



# CEEAMA E-NEWS

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Volume 3 Issue # 24

Electrical Consultants' Newsletter

May 2021

## *From Editor's Desk*

Dear fellow CEEAMA Members,

We have great pleasure in bringing out to you, the May 2021 Edition of CEEAMA E-News.

In the last over 12 months, we have been regularly writing about the Covid-19 Pandemic and its impact on social, economical and other spheres of our lives. We have also discussed about the second wave and its possible severity, however, all this was done from a distance. But on 22nd of April, when the news of sad and sudden demise of Mr. Suhas Keskar, President CEEAMA, came in, we all were speechless! It was so unexpected that it took some time before we all came to terms with reality. The contribution of Mr. Suhas Keskar to CEEAMA was immense as he was associated with it since inception. I joined CEEAMA due to Mr. Keskar and Mr. Yardi. He came across as a thorough gentleman, who treated people with respect and worked tirelessly for the growth of CEEAMA. He was also fond of music and had strong spiritual inclination too. His passing away is a personal loss to me as he has been a friend, philosopher and guide for me.

On 9th May 2021, CEEAMA arranged a condolence meet in which everyone paid rich tributes to him. The compilation of such messages is summarised in this edition. We all pray God to give strength to his family to bear this untimely loss and may the departed soul rest in peace! Om Shanti !!

CEEAMA is continuing with efforts of knowledge sharing and enhancement by means of Webinars. This month we arranged a series of 4 Webinars related to Safety aspects of Hospitals and we received excellent response to these. The Webinar synopsis gives details of it.

We are getting good response to the "Technical Quiz", introduced in December 2020, which is encouraging.

Best wishes from the Team, and don't forget to follow social distancing, Stay safe & Remain healthy.

Warm Regards,  
Abhay Pimpalkhare  
Editorial Committee

## IN LOVING MEMORY OF



### *Mr. Suhas Keshkar*

"It is very difficult to reconcile to the reality that Mr Suhas Keshkar; President of CEEAMA is no more with us.

I was associated with him for no less than 17 years. He was with us since the inception of CEEAMA i.e., from the year 2004 and I remember him as active participant information of the CEEAMA. He took great effort to take CEEAMA to the next level. He had leadership qualities & with great zeal organized events like group discussions, factory visits, etc. He was one of the pillars behind CEEMATECH exhibitions. He worked hard towards the growth of CEEAMA. As one of the members of the governing council, his esteemed guidance & driving force contributed significantly to gain the special status CEEAMA enjoys today in the electrical industry.

Personally, I will miss him too. He was a thorough gentleman & one of the great friends I made professionally and would often exchange ideas & thoughts about our profession.

At this moment along with other CEEAMA members, I would like to convey my heartfelt condolences to all the family members of Mr Suhas Keshkar & pray to God to give them strength to bear this untimely loss."

**Mr. Mohan Kelkar**

"Heartfelt condolences to the bereaved family of Mr. Suhas Keshkar! He was a special friend and almost a guide/mentor even though we met very briefly during CEEAMA meets/visits. His jovial yet encouraging nature created a special place in my heart.

I will always miss him and his warm mesmerizing voice."

**Mr. Subhash L. Bahulekar**

"It is very hard to believe the fact that Mr Suhas Keshkar is no more among us. He was the first person I had met in CEEAMA, who gave me various opportunities. My journey with CEEAMA started from that point. I will be always grateful to him for that.

I still remember his narrations with very rich practical experience on project execution case studies in Gulf countries. Mr Keshkar took a lot of initiatives in his long association with CEEAMA since its inception and he will remain in memories of all of us including our associate members. We are going to miss the veteran support available to us. We are orphaned after him.

RIP and let god give strength to his family members to bear this untimely loss."

**Mr. Narendra Duvedi**

"When I received a WhatsApp of Suhas Keshkar's daughter that he is no more with us, I was shocked as I lost my best friend.

From the start of CEEAMA in Pune he was the best coordinator and a friend, as a person he was a great personality. We together worked a lot for CEEAMA. We have given a shape to CEEAMA in Pune. We arranged a trip for two days to Mantra Resort with CEEAMA Members & family for the first time with the help of Mr Suhas Keshkar & Mr Zopate. Similarly, we arranged many programs for CEEAMA in Pune. Our most great successful program is CEEAMATECH, done by us both with the help of Mr. Zopate & others.

He was a chocolate hero of CEEAMA as President.

We were family friends and we have known each other last 17/ 18 years. When we use to meet we always enquired about each other's family. We attended most of our family get together and program.

Sometimes his thoughts were very practical which I liked. When we visited manufacturing units we used to share one room. As a person, he was up-to-date in his style. He used to like persons waiting for him. He was able to talk on any subject. No doubt he was a great person for me forever.

I pray God that his soul may rest in peace.”

**Mr. Anil Yardi**

“We offer heartfelt condolences to Keskar Sir's family. He was a great person with friendly nature, always supportive. His gentle soul will always be in our hearts.”

**Mr. Sandeep Jagtap**

“Suhas was a most dynamic and vocal person. He along with Anil Yardi took Pune Centre to a high level. CEEAMA is grateful to him. Our heartfelt condolences to Mr Keskar's Family. God may give them strength to bear the loss. God may rest his soul to peace.”

**Mr. Anil Valia**

“My sincere condolences to the Keskar family. May God give them all the strength to bear the loss. May the departed soul find peace.”

**Mr. Amey Kulkarni**

“I Knew Mr. Keskar from 2004/5. He contributed with Shri. Anil Yardi & Shri. Shailendra Zopate, to merge CEEAMA Pune Centre to present CEEAMA. His last official call to me was on, 30th March 2021, when we discussed on next Hon. Secretary and Office bearers for CEEAMA.

He was very keen on the CEEAMATECH exhibition to be held at Pune & wanted to make it a success. Anil Yardi supported him for this proejct. CEEAMA GC, later decided to build CEEAMATECH Pune as a brand. His dream was to have CEEAMA-TECH at NSE Goregaon, Mumbai.

God may rest his soul to peace.”

**Mr. Arvind Gadre**

## IN LOVING MEMORY OF



*Mr. Raj Lahare*

With profound grief we inform you that our LFM Mr. Raj Lahare expired on 26.4.2021, due to old age. He had retired as S.E. from MSECTL. He was a practicing Electrical Consultant from Aurangabad. He had 40 years of experience in Designing, Commissioning, Testing, Electrical Power Installations and EHV sub-stations.

CEEAMA offers condolences to his family.

May the departed soul rest in peace.



*Mr. Stefan Fernandes*

With profound grief we inform you that our LFM Shri Stefan Fernandes took his last breath on 15th May 2021. We lost a very enthusiastic and knowledgeable person. He was done his master's in electrical engineering from USA and worked with Petrofac Mumbai for Decades, He had vast expertise in ETAP, his technical articles were published in IEEMA and CEEAMA Technical Journals. We will remember him for his excellent and dedicated contribution to electrical power system analysis work.

CEEAMA offers condolences to his family.

May the departed soul rest in peace.

# ***Electrical and Fire Safety at Hospitals and Industries Webinar Synopsys***

## **Article By:**

LFM :

Mr. Subhash L. Bahulekar

Newton Power Team

## **Introduction:**

Electrical hazards continue to threaten safety of people and property in the form of shocks, burns, injury, fire and explosion. With electricity having become an indispensable part of our life, electrical risks are to be managed effectively.

In industries and commercial establishments, fires due to electrical reasons are very probable. In service industries such as information technology, telecommunications, banking and other commercial establishments, business interruption losses due to electrical hazards (fire in server room, damage of expensive communication equipment, loss of data, fire in cable gallery, etc.) could be substantial.

Hospitals have formed the backbone for the overall human life care especially during the current scenario. Great responsibility lies with the management to ensure accurate treatment and also provide a safe environment. Increased use of Oxygen coupled with extensive usage of alcohol-based sanitisers, leads to dangerous levels of hazardous environment which has caused extensive fires in our country for which a tiny spark is deadly enough. Thus, all the stake-holders in this yeoman service have to be equally responsible.

CEEAMA, an association to reckon with when it comes to shouldering spread of technical responsibility took the initiative this month and promptly arranged webinars on the said subject. Veteran speakers and experts in the industry viz. Mr. Ulhas Vajre, Mr. Abhay Pimpalkhare, Mr. Chidambar Joshi, and Mr. Narendra Duvedi delivered successfully the series in four days to an accolade of over 130 participants each day.

Synopsys of this series is presented below for the advantage of our members.

## **Day 1: CEA 2010/21 – Form 3: Mr. Ulhas Vajre**

- Strong provisions available in Electricity Act 2003.
- Central Electricity Authority prepares electricity safety guidelines.
- CEA 2010 are prevailing guidelines – CEA 2021 are on the way.
- Legally “Owner or Occupier” of a legitimate premises is responsible for electrical safety.
- Checking of compliance at the time of installation and also on recurring basis is responsibility of Electrical inspectors.
- CEA 2021 refers to Various IS codes, NBC and NEC.
- Self declaration forms are available in CEA safety guidelines.
- They are required to be filled by Designated Electrical safety officers for all establishments with sanctioned loads above 250KVA.



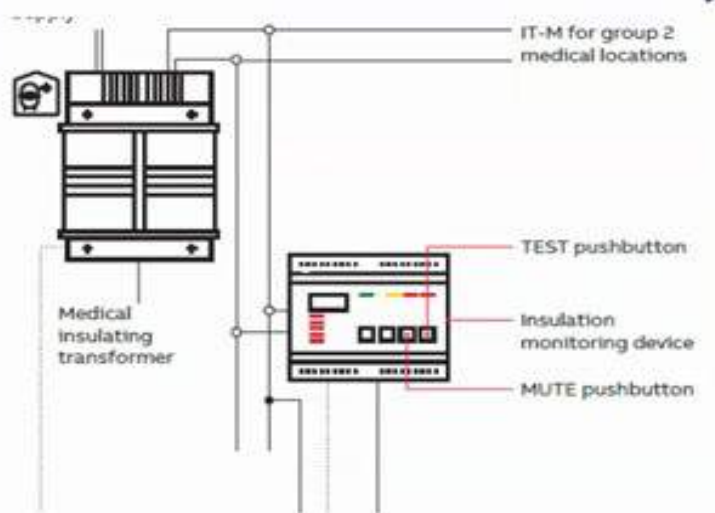
## Day 2: Fire Fighting Provisions – Codes and Compliances: LFM Mr. Abhay Pimpalkhare

- Fire safety design is responsibility of “M” member from MEP design team
- Code Compliance, Design Concepts, Construction and facility management
- In India, NBC and in Maharashtra Fire prevention and safety act 2006 defines compliance parameters of fire safety system.
- Important codes include:
- NBC 2016, NFPA-13, IS-12433: Basic req. for Hospital planning
- IS-2189: FA System
- IS-15105: D&I of fixed automatic sprinkler fire extinguishing system
- Fire safety system requirements depend upon Type of building as defined in NBC.
- Under Group C – Institutional buildings sub-divisions: C1- Hospitals & Sanatoria, C2 – Custodial institutions, C3 – Penal and mental institutions.
- Design approach: The basic idea behind this is to provide enough water at all places with sufficient pressure for sufficient time till formal fire fighting team reaches site with fire tenders and appropriate fire fighting gears. For very large establishments, fire tender recharging also should be possible with local water.
- Wet type Fire safety system is expected to store and provide water through hose and sprinklers at strategic locations in building in case of fire. The quantity (Flow and pressure) of available water should be adequate for containing the fire till the fire tenders reach the site from nearest location.
- The codes define requirement of equipment, redundancy, monitoring etc.
- Fire fighting system approvals are given by CFOs. Licensed qualified free-lance assessors are available for periodic inspection.

## Day 3: Considerations in Electrical design for hospitals: Mr. Chidambar Joshi

- Types of hospitals and related requirements of electrical systems.
- Codes CEA 2010, NBC, IS 732, IS 3043 and so many others.
- Importance and special considerations in selection of DG sets and UPS systems.
- Importance of IBMS, BMS systems and other ELV systems.
- Various Earth loop Impedance requirements, Earthing systems, Importance of protections not tripping on 1<sup>st</sup> fault in certain areas.
- References made to special earthing (IT-M) for medical set-up as per IEC-60364-7-710 and IEC 60601 for preventing tripping on leakage currents.

- IT-M (Medical IT) distribution system
- Anaesthesia, OT, Post operative, angiography, premature baby (Group II)
- Automatic breaking of 1<sup>st</sup> earth fault is inconvenient / dangerous
- Insulating transformers located inside Distribution Boards
- Protection against indirect contacts without having to break the circuit on 1<sup>st</sup> earth fault



- Use of MITs (Medical Isolation Transformers / various classes) in minimizing shock hazards in wet applications.
- Use of Anti-Static Flooring as per NEC 2011 to prevent risk due to flammable anesthetics, and disinfectants (floor resistance not more than 25MOhm; resistance of PVC floors rise with time and for terrazzo floors decrease).
- Special considerations for OTs and Modular OTs.
- Necessity of TVSS, SPDs and lightning Protection in view of critical and costly equipment.
- Special cable systems, Panel protection IP ratings, ELV system
- Lighting systems (patients mood kept in mind)

#### **Day 4: Electrical Safety Audits Case studies and Summary: Mr. Narendra Duvedi**

- Main issues related to inadequate electrical safety
- Behavioral Science - Why people don't always follow the rules
- let's understand why that happens - Why people don't always follow the rules
- Correct behaviour at the heart of every strong safety culture
  - What is reality in India
  - Electrocution Scenario in USA
- Electrical safety and Process continuity
- Types of electrical hazards
- Electric Shock
- Fire due to Electrical reasons
  - Electrical sparking and flash over due to insulation failure, loose contacts.
  - Effects – Damage to electrical equipment, Damage to whole setup, damage to life and property.
- Overheating.
  - Overheating of electrical equipment due to under capacity, overloading, short circuit.
  - Effects – Insulation failure, increase in energy cost, reduces equipment life.
- Lightning Strikes.
- Static discharge
- Fire due to Electrical reasons - Electrical sparking, Flash over
- Current finding – Related to ICU fire (Ref: forensic audit of Virar Hospital Fire)
- Present Covid ICUs have
  - Oxygen enriched atmosphere due to leakage through masks
  - Alcohol fumes due to evaporation of frequently used Sanitizers.
  - Heavy fire loads due to bedding / curtains etc.
  - Source of ignition due to thermostats operating in indoor units of split air conditioners, FCUs etc.
- Currents during normal loading, Short circuit and Arc flash (Typical case: During short circuit current increases by 18 times and heat produced is 300 times more)
- Arc Flash Analysis

- Some Standards and regulations related to Electrical safety
  - CEA 2010 – Electrical safety guidelines - GOI
  - IS 732 - Switchgear coordination - GOI
  - IS 3043 - System and Equipment Earthing - GOI
  - IS/IEC 62305 - Lightning Protection system - GOI
  - Supply code 2005 - Connectivity requirements - MSEDCL
  - IEEE 519 – 1992 - Current / Voltage harmonic compliance – MSEDCL
  - NFPA 70E - Electrical Safety at workplace
  - NBC / NEC - Codes
  - IS/IEC 61439 - A low-voltage switchgear and control gear assembly.
  - IEC 60909 - Short circuit calculation procedure.
  - IEEE 1584 - Arc flash energy calculation procedure
- Safe thermal behavior of electrical equipment (I2t)
- Importance of relay coordination and reliable time graded discrimination
- Importance of Cable sizes in protecting last mile small loads using MCBs
- Requirements and Ideal scope of Electrical Safety Audit and Deliverables
- Case study 1: Large steel Industry – 30MW running load / EHV (Incidence / Loss / Reason)  
(20MVA EHT transformer completely damaged, many 11KV cables damaged – Plant shut for almost 2 months)
- Case study 2: Medium size Engineering Multinational Industry 6MVA load (Findings)
- Case study 3: Large 600 bed private hospital (findings)

## Conclusion

Holistic approach towards handling of electricity is the key to achieve overall safety for life and property. While, we as electrical engineers especially the “consultant breed” are experts in our field to ensure our designs are fool proof but having a wishy-washy and perfectionist approach doesn’t quite serve the purpose. Let’s amalgamate our strength with the facility personnel like those in installation, operation, and maintenance with prudent apathy. Our knowledge has to complement with their wisdom. Practical, maintainable, safe solutions bond us together to achieve a safer world!!!



# Fire Incidents in Hospitals / Nursing Homes

F. No. VIII-110111/02 (Adv)/2020-DGCD (F)

Government of India  
Ministry of Home Affairs  
Directorate General FS, CD & HG  
Fire Cell  
\*\*\*\*

East Block – VII, Level – 7,  
R.K. Puram, New Delhi – 110 066  
Dated 4<sup>th</sup> May, 2021

To  
All the Chief Secretary in the States/UTs.

**Subject: Fire incidents in Hospitals/Nursing Homes.**

Sir,

Your kind attention is invited to this office letter of even number dated 21<sup>st</sup> December, 2020 and 28<sup>th</sup> November, 2020 on the subject mentioned above to prevent the recurrence of fire incidents in Hospitals and Nursing Homes including Temporary Covid Hospitals allowed to operate from temporary structures. However fire incidents have been noticed in recent past resulting in loss of human life and property.

2. As per the National Building Code of India hospitals and nursing homes come under the category of Institutional Buildings. Various fire safety measures have been mentioned according to the type, height and area at table number 7 (Part - IV- Fire and Life Safety). In addition "Recommendations for the Fire Precautionary Measures in Construction of Temporary Structures and Pandals" have been mentioned in IS 8758 (Copy enclosed) including materials, design, construction, fabrication of structure, resistance to fire, NOC from authorities, means of access, capacity, enclosure and exits, electrical arrangements, fire protection measures and firefighting arrangements.

3. You are, therefore, requested to issue necessary directions to the concerned authorities to ensure the followings:

- i) The permanent hospitals should implement all the provisions as stipulated in the National Building Code of India or as per Local Building Bye-laws/ Fire Service Act.
- ii) The Temporary Covid Hospitals allowed to operate from temporary structure should implement all the provisions as stipulated in IS 8758 or as per Local Building Bye-laws/ Fire Service Act.
- iii) Fire Services be asked to deploy Fire Tender, if feasible, in all Covid hospitals. Otherwise hospitals be asked to engage 24x7 trained fire safety officer with firemen to ensure the fire safety of Hospital.
- iv) It is reported that major fire accidents in hospitals are due to the ignition of fire from electrical wiring and equipment. To ensure safety, final wirings in all temporary COVID hospitals shall be protected as per the recommendation in annexure in addition to the CEA regulations.

Yours faithfully,

  
(D K Shami)  
Fire Adviser

Copy for taking necessary action to:  
**Directors General of Fire Services in the States/UTs.**

Copy for kind information to:  
**Joint Secretary DM.**

For more details Please refer given below link:-

<https://drive.google.com/file/d/1bvMtkMVnjPG6w7zGw2jVvb4dRsN0Tsh9/view?usp=sharing>

RESULTS OF CEEAMA E-QUIZ  
MARCH 2021



Mr. Dinesh Redekar

Mr. Subramanyan Iyer

Mr. Navneet Neve

# CEEAMA - E-Quiz

## MAY 2021

1. Refractive stress control is a part of
  - A. Hot Shrink Splice Construction
  - B. Cold Shrink Splice Construction
  - C. Type Test Parameter
  - D. None of these
  
2. SWA cable is an abbreviation for which of these cables?
  - A. Steel Wire Armoured Cable
  - B. Soft Wire Armoured Cable
  - C. Stranded Wire Armoured Cable
  - D. None of these
  
3. Lighting Transformer
  - A. Reduces upstream System Fault level
  - B. Reduces Lighting circuit fault level
  - C. Provides better CRI
  - D. Provides safe lighting control
  
4. Insulated cable is not an acceptable "flexible connector" in Busduct
  - A. TRUE
  - B. FALSE
  
5. Current limiting reactor in series with capacitor
  - A. Provides earthing point
  - B. Prevents over-compensation
  - C. Limits transient over currents
  - D. None of the above
  
6. Fire Fighting panel colour shade
  - A. RAL7032
  - B. IC7035
  - C. RAL3000
  - D. NEC9005
  
7. The purpose of marshalling panel supplied with the MCC panels is to
  - A. Provide interface with Instrument
  - B. Group the I/O through multi-core cable
  - C. Save cable cost
  - D. All of the above

8. Continuous load(s) in DC load cycle

- A. Indicating lamps on Switchboard
- B. Breaker Spring charging motor
- C. Switchgear Operation
- D. All of the above

9. SF6

- A. Green House Gas
- B. Single Pressure Puffer type CB
- C. Double Pressure Puffer type CB
- D. All of the above

10. Contactor for Hoisting duty

- A. AC-1
- B. AC-4
- C. AC-3
- D. AC-15

**Rules for the QUIZ:**

- The Quiz will be open for 10 days from the date of EMAIL.
- Each correct answer received on DAY 1 will get 100 points
- Next days the points will reduce as 90 – 80 – 70 and on 10<sup>th</sup> day points will be ZERO even if the answer is correct.
- All participants will receive E certificate signed by CEEAMA President with the points earned mentioned on the same.

**Please use following google form link to participate in the QUIZ.**

<https://forms.gle/Jz5MgEdRpmdsMsCh8>

"Thank you all for the overwhelming response to the E-NEWS in general and E-Quiz in particular.

MCQ based quiz is always tricky and surprisingly can take us aback when we realise our conceptions (misconceptions) about the subject / system / product.

The aim of the feature was to create inquisitiveness in your mind and help you check your technical quotient quickly. The response will also help us to present articles and webinars on subjects which are important, but which lack enough awareness / knowledge in general.

It can open a pandora box for our discussions and arguments and probable solutions. Engineering evolves with conception. It gets fuelled with community discussions and capitalist actions. All stakeholders start realising the need to take a closer look and help improve standards as we have seen in the past century. Surely it makes the world a better place.

Wish you all a better luck this time.

Do spread the word."



# INVITING

## ADVERTISEMENT - OPTIONS



### *From Editor's Desk*

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We are getting good response to the "Technical Updates" section. We are planning to continue with it.

Rest wishes from the Editor.

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