

FIRE SAFETY IN SCHOOLS

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INTRODUCTION

Schools are places where children learn, grow, and spend a significant part of their day. Ensuring their safety is a shared responsibility of schools, authorities, parents, and society. Fire safety is particularly important because it can cause injuries, loss of life, disruption of education, and damage to property.

Past school fire tragedies have highlighted the need for effective fire prevention, protection, emergency preparedness, and evacuation planning. The National Building Construction Standards (NBCS) 2026, along with BIS codes, State Fire Service Rules, and NDMA School Safety Guidelines, provides a comprehensive framework for ensuring fire and life safety in educational institutions.

OBJECTIVES OF FIRE SAFETY IN SCHOOLS

The primary objective of fire safety in schools is to protect students, staff, and visitors from fire-related hazards. This is achieved through the prevention of fire incidents, early detection and warning, safe and orderly evacuation, protection of life, provision of adequate firefighting facilities, and preparedness through regular training and mock drills. These principles form the foundation of the fire and life safety requirements prescribed under NBCS 2026.

FIRE SAFETY CHALLENGES IN SCHOOLS

Schools present unique fire safety challenges due to the presence of large numbers of children, classrooms, laboratories, kitchens, libraries, auditoriums, and electrical installations. Since children may not be fully aware of emergency procedures and often require assistance during evacuation, fire safety planning in schools must focus on preventing fires, ensuring early warning, and enabling safe and rapid evacuation.

COMMON CAUSES OF FIRE IN SCHOOLS

Most school fire incidents are caused by preventable factors such as:

- electrical short circuits,
- faulty or overloaded electrical systems,
- improper storage of combustible materials,
- laboratory accidents involving chemicals or gases,
- kitchen fires in canteens and hostels,
- poor housekeeping, and
- inadequate maintenance of fire protection systems.

Identifying and controlling these hazards is essential for ensuring a safe learning environment.

FIRE SAFETY REQUIREMENTS UNDER NBCS 2026

NBCS 2026 classifies schools under Educational Occupancy and prescribes specific fire and life safety provisions. These provisions aim to ensure safe evacuation, early fire detection, and effective firefighting capabilities. Under NBC/NBCS, schools are classified as Group B: Educational Buildings, which include:

- a) Nursery and Kindergarten Schools
- b) Primary and Secondary Schools

- c) Senior Secondary Schools
- d) Colleges and Training Institutions

Educational occupancies require special fire and life safety provisions because of the presence of children and young occupants.

SAFE BUILDING DESIGN

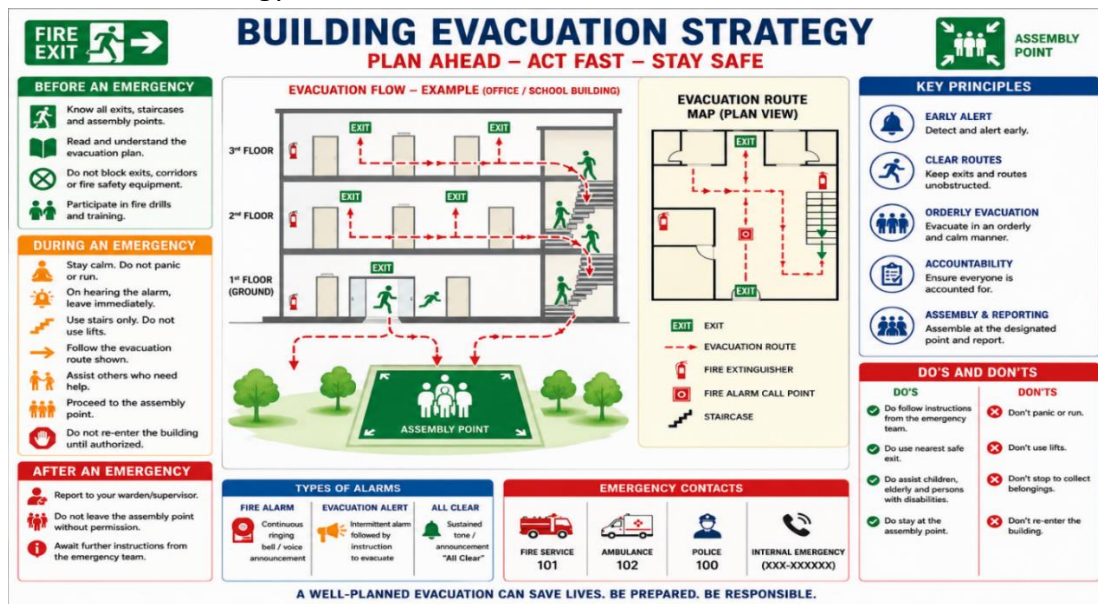
School buildings should be constructed using fire-resistant materials to reduce the spread of fire and provide sufficient time for safe evacuation. Adequate separation should be maintained from hazardous occupancies such as fuel storage areas, transformer yards, and chemical storage facilities. The campus should have:

- unobstructed access roads for fire service vehicles
- well-planned exits, corridors, and staircases for quick evacuation.
- Emergency lighting, exit signage, and smoke control measures further enhance safety.
- Building evacuation plan with evacuation stagey
- Emergency contact numbers displayed at key locations

Proper building design plays a vital role in preventing fire spread and protecting occupants during emergencies.

MEANS OF ESCAPE

A well-designed means of escape system is the backbone of fire safety in schools. Every occupied area should have easy access to at least two independent escape routes. Exit doors should open in the direction of travel and remain free from obstructions. Staircases should be adequately wide, protected from smoke ingress, and provided with non-slip surfaces. Particular attention should be given to younger children. Classrooms for kindergarten and primary classes should preferably be located on lower floors to enable faster evacuation during emergencies. A typical Building Evacuation Plan and strategy should be as follow:



Schools should prepare Personal Emergency Evacuation Plans (PEEPs) for students and staff requiring evacuation assistance.

a) Exits: NBC requires:

- At least two exits from rooms accommodating more than 45 persons.
- Exit doors to open in the direction of travel.
- Doors on evacuation routes should not be locked against egress.

- Exit doors should be fitted with panic hardware where required.

b) Staircases:

- Adequate width based on occupant load.
- Non-slip surfaces.
- Free from storage and obstructions.
- Protected staircases for multi-storey buildings.

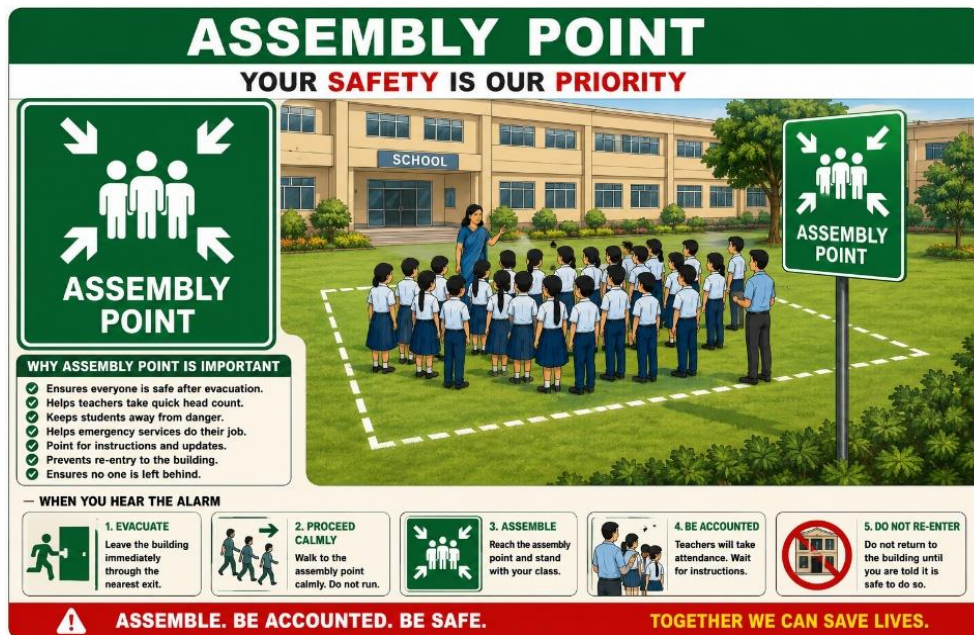
c) Students Classrooms: NBC specifically recommends:

- Preschool, Kindergarten, and Grade-I classrooms should be located on the ground floor.
- Grade-II classrooms should not be located more than one floor above ground level.

d) Emergency Lighting and Exit Signage

- Illuminated EXIT signs along escape routes.
- Emergency lighting supplied from an independent power source.
- Adequate illumination of corridors, staircases, and exits during power failure.

e) Assembly Point: It is a pre-designated safe location where all students, teachers, & staff gather immediately after evacuating the building during a fire or other emergency and large enough to accommodate the entire school. It plays a vital role in ensuring an organized and effective emergency response. A well-marked and properly managed assembly point is an essential component of every school's fire and emergency evacuation plan, ensuring the safety & accountability of all occupants during an emergency.



FIRE DETECTION AND ALARM SYSTEMS

Early warning significantly improves evacuation efficiency. The alarm should be clearly audible throughout the campus and distinguishable from routine school bells.

Schools should be necessarily equipped with:

- Automatic smoke detectors.
- Manual call points.
- Audible alarm systems.
- Public address systems for evacuation announcements.

FIREFIGHTING INSTALLATIONS

Depending upon the size, height, and occupancy of the school building, suitable firefighting systems should be installed. These may include:

- **PORTABLE FIRE EXTINGUISHERS:** ABC extinguishers in classrooms and corridors, CO₂ extinguishers in electrical rooms and computer laboratories, Specialized extinguishers in laboratories and kitchens.



- **FIXED FIRE PROTECTION SYSTEMS**
 - Internal hydrants.
 - Yard hydrants.
 - Wet riser systems.
 - Automatic sprinkler systems.
 - Fire water storage tanks and Fire pumps.

Regular inspection, testing, and maintenance of these systems are essential to ensure operational readiness.

FIRE SAFETY IN LABORATORIES AND SPECIAL AREAS

Science laboratories require special attention due to the use of chemicals, gases, and heat-generating equipment. Flammable chemicals should be stored in limited quantities and in approved containers. Emergency isolation arrangements for gas and electricity should be readily accessible.

Computer laboratories, libraries, auditoriums, and kitchens also require dedicated fire safety measures. Electrical equipment should be periodically inspected, and combustible materials should be managed carefully. Safety Data Sheets (SDS) for chemicals should be readily available and laboratory personnel should be familiar with emergency procedures.

Periodic thermographic scanning of electrical panels, routine preventive maintenance, avoidance of overloading, proper cable management, and installation of Residual Current Devices (RCDs)/Earth Leakage Circuit Breakers (ELCBs) wherever applicable significantly reduce electrical fire risks.

EMERGENCY PREPAREDNESS

A written Emergency Response Plan is indispensable for every educational institution. The plan should clearly identify:

- Emergency procedures.
- Evacuation routes.
- Assembly points.
- Responsibilities of staff members.
- Communication arrangements.
- Procedures for assisting children with disabilities.
- Coordination mechanisms with local fire and emergency services.

Emergency contact numbers should be prominently displayed throughout the campus consisting of numbers of nearest Fire Service, Police, Medical etc.



FIRE DRILLS AND TRAINING

Fire safety systems are effective only when students and staff know how to respond during an emergency. Regular fire drills help familiarize them with evacuation procedures, improve response time, and reduce panic. Schools should conduct periodic drills, record observations, and implement corrective actions. Continuous safety awareness programs help develop a culture of preparedness and responsibility among students from an early age. Fire drills should preferably be conducted at least twice a year or as required by the applicable State Fire Service Rules. Teachers and staff should receive training in:

- Fire prevention practices.
- Emergency evacuation procedures.
- Basic firefighting techniques.
- Use of portable fire extinguishers.
- First aid and emergency communication.



ALWAYS REMEMBER: RACE Principle During Fire Emergency



"Fire Safety is Everyone's Responsibility. Awareness, Preparedness, and Prompt Action Save Lives."

BASIC FIRE SAFETY TIPS FOR STUDENTS:

The following Fire Safety measures to be followed by student in fire emergency situations:

Remember: Your first priority is to evacuate safely, not to save belongings. Stay calm, act quickly, and follow instructions. Stay Calm, Don't Panic, Don't Run, Use Stairs, Follow Instructions, Assemble Safely.



ROLE OF SCHOOL MANAGEMENT

School management plays a pivotal role in ensuring compliance with fire safety requirements. Their responsibilities include:

- Obtaining and renewing Fire No Objection Certificates (NOC).
- Conducting periodic fire safety audits.
- Maintaining firefighting equipment.
- Organizing training programmes.
- Implementing corrective actions identified during inspections.
- Allocating adequate resources for safety improvements.

Fire safety should be treated as an ongoing management function rather than a one-time compliance activity. The most effective fire safety programmes are those that become part of the institution's culture. Safety awareness campaigns, classroom discussions, poster competitions, mock drills, and community engagement activities can significantly improve preparedness and vigilance.

Every student should know:

- How to raise an alarm.
- The nearest exit route.
- The designated assembly area.
- The importance of remaining calm during emergencies.

Fire Safety Inspection Checklist for Schools:

The following checklist to be used for keeping firefighting system in order:

- a) Fire NOC available and valid
- b) Fire extinguishers installed and maintained
- c) Exit routes unobstructed
- d) Emergency lighting functional
- e) Exit signage visible and direction of exits marked with arrow
- f) Fire alarm tested periodically
- g) Electrical panels properly maintained
- h) Science laboratories compliant
- i) Fire drills conducted regularly
- j) Staff trained in emergency response
- k) Assembly areas designated with necessary instructions
- l) Emergency contact numbers displayed
- m) Fire water system operational
- n) Access for fire tenders available

CONCLUSION

Fire safety in schools is both a legal obligation and a moral responsibility. The provisions of NBCS 2026, together with national and state safety regulations, provide a robust framework for protecting students, teachers, and staff from fire emergencies. Effective implementation, continuous monitoring, regular training, and a strong safety culture are essential to create a secure learning environment. The safety of children must remain the highest priority.

REFERENCES:

"Fire safety in schools should comply with IS 14435:2013 (Fire Safety in Educational Institutions) and the provisions of Part 4 (Fire and Life Safety) of NBC/NBCS, along with applicable State Fire Service Rules and NDMA School Safety Guidelines."
