



INSIGHTS ON FIRE SAFETY
RELATED REQUIREMENTS IN
NATIONAL BUILDING CODE (NBC)



Together for a Better Tomorrow

About the presentation

Here's for you an overview of National Building Code (NBC) - the revised NBC rules, fire prevention techniques with reference to building...and your some take home points.

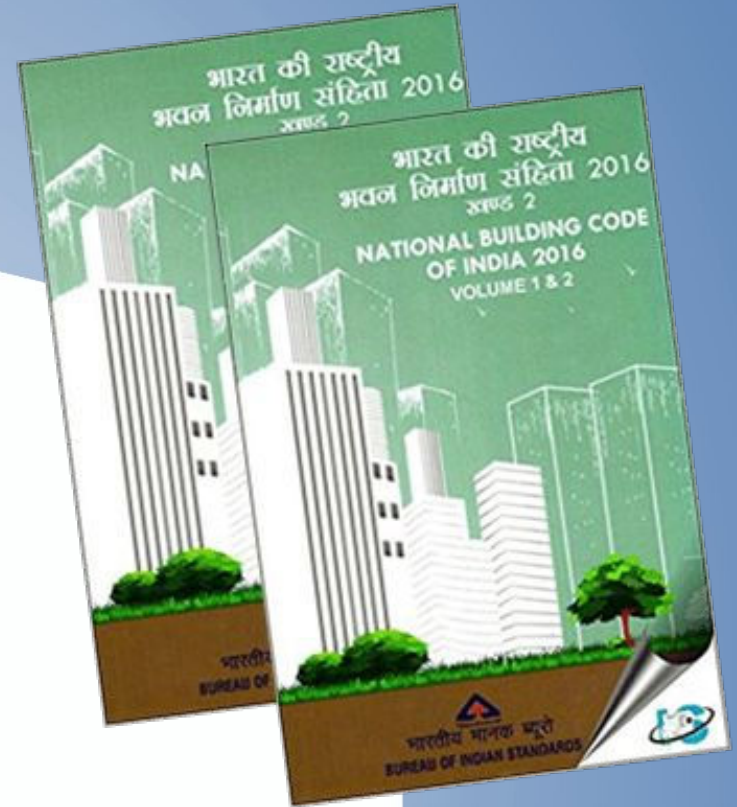
**Note: This presentation is based on
NBC 2016 requirements**



National Building Code (NBC)

First published in 1970

The Planning Commission of India entrusted Indian Standard Institution to form a uniform National Building Code (NBC)



National Building Code (NBC):

REVISIONS OVER THE YEARS

1983

National Building Code

1997

National Building Code Part IV

2005

National Building Code

2015

National Building Code Amendment—2

2016

National Building Code

High Rise Buildings: Then & now

Previously, a building having a height of 15 m or more was termed as a High Rise Building.

Eventually, with the increasing habitat & scarcity of space, it is now spreading wings both horizontally and vertically upward even up to height of 200 m to accommodate more habitat.



Fire prevention

is based on the following:

Occupancy

Fire zones

Types of construction

General requirement of
all occupancies



Fire prevention

is based on the following:

- Electrical installation
 1. Emergency power for fire and life safety system
 2. Substation
 3. Lightning protection
 4. Escape lighting and exit signage
 5. HVAC and smoke control
 6. Glazing
 7. Surface interior finish
 8. Fire Command Centre

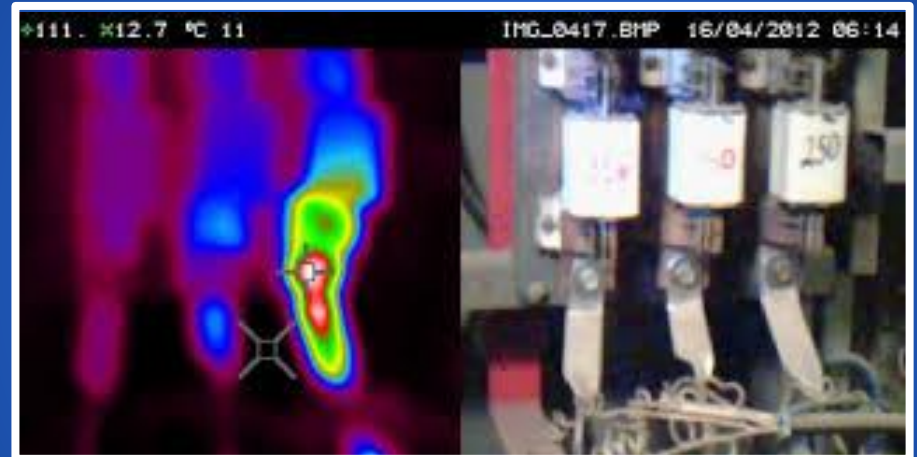
NEARLY
40%

**of electrical accidents
have resulted into
fatality indicating its
potential of severity**

Thermography

- to support your comprehensive
fire & electrical safety audit

Know more

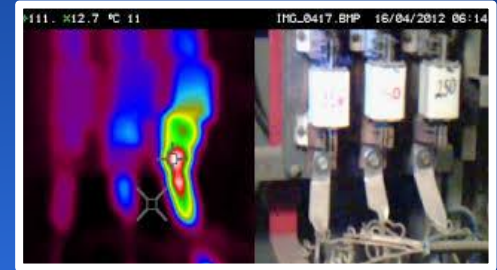


Thermography

at a glance

A thermal imaging technique that is used to measure invisible infrared energy being emitted from an object

A loss prevention tool -
supports comprehensive electrical & fire safety audit



PURPOSE

To identify and document exceptions (abnormally high temperatures) within electrical distribution systems and/or rotating equipment

INDICATOR

Delta T (temperature difference) criteria is commonly used to rate the temperature severity of electrical and mechanical system exceptions.

Thermography

POSSIBLE CAUSES OF EXCEPTIONS

Electrical systems

Deteriorated connections, short circuits, overloads, load imbalances, faulty or improperly installed components.

Rotating equipment Friction due to improper lubrication, misalignment, worn components or mechanical loading anomalies

THERMOGRAPHER

Preferably an electrical engineer with certified 'Thermographer' qualification and competence



INSTRUMENT

Infrared thermal imaging systems with spectral range from 2 to 14 μm and minimum resolvable temperature difference (MRTD) of 0.3°C or less at 20°C .

 A spot radiometer or non-imaging line scanner is not sufficient.

CODES AND STANDARDS

NFPA 70B, NFPA 70E, OSHA 29 CFR, NETA, ANSI, IEEE and NEMA

Things to make sure for fire prevention

1. Fire resistance rating of structural and non-structural elements updated
2. Fire resistance rating of service shaft and duct opening of 2 hours. Inspection door and duct opening should have same resistance rating of service shaft.
3. Facade protection and openable windows in facade shall have fire protection and smoke exhaust aspects

Things to make sure for fire prevention

4. Compartment criteria of different occupancies and fire separating wall & floor partitions are modified
5. Provision of fire/smoke damper design more elaborated like provision of damper
 - a. At the fire separation wall
 - b. Where ducts/passage enter the vertical shaft
 - c. Where the duct passes through floor
 - d. At the inlet of supply air duct and return air duct of each compartment on every floor

Prevent it before it occurs: **Fire pre-plan**

Your loss prevention tool



FIRE PRE-PLAN 

A TOOL FOR LOSS PREVENTION

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Manage your risks! **Your loss prevention tool**



FIRE & LIFE SAFETY



AUDIT | CONSULTING | RESEARCH | TRAINING

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FIRE & ELECTRICAL SAFETY



A TOOL FOR LOSS PREVENTION



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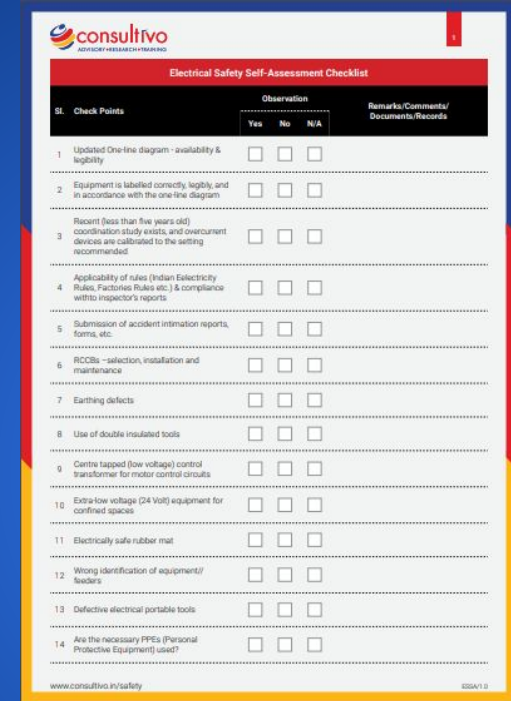
Life safety is based on:

- General exit
- Occupant load
- Declaration of occupant load
- Egress components
- Smoke control of exit
- Compartmentation
- Smoke control above and below ground
- Gas supply
- Hazardous area
- Fire detection
- Fire drill



Safe electrical supply system

- The electrical supplies towards the critical aspects of emergency power for fire and life safety addressed for respective system.
- Power supply to the panel and distribution board be through fire proof enclosure or circuit integrity cable or through alternate route in the adjoining fire compartment is protected within the compartment of vulnerability and require location of the panel/distribution board feeding shall be in fire and safety zone and ensure supply of power to these system.



The form is titled "Electrical Safety Self-Assessment Checklist" and includes the following table:

Sl. Check Points	Observation			Remarks/Comments/ Documents/Records
	Yes	No	N/A	
1 Updated One-line diagram - availability & legibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2 Equipment is labelled correctly, legibly, and in accordance with the one-line diagram	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 Recent (less than five years old) coordination study exists and overcurrent devices are calibrated to the setting recommended	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 Applicability of rules (Indian Electricity Rules, Factories Rules etc.) & compliance with inspector's reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5 Submission of accident intimation reports, forms, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6 RCCBs - selection, installation and maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7 Earthing defects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8 Use of double insulated tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9 Centre tapped (low voltage) control transformer for motor control circuits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10 Extra-low voltage (24 Volt) equipment for confined spaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11 Electrically safe rubber mat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12 Wrong identification of equipment// fixtures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13 Defective electrical portable tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14 Are the necessary PPEs (Personal Protective Equipment) used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

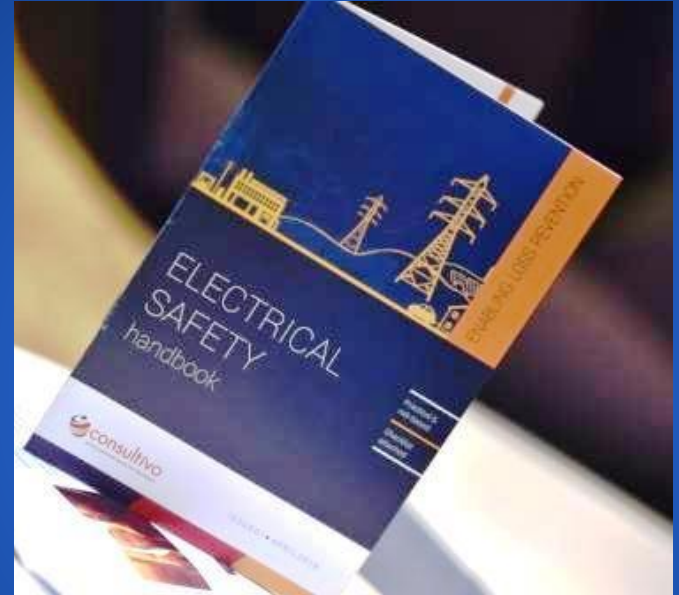
www.consultivo.in/safety ISSA/1.0

Electrical Safety Checklist

Download

Safe electrical supply system

- The high voltage electrical equipment safety including aspects of emergency and exit lighting of large and public assembly occupancies
- HVAC system, smoke control and mitigation also to be taken care of with comprehensive approach towards compartmentation and spread of fire and smoke.

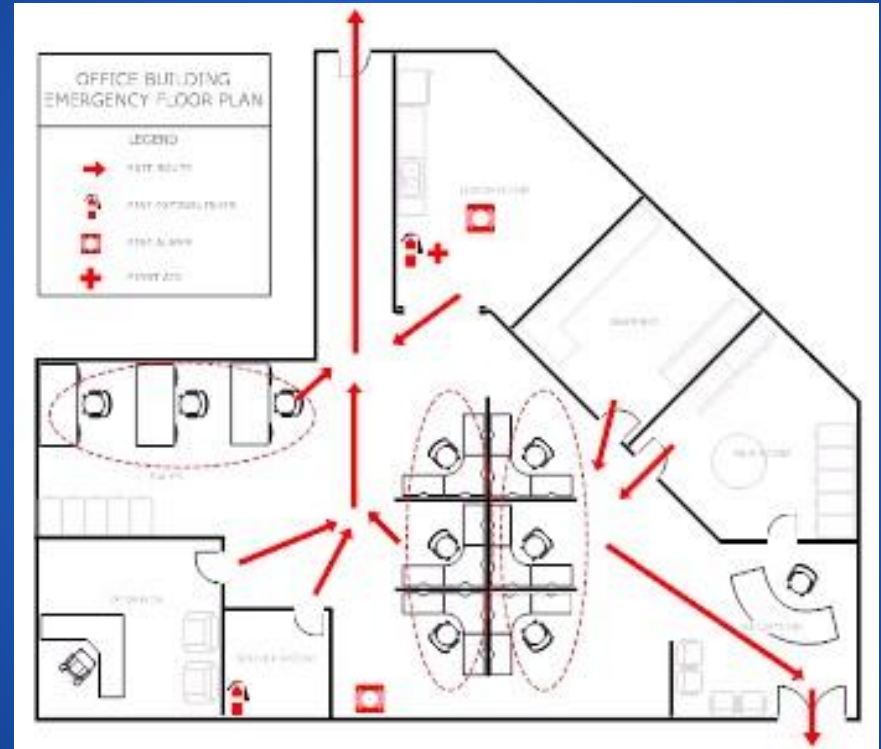


Electrical Safety Handbook

Get a copy

Life safety

- To calculate the number of exit requirement with **Density Factor**
- **Exit Layout** for better understanding of various aspects of means of egress, corridor, passageways, stairways and exit
- Provision for **access control** door, electro magnetic door, revolving door and turnstile (conditions to be fulfilled)



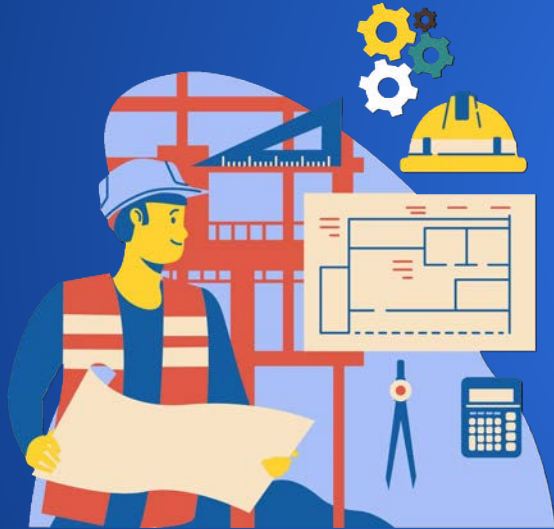
Life safety

- Provision of **handrail** at both sides of stairs and ramp width exceeding 1.5m
- **Internal stair width** of residential building increased to 1250 mm from 1000 mm
- **External stairs width** increased from 1250 mm to 1500 mm
- Each **fire rated door** shall have marking on the product of its **certification**. Door assembly parts like hinges, locks, panic bars, door closer and door viewer shall be certified.



Life safety

- **Means of escape**
 - Means of escape can be defined as the structural means from where a safe route or routes are provided for persons to escape in case of fire from any point of the building to a place of safety by their own unaided efforts.
- **Escape route design**
 - Escape Route Planning
 - Escape Route Protection
 - Escape Route Recognition
 - Warning and Alarm System



FIRE RISK ASSESSMENT
A TOOL FOR LOSS PREVENTION



[Know more](#)



INDEPENDENT THIRD PARTY
FIRE SAFETY AUDIT
A TOOL FOR LOSS PREVENTION



[Know more](#)

Business leadership is expected to devise fire risk-mitigation strategies in order to create a secure business environment.

Milestone 1: Management attention and ownership towards fire risk

Milestone 2: Conduct a detailed fire risk assessment

Know the 5 steps





You may wish to get a detailed overview:

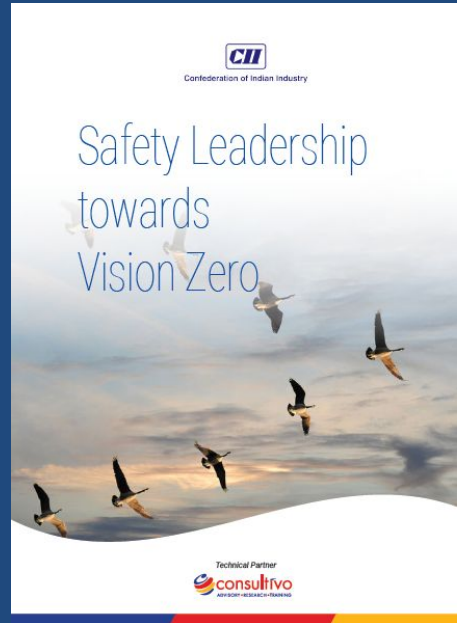
**INSIGHTS ON FIRE SAFETY RELATED REQUIREMENTS
IN NATIONAL BUILDING CODE - NBC**

**GET FULL
PRESENTATION**

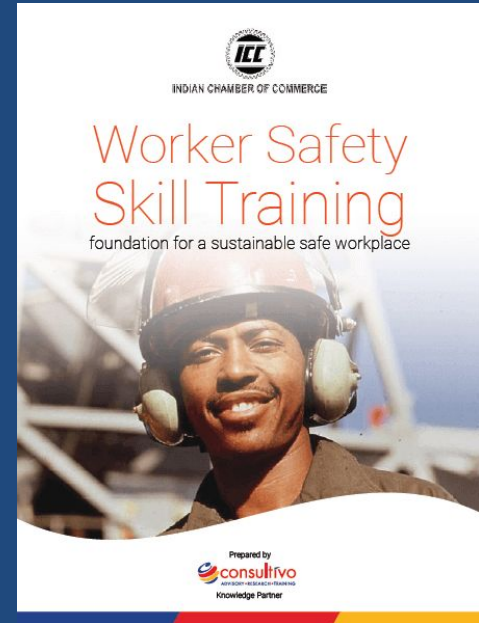
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