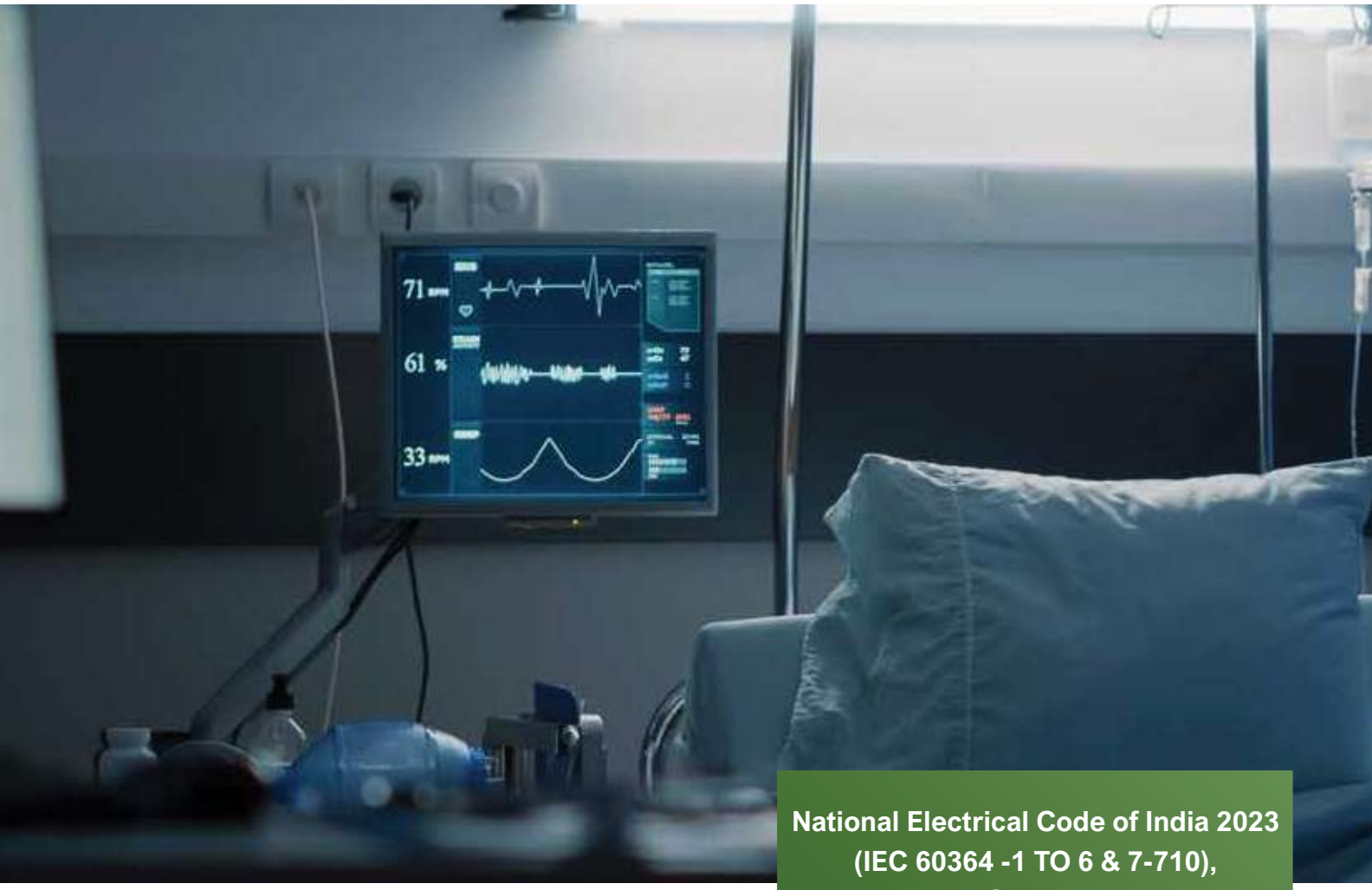
ELECTRICAL SAFETY
IN HOSPITALS



National Electrical Code of India 2023
(IEC 60364 -1 TO 6 & 7-710),
IS17512,
IEC 60601, IEC 62353

FIRE PROTECTION

OUR SOLUTIONS :

FIRE PREVENTION FROM ELECTRICAL AND BIOMEDICAL EQUIPMENT
PROTECTION FROM ELECTRIC SHOCK
SAFETY FOR PATIENTS AND MEDICAL STAFF
RELIABLE DIAGNOSTIC & LIFE SAVING EQUIPMENT
ENHANCED LIFE

CAPE ELECTRIC

Accidents in hospitals and medical locations

Electrical fire accidents are common in medical locations. During COVID period, > 25 major fire accidents happened in hospitals killing >125 people and injuring 1000's.

- Electricity is the primary source of fires
- 78% of 33 hospital fires were caused by electricity (source : International Journal of Community Medicine and Public Health).
- India has the most number of hospital fires in the world.
- Air conditioners and ventilators were frequently referred to as "the most prevalent source" of fires.
- Most often non disconnection of protective device is the reason for accidents.

Risk for Patients due to electric shock

- Conductive parts bypass skin.
- Conductive solution or electrode gel intentionally lowers the resistance offered by the skin (e.g. defibrillation pads, EKG pads, ultrasound equipment, patient monitors, and ventilators).
- Anaesthetised patients cannot react themselves in case of electrical shock from surgical or medical equipment.

Regulatory requirements in Hospitals

The Electrical safety regulations of Government of India 2023 included mandatory implementation for safety requirements as per National Electrical Code of India 2023 in hospital and medical locations.

- 18 subjects of inspection.
- 11 type of test.
- National Electrical Code of India 2023.

Technical requirements in medical locations and solutions by CAPE

- TN-S & IT electric system earthing.
- Protective Equipotential bonding.
- Touch voltages <25V at medical locations to avoid shock hazard.
- Continuity of power supply during first fault for lifesaving equipment.
- Safety measures against fire in oxygen and alcohols rich areas.
- Voltage disturbances and EMC compliance for reliable operation of sensitive and expensive bio medical equipment.

What we do

1. Understand the installation and identification of the risk,
   A. Inspection of all 18 safety measures recommended in NEC 2023
   B. Testing of all 11 safety measures recommended in NEC 2023
   C. Inspection of Bio medical installation in compliance with IS 13450 / IEC 60601
2. Preparation and implementation of Improvement plan,
3. Training of Hospital employees for safety audits and testing.

Example of what we do: Most hospitals have multiple earth electrodes connected to different parts of electrical and bio medical installation. This is against science and electrical theory and is the reason for fire and failures. We help the customers to implement “protective equipotential bonding” as per the latest standard.

CAPE ELECTRIC

Our technical team for hospital safety is guided by Mr. S. Gopa Kumar, who is a member in MT40 of TC 64, maintaining global standards on medical locations.

S. Gopa Kumar
Member
IEC - TC64: (Electrical Installations) MT 03, MT 12, MT 40, MT 41, WG 43
TC81: (Lightning Protection) ahG 19, MT 03, MT 14, MT 21, WG 18
SC 37 A: (Surge Protective Devices) WG 03 & WG 05
SyC LVDC (LVDC) WG 01
BIS - National Building Code-2016 (electrical committee),
ETD 20 (National Electrical Code of India 2023, IS732, IS3043, IS/IEC 62305),
ETD 30 & ETD50

Established in 1996, we are the market leader in lightning protection, global earthing, and building shielding measures for the last 28 years . We are well-known in the electrical engineering community for our proficiency in variety of electrical engineering subjects and its innovative market solutions, user-friendly and premium-quality products.

We provide a vast range of products and technical solutions for Electrical Safety, Lightning Protection, Earthing, and EMP/HEMP protections, owing to our decades of experience in providing cutting-edge solutions. Our expertise includes product development, manufacturing, installation, training, and consulting.

Having two manufacturing facilities in Chennai and Kanyakumari, the products have been tested and approved by a number of international laboratories and are compliant with industry standards. The success of CAPE is attributable to a workforce of 300.

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