

NATIONAL BUILDING CODE OF INDIA 2016 — VOLUME 1

PART 4 | FIRE AND LIFE SAFETY • CONCISE A4 PROFESSIONAL INFOGRAPHIC

CORE PURPOSE: prevent fire ignition/spread • protect life • provide reliable egress • provide fire protection systems • reduce exposure to fire, smoke, fumes and panic.

1 | FIRE PREVENTION

Occupancy classification: A Residential • B Educational • C Institutional • D Assembly • E Business • F Mercantile • G Industrial • H Storage • J Hazardous.
Fire zones & planning: zoning, access, open spaces, separation and restrictions on construction/use.
Construction: construction type, fire-resistance ratings, fire walls/fire-separating elements, protected openings, shafts and penetrations.
Interior / building services: finishes, glazing, electrical installations, heating, AC/ventilation, smoke control, dampers, air-handling units, gas supply and related fire-spread controls.
Detection / warning: fire detection & alarm, escape lighting, exit signage and Fire Command Centre where applicable.

2 | LIFE SAFETY

Occupant load → egress capacity: determine load, number and width of exits, travel/egress arrangement and discharge provisions.
Means of egress: exit access → exit → exit discharge; protected corridors, stairs, ramps and other permitted components.
Exit protection: fire/smoke separation, enclosure, door assemblies, smoke control and stair/lobby pressurization where required.
Special life-safety issues: hazardous areas, basements, gas/oil storage areas, panic control, emergency lighting/signage, fire drills, fire orders and Fire Officer responsibilities.
Compartmentation: limit fire/smoke spread so occupants can reach a place of safety.

3 | FIRE PROTECTION

Passive: fire-rated construction, compartmentation, fire doors, protected shafts/openings and penetration control.
Active: extinguishers, hydrant/down-comer/wet-riser systems, automatic sprinklers, water-spray systems, foam, gas/clean-agent and water-mist systems as applicable.
Water supply: fire water storage, pump house, fire pumps, distribution/riser arrangements and system zoning.
Operations: fire detection/alarm, fire-fighting access, fire command/communication provisions, inspection, testing and maintenance.
Decision point: use the occupancy/height/area/hazard criteria and the applicable fire-fighting-installation matrix (including Table 7).

4 | KEY DESIGN CHECKS

Building profile: occupancy + height + floor area + basements + occupant load + hazard/fire load.
Site: fire-tender access, approach, open spaces, separation and fire-service access.
Egress: occupant load, exit count, width, travel distance, exit separation, discharge and protected vertical circulation.
Fire resistance: structural frame, floors, walls, shafts, doors and other elements matched to required ratings.
Smoke: compartmentation, smoke control, stair/lobby pressurization, dampers and ventilation strategy.
Firefighting: detection/alarm + first-aid appliances + hydrant/riser + sprinkler/special suppression + water storage/pumping + fire-service interface.

5 | ADDITIONAL / SPECIAL REQUIREMENTS

High-rise buildings: enhanced access, protected egress, fire-fighting systems, smoke control, fire command/management and emergency procedures.
Atriums: smoke management, separation/compartmentation, detection and fire protection coordinated with the open volume.
Commercial kitchens: cooking hazard controls, hood/duct protection, automatic suppression and fuel/electrical isolation where applicable.
Car parks: ventilation/smoke control, detection/alarm, fire protection and egress suited to parking configuration.
Metro: dedicated life-safety and fire-protection provisions for stations and trainways.
Industrial buildings: fire/hazard analysis and venting provisions for fire/explosion scenarios.

6 | ANNEXES — WHAT THEY ADD

A: calorific values / fire-load data of common materials.
B: broad industrial occupancy hazard classification.
C: fire-resistance data for building components.
D: fire-drill & evacuation guidance for high-rise buildings.
E: additional high-rise requirements.
F: atrium requirements.
G: commercial-kitchen requirements.
H: car-parking facilities.
J: metro stations.
K: metro trainways.
M: industrial fire-protection considerations for venting.
List of Standards: referenced standards supporting design, equipment and testing.

7 | PROFESSIONAL WORKFLOW

01 CLASSIFY → occupancy / hazard / mixed-use
02 DEFINE → height / area / basements / occupant load / fire load
03 PLAN → fire zones, access, separation, compartmentation
04 DESIGN EGRESS → exits, travel, widths, discharge, protected stairs
05 DESIGN PASSIVE PROTECTION → FRR, walls, doors, shafts, penetrations
06 DESIGN ACTIVE SYSTEMS → detection, alarm, hydrant, sprinkler, special systems
07 SIZE WATER & PUMPS → storage, pumps, risers, hydraulics, zoning
08 INTEGRATE → HVAC/smoke, electrical, lifts, gas, BMS/fire command
09 VERIFY → inspection, testing, commissioning, drills & maintenance

8 | THE PART 4 LOGIC — ONE VIEW

HAZARD → PREVENTION → DETECTION → CONTAINMENT → EGRESS → SUPPRESSION → FIRE-SERVICE ACCESS → RECOVERY / MAINTENANCE

The Code is performance-oriented through a coordinated package of planning, construction, passive protection, active protection and life-safety measures. No single system substitutes for adequate egress or sound compartmentation.

9 | IMPORTANT REFERENCE POINTS

Scope: Part 4 covers fire prevention, life safety and fire protection, including occupancy-wise classification, construction, egress and protection features.
Core chapters: 1 Scope • 2 Terminology • 3 Fire Prevention • 4 Life Safety • 5 Fire Protection • 6 Additional Occupancy-wise Requirements.
Use with: Part 3 for development-control/general building requirements and accessibility; other NBC Parts and referenced IS standards for structural, electrical, HVAC, lifts, plumbing and related interfaces.
Engineering note: Always check the exact adopted edition, local fire authority requirements, amendments/circulars and project-specific statutory conditions before final design or approval.

10 | QUICK REVIEW CHECKLIST

- Occupancy / mixed occupancy correctly classified
- Height, area, basements & occupant load established
- Fire-tender access & site separation verified
- Egress / exit capacity and discharge verified
- Fire-resistance & compartmentation verified
- Detection, alarm & emergency communication provided
- Hydrant / sprinkler / special suppression selected
- Fire water storage, pumps & hydraulics verified
- Smoke control / HVAC / dampers coordinated
- Fire command, drills, inspection, testing & maintenance addressed