Remarks.	
Work done by	**Checked by.**

Electrical equipment service History card

Dept. of Maintenance & Engineering					
Equipment History Card					
Asset No.	:				
Asset Category	:				
Discipline	:				
Location	:				
Equipment Name					
Make					
Supplier					
Service Vendor					
Commissioned on					
Service / Breakdown maintenance attended					
Date	***Type of Work done***	***Work details***	***Next due date***	***Done by***	***Technician Sign***

References:

1. NEC guidelines
2. NABH standards
3. State department regulations (Kerala State)

Vinod Kumar K B, B.E
Professional Background
- **Managing Partner – V B G Consulting Engineers, Kochi India**
- **F M S Consultant- Rajagiri Hospital, Aluva, Kochi, India**
- **Member – ISHRAE, IPA**
- **Member – BNI Magnates Chapter, K M A**
- **Member –Consortium of Accredited healthcare organization**
- **Quality Implementer for NABH- Trained by Consortium of Accredited healthcare organization**

2016 – Rajagiri Hospital was accredited by NABH and JCI
2018 – Rajagiri Hospital was awarded State Excellence by Kerala State Pollution Control Board
2017 – Rajagiri Hospital was awarded State First by Kerala State Pollution Control Board
2011 - KSPCB Awardee for conceptualization of Green Nurturing Program

As MEP & FMS Engineer, he has worked for over 32 years in the professional field, with various sectors like Healthcare, automobile, power, software, facility management, commercial projects(Malls), hospitality and institution projects in the design, Project implementation, Facility Management, for the companies such as Rajagiri Hospital, Bluestar, Voltas, Sterling &Wilson, WSP Middle East, C K R Consulting Engineers, Genetco Oman in management systems, Electro-mechanical systems, fire and safety, energy audits, safety audits and trainings.

CLEAN AIR STANDARDS FOR COVID WARDS

- Mr. Prem Chander

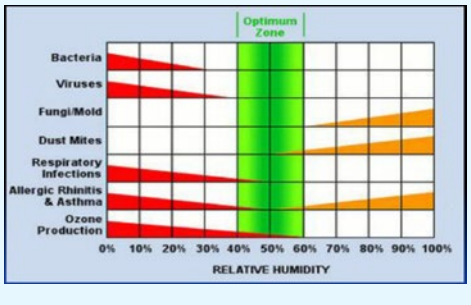
Parameters considered for Covid Wards:

1. Relative Humidity

Relative humidity is found to affect the infectivity of virus through the respiratory route. When we breathe dry air, the mucous membrane in the lungs become dry. The fluid over lining the cells becomes more viscous, and the little hairs called cilia, which protect our lungs from deep settling of viable & non-viable particles, cannot work and particles settle more deeply in the lungs.

Relative humidity of at least 40% is considered the threshold [3]. Studies indicate that survival tendency of COVID-19 virus above 80% relative humidity is very less. However, too much humidity leads to higher levels of dust mites and fungi - two of the worst culprits for indoor allergy sufferers. Mould and fungi are known to exacerbate respiratory conditions such as asthma.

All things considered, the relative humidity level of 40 to 70% is considered to be the most suitable for humans & decreases problems from pathogens.



2. Temperature

Temperature tends to be a factor that directly affects the comfort of building or hospital occupants. Comfort temperature is generally considered between 24 and 30 °C, after accounting for air velocity, relative humidity and clothing. The study of the transmission of COVID-19 virus in 100 cities of China indicates that high temperature and high humidity significantly reduce the transmission of influenza [4].

Studies conducted at various RH levels have shown that using viral culture methods low temperatures (7–8 °C) were optimal for airborne influenza survival, with virus survival decreasing progressively at moderate Temperatures (20.5–24 °C) and further decreases at higher (greater than 30 °C) temperatures [5].

As per some recent studies, SARS-CoV-2 has been found highly stable on surfaces for 14 days at 4 °C; one day at 37 °C and 30 minutes at 56 °C were needed to inactivate the virus [6].

Though ISHRAE recommends temperature range of 24-30 °C for comfort conditioning, in case certain work requires use of certain specific PPE (i.e., heavier or and/non-porous in nature) especially by health care staff, temperature lower than 24 °C need to be kept to ensure sufficient dissipation of heat released from body through such clothing.

General Areas (OPD, doctor chambers, clinic waiting rooms, general IP wards, specimen collection areas, café, pharmacy, diagnostic center etc.,)

Maintaining the humidity, temperature and maximize ventilation is the best approach to limit the risk of COVID- 19 infection. It is recommended to maintain temperature between 24-30°C and relative humidity between 40- 70% to achieve thermal comfort while also reducing survival rate of virus and pathogens.

If the doctors or medical personnel have to wear PPE, low temperature may be required to provide thermal comfort to the medical personnel (as already mentioned earlier). Further, the lower temperature set point may also be required in the chambers if the regulations or guidelines prescribe specific environmental conditions for the medical activities.

The clinics which do not have air conditioning, should have provision for good ventilation by ensuring fresh air intake through windows or other openings. In addition, providing exhaust fans in room or adjoining toilet is also recommended. The location of intake air and exhaust should be such that the air passes through the room.

Fan Coil Units (FCUs):
In general, used in wards, chambers, office areas and diagnostic centres.
FCUs can be operated to maintain thermal comfort with certain precautions. It is recommended to supply Fresh air by an inlet duct and fan. Fresh air should be flow into the room through the supply grille or at the suction side of machines and accordingly suitable exhaust also needs to be provided. Exhaust air could be routed through adjoining toilet exhaust fan or by installing an additional one. Care to be taken to discharge exhaust into the open atmosphere and not to some other occupied area.

Install UVGI (Ultraviolet Germicidal Irradiation) to keep Coils continuously clean and disinfected. When installing UVGI systems necessary safety precautions to be considered.

Ducted units / Air Handling Units (AHU's):
Typically installed in larger spaces, such as lobbies, waiting areas, corridors and at times for multiple wards also.
• Maximize supply of outside air within the limits of the system. Two air changes per hour are recommended
• For air handling unit it is advisable to provide a MERV 13 or higher filter fitted on the air handling unit. If a filter of higher filtering capability is retrofitted into an existing system, care shall be taken to ensure that the fan and motor capacities are adequate to handle the higher pressure drop. "If for some reason your system can't handle a MERV 13 even after some adjustments: it is recommended to ensure at least MERV 7 as Stage-1 filter and adding Stage-2 filtration levels up to MERV 10. Any increased filtration will be an improvement".
• Addition of a TFA (Treated Fresh Air) unit is recommended if increased outdoor air intake adversely impacts cooling performance.
• It is advisable to inspect the AHUs and ducts for air tightness and low leakage.
• The supply air grill angle should be such that draft of air is not directed towards the occupants.
• In buildings without mechanical ventilation systems, it is recommended to actively use operable windows. Wherever necessary install exhaust fans.
• UVGI (Ultraviolet germicidal irradiation) can be installed for larger ducted units and AHUs to keep coils continuously clean and disinfected. When installing UVGI systems necessary safety precautions need to be considered.

Intensive Care Units (ICUs)
The ASHRAE Standard 170-2017 [7] specifies the following parameters for the ICUs:

ASHRAE Standard 170-2017, for ICUs				
Temperature F [C]	Relative Humidity %	Room pressure w.r.t surroundings	Outside air	Recirculation air
70F~75F [21.1~23.9]	30%~60%	Positive,Negative or Neutral	Minimum 2ach	Minimum 6ach

ach = Air changes per hour

In case of ICUs for non-infectious patients, filtration recommended at AHU is MERV 7 for return air & MERV 14 or better, as the final filter for supply air. The area can be at positive pressure.

In addition, HEPA filters in supply air may be preferred in some ICUs for caring for large numbers of immuno- compromised patients.

Negative pressure of a minimum of minus (-) 2.5 Pascal is required in ICU rooms for infectious patients. If the air is once through (as is recommended for COVID19), the AHU will need to have MERV 7 filter in fresh air inlet and MERV 14 or better as the final filter at supply air. The exhaust to atmosphere will have to be with H13 or equivalent grade HEPA filter or a plume exhaust into the atmosphere to a high level above the building.

In case of recirculation of air in the AHUs for infectious patients, the AHU will need to be additionally equipped with H13 or equivalent grade HEPA in the return air at AHU. In this case too, the exhaust to atmosphere will have to be with H13 or

equivalent grade HEPA filter or a plume exhaust into the atmosphere to a high level above the building.

The ducting should be used for supply air as well as return air, false ceiling return is not recommended.

Local air circulating type of air conditioners such as room air conditioners, Hi wall splits & cassettes are not recommended because of various reasons:

i. Maintenance of the units have to be done in the patient area
ii. Filtration is inadequate
iii. There is no provision of fresh air or exhaust.
However, the fact is that today many of the ICUs are based on local air circulating air conditioning units as listed above. Till it is practical to go for an upgrade, following steps can be taken to alleviate the inside conditions:

1. Introduce an inline fan for inducting fresh air of minimum 2 air changes per hour. Use two stage filtration with minimum MERV 7 and MERV14 rated filters.
2. Since directly inducting fresh air into the room can lead to condensation in the room especially during monsoon, make sure that the fresh air is led to the return air grill portion of the air conditioning unit.

For ICU room having patients with infectious disease (excluding COVID), the room will need to be kept at a negative pressure of a minimum 2.5Pascals. When the area is under negative pressure, the adjoining room should be maintained at the same level of hygiene as the ICU as air from this area will infiltrate into the ICU. The exhaust to atmosphere will have to be with H13 or equivalent grade HEPA filter.

Converting General Patient Rooms or ICUs into COVID-19 Patient Areas

Considerations pertaining to HVAC Systems
COVID-19 positive patients and patients with COVID-19 related symptoms are to be accommodated in designated "Airborne Infection Isolation Rooms" in hospitals to control spread of the disease. However due to the surge in the number of such patients in this difficult situation, healthcare facilities may not have adequate number of AC rooms to accommodate all such patients. Hence, healthcare facilities would need to convert their existing patient wards or ICUs into 'COVID-19 patient wards or ICUs' to handle the current pandemic. The most important factor in this scenario is to ensure that the virus laden airborne particles do not leak out of the rooms occupied by COVID-19 patients and also to maintain the concentration of virus laden particles inside the COVID-19 patient room to a minimum. This is required to control the spread of infections and also to protect the healthcare workers.

As a normal practice, most of these patient rooms would be served by a HVAC system that would be of a recirculatory type, wherein the air from the room is taken back to the AHU for thermal conditioning and brought back. The same HVAC system could also be connected to a few other areas of the hospital. In some cases, there might be no dedicated return air duct and it could be a ceiling return system. If a COVID-19 patient had to be admitted to such a room, it would present a significant risk of the virus laden particles spreading out from there.

To convert an existing patient room or ICU into a COVID-19 patient area, it is first necessary to convert the room into a non-recirculatory system (100% once through system) [8, 9]. On an emergency basis, this can be achieved by blanking (blocking) off the return air vents in the COVID-19 patient room.

It is important to make sure that the AHU will have provision to receive adequate outdoor air supply. The source of air shall not be from within the building and all care shall be taken to avoid intake of outdoor contaminants, to the best possible extent. Additionally, an independent exhaust blower shall be provided to extract the room air and exhaust out into the atmosphere, preferably, after suitable "exhaust air treatment". The quantity of exhaust air shall be mmore than supplied one, such that a negative pressure of minimum 2.5Pa (preferably >5 Pa) is achieved in the room [9]. It is also desirable to install differential pressure meters to measure this metric. The supply air quantity shall be such that it will provide a minimum of 12 air changes per hour. The position of the extract air in the room shall be just above the head of the patient's bed [9].

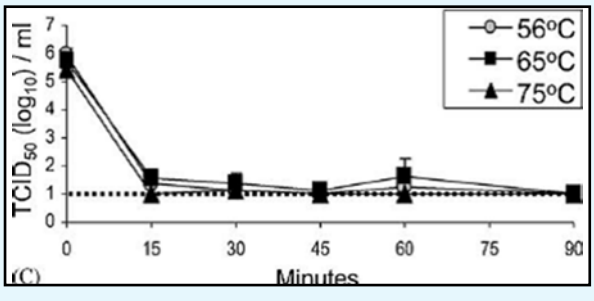
Treatment of Exhaust Air from COVID-19 Patient Areas
The exhaust air is most likely to contain particles carrying a viral load and hence a suitable technique should be deployed to prevent the spread of infections. Treatment of exhaust air can be done preferably by HEPA filtration [8]. The HEPA filters shall be tested and certified for performance in accordance to international standards like IEST, EN, ISO, IS etc., These filters shall be a minimum of H13 (EN1822-1) filter class or equivalent. When not possible, treatment of exhaust air by Chemical disinfection is acceptable. When both the methods are not viable, the exhaust air shall be let off into the atmosphere through a high velocity upward plume at a height of 3 m above the tallest point of the building, thereby lowering the viral

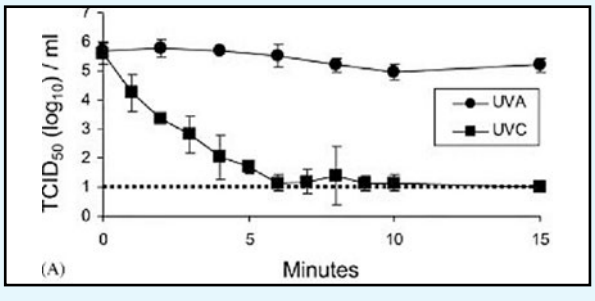
load concentrations to insignificant levels by dilution [9]. This exhaust discharge shall be well away from other air intake points and populated places.

When HEPA filters are used to treat the exhaust air, it is preferable to install them at the primary point of air extraction in the room and the exhaust blower shall be at the discharge end of the exhaust duct in order to maintain a negative pressure in the exhaust duct.

Chemical disinfection of the exhaust air from COVID-19 patient room can be done by bubbling it through a "Diffused air aerator tank" (preferably of non-metallic material) holding a 1% sodium hypochlorite solution [10, 11, 12]. The concentration shall be checked on a regular basis and dosing undertaken based on need. The aeration tank shall be placed in normally unoccupied area and not within enclosed space. Suitable PPE shall also be used while handling the hypochlorite solution and direct contact with skin or exposure to eyes shall be avoided. The above chemical inactivation procedure for treatment of exhaust air is suggested based on the available information at this time.

The other two options available for exhaust air treatment being UV irradiation and heating. MER Darnell et al.
[13] observed that, an exposure time of 45min at a temperature of 75 °C resulted in complete inactivation of SARS-CoV. Similarly, an UVC (254 nm wavelength) irradiation with an exposure time of 15 minutes at irradiation intensity of 4016 μW/Cm2 resulted in complete inactivation of SARS-CoV. Figure below shows the effect of heat treatment and UV radiation on infectivity of SARS- CoV.





M. PREM CHANDER
> B. E. (Mech) & M. Tech (Thermal Engineering)
Currently serving as HVAC Engineer at CMCH, Vellore with
➢ Previous experience as Asst. Professor at GCR College of Engineering &
➢ Maintenance Engineer at Irwin Leathers
• Had done research work and published papers on Design/Fabrication of tilting fixtures using pneumatic power, Energy audits in Solar Photovoltaic Lighting and Appliances, Airborne particle controls in Dental clinics etc.,

A mouse caused a fire in a Scottish research laboratory. The mouse had nibbled a box of matches in a desk drawer and extracted several matches. One match proved more difficult, and during the mouse's efforts to get it out, the match apparently ignited by friction against the remaining matches. The burning matches set fire to papers in the drawer, and to the polystyrene pen tray above. The mouse was luckier than humans often are, in that he escaped from the fire.

From "JoFRO" published by the Joint Fire Research Organisation

FIRE AND LIFE CUM ASSET SAFETY ATTRIBUTES

Related to Hospitals and Other Building Facilities

- Mr. Dipen Mehta

(This narrative is based on a lead discussion organized by Nirman (GTPL), a popular TV news medium of Gujarat where the author appeared as special invitee)

Synopsis

A deep -rooted perception that "Building fire safety and that too related to Hospitals is going for a toss" has already come to exist. It has become more evident, highly relevant, louder and clearer. Serious incidents involving injuries as well as loss of innocent lives and destruction to valuable assets around the country during past 10 years bear testimony to it. Unfortunately, the long pandemic spell of last year witnessed more severe blows in this respect by the eruption of intermittent fire incidents in health care segment. During the second wave in 2021 also there were continuance of such occurrences. They involved both newly created special wards in existing hospitals and few commercial buildings which got converted as Covid19 Care units after some refurbishment. Obviously, this situation arose because of the dire need to cope with the higher rise in infection rate.

Accordingly, the discussion takeaways turned out to be sharp pointers against the lack of cohesion among all stakeholders. Just being satisfied by warning notification and seeking of 'action taken reports' from lower courts or Suo motto by the Supreme court won't suffice. The directives need to be holistically implemented. Sadly, as on date the end results are very disappointing. In fact, the basic commitment toward human safety and moral strength to assertively comply with the essential solutions put forth by all concerned agencies is truly lacking. This is with reg. to:

- Voluntary seeking of inspections/ audits and obtaining of NOC's from fire service depts.
- Ensuring therein the fulfillment of added safety improvements if any.
- Execution of surveillance audits
- Training / refreshers and active participation by all concerned on the same in large numbers.
- Time bound implementation of the recommendations from officially constituted investigation committee (also christened 'high power') reports of previous incidents. Many of them have been observed to be inadequate at most of the installations

Above all, ground level score cards are well below par. Even strict follow up and ensuring about corrective actions by the regulatory agencies are also not up to scale. Read on.....

Introduction: The agenda were set in the context of few Serious Fire incidents which had occurred in the state of Gujarat. In fact, the same TV channel had already organized a couple of such deliberations of this nature and vouched about sustaining the momentum till situation improves to the expectation level.

- Discussion team:

a) TV Anchor.
b) Author
c) Mr. K. R. Koshti (a leading and expert lawer)

Flow of Agenda

The half hour duration was effectively focused through raising of focused questions by the anchor to both panelists by turn. Corresponding responses were very eloquent, justifying and feasible to practice if attempted with a high will power. In parallel, most of them also reflected the true sentiments of society at large. This is in relation to the prevailing higher level of media attention extended to the fire safety issues. In the process the whole

narratives of the debate got manifested into a 'joint resolution' set of suggestions for overall improvement in the system. This included various attributes of prevention, reduction, control, timely extinguishment and mitigation attempts.

>Question No. 1 referred to the ongoing uncertainty, lethargic approach, negligence and lack of sincerity being observed. This adversely affects the execution progress of preventive/ corrective actions despite a series of court orders, involvement of govt. as well as local administration machinery as well coupled with poor regulatory control actions against the defaulters.

The response covered the following attributes.
i) The task calls for total redressal approach by way of setting up of joint level action plan with responsibility matrix followed by the execution of the same. This must encompass all stakeholders without exception. They must cover Builders, Occupiers/ Operators of the facilities, End users, Service departments like fire brigades, local self- government authorities (like Municipal administration), State/central government etc., where ever applicable. In fact, the end users must also be thoroughly appraised about whom they can rely upon, approach and need to question as well as support in carrying out those functions without any hassles.
ii) In this reference, following aspects also came out crystal clear.
a) Either lack of awareness or failure to follow prevention / control methods despite being aware of the specific as well as serious fire hazards posed by
>Sanitizers having highly flammable hydrocarbon ingredient.
> Near vicinity of ventilators equipped with Oxygen cylinders which can support and aggravate a fire.
>Poorly maintained electrical fittings/ fixtures which are prone to generate an inevitable ignition source in the form of instant sparking.
> Absence, inadequacy, non-functionality and/or poor maintenance of fume extraction and removal facilities.
> Crunch on the deployment of required and duly trained manpower to operate extinguishers (which have been observed to be readily available at many of the locations) till the arrival of fire brigade. In reality, the mindset of general public also appears to be illusive as they feel the onus of prevention as well as control rests with fire brigades and not on them!
b) Prior audit of the installations and obtaining of NOC from Fire department and regular renewals of the same.
c) Effective maintenance / upkeep of all fire prevention/ protection/ control devices.
d) Training / refresher/ competency cum skill development for people to use them without any hassles should any untoward incident takes place.
e) Beyond everything, there is a need for big change in behavioral approach among society by owning responsibility to deliver complementary efforts at their end.
f) Why at all an educated and progressive group have to wait for action till a court order is issued? Why can't there be a proactive and voluntary initiative since any one could become a victim – it just depends on changing phase of probability factor based on specific situations.

Question No. 2 centered around the obvious reasons for the failure part of each stakeholder to abide by court orders and subsequent efforts including imposing of strictest disciplinary actions by the empowered regulatory agencies. This is with reg. to the compliance of deemed corrective measures without any compromise.

The response highlighted the prevalent clandestine attitude of officials at Govt. and corporation level especially when they are fully aware of how many of the buildings still do not have NOC's as already notified.
There are enough examples on non or incomplete compliance of recommendations by many hospitals in Gujarat. These are again applicable to those facilities created exclusively for Covid19 treatment. This is in the aftermath of one of the most serious incidents in Ahmedabad in the month of August'20 and subsequently another one in Nov. at Rajkot Bharuch followed suit later. Astonishingly the defaulter figure stands at 151 hospitals around Gujarat. This truly reflects the negligent approach by all those who are duty bound both morally and legally. It is still surprising what stops them from taking strict action when the extended period to follow the law has already been crossed? The responder also took serious view on the in effectiveness of the timely and effective use of extinguishers which have been found duly installed. In this respect compulsory training and frequent practical drills and mock exercises are required to be strictly implemented. The building operators must also ensure that fire safety training and accreditation of the security staff on round the clock rotation duty. In fact, this aspect needs to be stitched to the organization's recruitment policy while inviting tenders from security agencies as well.

The responder also emphasized on the need for strict inclusion of other buildings and establishments in to the fire safety domain like hotels, multiplexes, malls, other establishments, education centers including mushroomed coaching classes operating in large numbers around the state. In fact, they could be on terraces of multi – purpose commercial buildings using 'makeshift' arrangements. He cited the tragedy involving a coaching class which occurred two years before in Surat to substantiate the argument. As per available records more than 700 of such facilities as covered above still operate without NOC!
Interestingly according to him, the private hospitals are still not required to comply with certain fire safety measures in the absence of a "Clinical Establishment Act" as compared to their counter parts in Govt. hospitals

Question No. 3: What is the simplest and easiest way for obtaining NOC as guided by law?

The reply was very prompt and pertinent. There is an easy access availability through the nearest fire station assigned with this task, obtaining the prescribed format, fulfilling the requirement covered therein and submitting the same. Once the fire department is satisfied with all the documents and explanatory notes, they carry out the inspection of the buildings and process the NOC and grand it for one year with provisions for regular renewals thereafter. In case any additional recommendations for improvement are suggested they need to be completed and thereafter informed to the said authority who shall verify and if found appropriate issue the certificate.
It may please be noted that the prevailing Indian standards as indicated in the National Building Codes (as applicable to different categories of buildings vis-à-vis Fire risk) are quite comprehensive and functionally adequate. While sustaining the discussion on this aspect the need for upgrading and improving the fire safety systems was highlighted in the following manner:
>Weather the facility especially in case of a building meant for other purpose is developed and converted as hospital does fulfill the additional requirements of fire safety, rescue, evacuation systems etc., and that too relevant to the safety of totally dependent patient group.
> Adequate precautions with reg. to civil structure have been ensued for handling emergency rescue and quick evacuation of patients.
>Has effective checking of electrical systems duly incorporated in the NOC format and are they are being endorsed by expert auditors in the field?
> A suggestion was mooted to display boards at the entrance of those buildings for which NOC has not been granted and restraining or even warning end users against admitting patients over there.

Question No. 4: What is most important hurdle being faced in full implementation of audit or other spot check recommendations.

The responder vehemently voiced his concerns by way of highlighting the 'total lack of willingness, true spirit and intent" to put safety on the top of their responsibility matrix by all stake holders. This needs to be complemented by Govt. authorities especially municipal and city corporations by visibly ensuring that stringent actions are taken against concerned establishments including issue of 'closure notices' as deemed fit.

He also advocated for the need for sending regular 'online' alerts to all Building operators about the approaching expiry dates on NOC and warn about imminent legal action in case of continued 'non-compliance' of the said provision.

Besides, he cited the prevailing strictness on the implementation of mask compliance by all road users throughout the state. This is quite exemplary and has been accomplished by the untiring efforts of traffic police and charging of hefty fine of Rs.1, 000/- per defaulter. Accordingly, he summed up the narrative by expressing the feelings of severe pain as well as agony being experienced by those involved in serious fire related injuries. This was in the backdrop of our aversion and uneasiness even while getting affected by a momentary small flame on our finger tips at times while standing nearby or operating a simple kitchen burner.

In the form of concluding observation, the author feels that still training programs are not taken seriously by the end users. There are cases where a group of trainers from FSAI – up to 10 - had to face a small segment of just 10-15 occupants of a high-rise residential zone where as hundreds of them were hiding inside their apartments. They were not even responding to the fire alarm actuation exercise and getting down from upper floors using stair cases. Behavioral improvement is a must and cannot wait indefinitely especially when the risk factor is unpardonable. Please remember reality can strike hard. However, when it is harder the stakes could be too high to cope with and consequences very costly.

Dipen Mehta
Bachelor of Engineering (Civil), 1990, Saurashtra University, Rajkot, India
- **Certified Course in Project Management**
- **NFPA 13 (National Fire Protection Association, USA) Certified Training**
- **Managing Director, PCS Project Management Pvt. Ltd., Ahmedabad and Aqua Utility Designs & Management Pvt. Ltd.**
- **Chairman, Fire and Security Association of India (FSAI) Publications / Journal Committee**
- **Secretary, ASSOCHAM GEM, Gujarat Chapter**
- **Co-Opt Member, The Gujarat Institute of Civil Engineers and Architects (GICEA)**
- **Executive Committee Member, Indian Plumbing Association (IPA), Ahmedabad Chapter**
- **Member, Editorial Board, Indian Plumbing Today (IPT)**
- **Regional Coordinator, (Ahmedabad Region), District Go Green Campaign Committee, Rotary Club Ahmedabad Metro**
- **Past President, Fire Safety Association of India (FSAI), Gujarat Chapter**

He has written many technical articles in various technical journals and delivered many technical presentation in various events / webinars / seminar across the country. He is active member of many Engineering and Other Associations.

Price of safety like price of freedom is 'eternal vigilance'

Research

by Birgitte Messerschmidt

THE GLOBAL VIEW ON FIRE RESEARCH

GREEN QUESTIONS

Green building materials and systems hold the promise of revolutionizing the built environment—but only if we understand their fire performance

Going green isn't just a mantra for the environmentally conscious—over the last decade it's become increasingly mainstream. In an effort to use less energy, save resources, and reduce pollution and waste, we now embrace alternative energy, support energy efficiency, and practice recycling. Going green has gained political traction with the proposed Green New Deal in the United States and the European Green Deal.

It's important to recognize that going green isn't just about electric cars, or solar panels—it's also about buildings. Structures are big consumers of energy for heating and cooling, for example. A great deal of energy is also consumed in the production of the construction products used to create those buildings. Additionally, at the end of their lives buildings are transformed into a significant amount of waste. For all of these reasons, buildings need to be more sustainable and energy efficient, as well as resilient to natural and manmade disasters.

Many products and systems have been developed to make buildings greener. While I am all for going green, I am increasingly worried about the impact these new products and technologies have on building safety—especially fire safety. Adding insulation to buildings impacts how a fire develops within the building by keeping the heat in. Airtight buildings increase this effect and can even produce pressure differences inside the building that can complicate escape and rescue. Many new construction products are combustible and can potentially feed the fire. Adding solar panels to a building adds potential ignition sources within the building envelope.

The Fire Protection Research Foundation recently published a study that examined many of these issues. In "Fire Safety Challenges of Green Buildings and Attributes," the authors concluded that, in the eight years since they had published a similar report, significant advancements had been made—but gaps still remain. They confirmed my worries that fire safety is not incorporated proactively into the product development of green building materials and systems, and that additional tools are needed to assess the fire performance of those products.

Having fire safety take a back seat to other performance parameters in buildings is nothing new—fire safety always seems to be playing catch-up with developments occurring in the construction industry. Fire safety professionals may be aware of a potential problem, but it often requires a catastrophic fire before the construction industry musters the urgency to address the issue. That's why many major changes to fire codes and regulations are the result of specific events. This method of design by disaster might have been appropriate in the Middle Ages, but it is unacceptable today. We need to eliminate the siloed thinking that relegates fire performance to an annoying afterthought at the end of product development or building design. Product and building design should be conducted holistically, considering all performance objectives through the entire process.

The authors of the recent green buildings study present the concept of sustainable and fire-resilient buildings and communities, with the aim of developing and promoting a holistic approach to achieving fire resiliency objectives in building design. This is a great concept that I want to see implemented in the regulatory process as part of any future green deals.

But this will not happen unless fire safety professionals emerge from their silos and work with the green community to increase the understanding of the interdependencies between fire safety, resilience, and sustainability. After all, a building that burns is neither green nor sustainable.

Birgitte Messerschmidt is director of the Applied Research Group at NFPA.

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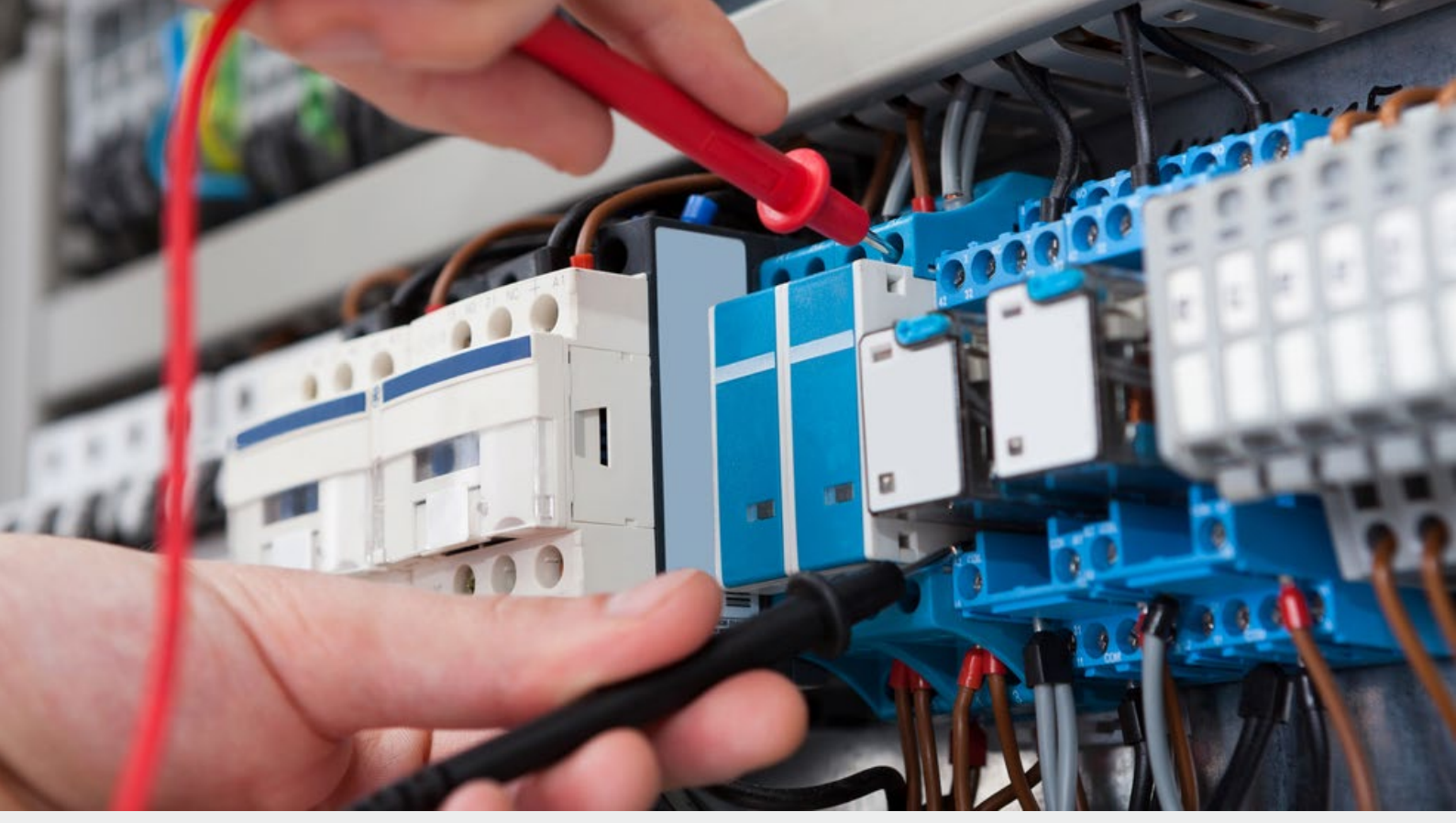


REDUCING FIRE INCIDENTS BY FOLLOWING GOOD ENGINEERING PRACTICES IN ELECTRICAL WIRING INSTALLATIONS

- Mr. Ulhas Vajre

"Investigations of numerous major Fires in Industries, Workshops, Hotels, High Rise Buildings, Residential Complexes and many other such occupancies have revealed that Electrical Wiring faults and flaws are the main sources of fires."

COMMON CAUSES OF ELECTRICAL FIRES:

- Short circuits at joints and terminations due to bare wires loosening out of the terminations or wires fraying out and touching other terminals.
- Arcing at improper joint, loose connections and terminations resulting in high temperature build up.
- Earth faults in wires with deteriorated insulation.
- Short circuits due to mechanical damage to insulation.
- Overloading
- Heat from other sources
- Sub Standard installation Practices.

Fire Safety Measures:

- Following Safe practices in respect of electrical wiring would help to reduce Fire Incidents:

Selection:

- Prefer copper wiring/cables,
- Use only ISI marked wiring/cables and related accessories,
- Don't use 1 sq mm and lower cross section wires at all in the residential wiring
- Use 10 sq mm wire/cable for main connection between the electricity supply meter and the main switch on the distribution board in the house/flat and 6 sq mm wires/cable or connection between DB and SDB in each room
- Use 4 sq mm wires/cable for supplies to geysers, heaters, Acs, and such heavy loads and 2.5 sq mm wires/cable for TV, kitchen & other appliances.

Installation:

- Don't install electrical power circuits and communication circuits in the same conduit/casing.
- Ensure that the wiring for high power consuming devices like air conditioners, geysers etc run separately
- Seal cable passes and other openings effectively, using suitable fire protection method such as fire stops and fire breaks. Also go for compartmentalization of spaces.

• Take extra safety precautions such as reliable termination, use of continuous wire without joints, mechanical protection, thicker insulation and high power rating for wiring in respect of essential services requiring continuous power such as fire alarm system, communication system, computers etc.
• Ensure that the appliances like computers or electronic devices which are sensitive to voltage fluctuations have individual neutrals taken from the supply and there is no neutral looping.
• Ensure that plug points are away from the places such as sinks, wash basins, where they are likely to come into contact with water.
• Derate current rating of the wires to ensure that the temperature remains safely within the prescribed limits when a number of wires are laid together in casing or conduit.
• Avoid temporary wiring and connections. Install a master control switch outside office occupancies to enable switching off power after office hours.
• Have a spare galvanized Steel wire in the conduit for pulling wires in future for additional circuiting or for replacing defective wires.
• Don't use flexible conduits for general wiring.

Protective Accessories:
• Don't increase the fuse capacity for preventing or elimination of frequent fuse blow up. Prefer High Rupturing Capacity, i.e. HRC fuses.
• Use Miniature Circuit Breakers, i.e. MCBs for protecting higher capacity loads like geysers, air conditioners, etc.
• Use separate MCB distribution boards for circuits supplying to devices/appliances which can be switched off with the master switch and for other circuits which are not to be switched off by the master switch.
• Use Residual Current Operated Circuit Breakers, i.e. RCCB's for protection against leakage currents and shock hazards. Don't depend on fuses, MCBs etc.

Plug and Socket:
• Use 3-pin plugs to make connections to the sockets. Never insert loose wires.
• Provide 3-pin plugs for electrical appliances and ensure that earthing is connected to the pin meant for earthing.
• Don't use a 3-pin plug with earthing terminal missing or sawed off.
• Ensure that plug and socket fit each other smoothly and provide adequate contact or carrying rated full load current.
• Don't try to force a 2-pin plug in a 3-pin socket.
• Avoid connecting multiple appliances or circuits to a single socket.

Special Requirements for high rise buildings:
• Employ special insulating materials such as FRLS (Fire Retardant Low Smoke) for wiring/cabling meant for fire alarm systems, emergency lighting or Fire Survival wires and cables for such critical applications, whose uninterrupted performance in fire situations is essential. Provide separate circuits or fire fighting pumps, lifts, staircases and corridor lighting and blowers for pressurizing system, directly from the main switchgear panel. Use separate conduits for such circuits.
• Label clearly the master switches controlling essential services.
• Lay electrical distribution cables /wiring in a separate duct. Seal the duct at every floor with noncombustible materials having the same resistance as that of the duct.
• Don't Lay water mains, telephone lines, intercom lines, gas pipes and any other service line in the duct meant for electrical cables.
• Use separate metal conduits for medium and low voltage wiring meant for lighting or other services, above false ceiling.
• Provide suitable circuit breakers at the appropriate points.
• Use brass or copper for bonding and earthing. Use non-rusting bolts in damp situations.

Testing:
• Check integrity of insulation at regular intervals, may be half yearly or yearly.
• Conduct insulation resistance test at least once in a year and when any addition or alteration is carried out in the installation.
• Ensure that all electrical wiring and repair jobs including additions, alterations and repairs to the existing installations are carried out by LECs as per CEA Regulations 2010.

Ulhas Vajre
C. ENG (I), DEE, AMIE, BE, MIE, FIV, FISLE, MIIE, CEM, CEA, FIAEMP

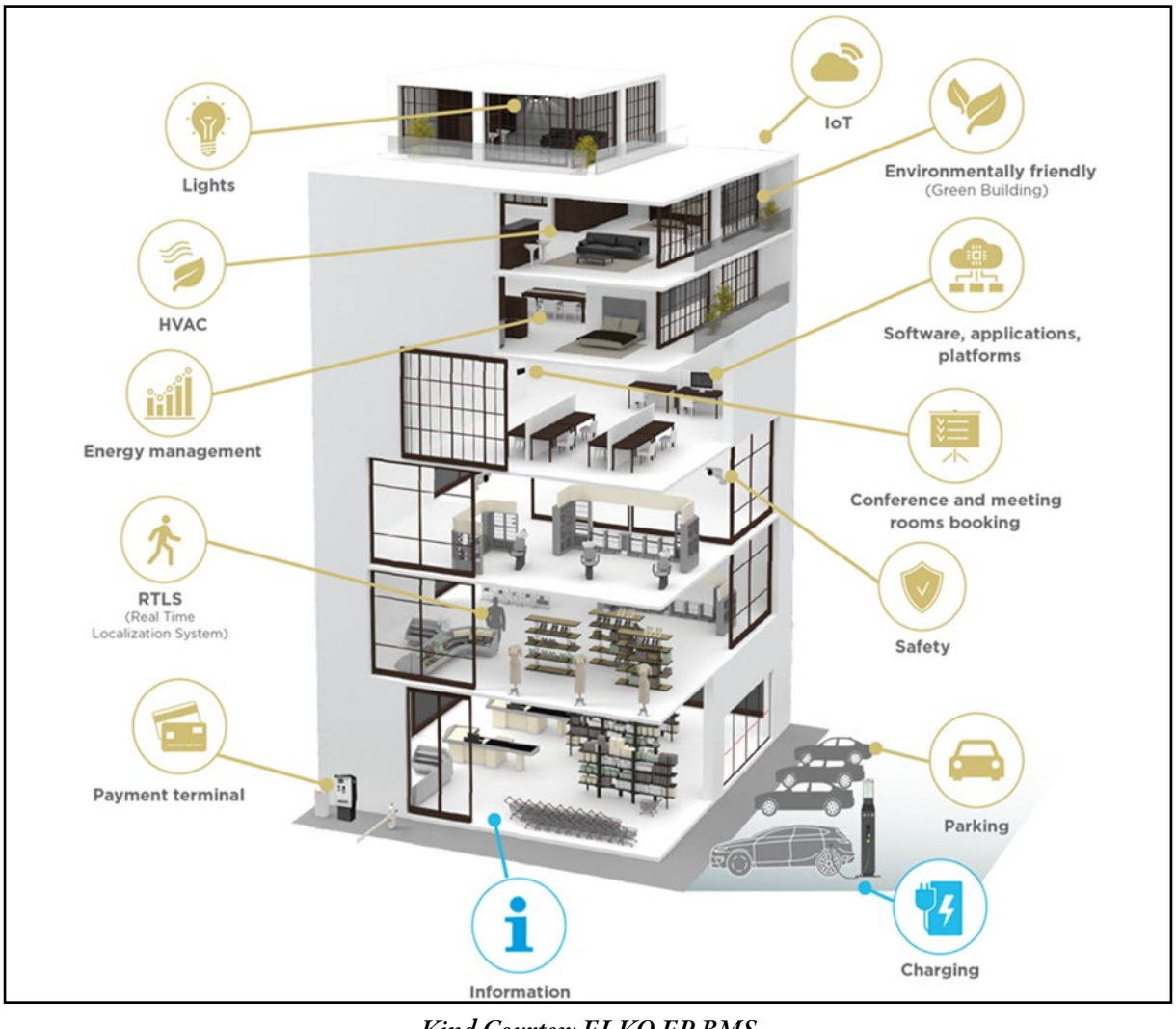
CENTRALISED SYSTEMS AND ISSUES IN SYNCHRONISATION

- Mr. Harsh Mehta

Lets begin with a basic definition and explanation of a centralised automation platform or system.

Wikipedia - Building automation is the automatic centralized control of a building's HVAC (heating, ventilation and air conditioning), electrical, lighting, shading, Access Control, Security Systems, and other interrelated systems through a Building Management System (BMS) or Building Automation System (BAS). The objectives of building automation are improved occupant comfort, efficient operation of building systems, reduction in energy consumption, reduced operating and maintaining costs, increased security, historical performance documentation, remote access/control/operation, and improved life cycle of equipment and related utilities.

Building automation is an example of a centralised control system with a decentralised architecture wherein every subsystem functions independently as a system in whole and further, it communicates with a central brain or processor through a language which in most cases is open protocol language and standardised. Standardisation of communication language is the key here and all the information exchange is conducted and router through this channel and language of communication.



Kind Courtesy ELKO EP BMS

With the advent of larger systems, varying and unpredictable project timelines and more complex system architecture, integration challenges with various subsystems have surfaced in recent times which pose a threat to the centralised systems. Lets highlight the key challenges in bullet points and understand their nature in greater depth:

• Varied subsystems have come up to add to the complexity of system architecture viz AV and media control, number plate recognition, facial identification based controls, appliance controls, advanced forms of biometric detection, etc

• Lot of these subsystems do not follow any unified protocol or defined communication standards and are still alien to sharing the communication language and commands, for third party system to integrate, manage, control and unify.

• Majority of these systems still work in silos and despite having a BMS platform, certain level of intelligence keeps missing and desired outcome remains elusive. Example, in case of an attendance system, if a user is not authenticated, system simply doesn't allow the door to release and probably maintain a log as well. However, a smart central system is one wherein, in case of such an event, the surveillance cameras are closely integrated with access and a snap is taken in event of an unauthorised access attempt and is saved for a later date and based on facial recognition, next time same user is detected in the campus, an alert should be raised to the facility management. One more of such example in case of a fire would be to raise an alarm in the fire detection panel, indicated to fire hydrant system to mitigate, turn off HVAC systems to curtain oxygen flow, release the doors from access control panel, turn ON emergency lighting for evacuation and further, accurately sense human presence in the facility at various locations. Information exchange between various subsystems remains vital here, which is most cases, is still a challenge.

• Unpredictable timelines further stretch the scope of the project and sharing of information at design level, cascaded drawings and mapping details, superimposition of subsystems on the main system architecture takes a hit and often, vital information is missed to make the right bridges to enable communication at a later date.

• Lack of skilled human resource to have knowledge and experience of working on global software platforms which enable the mapping of system architecture of various subsystems on to the central mainframe architecture. This has the potential to greatly reduce the errors in planning, coordination, communication and implementation.

• Open source, generic, unified softwares which enable the information exchange, change management, subsystem mapping and log management. Such softwares with 3D mapping and available to all agencies including the design and build community, will greatly impact the advent and success of centralised systems by helping to reduce the gaps in communication, information exchange and lead to a much leaner, cohesive and streamlined systems.

• Rapid proliferation of newer technologies prove to a be a boon in managing these buildings but at the same time, impose a threat and a challenge for the community to absorb, manage, learn the fundamentals and adopt in the context of our systems. Technologies like real time localization systems, parking management systems, sun mapping to manage human centric lighting, ventilation, etc comes with its own sets of challenges which if managed to overcome, can lead to a significant leap in the convenience, comfort, safety and reliability of buildings, its occupants and the management.

Harsh Mehta, Bachelor of Technology in Electronics and Communications as well as MBA in Finance and Operations Management. He is Trained and certified for one of the world's most acclaimed and widely adopted technology for Home & Building Automation systems known as KNX.

He is an entrepreneur associated with "Future Automation Solutions (FAS)" which is specialized in Lighting Controls, Smart Homes and AV solutions. Till date, FAS has successfully commissioned over 350 projects covering the geography of Gujarat, Rajasthan, and Maharashtra. Harsh is also a CEDIA-Member and CEDIA Outreach Instructor and their certified trainings for the design community are well accepted and respected across industry professionals.

EXPERT HANDLING OF CYCLONE "TAUKTAE 2021"

AN INFORMATIVE AS WELL AS ENLIGHTENING LEARNING EXPERIENCE

(Shared by Mr. Ashok Menon - Director, Fire & Emergency Services, Govt. of Goa)

A: Introduction: Except the one and only Birbal, the wisest/ cleverest ever courtier of Mughal period, none had the guts to openly declare and get away with the famous proverb coined by him - "Whatever happens in this world – good or bad is always for the good" - at the Durbar of Akbar the great. This is because he possessed the exceptionally high calibre of convincingly explain and prove it with solid examples. At times he did it straightaway by directly pointing them out in relation to certain activities of the Badshah himself!

Now coming to the present world scenario, above mentioned blunt statement seems to be more relevant. This could be directly related to the prevailing Covid19 pandemic (in the form of a second wave) which we are bravely, fiercely and successfully battling and truly justifying the famous dictum that "adversity can also serve as an opportunity".

Humans by and large have been blessed with the confidence as well as courage to tackle many disasters arising out of natural or manmade calamities. In this context the cyclonic threats all along the west and east coasts have become a virtual annual affair. However, at each passing year we handle them more assertively as well as diligently and come out victorious. This is not just a magical achievement; but the result of learning from the hurdles of previous episodes and executing all course corrections. They include the efforts of many agencies in following sequential order.

- National/ State governments' advanced planning initiatives complemented by:
- Meticulous research work/studies of Indian Meteorological Department (IMD) followed by applying best possible techniques in issuing timely alerts and that too pin pointing the vulnerable locations which swing year after year.
- Disaster management departments of centre and states pitching in reaching the affected zones at the earliest.
- The Fire and Emergency services of respective hot spots getting ready, augmenting their resources, deploying personnel and plunging into action. They include the fire brigades of both governments, cooperative entities and private establishments. Their efforts are targeted to provide rescue as well as evacuation help in addition to fast removal of major road blockage which are very important in the medical care and rehabilitation efforts
- Medical administration doing their best to administer first aid and hospital treatment.
- Efforts by general administration in creating of temporary shelters and food supply to affected people before they are allowed to return homes.
- Public at large (especially fishermen and others who are engaged in sea travel - especially coastal - as part of their occupation) extending maximum cooperation by way of adhering to all advices/ restrictions including the call for returning to shores and not to venture out in sea.

B: Goa Experience. Here comes the salient points and important takeaways which the directorate of Goa Fire and Emergency has been kind enough to share for publishing in your Journal. In fact, Shri Ashok Menonji is also the chief advisor to FSAI Goa chapter besides the incumbent member of our Journal Editorial Board.

India Meteorological Department (IMD) issued a red alert for coastal Kerala, Karnataka, Goa, Maharashtra and Gujarat to safeguard against Cyclone 'Tauktae' along the Arabian Sea between 15th and 21st of May'21. The notification also was indicative of an imminent 'Orange Code' (medium category) situation which would be applicable to South (as well as off North) segment with reg. to heavy rainfall and severe cyclonic effects.
In fact, Southern part witnessed heavy to very heavy rainfalls and squally winds with velocity ranging from 50-60 kmph even touching up to 80/100 occasionally. Accordingly, all fire stations in the state falling under the purview of DFES (including Fire Force Head Quarter) joined together as a nodal agency to combat a possible as well as major 'disaster management' scenario.

They geared up towards the task of mapping, searching and identifying all vulnerable locations. This was followed up by working out safe Evacuation plans including additional capacity build up for the rescue of any trapped personnel, live stocks and other living beings. To facilitate such a major initiative, the fire stations were clubbed in 3 zones - North, Central and South. Thereafter, the availability of adequate equipment including replenishment (as required to perform the task by the fire force) were ensured. The objective was to take on different types of probable consequences likely to arise. In fact, a whopping 1443 Emergency calls were received. They were related to falling as well as uprooting of trees like Mango, Banyan, Nilgiri, Casurina, Gulmohar, Tamrind, Jack (bearing jackfruit) etc.

The affected areas were mostly:
- Roads (District pathways, State/National Highways, Lanes and by lanes and Residential cum commercial areas).

In addition, they also badly affected:
- Electrical installations like Transformers/Switch gears/ Transmission lines/ Poles,
- Parked vehicles,
- Boundary walls,
- Temporary structures,
- Buildings of various facilities

Majority of the calls were immediately and successfully responded. The Fire Force at the Head Headquarters and regional Fire stations around the state (numbering 15) pitched in.

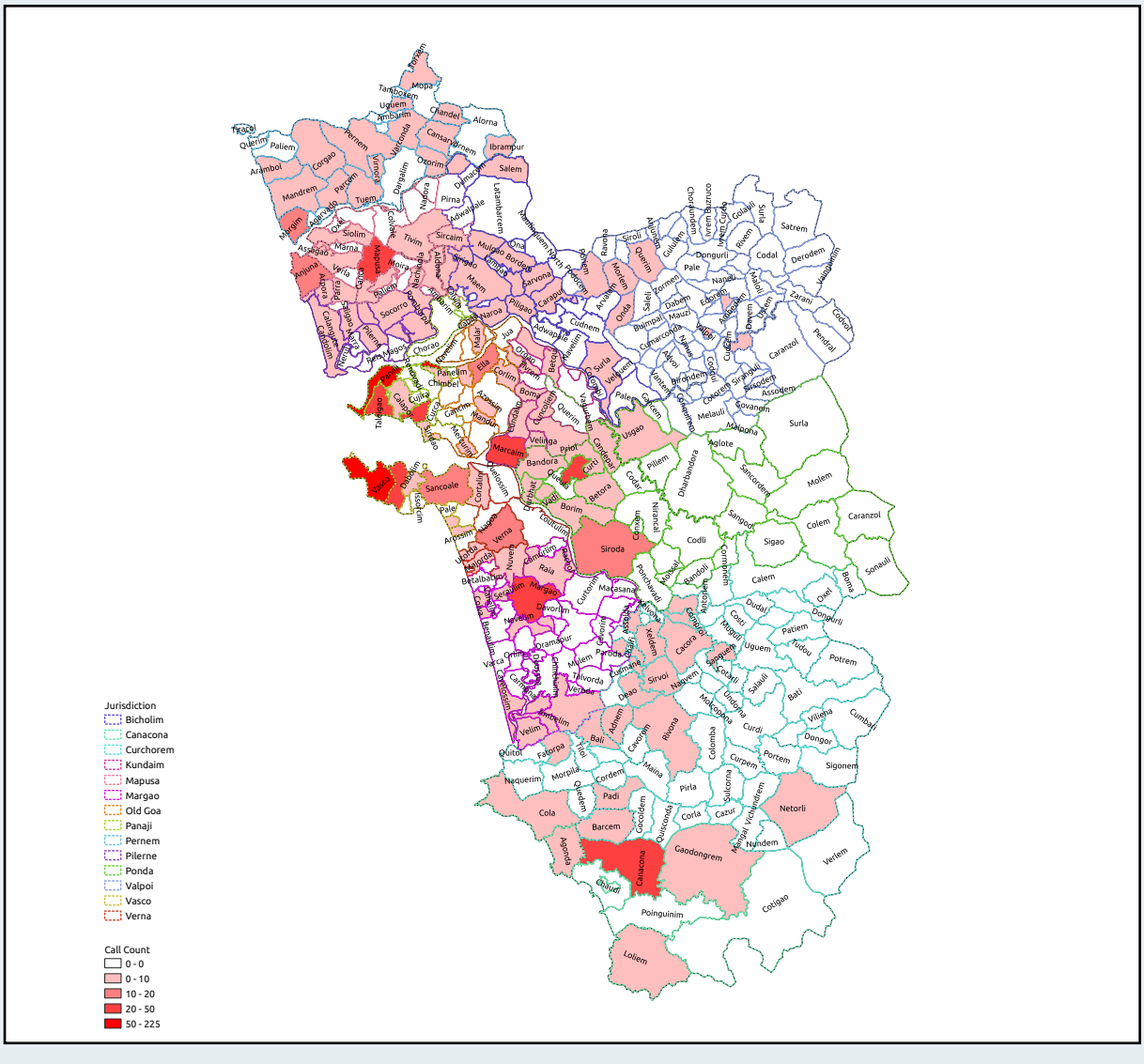
A brief coverage of the specific initiatives and ground level efforts from DFES.

This was sequel to the first red alert issued by IMD as mentioned in the beginning. Accordingly, DFES carried out planning as well as creation of different proactive safeguard measures across all the Fire Stations and attended to the call of duty.

The Fire force Headquarters (HQ) of Goa took up the overall responsibility while dealing with a number of cases directly as given below. Besides, under its able guidance, each of the other stations having specific jurisdiction (Zone wise) in their domain as per the upcoming listing took up and executed the tasks. In all there are Three zones in Goa – North, Central and South with a total number of 15 stations including the one at HQ.

The priority for response was given to rescue / evacuation of people and saving of lives. In the process clearing of uprooted cum fallen trees and clearing the blockage along Major district roads & Highways, Electrical poles/Power transmission lines became the major mission. A total of 242 Fire Fighting Personnel got deployed round the clock. They extended great help to society at large in a situation of such magnitude. On account of the event, Rs. 2 Crores had to be spent on priority basis to remove all the obstructions as cited above. Even access lanes to transformers and other electrical installations had to be cleared on war footing to resume power supply wherever snapped of. Fire Fighting Personnel across the state ensured that the Citizens and institutions get all support in this type of natural calamity. The overall estimated asset loss due to the severe cyclone Tauktae was to the tune of Rs. 2 Crores and the savings achieved thanks to timely response touched is Rs. 2.54 Crores!

Overall engaging with such tough tasks will provide good professional experience for the senior personnel to enhance their leadership and managerial mettle. Besides the supervisory staff can gain competency build up and the ground level firefighting must use the opportunity to excel in demonstrating their skill, physical fitness cum agility. These are in addition the enhancement of their craftsmanship in handling a variety of gadgets in the rescue, evacuation of personnel in addition to removal of road blockage and other functions.



Mr. Ashok Menon is currently serving the position of Director, Fire & Emergency Services. His qualifications include A.D.F.E. from National Fire Service College (NFSC), Nagpur, along with graduate ships from both the Institutions of Fire Engineers I.F.E (India & UK.) Mr. Menon also holds an Advanced Diploma in Disaster Management. He received Gold Medal for topping the "Station Officers' & Instructor Training Course" at NFSC. Mr. Menon is an Associate Member of I.F.E (India & UK.) He is a SAARC accredited 'Incident Command Trainer' for their member countries.

His task responsibility attributes include Policy-framing, SOP Formulation, Chief Executive functions & Troubleshooting, Administrative Control and Staff Empowerment through effective leadership.

In addition, he maintains excellent rapport with local administration, regulatory agencies, government, statutory bodies, professional institutions and society at large. Mr. Menon has also been awarded President's Fire Service Medal for Meritorious Service by Govt. of India & Chief Minister's Gallantry Medal by Goa State Govt. He is also Advisor to FSAI, Goa Chapter and Past President of Rotary Club of Panaji, Midtown.

"CHETNA – ARENA FOR SURAKSHIT NAARI"

Dear Readers,

The Surakshit Naari concept is very close to my heart, as it must be for all others in our social fraternity. How often is it that we have wondered and worried for the safety and security of a girl or a woman venturing out? Not only women, their spouses, fathers, brothers, sons, nephews and other male members of a family and society at large are equally concerned about the safety of the females in the country. As it turns out, at times women do not feel safe even at their own homes!

Atrocities against women have been going on from time immemorial. Women have been repressed and suppressed and their voice was not heard much until maybe the latter half of the last century. It is time for a change in mindset. We worship goddess Durga and the Shakti she represents. It is high time we also recognised the Shakti within us and rose to empower our sisters. Time is more than ripe to unleash our inner strength. That can come with healthy and fruitful discussions on the subject, with conditioning and strengthening.

Some of us could be more fortunate than others and experience a safe as well as secure environment around. Alas, there are many others for whom each passing day is uncertain and every moment is a risk. No Indian can forget the Delhi incident of December 2012. We christened the victim 'Nirbhaya', an epithet behind which hides an ugly truth of a girl who was brutally raped, maimed, tortured and killed. Let us together make Nirbhaya a feeling, that every girl across the country can proudly enjoy their life; a feeling that allows women to stand tall and not cower behind bolted doors. FSAI, along with the women fraternity within, are now going to take a serious action plan to activate ourselves and work for the development and promotion of the cause of women safety though the specially conceptualized 'Naari Shakti" campaign.

FSAI has always been addressing safety and security concerns. We provide training sessions on fire prevention/ control/ extinguishment at homes, schools, colleges, offices, hospitals, housing complexes and many other institutions. Our objective is to have a Surakshit Bharat. Alongside, we also commenced training sessions for self-defence among women. Merging the two, we now have this new focus group which will address the specific security needs of women, do their best to find out adequate safeguards and facilitate execution. Let every woman in the country feel safe, secure and empowered. To this end, we are organising a number of innovative steps that will further enhance and improve upon the women's safety and security concerns

We wish to chronicle the activities of the women's wing as well as deliberate on the subject of women's safety and talk more about the fire and security aspects that specifically affect the women groups. Let us also continually review and highlight the status of progress being achieved in the arena of women's safety. In this task, let the commencement of the "Chetna- Arena for Surakshit Naari' in the FSAI Journal serve as a baby step for now and reach the level of a quantum leap in course of time. We hope to bring the issue of women's safety to the collective consciousness of society, through the minds of the readers of the journal.

I earnestly look forward to your response and contribution to make this column a successful one. It is to be remembered always that only with our definitive action will this mission make headway.

Yours sincerely,
Koyeli Dutt
National Chairperson, Surakshit Naari Program

MESSAGES OF WELL WISHES AT THE LAUNCHING OF WOMEN WING COLUMN

From Ms. Nisha JamVwal,

It is very inspiring to note that Fire & Security Association of India (FSAI) is launching a special column in its Journal titled "Chetna- Arena for Surakshit Naari" .

I congratulate FSAI for this endeavor and extend my best wishes.

I feel glad to say that Female fraternity had always been accorded high esteem and respect in our country. In fact, it is the corner stone of our culture to adore women. We even equate women with the goddesses whom we worship.

Let us raise our voice and speak up when any type of social discrimination against women takes place. We must explore all avenues for inclusive growth of women in our workforce and celebrate their stature. Come on let us celebrate women empowerment.

Ms. Nisha is an interior architect, renowned columnist, author, brand consultant and equal rights activist. She is also multi facet celebrity as well as TV anchor. Her quality attributes are just not restricted within walls which would cause divide among the arts but she works seamlessly. The area coverage include architect, fashion design and educational craftsmanship.

From Ms. Yukti Kapoor Mahendiratta

Helo FSAI, I am here to lend my voice along with all of yours in a unique phase where organizations like FSAI is taking up the cause of women through a "Naari Shakti" concept. we are all standing together to establish a conducive environment for a woman to remain safe, secure and gain equal opportunity to work and prosper. The chorus for revolutionary change which can help promote inclusive growth of women has been going on for a very long time. It also seems that now the change has already come.

Being a leadership coach, I still feel still there is a dire need to induct more women in their board rooms and other senior positions thereby maintaining gender parity cum equality. When you give opportunity to a woman to grow up in industries she gets a fair chance to develop. In the process, the industries also grow. When that happens, the nation prospers. The need of the hour is to make India a highly developed and strong country in the world. In this endeavor we must do everything possible to enhance Shakti to Naari so as to contribute her best to the society because she can. In this endeavor my voice shall be as louder as yours. In fact, I am the voice and shall raise it up further with your help. Let us do it together.

Ms. Yukti is the Founder CEO - SBY Academy, Leadership & Etiquette Coach, TEDx and Keynote Speaker SpeakerMumbai Suburban district, Maharashtra, India

She is an Erickson Certified Coach (ICF accredited) and Former Gladrags Mrs India (Runner up)

offering Leadership & Etiquette coaching (personal) to individuals, experiential training to Corporates and Entrepreneurs, and Finishing courses to academic Institutions.

KNOW YOUR SURAKSHIT NAARI TEAM

Rakhi Deepak

National Secretary, FSAI

Management: Indian School of Business. Hyderabad, Goldman Sachs Scholarship For Entrepreneurship Development Program.

Post Graduation: M.Sc. (Physics)

Administration: NABET Accredited Auditor Certification.

Professional Experience: Started the career as a Lecturer in Physics. Worked with Diners Club, ITC, Swiss International Airlines.

Started SagTaur Universal in 2001 and are in the Business of Supply, Installation & Servicing of Fire, Safety & Building Management Systems.

Social Activities: Currently National Secretary, FIRE & SECURITY ASSOCIATION OF INDIA. Involved in Rotary / Y's Men International Activities. Interested in any form of arts.

Koyeli Dutt

National Chairperson, Surakshit Naari Program

Koyeli Dutt is the Managing Director of Technico (India) Pvt. Ltd., one of the oldest fire protection companies in Eastern India. Technico is a system integrator, providing fire detection, alarm and protection systems and installations throughout the country and especially in the industrial sector. Technico works with companies like NTPC Ltd, Nuclear Power Corporation Ltd, IOCL, GAIL, BHEL, L&T, GE etc, providing fire protection systems in power plants, steel plants, oil refineries and the like. Having completed her schooling from Modern High School, she went on to study Fire Protection Engineering at the University of Maryland at College Park, graduating in the year 1995.

During her student career, she has been an active member of the Society of Fire Protection Engineers, USA. She was also a member of Salamander, the student honor society of the Department of Fire Protection Engineering of University of Maryland, College Park and held the position of Treasurer in the year 1993-94.

On the professional front, she started working at Technico in 1995. The company has grown to a 200 employee strong team under her leadership. Koyeli Dutt has remained the Secretary of the Kolkata Chapter of Fire and Security Association of India, an industry association, from 2011-2015 and the National Treasurer of FSAI from 2015-2017. She is also presently the Chairperson of the Women's Safety Committee of FSAI and a member of the CWC of Kolkata Chapter of FSAI. Koyeli Dutt is also an active member of Rotary Club of Calcutta Jadavpur.

Ami Sheth

Chairperson Surakshit Naari Program, Gujarat Chapter

Ami Sheth is Co-founder & CMD of Ramana Safety & Systems India Pvt. Ltd. She has more than a decade long experience in Fire Protection, Security Surveillance & IBMS field & currently heads the Operations, Finances & Human Resources in the Company.

She is a Commerce graduate & is associated with FSAI in her personal capacity as an Individual Member since last 8-years apart from her Corporate Membership.

She has successfully setup a CSR division in her Company to work closely with AndhaJan-Mandal, Vastrapur (Blind's Peoples Association) & Apang Manav Mandal & other NGOs especially in the field of "Specially Abled Children's (Divyang's) in rural areas, small towns & villages.

Very recently she partnered through her Company with Blind's Peoples Association to create and manage a Day-Care Center "Kushio-nu-Sarnamu"in Deesa Town of Banaskantha District for Specially Abled Childrens (DIVYANG'S), which is now successfully run & managed By BPA-Ahmedabad & Deesa-Nagarpalika.

Her guiding support and vision for RAMANA-Safety Group has led her to pledge a lifelong allegiance to the Fire, ELV-IBMS and Life-Safety Industry that she is a part of.

Kinnari Menon

Chairperson Surakshit Naari Program, Mumbai Chapter

Director of Feurmann LLP. Master's degree in Science. 30 years of Sales and Marketing experience across various companies like Johnson & Johnson, Bluedart, etc. Since 2002, closely associated with Fire and Security Industry and currently CEO of Feurmann LLP. Has been a part of FSAI for the last 10 years and have actively involved in many of the FSAI events. Being a working woman and a mother of 2 daughters understands the challenges of woman in India especially their safety and have been a part of various activities addressing these concerns.

Swati Dhar

Chairperson Surakshit Naari Program, Kolkata Chapter

Bachelor degree from Scottish church collage. Master degree from Rabindra Bharati university. Advance diploma in Fire & Safety Management from Indian Institute of Social Welfare & Business Management (IISWBM). 10 years experience in Fire safety industry as an entrepreneur. Engaged with many Social activities. Fire safety training in schools , colleges, offices. She is closely working with fire safety awareness program in association with FSAI.She is also member of Rotary club. She in also involved in women empowerment social work.

LEAD STORY ON A SUCCESSFUL WOMEN ENTREPRENEUR AND SOCIAL REFORMER

THE DIGNITARY AT THE CENTER – MS. ANAR MEHTA

Founder & President of Srishti Bharat Foundation (Ahmedabad based)

Preamble: The following crisp message of well wishes received from Ms. Anar Mehta to the launch of this special issue says it all. It is indicative of the need of recognizing as well as appreciating the determination and confidence level of today's women to perform to the best of their caliber at par with men and stay safe as well as secure in society.

"I want to emphasize that today's women are empowered and strong. They need not have to be protected and saved by some male hero; but are already in a position to take care of themselves using own intelligence and power".

Accordingly, reading through the attached profile of Ms. Anar and the humanitarian entity she leads will take our readers to a realization that sky is the limit up to which an individual can rise in today's scenario which is full of many opportunities and avenues. Yes. of course, they are definitely interlinked to a number of hurdles, hassles, challenges, risks, trials and tribulations. For those among us looking for role models her story would become a facilitator like oxygen to the lungs or music to the ears.

The setup of the organization she runs is truly indicative of the ambitious social activity plans as well as the execution strategies of the same. They are aimed at the promotion, empowerment and social well-being in society especially women of all classes and categories and that too the most needy. Contrary to the conventional practice of offering alms / aids and remaining contented, 'Srishti Bharat' helps promote capacity build up among women such that they are able to stand up and walk forward on their own in course of time. The leadership acumen, professional expertise and management caliber Anar madam possesses add value addition with consistency and sustainability. Important takeaways of the humane side of "Srishty" are:

- Enhancement of Financial Literacy among stakeholders
- Imparting of Vocational and physical development training.
- Offering of Medicare help
- Tapping of complementary support through Foreign National's initiative
- Initiation of Rescue/ Rehabilitation of survivors of different types of crimes
- Educative awareness creation at ground level (problems along with remedies) on:

  - Sanitation, Hygiene and cleanliness including Menstruation related concerns including pandemic (Covid19 specific); this also includes "mask compliance initiatives"
  - Mental health
  - Vocational physical development exercises
  - Gender equality

Believe in your Ability
Create Change
Succeed in Life
Inspire

SRISHTI BHARAT

"We educate, empower, encourage the hand that nurtures your cradle, as it rules the world, ultimately!"

ABOUT US

Srishti Bharat is a platform for the Women to make her empowered, confident, independent, well taught and for her to stand up for herself!

We are working towards making women understand Financial Literacy, Sanitation and Gender Equality. We firmly believe that each one of us can make a difference in the lives of Women. But together we can make a Lifelong Change!

Our efforts are directed to create a safe haven for underprivileged women where they can learn and grow and live with dignity and generate wealth and value for all. We support them to take on bold livelihoods that are non- traditional with the help of our community programs, that enhance a woman's economic status, quality of life, and decision-making skills within their own families. We help women to step up to leadership roles in their communities and local government, and empower women economically through the formation of self-help groups and our several entrepreneurial initiatives.

"Everywhere in the world women face social, cultural and economic barriers to equality!

With this, we ultimately hope to develop a cadre of empowered women who become agents of change in our society.

We are driven with an aim of creating a world where all women even underprivileged enjoy full citizenship, earn respect. We are working across religious and social divides to enable resources for women empowerment

Today, only 25% of Indian women are employed. Every 1 in 3 women say that they have experienced physical or sexual assault, 70% of all people living in poverty are women and girls, only 22% of the world's political leaders are women

Range of Issues faced by Women in India even today:
- Female Infanticide
- Sexual Harassment
- Domestic Violence
- Early Child Marriages
- Lack of Education
- Lack of Personal Hygiene Awareness

We work towards supporting policymakers and other stakeholders to ensure that non-traditional livelihood options are accessible to all women in India. We also advocate for the social concerns being considered in livelihood programmes for women

The Face Behind the Foundation

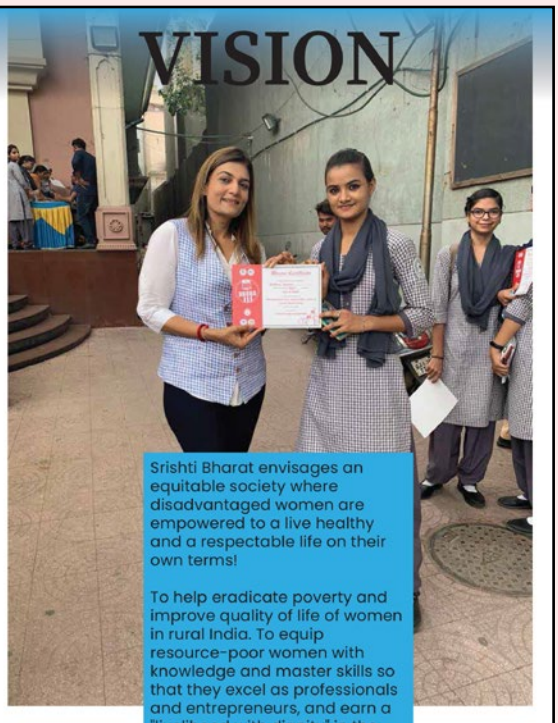
ANAR MEHTA

The association is a brainchild of Ms Anar Mehta, a genuine epitome of the Global Indian. She has represented India and stellar organizations like the Somnath Trust and has promoted it, alongside numerous different locales in India, as social, cultural and spiritual centres among the Indian Diaspora while living abroad and as well as international citizens. Further, she is also an active member of prestigious organizations like the World Hindu Economic Forum and a member of prestigious Global goodwill Ambassador foundation- USA. Also, she is an international ambassador of MSME & Startups forum - Bharat, appointed AS ADVISOR IN advisory board of GMHA and has received the prestigious Humanitarian Award 2021 from GMHA - Global mental health Association- UK . Anar Mehta added more feathers to her cap, as she is also the Co-Founder of Hello Womeniya- an online digital platform for global women and she is also the National President, NRIS Council of Women's Indian Chamber of Commerce and Industry (WICCI), Honorary president- NRI Council - India at Global chamber of Commerce & Industry, SDG - Ambassador at SDG CHOUPAL, Chief Women wing at IGC - Indian Golf Circuit, Anar mehta is also National president and board member of Rustle of Book club Have received Doctorate Degree in Social work and " Doctor of Social work ". Anar Mehta is truly an inspiration for many young women.

This cause is very close to her heart, Gender Equality, which fuels the vision and initiatives undertaken by Srishti Bharat. The organization firmly believes that Indian culture has consistently worshipped women and admired them as role models. Given the correct conditions, today's young women of India will be pioneers of tomorrow who will represent India across the world. Srishti Bharat intends to work on initiatives that essentially improve the lives of oppressed women and girls in India.

Further, Ms Anar is additionally an active representative of the Indian Diaspora back home in India. A role model for women, she participates in several talk shows and workshops to reach out to women from all sections of the society and helps them transform themselves and become truly empowered

VISION



Srishti Bharat envisages an equitable society where disadvantaged women are empowered to a live healthy and a respectable life on their own terms!

To help eradicate poverty and improve quality of life of women in rural India. To equip resource-poor women with knowledge and master skills so that they excel as professionals and entrepreneurs, and earn a "livelihood with dignity" in the markets that have traditionally been closed for them. We believe that when women are socially and economically independent, they become catalysts of change – not just in their own lives, but also in their families and communities.

MISSION

Srishti Bharat works to empower women, especially those from marginalized social groups, to take control of their own health, become independent and aware, who are able to contribute equally towards the development of our country.

To also ensure that women are active participants and equal contributors to the growth of our country and they are provided with equal opportunities to thrive.

To create several opportunities for deserving, economically challenged women and children by partnering with communities, philanthropists and local charitable organizations.

Our program aims at:

- Developing and providing quality education, affordable healthcare and supporting skill development to improve the quality of life of women in rural India.
- Build social capital as they transform their lives.
- Get opportunities to work in safe and respectful environments

OUR INITIATIVES

Srishti Bharat is goal oriented and intends to work in various arenas for women empowerment that include:

01. Sanitation:
The importance of doing meaningful work for sanitation has never been more than it is today. Inadequate access to sanitation and hygiene disproportionally affect poor women and girls, as they are often faced with additional challenges related to menstrual hygiene, personal safety, sexual harassments and violence. Without access to latrines, many women and girls become 'prisoners of daylight', using only the night as privacy. Thus, it is imperative that there are concentrated and positive efforts to address problems related to Sanitation in India. At Srishti Bharat, we organize workshops that aim to educate underprivileged women about the importance as well as basics of sanitation.

02. Rehabilitation of Victims of Violence and other crimes:
One of the most prevalent problems that women face is the horror of human and drug trafficking. Millions of women across the globe are violated. Those women that manage to escape are scarred for the rest of their lives. We, at Srishti Bharat, are deeply committed to work alongside important stakeholders in government as well as other organizations in order to provide physical as well as emotional support necessary to rehabilitate victims of such gruesome crimes.

03. Financial Literacy
Gender equality in terms of economic and financial opportunities is becoming increasingly relevant at both national and international level. The need to address the financial literacy of women and girls as a way to improve their financial empowerment, opportunities, is now being acknowledged. Indian women are underconfident when it comes to the matter of finances, they are often dependent on male members of the family. To address this issue, we carry out awareness and training sessions that help women understand the basics of financial tools as well as the banking system, to help them achieve all-round independence.

04. Mental Health Awareness
Mental illness is associated with a significant burden of morbidity and disability. Thanks to the awareness carried out all over the world highlighting the importance of mental health and well-being, women in India are slowly able to address these problems. While the identification and acceptance of mental health problems have certainly increased, we are a long way from increasing timely treatment. Thus, we carry out awareness sessions and associate with leading mental health professionals in India that share the best practices for sound mental health. We aim to enhance the competence of primary health care providers to recognize and treat mental health consequences of domestic violence, sexual abuse, and acute and chronic stress in women.

05. Gender Equality
Gender equality is a human right, but our world faces a persistent gap in access to opportunities and decision-making power for women and men. Globally, women have fewer opportunities for economic participation than men, less access to basic and higher education, greater health and safety risks, and less political representation. One of the most important steps in achieving holistic equality is to educate fellow citizens of the country about how gender equality can help unleash the true potential of our nation. To achieve this, we carry out workshops and educational sessions where we highlight the importance of true equality.

06. Vocational and Physical Development training
Young Women lack access to financial capital and have limited opportunities to gain education, knowledge and skills which lead to economic advancement. We, at Srishti Bharat, strongly believe that equipping women with the right kind of skills will be a great way to make them reach their potential. To achieve this, we routinely organize vocational training sessions that they can leverage to achieve more employment. Further, we also organize physical development workshops like those for yoga and self-defence.

Srishti Bharat in Action during COVID-19

01. Medical Kit Providing

Through this initiative, kits are being provided to several NGOs, Police department, under-privileged women, and various needful organisations and individuals to maintain Sanitation and safe environment, which is very essential during this global crisis, Covid-19 pandemic. We have helped several women to sell masks during this time helping in earnings as well as public safety!

Through our other initiatives, Srishti Bharat Foundation is helping and supporting Women and Foreign Women in Gujarat.

During the Covid-19 pandemic, several women are facing issues such as Domestic violence, Gender Bias, Economic instability, Depression, Panic attacks. Needless to stress that Srishti Bharat took an initiative to support such women with the help of meditation healing process, security and their overall well-being. Helpline numbers are provided too. Srishti Bharat Foundation helped Women Globally and incorporated support locally.

02. Menstruation Awareness Programme
"Periods don't stop for the pandemic!"

While the nation was living under a coronavirus induced lockdown and fighting it, girls and women in the rural parts of Gujarat were waging a war to maintain menstrual hygiene! Menstrual Hygiene is an ongoing awareness concept and we know that Periods will not stop even if the country is in lockdown. Srishti Bharat worked with urban poor and rural communities across Gujarat to end menstrual stigma and improve menstrual hygiene practices, sexual reproductive health-seeking behaviour and mobility of women and girls. We strive hard create safe spaces to encourage dialogue around these taboo topics in communities and schools, partnering with state governments, teachers, front-line workers, men and boys to spark awareness and sustain a change in knowledge, attitude and behaviour towards women and girls.

03. Going Digital During Covid-19

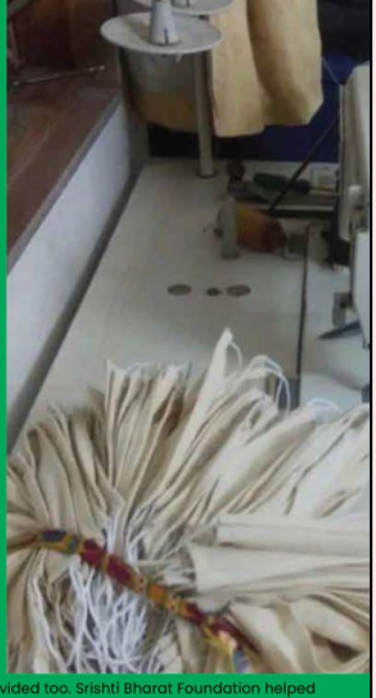
Srishti Bharat, during this pandemic, associated with Amounee, which is a new-age digital platform and used it to generate revenues for talented women and helping them achieve financial independence. The initiative is not only a step for financial independence but it also celebrates the call for an Atma Nirbhar Bharat and going vocal for local! Selling their products online means that they can reach out to customers beyond their geographical reach and hence unlock newer opportunities!

Srishti Bharat also collaborated with Hello Womeniya, which is a woman centric news portal to promote Women Entrepreneurship, Women Empowerment. Srishti Bharat Foundation also strives for Women Empowerment and help all sections of Society. Media plays a very important role to promote any kind of Mission. We aim to promote all women globally via this digital platform.

04. Mask Movement Initiative
Through this initiative, we aimed at providing women employment even in this difficult time of pandemic by utilising their skills to make masks and sell them as well. Through this, we encouraged women to become independent and "Atma Nirbhar" in true sense while also giving something back to the society. This generated a source of constant revenue for the local women and opened a new opportunity for them.

05. Foreign Nationals Initiative

Srishti Bharat firmly believes in, while serving people we do not look at their caste, religion, race or even nationality. Our Dharma is to Serve anyone who is in need. We took this initiative to ensure safety of foreign nationals during the time of pandemic. We ensured that they were provided with all the necessary essential items and were safe and sound as they are our guests living in a foreign country. We stand by "Atithi Devo Bhava" at all times!



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We at Srishti Bharat, work in multiple arenas to ensure holistic development of women and giris, and by an extension complete development of India.


"Never Underestimate What Women Can Accomplish
When They Stand Together"
and Srishti Bharat stands with them on their journey always!


1,000 NRIs return to promote
Modi on his home turf


Vyomini
INCUBATION CENTER
Menstrual Health Management
WORKSHOP
મહિલા સશક્તિકરણના કાર્યો મને આકર્ષી ગયા છે
ગુજરાત બાદ ઉત્તરપ્રદેશમાં પણ ચૂંટણી પ્રચારમાં જવાનું આયોજન કરી રહ્યા છે


CONTACT US
Join us today to create a change that will impact many lives! Your participation means a lot to us!
We would love to hear from you, feel free to contact us. We will get in touch with you.
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Contact Number: +91 997-864-4975
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WHY WOMEN'S SAFETY?

- Dr. Jennifer Lewis

The COVID-19 pandemic has wreaked havoc on the lives of all, especially women who have been even more marginalized than before. According to the unwomen.org, Violence against women and girls, has dramatically increased around the world. As many countries went into lockdown, access to services and justice for survivors of violence, as well as prevention efforts were severely curtailed. As per the website, for every three months the lockdown continues, an additional 15 million women are expected to be affected by violence. The global cost of violence against women is estimated at approximately 2 per cent of global gross domestic product (GDP), or USD 1.5 trillion. For those who did not give importance to or connect women's safety to the economy, that would be an eye-opener.

The UNiTE campaign by 2030 to End Violence against Women campaign by UN Women is aimed at preventing and eliminating violence against women and girls around the world. It calls on governments, civil society, women's organizations, young people, the private sector, the media, and the entire UN system to join forces in addressing the global pandemic of violence against women and girls. There is thus an urgent need to mobilize commitments and action to end gender-based violence especially in the context of COVID-19 with a two pronged approach by accelerating concrete policy responses and exhibiting zero tolerance to such crimes across all spheres of society everywhere.

And it was perhaps to this call; FSAI in India launched our own strategic launch of the Surakshit Naari program under the visionary and able leadership of Mr Suresh Menon, to be lead from the front by Ms Koyeli Dutt, in the year 2020. Here, we aim to focus and address, while using our domain expertise, systemic issues affecting women's safety and security. As a boost to achieve this objective, FSAI National launched the initial start-up team of "Women warriors" from various chapters across the country on 27th October 2020 to kick start the movement. FSAI Goa was the first chapter to launch their FSAI women's wing after Surakshit Naari national launch, lead by Ms Deepali Naik, and supported by Dr Sneha Bhagwat and Ms Ketaki Porob with their North Goa and South Goa teams.

I heartily commend the new initiative of "Chetna" - Arena for Surakshit Naari in the FSAI Journal initiated by Mr Menon and Ms Koyeli Dutt, National Chair for Women Safety, and am proud to contribute to the same.

So where do we go from here?

Women's safety is a vast area and can be quite daunting to choose activities. The first step is to rally the women and create a women's network within FSAI to work on the common agenda of women safety. Various awareness programs about the existing government and social sector infrastructure and technology could be some of the programs to be held. Programs can be conducted so that there is more awareness of the grave situation, access to recourse measures to reduce the statistics, targets and strategies to achieve personal safety. Our aim is prevention and this could also be achieved via policy intervention at the government level. This would mean engaging with experts on the women safety domain. It would also be prudent to mention here that women safety is not a "woman's" problem, and therefore should not be limited to discussions amongst women alone. It's a community issue and hence programs should encompass the community and that means men and women, girls and boys together.

Every state has its own cultural challenges and while it is uncomfortable for most to even acknowledge that the problem is more commonplace than we dare to admit. Hence let us strive to commit ourselves wholly to this noble cause of safety of women, which serves as a measure of a community development. Which country can truly say it has progressed if the women are being assaulted on a daily basis?

"I raise up my voice—not so that I can shout, but so that those without a voice can be heard. ... We cannot all succeed when half of us are held back."

Malala Yousafzai
Youngest ever Nobel Laureate

Dr. Jennifer Lewis is a PhD in Civil Engineering from University of Birmingham, UK –with her thesis on "The Effects of workmanship and configuration of Glass Fibre Reinforced Polymer sheet strengthening on the behaviour of Reinforced Concrete Beams"). Currently she is a partner at Kamat Infra Tech which is an Architectural & Engineering firm located in Goa. She possesses vast experience in the field of academia and industry. She is a specialist in Green buildings and Repair of Concrete Structures, promoting Safe and Sustainable Living Practices. She is certified under the Indo-German Managerial Training Program in Germany sponsored by the German government.

Dr Jennifer Lewis (e Kamat) is the President of the Fire & Security Association of India (Goa Chapter) since August 2020. She is presently also on the managing committee of the Goa Chamber of Commerce & Industry where she has been Chairperson of the Women's Wing for four years. She is active on various business & professional forums.

FIRE SAFETY AND EMERGENCY PREPAREDNESS IN HOSPITALS

- Dr. Lallu Joseph

Introduction:

Hospitals establishments are highly complex by nature. Their administrators focus greatly on the health and safety of each patient. In the process, it is also to be ensured that none of them become the victims of mishaps of any type – accidents or consequential emergency occurrences. The basic requirements cover a slew of common concerns which are well known to society at large. Among them the most important ones include attributes like safer surgery of right patient, right medication/ treatment through the right routes at the right time and right frequency. Besides the basic needs also encompass prevention/ control of any type of hospital acquired infections which can affect both the patients and staff. In addition, appropriate communications among healthcare personnel, patients and all other stakeholders are of great significance. They are aimed at preventing, controlling, and mitigating undesirable consequences. This is because poor communications add to errors which in turn open more windows for failures. Coming to the thematic for this edition of FSAI Journal - "Safe & Secure Hospitals" - I chose to deliberate more on the effective handling of Fire and Life safety in medical care units through this article. Unfortunately, Fire risk concerns gets neglected more often than not in social life. This is mainly due to an ingrained cum false concept which exists in everyone's mind. It denotes that "Fire safety falls exclusively under the domain of professional fire service personnel (officers, firemen and other associated staff), Security officials or Fire engineering design experts. First of all, let us root out this myth for ever. Taking up fire prevention strategies in any walk of life followed by the handling of small incidents as well as playing supportive roles as suggested by fire service experts during major occurrences should become the behavioural pattern of every citizen.

Background:

The increasing number of major fires in India starting from the AMRI Hospital incident followed by more such accidents in the last 12 months clearly brings out the vulnerability of the Hospital establishments. Unlike many other organizations – industries or other units - the number of occupants per square foot is very

high particularly in India. There are many categories of experts/ employees engaged in the delivery of care to patients - directly and indirectly. They constitute the highly professional doctors, their competent support staff, paramedics, dispensary personnel administrative officials, security functionaries, skilled/ unskilled workers engaged in number of activities like building upkeep, maintenance (technical work), housekeeping, cooking/ food supply, laundry etc., During fire emergencies, the presence of some of them make the situation more worrisome. Tensions and emotions are always sore high. Each procedure is uniquely diverse in nature, every patient is different by himself or herself, and at times it could even become becomes life and death situation. Some of the duty personnel in healthcare facilities may not be possessing self-perseverance capability. Majority of patients would have disablement that restrict self-evacuation. Others among them also be unable to choose and execute any rational response.

Fire safety is an important norm that needs to be considered during the construction of a hospital. There are many old hospitals that need to retrofit the existing facilities so as to render them safer for use. National Building Codes have established minimum requirements for life safety from fire within healthcare facilities. They include Fire-resistive construction, compartmentation, passive and active fire protection systems, provision of adequate means of egress, along with required illumination effect as well as appropriate marking of exit routes along. In addition, there must also availability of emergency power supply (i.e., alternative sources) and sufficient quantity of water resources. Regular checking, inspections, testing and certification of all these facilities are equally significant. An adequate system designed for total fire protection and life safety are the need of the hour. This is because of the inevitable as well as higher vulnerability factor of Hospital establishments as narrated earlier. The first principle to be kept in mind while designing a fire safety system for any healthcare facility is to ensure whole and total dependability. Hospitals need to focus more on the easier and safer evacuation methods. Always remember that hospitals are responsible for the safety and security of all the people within, and they are expected to adhere to the legally approved fire safety measures as well.

Hospitals vis-à-vis Emergencies

A workplace emergency is an unforeseen situation. With reg. to a hospital it can cause threatening consequences to the patients, staff, patients, other stakeholders or nearby society. Besides, it can also result into disruption or shut down of operations leading to physical or environmental damage.

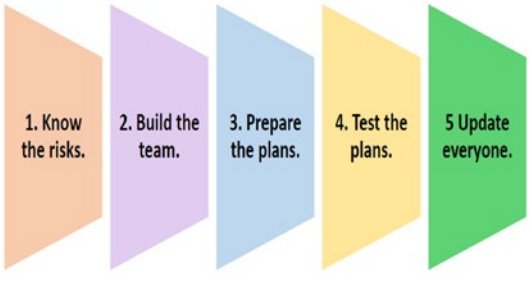
Figure No. 1

Emergency in a hospital could be due to fire, explosion, and/or heavy release of gas (mostly Oxygen), structural collapse, natural or man-made disasters. Among them, the one that ranks the highest risk is fire related.

Top leadership must understand the importance of fire safety and visibly demonstrate their commitment to ensure the same. To facilitate this, an efficient and duly functional safety committee needs to be constituted. Its responsibility matrix must encompass the overseeing of the preparedness and response planning strategy. There must also be a dedicated fire safety officer with appropriate experience in managing fire emergencies.

The five steps of emergency preparedness and the components of each of the steps is critical for a good plan.

Figure No. 2



1. Know the risk:

The first and foremost step is proper understanding of the risk and the maximum to which it can escalate within and out of the hospital premises. This can be done by a simple hazard vulnerability assessment studies. The areas in the hospital with reg. to risk factor need to get categorized as:

- High
- Medium and
- Low.

These are based on the assessment exercise which has duly been executed.

Fig 2 above depicts a simple categorization that we have developed in CMCV.

Hazard vulnerability assessment

Christian Medical College Vellore
Fire Hazard – Vulnerability Scoring

Criteria for Scoring "Fire hazard"

Fire Load:

Very High	High	Moderate	Low	Very Low
5	4	3	2	1

Very High: High power equipment/Huge electrical load (ACs/Fans, Computers etc)/huge volume of Paper, linen/Huge volume of Chemicals / Combination of all of them of low volume or above
Moderate: Low power equipment/Low electrical load (ACs/Fans, Computers etc)/less volume of Paper, linen/less volume of Chemicals / Combination of all of them of low volume or above
Very low: Very less volume of any one of the above

People:

Very High	High	Moderate	Low	Very Low
5	4	3	2	1

Very High: More number of Staff as well as more number of Patients
High: Less number of staff and more number of patients
Moderate: More number of staff and Less number of patients
Low: Only staff in more number
Very Low: Only staff in less number

Value of the items:

Very High	High	Moderate	Low	Very Low
5	4	3	2	1

Very High: Aprrox. More than a crore worth of items / High volume of high value data or information
High: 50 lacs to 1 crore worth of items / Low volume of high value data or information
Moderate: 25 lacs to 50 lacs worth of items / High volume of low value data
Low: 10 lacs to 25 lacs worth of items / Low volume of low value data
Very Low: Less than 10 lacs worth of items / No data lost

Vulnerability based on Man-hours in the room

Very High	High	Moderate	Low	Very Low
5	4	3	2	1

Very High: Manned for 0 to 5 hours
High: Manned for 5 to 10 hours
Moderate: Manned for 10 to 15 hours
Low: Manned for 15 to 20 Hours
Very Low: Manned for 20 to 24 hours

Risk due to inadequate facility with post event management:

Very High	High	Moderate	Low	Very Low
5	4	3	2	1

Very High: No access to hydrant points/Hose reel and No sand buckets near by
High: Very difficult to access Hydrant points / Hose reel + Sand buckets near by
Moderate: Moderate difficultly to access Hydrant points / Hose reel + Sand buckets near by
Low: Easy to access Hydrant points / Hose reel or only sprinkler available + Sand buckets near by
Very Low: Sprinkler available + Easy to access Hydrant points / Hose reel+ Sand buckets near by

Build your team:

In my experience of managing the fire and safety preparedness in a large hospital, we need to have very clear roles and teams. The most important among them is the firefighting task force or a duly trained initial fire response team. This should be headed by a trained, experienced person who can handle the situation. The members of this team could be trained fire guards who are available round the clock. This team should be involved in the day-to-day testing

of all the fire systems in the hospital as per pre - determined schedules and frequency. They should be supported by the Engineering team for addressing the works related to serving, repairs, leakage control, maintaining of fire water pumps etc based on the request from the fire team.

Figure No. 3

Figure No. 4

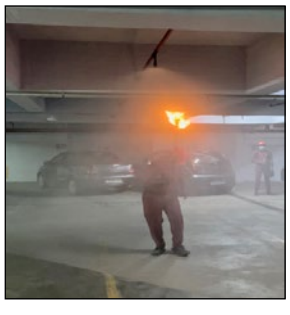


Figure No. 5

Figure No. 6

The planning, organizing, testing of the fire fighting and emergency response plan should be the responsibility of the Quality and Safety teams in the hospital. They are also accountable for the preparation of the plans along with the help of multidisciplinary fire safety committee. The subject matter experts from different departments should be part of the said committee and facilitate the preparation of the plan. Representatives from clinical, non-clinical, safety, security, HR, PR, facilities, operations, and top management should be involved from the start to formulate the methodology for emergency preparedness. The fire safety committee headed by a senior management representative (preferably the head of the institution) should meet monthly. They need to review all incidents, training, update on licences, mock drills and deficiencies, fire system maintenance and improvements to the system required.

Preparation of the plan:

Emergency plans should be the product of an inclusive team instead of an individual or group. It should be concise in relation to the possible threats, risks, and the mitigation steps. It also must provide an outline of each emergency: They pertain to aspects like whom to call, their contact numbers and what should an individual do to ensure their own as well as the safety of others. It should contain a description of the specific tasks of all individuals. It should also cover information about an alternate care site along with an access route to reach that location. The role of the staff who take the alternate care site must also be duly defined. The methodology to be adopted for the evacuation patients including those to be moved in ambulances need to be made clear. Pictorial plans cum flow diagrams would be very helpful

Figure No. 8

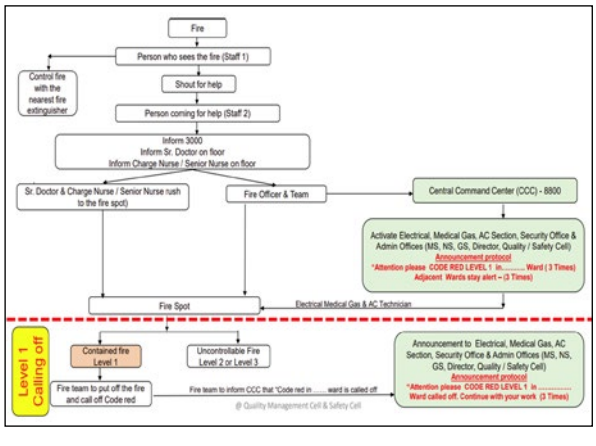


Figure No. 9

Evacuation route and alternate care site

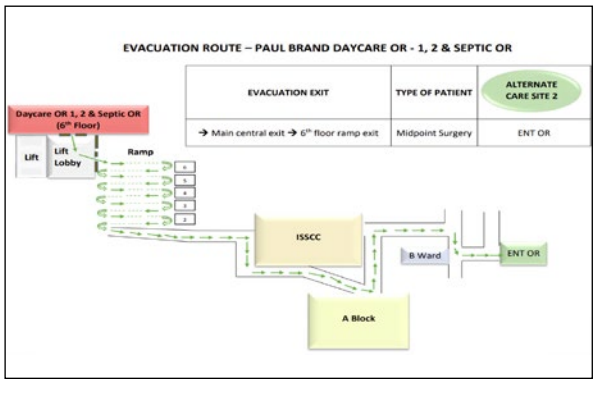


Figure No. 10

3. ROLES AND RESPONSIBILITIES DURING EVACUATION – OPERATION THEATER

Decision making team

(Sr. Surgeon / Sr. Anesthetist, Nurse manager/Night supervisor, Charge Nurse)

- Rush to the spot as soon as the information on fire is received
- Liaise with fire officer to know the level of fire
- Based on the level of fire order for evacuation
  - Level 1 fire : No evacuation
  - Level 2 fire : Full evacuation of the OR floor & Partial evacuation of PB building
  - Level 3 fire : Full evacuation of PB Building
- Should immediately order the fire OR and the adjacent ORs to move out immediately
- Should triage and send the patients out based on the area of fire and criticality of patients.
- The evacuation routes to be assigned by the decision making team based on the area of fire.

Anesthetist

- Anesthetist of an operating team is the Incident commander for his/her team
- He / She should take control and guide the evacuation process of his/her team
- Should liaise with the floor nurse of his/her team on the information of the evacuation exit, route and assembly theatre/ICU
- Shut off the flow of oxygen/nitrous oxide to the patient and maintain breathing with a valve mask respirator
- Collaborate with the floor nurse on the need to turn off medical gas shut-off valves
- Disconnect any leads, lines or other equipment that may be anchoring the patient to the area
- Maintain the patient's anesthetic state and collect the necessary medications to continue anesthesia during transport

Role of Admin officers

- DIRECTOR , ASSOCIATE DIRECTOR, MS, GS, NS, PRO, QUALITY MANAGER, SAFETY OFFICER has to rush to the Central Command Centre

Role of MS & NS:

- Open the bed occupancy status in the Central Command Center computer and be ready
- If required mobilize extra doctors and nurses to assist in evacuation
- Speak to alternate care site and arrange for bed
- If the alternate care site is full arrange bed in another area / ward
- Make appropriate announcements on bed availability and alert alternate care site
- MS to deploy more medical manpower if required (from emergency department)

Role of GS:

- Mobilize extra support service staff to assist in evacuation
- Arrange for extra resources based on the request by CFO/CSO
- Liaise with Chief Fire Officer / Security Officer and get the updates
- Once the information on the situation under control is received from Chief Fire Officer, order for event call off in consultation with the Admin Officers.

Test the plan:

Once the plan is designed, the most important task is to test it. The plan should not be circulated to all the departments without testing or piloting it.

There are two ways of testing a plan:

Lecture and response sessions: Make a presentation to the user about the plan and have a brainstorming session to understand all the gaps in the plan.

Tabletop session: This session will help understand whether the plan is going to work or not, the most important element is identifying the weak links or the action items that need to be looked into, There could be multiple weak links. This session should have multi-disciplinary teams and stakeholders who will understand the roles and responsibilities of the situation and how they will respond to it and whether the plan will work.

Update everybody:

Every staff in the organization is a potential first responder and their corresponding roles are stipulated in the duly formulated in the plan. Each of them needs to know about it, be appraised and trained how to perform those roles. This aspect definitely must include their responsibility matrix to understand about the functioning of an extinguisher works and how to use it appropriately without fail. They also need to be trained and entrusted with the duty of in patient evacuation depending upon the respective work areas to which they belong. Specific, need based and focused training programs need to be imparted to concerned individuals or groups. The frequency of training must be defined and pre and post evaluation tests should be conducted to check the effectiveness of training.

Mock drills- A hard drill makes the battle easier

Mock drill is a practice to save life/ lives in real time situation of any kind of danger or calamity that would occur unknowingly and accidentally. The available time to think and react also would be very little. react. This inferences is particularly important. Accordingly, the drills must be conducted to review the emergency preparedness plan of the hospital, evaluate standard operating procedures (SOP), check the understanding of the staff on their roles and responsibilities. They constitute

➢ Enhanced coordination among the emergency support functions and various departments, > Check the workability of the systems and installations for mitigating the risk

➢ Understanding the gaps in the system to remove deficiencies and to execute further improvement plan to avoid life and property loss and to enhance the ability to respond faster.

There are three categories of Drills and/or Exercises:

Table top:

- Facilitated analysis of an emergency in an informal and stress-free environment.
- This is the simplest way to conducting a drill.

Functional:

- Simulates an emergency in the most possible and realistic manner, short of moving real people and equipment to an actual site.
- Functional drills are medium complex drill.

Full-scale rehearsal:

- As close as possible to the real event, it would take place on location using equipment and personnel that would be called upon in a real event.
- Conducting a drill for different vulnerabilities would be a complex and tough call.
- It may be difficult at times to organize full-fledged drills. Therefore, hospitals can adopt Table Top Exercise (TTEx) physically or even virtually. We have been fully utilizing the online platform to conduct Virtual tabletop exercises at CMCV and it has proved to be very effective. Besides it has also been found easier to conduct the exercise by engaging large number of participants and through the simulation of a most appropriate scenario. It can be hybrid- mix of both physical drill and interactive sessions. It is also feasible to prepare a yearly calendar of probable scenarios like fires, gas leaks, building/equipment failures etc., and rotate them in regular frequencies to ensure that all stakeholders get a firm grip on how to react to each of them should an unfortunate event becomes a reality,

Regardless of the size, complexity and risk involved in the drill, an effective drill/exercise should include the following essential elements:

- Adequately trained team personnel duly complemented with with proper equipment and logistic supports..
- Well-defined process for drill design/conduct.
- Definite criteria for evaluation.
- Qualified evaluators/ observers who are aware about the system and protocol to evaluate the participants.

Before starting the drill, a coordinating conference should be conducted with the stakeholders who will be part of the exercise. Decisions on objectives of mock exercise, its scope, selecting the type of emergency/ crisis scenario for mock exercise and selecting the coordinator/lead are very important . In addition, proper scheduling along with date/timing including the 'location' of drills are equally significant. In case of table top/ mock session, its venue and listing of participants also need to be firmed up and announced.

Steps to Conduct Mock Drill

Pre-drill Briefing:

It involves scenario briefing by the coordinator to the drill team and observers where the safety precaution needed for the drill is also discussed. For an announced drill, preview briefing with the participants and explaining to them about the scenarios and the ground rules for executing the drill are very much essential

Figure No. 11

Briefing

Positioning of Independent Observers: The independent observers should be trained and conversant with the protocol and should be deployed at key locations with checklist/ evaluation format of the response expected which is drawn from the protocol. They should closely observe the response and document the conformances and gaps identified.

Figure No. 12

Observers

Drill Initiation:

The drill should be initiated by the lead/ coordinator in accordance with the planned drill scenario. The scenario narrative should fully cover the events leading up to the time the exercise begins. It should set the scene for later events and capture the attention of the participants. It could include answers to questions such as:

◊ How was the information relayed?
◊ What damages have been reported?
◊ What was the sequence of the events?
◊ Was there any advance warning issued and how long before the event?
◊ What factors influenced emergency procedures?

Drill Activity:

After the drill initiation, every activity and response should be carried out according to the scenario and SOPs. During the drill, independent observers should document all activities based on the criteria of the drill scenario. Each drill should have specified areas of evaluation so that all actions required are observed and evaluated in a uniform pattern. Figure Nos. 13 & 14

Figure No. 13

Evacuation Team

Evacuation Team

Figure No. 14

Evacuation Team

Evacuation Team

Drill Termination:
The drill scenario should be allowed to continue till completion of the stated objectives. The drill should be terminated by the lead/ coordinator in accordance with the plan.

Critiquing Drills:
After the drill, the lead/ coordinator must hold a debriefing session to critique the drill along with the observers and drill team. It should be two-way communication between the drill team and the participants. The process should first involve self-evaluation by the participants, then a discussion of the evaluation notes, checklists, actions taken and the overall drill performance. The critical analysis should highlight the successes, shortcomings of the drill scenario, personnel's actions, and equipment accessibility. The critique should include an analysis of the expected versus against the actual operational outputs. The incident commander should determine whether the drill objective was met or not.

Figure No. 15

Drill Evaluation Report

- It is the act of observing and recording mock drill activity followed by comparing the performed actions against the drill objectives. Evaluation should broadly have the:
- Details of the drill and gaps in conducting the drill with limitations.

Observations and recommendations:

- Report the gaps identified with suggestive actions to improve the preparedness.
- Feedback from the participants.

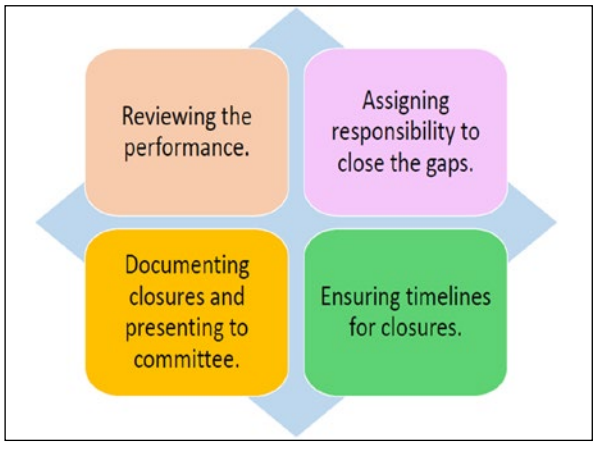
Drill Evaluation Report – A duly filled -in model chart for awareness creation

	Expected	Actual
Did the staff call for help	Y	Y
Did the staff 1 try to put the fire with nearest fire extinguisher	Y	Y
Did the staff 2 inform the fire office	Y	Y
Did the fire team arrive on time	Y	Y
Did the Electrical team arrive on time	Y	N
Did the AC team arrive on time	Y	N
Did the Medical gas team arrive on time	Y	N
Did the STSG arrive on time	Y	Y
Did the Fire officer announce level 2	Y	Y
Did the Charge nurse assign staff for the patients	Y	Y
Did the security clear the way for the fire team to arrive	Y	Y

Total opportunities	11
Deviation	3
Variations in mock drill (%)	27%

Follow-up Activity
Review the performance, where the coordinating team will decide on closure of all the gaps with timelines. The SOP/protocol if needs to be changed should be presented to the fire safety committee and updated

Figure No. 16



Mock Drills Calendar
Drills offer the opportunity to identify training needs, establish new reflexes and to teach through action, repetition and to update/change the plan.
Emergency drills and exercises should be conducted regularly in a hospital to test the plan and to develop the capacity of staff to respond to an emergency/ disaster/crisis. Preparing mock drill calendar is an important activity in this direction

MOCK DRILL SCHEDULE - 2021

CODE	AREAS	Jan 21	Feb 21	Mar 21	Apr 21	May 21	June 21	Jul 21	Aug 21	Sept 21	Oct 21	Nov 21	Dec 21
RED	THEATRE		Main OR ZONE I	SCHELL OR	CB OR		DAY CARE	Main OR Zone II			Main OR Zone III		Main OR Zone IV
	ICU / HDU		KD/ICU/ KNMDU		AICU	SICU / SHDU	NICU/ NHDU		CCU		PICU / PHDU		MICU / MHDU
	WARDS (Every Week)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	OTHERS			OPD						OPD			
Purple				✓			✓			✓			✓
ORANGE	Wards & Labs (Random)		✓			✓			✓			✓	
PINK	WARDS			✓			✓			✓			
YELLOW			✓						✓				✓
BLACK										✓			
BLUE	WARDS (Every Week)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Conclusion: Advanced planning and practice are necessary for the hospital staff to be prepared to handle emergencies. Walking through the plan of a real situation allows the personnel to encounter problems that could occur during a real disaster

and allows for further refinement of the processes. Healthcare leaders must not hesitate to invest in infrastructure and teams needed for fire and disaster preparedness, as every penny spent on preparation will help save precious lives.

Let us always be part of a Safe and Secure Hospital Mission and contribute our best towards its fulfilment

Figure No. 17

Thanks to the fire team headed by Mr. Natarjan, Chief Fire Officer (CMC Vellore), Rtd DC.CISF, Mr. Niranjan, Fire Officer and the entire team of fire guards

Dr. Lallu Joseph is the Quality Manager and Associate GS of Christian Medical College, Vellore, which is the largest hospital in the country to be accredited by NABH. A Mechanical Engineer by profession, she went on to complete her masters and doctorate in business administration and a diploma in CQI from the Canadian Healthcare Administration. A keen learner, she completed the one-year Executive General Management Program (EGMP) of Indian Institute of Management (IIM), Bangalore in 2016.

A passionate teacher and trainer, she is involved in training quality implementation across the country through NABH,CAHO, AHPI and the faculty of many hospital administration programs. She is the principal assessor of NABH. She is the Secretary General of the Consortium of Accredited Healthcare Organizations (CAHO), India. She is a board member of the ASQua and NABH.; also a member of the working group of ISO TC 304- Healthcare Quality Management Standards.

She is a well known writer and have a number of book chapters as well as articles to her credit . She has also contributed in the formulation of many guidelines and standards pertaining to NABH

She has many book chapters and publications to her credit and was part of developing the entry level guidelines of NABH standards. Besides she is an expert consultant and advisor on Quality Management System in addition to being the Recipient of a number of awards at State/ National/ Continental levels

In 1950, legal history was made when an Australian worker won damages from his Melbourne employers because he dislocated his jaw while yawning at work. The courts decided that the damage caused by yawning was an industrial injury. Reason: the man's job was so monotonous he couldn't help yawning
Takeaway: "Yawners can become luckier and happier too – depend where they yawned"

THE IMPORTANCE OF GENDER DIVERSITY IN INTERNATIONAL STANDARDS DEVELOPMENT

- Ms. Sonya Bird

Consider the protective equipment that does not quite fit properly. Perhaps it is a pair of gloves worn by a female firefighter with small hands, or a vest intended to protect police officers from bullets. If this protective gear does not fit correctly, its protective nature may be negatively affected. The glove may not provide the needed protection from fire and heat, and although the vest may fit across the female chest, it may provide a gap in coverage from fitting too loosely across the rest of the torso.

Also, consider the differences between men and women that exist beyond physical sizing dimensions. Other physical differences may include body fat percentage, peripheral vision, sensitivity to sound, pain tolerance, hormones, or various strength characteristics such as upper body strength and grip strength. Each of these conditions could have an impact on the suitability of requirements contained in a standard. Add to that mixture the traditional differences around roles played by men and women, and the evolving roles of women today, and it is clear that needs—with respect to standards—are changing.

Establishing gender-responsive standards

Recognizing the physical, emotional and societal differences that exist between men and women, two international standards organizations created a group to focus on the development of gender-responsive standards. The International Electrotechnical Commission (IEC) and the International Organization for Standardization (ISO) recognized the need for gender-responsive standards and created a Joint Strategic Advisory Group (JSAG). The mandate of the JSAG is to create tools for ISO and IEC committees that ensure standards are gender responsive.

Preliminary work within the JSAG reinforced the need for a plan to establish gender-responsive standards. According to early feedback, many technical committees, which have historically been

made up of male contributors, had not deliberately considered specific needs of women in developing standards. The thought process seemed to be that the standards were sufficient for all.

There are several outcomes anticipated by the work of the JSAG. These include development of the following:
- A checklist to help committees understand and assess how a new work item or revision project for an IEC or ISO standard may be affected by gender
- Guidance and recommendations on the use of non-biased/gender-responsive data in standards development, and what to do when the appropriate data is not available
- Recommendations for committees on how to incorporate gender diversity and inclusivity in the work and language
- A comprehensive communications plan on how to achieve gender-responsive standards
- A baseline for measuring progress. This deliverable will build on the others, but will likely suggest KPIs that IEC and ISO can use to track the effectiveness of the JSAG recommendations.

Understanding the value of gender-responsive standards

I am honored to be a member of the JSAG, and to help address this important topic on a global scale. I am also pleased to be leading the deliverable work group responsible for the development of the guidance for technical committees. In our work on the first deliverable, we realized that many standards already do consider gender, including physical considerations, as well as differences due to social or cultural norms. We also recognize that the individuals participating in the work of the IEC and ISO are experts in their respective fields, but are not necessarily experts on gender differences. As this working group develops the checklist, we want to provide guidance to help all experts understand the value of gender-responsive standards, while also encouraging them to think about gender implications for new and revised standards.

Reinforcing the need for diverse perspectives

Although the draft checklist will ask the drafting team to consider the need for diversity within the team itself, it will also clarify that a woman on a committee should not be misperceived as a representative of all women. Just as needs and experiences vary for men, so do needs and experiences vary for women, and a variety of female experiences and inputs should be taken into consideration in standards development. Diversity cannot be accomplished simply by adding a woman to a committee for the sake of appearing diverse.

The IEC began focusing on the need for gender diversity within the IEC standards system with the development of an IEC Council Board Task Force (TF) on Diversity. This TF is identifying approaches for increasing diversity based on three levels – geographical diversity, stakeholder diversity, and (most relevant to this article) gender diversity. The TF is encouraging gender diversity at all organizational levels of the IEC, from the drafting of materials at the working group and maintenance team level, to the technical committee level, to leadership roles (including convenors and TC officers), to roles on the management boards such as the Standardization Management Board (SMB) or the Conformity Assessment Board (CAB). The TF recognizes that by having more diversity within the system, the resulting standards may be more relatable for all.

Gender considerations in UL standards

Discussions around gender responsive standards are also taking place outside of the work of IEC and ISO. One example of a recently published standard which accounted for gender inclusivity is ANSI/CAN/UL 3741, the Standard for Safety for Photovoltaic (PV) Hazard Control. This standard is intended to help reduce shock hazards for firefighters responding to emergencies on homes with PV systems. In its development, considerations were provided for both male and female firefighters. As research was collected, it was noted that physical characteristics such as body weight and skin sensitivity could have a direct effect on certain threshold limits for electricity, and that women tended to have lower threshold limits than most adult men. Further, both male and female firefighters were considered in the calculations of the potential current that could pass through a firefighter's body during various firefighting interaction scenarios with a damaged PV array. As a result, for the protection of female firefighters in the U.S. and Canada, ANSI/CAN/UL 3741 uses DC body resistance data as modified for females, which is roughly 2/3 the limits for males. In addition, the requirements for hazard levels (defined criteria for reactions to exposure current) were also modified for adult females.

How you can get involved

Underwriters Laboratories is dedicated to advancing gender diversity within standards development. We rely on the input of diverse, knowledgeable experts to promote global safety through the development of consensus Standards that guide the performance and sustainability of new and evolving technologies and services. Our standards development process is open and transparent. Anyone can participate by submitting a proposal, or by applying for membership on one of our Standards Technical Panels (STPs).

Experts who participate in standards development help ensure standards are comprehensive, sustainable and focused on driving safety in line with the UL mission statement of working for a safer world.

If you would like to share your expertise and help to develop standards in your industry, please submit an application for membership through our Collaborative Standards Development System (CSDS) at CSDS.UL.com. If you have questions about standards development, contact us at UL.org/contact or Standards@UL.org. To access UL and ULC Standards documents, or to sign up for alerts, visit ShopULStandards.com.

Underwriters Laboratories Standards Engineer Susan Malohn contributed information related to ANSI/CAN/UL 3741 to this article.

Sonya Bird
She is the the Director of International Standards for Underwriters Laboratories. In this role, she is responsible for developing and implementing the international standards strategy, including leading UL's international standards outreach and relationships, and overseeing UL's international harmonization activities. She also serves as the US representative to the IEC Standardization Management Board (SMB), where she is a member the IEC Council Board TF on Diversity, the IEC Council Board TF on Sustainable Development Goals, and the IEC/ISO Joint Strategic Advisory Group on Gender Responsive Standards. Sonya holds a Bachelor of Science degree in Electrical Engineering from North Carolina State University and a Certificate in Business Management from Yale School of Management for UL Executive Leadership Program.

Readers' Feedback Abstracts on FSAI Journal

1 As usual the July-August Issue excels in content, design and layout. Enjoyed thoroughly the thematic Article on Occupation related Stress by Dr. Narendra Joshi. An exhaustive take on the subject covering all aspects of stress – physical, mental and social with clear and concise analysis of causes and how one can provide the needed environment at the work place and/or one can design one's life to stay stress free to avoid resultant mental health. Doctor has done an in depth assessment in simple language for easy understanding. The other article related to the topic on BPO employee stress by Dr. Siva Perumal and Dr. Nikhil Kulkarni is also highly informative with facts and figures from the research on the subject with suggestions to alleviate the employee behaviour resulting from working at odd hours with extensive engagement with electronic interface and absence of face to face interaction. Job Rotation, team building, and training and a motivating work space are some that can destress the psychosocial stresses.

The other articles on dampers, water mist, scientific firefighting, fire safety management and other too are all insightful and informative. Thanks to Editorial team for bringing out a highly informative journal.

Mr. Ananthraman

NATIONAL & CHAPTER LEVEL ACTIVITY REPORT

The FSAI Mahayatra '21 annual festivity event between 26th and 28th of August marked the spectacular cluster of three mega events. In fact, this was the result of meticulous planning and execution of a record number of centralized and chapter wise activities. This time around it also turned to be a fusion of offline (physically participated) as well as simultaneous virtual functions which were aired live across the length and breadth of the country considering the need of adhering to the desirable pandemic safeguard restrictions.

The programs were distributed in following categories and execution methodologies

i) Virtual: 8 Track sessions of seminars each coupled with panel discussions spread over all the three full day's spells under the banner of Fire & Security Industrial Expo (FSIE). More than 20 speakers and 30 panellists ably conducted the sessions.

ii) Physical: 4 track events each executed by 20 different chapters across the country (covering 80 sessions in all) under banner of Fire & Security Mahayatra (ifsy) on 27th August.

iii) The late evening session of the above category also included a glittering Finest India Skill and Talent (FIST) Award presentation function which got flagged off at Goa and aired across many chapter specific venues where the winners received their prizes.

Exhaustive coverage of all the above will be given in the next edition (Nov- Dec'21) of the Journal. The overall participation crossed 11, 000.

In addition, there were 5 webinars in the month of August as listed below which were part of the regular promotional training/ developmental functions of FSAI and which followed the immediate past spell of July and June and already ready covered in the previous editions of Journal as well as Buzz. Besides, this edition also features the installation ceremony of New Office bearers at the Hyderabad chapter on 31st July. This was also followed by a Technical webinar presented by Mr. Srinivas Velluri on 'Importance of National Building Codes 2016.

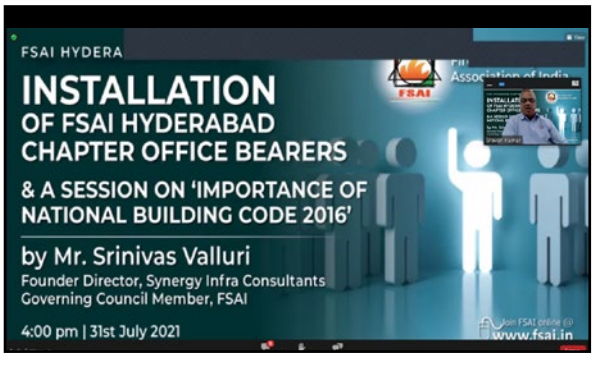
- 6th August 2021: Selection and Designing of Fire Fighting Pumpsets and Fire Fighting Pumphouse - I Mr. Muthukrishnan K. : Mumbai Chapter
- 6th August 2021: Stat-X® Condensed Aerosol Fire Suppression System

By Mr. Sudarshan Anchan: National

- 7th August 2021 Selection and Designing of Fire Fighting Pump sets and Fire Fighting Pumphouse - II Mr. Muthukrishnan K. : Mumbai Chapter
- 14th August Case study presentation on "Retrofitting is made easier with innovative fire piping solution" by Mr. Will Robinson: National
- 14th August 2021 Project Management & Critical Factors for Project Success by

Mr. K. Rajaganapathy . K : Chennai Chapter

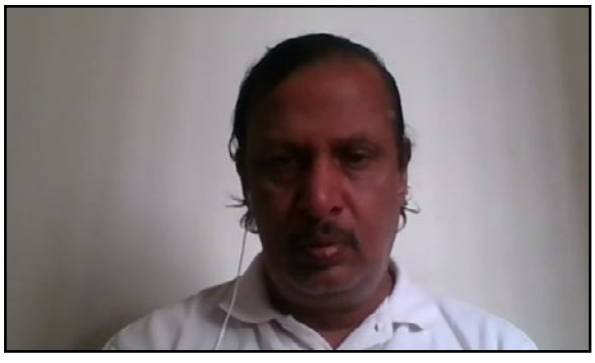
Total Number of participation: 1, 140



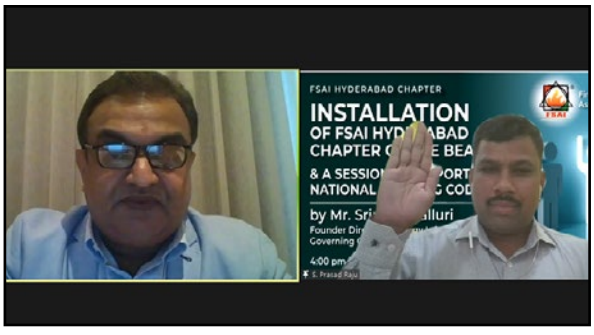
Mr. Suresh Menon, National President, FSAI addressing the investiture function

Mr. Manoj Balakrishnan Outgoing Chapter President welcoming the New President Elect

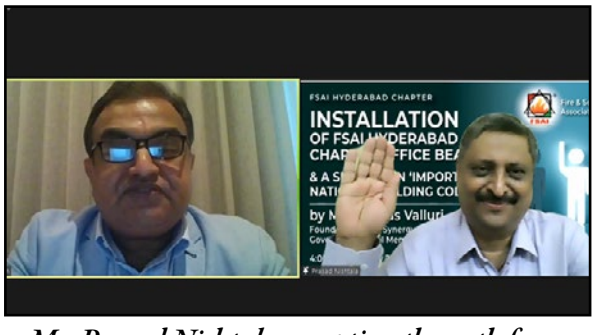
Mr.Manoj Wahi, outgoing secretary Welcoming the New Secretary elect



Mr. C. Venkatesu, National Treasurer speaking on the occasion



Mr. Prasad Raju accepting the oath from National president and taking pledge as New Chapter President



Mr. Prasad Nishtala accepting the oath from National president and taking pledge as New Chapter Secretary

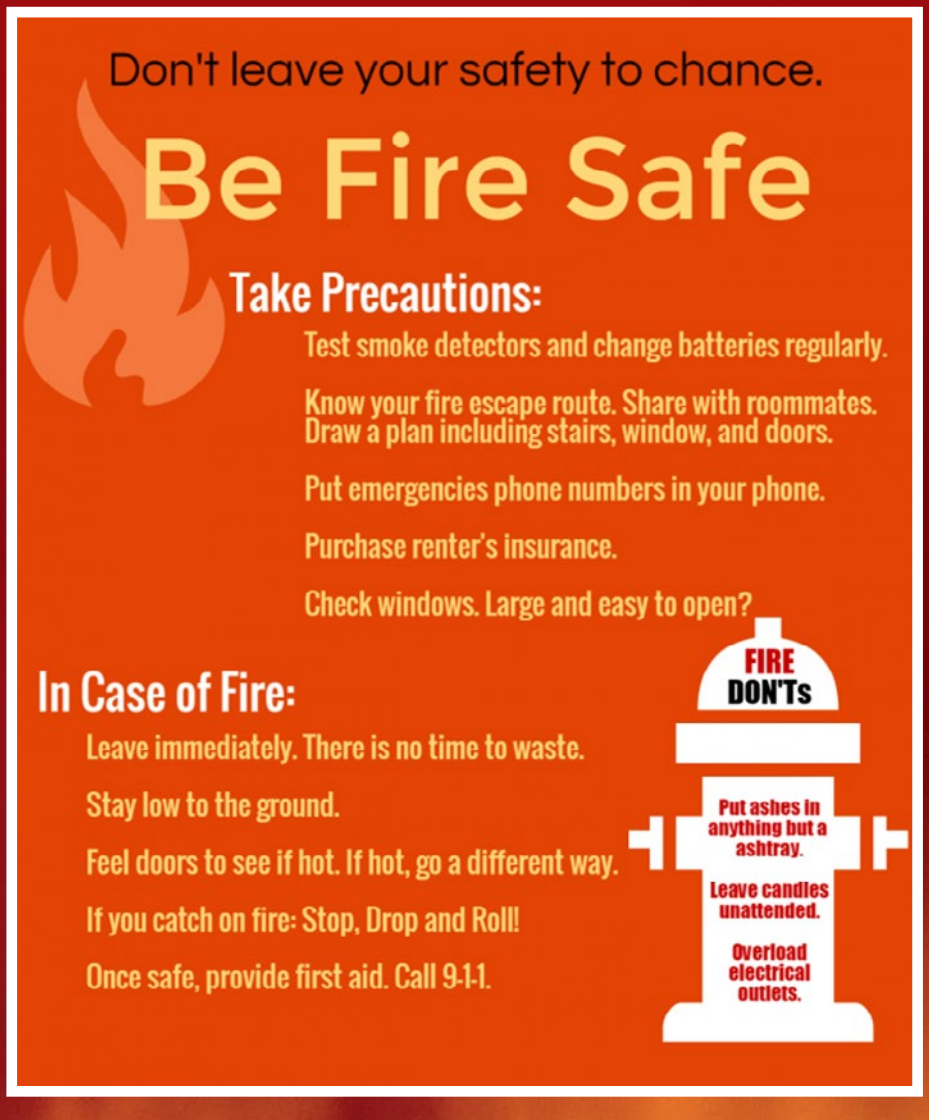
Mr. Prasad Nishtala delivering the acceptance speech

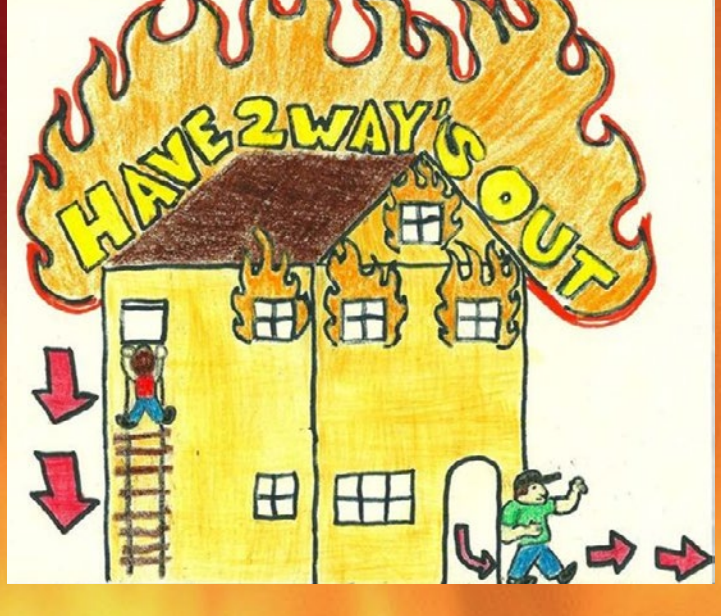
Mr. Prasad Raju delivering the acceptance speech

Mr. Srinivas Velluri at the technical presentation

Facsimile of Installation certificates

FIRE SAFETY PRACTICES





IoT IN EVERYDAY LIFE

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FIRE & SECURITY ASSOCIATION OF INDIA (FSAI) is a non-profit organization established in 2002. It represents the Fire Protection, Life Safety, Security, Building Automation, Loss Prevention and Risk Management domains.

"The question isn't who is going to let me; it's who is going to stop me." Ayn Rand

The quote above wonderfully summarizes importance of women power. We at FSAI are also blessed with some such great examples who are shaping our efforts to make our country safer. We need more of such brilliant minds to gather more mass to this already rolling movement. You are important in every stage of life be it a home front or be it office front or be it your own stint, you have always outshined and worked like an anchor to our lives!

This is a call to invite you for much larger and better society cause to make homes and workplaces safer from fire and security hazards. So what's holding you back, do join us and help us to go miles with your force!

Raksha Shakti

DELIVERABLES MEMBERSHIP	RAKSHA MEMBERSHIP (FOR LADIES) 1 YEAR	SHAKTI MEMBERSHIP (FOR SPOUSES OF MEMBERS) 3 YEARS*
ADMISSION FEE	NO ADMISSION FEE	NO ADMISSION FEE
FEE	INR. 1,000/-	INR. 1,625/- (INDIVIDUALS)
NO. OF PARTICIPANTS	1 PARTICIPANT	1 PARTICIPANT
ACCESS TO WEBINARS	YES	YES
ACCESS TO CHAPTER EVENTS	YES	YES
ACCESS TO NATIONAL EVENTS	PAID BASIS	NO
FSAI JOURNAL (DIGITAL COPY)	YES	YES
FSAI NEWSLETTER (DIGITAL COPY)	YES	YES
NETWORKING OPPORTUNITIES	YES	YES
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DISCOUNT IN EXHIBITIONS	NO	NO
DISCOUNT IN SPONSORSHIP	NO	NO
ACCESS TO LEADERSHIP PROGRAMS	NO	NO
VOTING RIGHTS	NO	NO
MEMBERS KIT	DIGITAL CERTIFICATE	DIGITAL CERTIFICATE
MEMBERS DIRECTORY	NO	NO
ACCESS TO DATABASE THROUGH LOG IN	NO	NO
BRANDING OF COMPANY LOGO ON WEBSITE	NO	NO

* OR TILL THE VALIDITY OF THE SPOUSE MEMBER

THEMATIC Quiz?

SERIES NO. 16

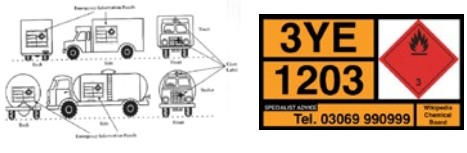
Top three scorers shall be awarded with **"Certificates of Honour"** in Gold, Silver & Bronze categories. Besides all other participants shall receive **"Certificate of Appreciation"** (digital – duly encrypted). Kindly look for the full answer keys in the next edition and compare where we stood.

1 As on date FSAI has ..... chapters covering the length and breadth of the country.

A) 14 C) 34
B) 24 D) 44

B

2 3 of 3YE display on road Tanker/Truck emergency information panel is indicative of the ..... extinguishing medium in case of fire. (Let us all get trained in firefighting and if we happen to be on the roadside during an unfortunate event, be part of the response initiative in any manner as deemed fit!).



A) Water C) Dry Powder
B) CO_2 D) Foam

3 ..... is the popular terminology being used to denote the removal of fuel as part of fire prevention strategy (This knowledge will definitely come handy at home or outside – we don't know when and where- God willing let it be never!).

A) Smothering C) Starvation
B) Blanketing D) De-Oxidation

4 Unique advantage of Water mist technology over conventional hydrant system is .....

A) Cooling C) Vapor Suppression
B) Oxygen Removal D) Pollution Control

5 The alphabet C of CNG – NG for Natural Gas (which is becoming popular these days in automobile sector) stands for .....

A) Combustible C) Cryogenic
B) Condensed D) Compressed

6 The first ever Fire Hose was invented in the year ..... (Let us also salute the joint inventors – that too father-son duo of Jan Ven Der Heyden & Nicholas of Dutch Republic!).

A) 1473 C) 1673
B) 1573 D) 1773

7 This symbol is indicative of ..... automation.

A) Office C) Campus
B) Home D) Shopping Mall

8 This symbolises ..... protection.

A) Network C) Aviation
B) Road Travel D) Hacking

9 ..... is the "Women in Distress" helpline number in India.

A) 1090 C) 1093
B) 1091 D) 1095

10 ..... is the Police helpline number for all citizens in the country.

A) 555 C) 100
B) 999 D) 101

11 ..... is one of the most effective feats which is easy to learn , practice and help us keep physically and psychologically fit as well as strong.

A) Gymnastic C) Yoga
B) Wrestling D) Boxing

Please select the most appropriate / correct choice from the multiple options and fill in the blanks.

You can send the answers by email (murthy@fsai.in) or WhatsApp (+91 98255 61699). While sharing the answers, please ensure to mention your Name, Profession, Company, Phone, Email & FSAI Membership Number.

SERIES 15 ANSWER KEYS:

1-C | 2-A | 3-B | 4-B | 5-B | 6-C | 7-B | 8-A | 9-B | 10-A | 11-C

It is gratifying to note that **Mr. Kamlesh Kumar Chauhan** of Gujarat State Electricity Corporation, **Mr. Jaykumar Sheth** of Arista Solutions and **Mr. Emmanuel Budu-Mensah** of Speedline ICT Solutions (Ghana) had ticked on maximum number of 'Right' options. Accordingly, they are eligible for the **'Certificate of Honor in Gold'** category. Hearty congratulations.

FIRE & SECURITY ASSOCIATION OF INDIA

No.19/1, Kannadasan Salai, Behind Natesan Park, T. Nagar, Chennai - 600 017. **www.fsai.in**
Tel: 044-42128535. Email: administrator@fsai.in

APPLICATION FORM FOR MEMBERSHIP

CORPORATE / MSME / PROFESSIONAL / INDIVIDUAL / RAKSHA / SHAKTI / STUDENT

I / We hereby make application for Membership in the **FIRE & SECURITY ASSOCIATION OF INDIA** and agree to be governed by its Constitution, By-Laws and Rules.

Member Name _____
Corporate / MSME / Professional / Individual / Raksha / Shakti / Student (strike which is not applicable)

I / We send herewith DD / Cheque of Rs._____(Rupees _____)
in favour of **"FIRE & SECURITY ASSOCIATION OF INDIA"**. Alternatively wire transfer to: Fire & Security Association of India - ICICI Bank Ltd - West Mambalam, Chennai-33 - SB A/c No.602301184287 - NEFT / RTGS / IFSE Code: ICIC0006023.

FSAI Goods & Services Tax No: 33AAATF1715F1ZB - FSAI PAN No.: AAA TF 1715 F

	Corporate (1 year)	MSME* (1 year)	Professional (2 years)	Individual (3 years)	Raksha (1 year)	Shakti^ (3 years)	Student (3 years)
Please tick applicable Membership	☐	☐	☐	☐	☐	☐	☐
Admission Fee (one time) **Membership Fee**	**Rs.17,250/-** **Rs.8,250/-**	**Rs.10,750/-** **Rs.7,250/-**	**-** **Rs.15,500/-**	**-** **Rs.3,250/-**	**-** **Rs.1,000/-**	**-** **Rs.1,625/-**	**-** **Rs.770/-**
Total	**Rs.25,500/-**	**Rs.18,000/-**	**-**	**-**	**-**	**-**	**-**
Renewal Membership Fee	**Rs.8,250/-**	**Rs.7,250/-**	**Rs.15,500/-**	**Rs.3,250/-**	**Rs.1,000/-**	**Rs.1,625/-**	**Rs.770/-**
International Annual Membership Fee	☐	**USD 500/-**					

* Document proof of being an MSME (Micro, Small & Medium Enterprise) to be submitted along with the Application Form.
Fees mentioned above are inclusive of Goods & Services Tax @ 18%. ^ Or till the validity of the spouse member.

Name : _____

Designation : _____

Address : _____

_____

Telephone : _____ Mobile: _____

Email Address : _____ Website: _____

Signature of Applicant : _____ Date: _____

Names of other Directors : _____

Constitution of Firm : _____ Yr. of Est.:

Nature of Business : _____

Your Contribution to FSAI : _____

_____

DESIGNATED REPRESENTATIVES (only for Corporate Members / MSME):

Name 1 : _____ Mobile: _____

Designation : _____ Email: _____

Name 2 : _____ Mobile: _____

Designation : _____ Email: _____

Please indicate if you are a member of any other Association _____

FOR OFFICE USE ONLY

1. Date of Receipt : _____
2. Bank Draft / Cheque No.: _____ for Rs._____ drawn on _____
3. Membership No. : _____
4. Date of Joining : _____ Due date for Renewal: _____

APPROVED BY :

National President / Chapter President	National Secretary / Chapter Secretary	National Treasurer

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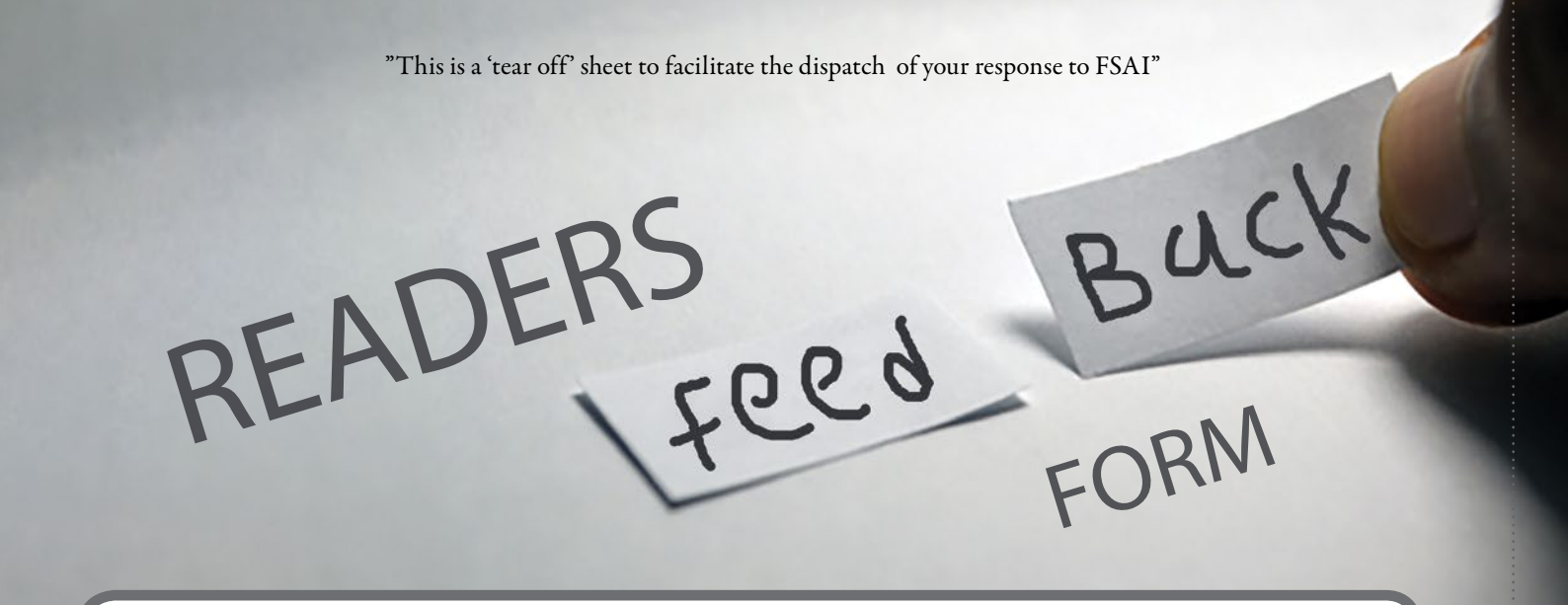
"This is a 'tear off' sheet to facilitate the dispatch of your response to FSAI"



1. Name .....
2. Type of Membership: Corporate ☐ MSME ☐ Professional ☐ Student ☐ (Tick mark as applicable)
3. Membership No. .....
4. Correspondence Address .....

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    (Iii) .....

    (Iv) .....

12. Any other suggestions , remarks or additional inputs which in your opinion can facilitate continual improvement with respect to quality of contents, design, narrative, appeal and enhancement of satisfaction level.

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Please send the filled-in feedback form to : (A): Editor: murthy@fsai.in (B): Chairman : dipenmehta.fsai@gmail.com

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