## **Construction, Alteration, and Demolition Requirements from NFPA 241**

# Purpose

This document functions as a checklist to monitor Construction, Alteration, and Demolition activities, per the requirements of the National Fire Protection Association (NFPA) 241 Standard. It is not intended to determine full compliance with NFPA Standards. Professionals should be consulted to ensure complete compliance.

This document does not include design requirements and therefore should not be used for constructing a new building or structure.

## Temporary Offices, Storage, and Equipment

Temporary Offices and Sheds

* Buildings under construction and temporary structures are separated by the distances identified in NFPA 241, Table 4.2.1. See below.

|  |  |
| --- | --- |
| Exposing Wall Length (ft) | Minimum Distance from Building (ft) |
| 20 | 30 |
| 30 | 35 |
| 40 | 40 |
| 50 | 45 |
| 60 | 50 |
| >60 | 60 |

* Detachment meets any Authority Having Jurisdiction requirements
* Only approved heating devices are used
* Heating devices meet clearances identified in NFPA 31

Temporary Enclosures

* Constructed of noncombustible panels, flame-resistant tarps, or other fire-retardant materials
* Fastened securely to prevent being blown away or up against ignition sources

Fire Extinguishers

* At least one fire extinguisher present that is suitable for any expected class of fire
* Located so that travel distance is no more than 50 feet

Equipment

* Motor/engine exhausts discharge away from combustible material
* Exhaust pipes are at least 9-inches from combustible material
* Equipment is shut down and allowed to cool before refueling
* Equipment is not serviced inside buildings/structures
* Fuel should be stored in safety containers and not be in excessive quantities

Reference: NFPA 241, Chapter 4

## Processes and Hazards Safeguards

Hot Work (welding, torches, grinding, etc.)

Fire Watch

* Fire watches are assigned with no other duties
* A fire watch is posted for the duration of the hot work and for 2 hours thereafter for torch-applied roofing operations

Temporary Heating

* Heating equipment is installed, operated, and maintained according to requirements from the Authority Having Jurisdiction, manufacturer’s instructions, or recognized safe practices. Specific attention is being paid to clearances from combustible materials.
* Heating equipment is secured from turning over or tipping
* Heating equipment has automatic tip-over or overheat cutoffs
* Personnel operating the heating equipment are familiar with its operation
* Personnel are monitoring heating equipment, noting issues, and correcting them promptly
* No heating equipment has radiant heating wires
* Where required, chimneys or vents for direct-fired heaters are at least 18-inches from combustible materials
* Refueling is performed in a safe manner and with equipment/fuel meeting NFPA ratings

Smoking

* No Smoking signs are posted in areas at/in the vicinity of combustible and flammable materials.
* Personnel are not smoking in these areas
* Smoking is only taking place in designated/approved areas
* Receptacles are provided in smoking areas

Waste Disposal

* At the end of each work shift combustible waste, dust, and debris are removed from the building and the area immediately surrounding the building. (Or more frequently, if needed.)
* Wastes are not burned at the jobsite
* Oily rags and other spontaneously combustible materials are stored in containers specifically designed for this waste.
* Trash chutes, where applicable, are approved by the Authority Having Jurisdiction
* Exterior trash chutes are constructed of noncombustible material
* If a trash chute is constructed of combustible material, it:
  + Has a temporary automatic sprinkler at the top of the chute
  + The sprinkler is protected
  + The sprinkler supply line is at least ¾”
  + The sprinkler supply line is protected from freezing

Storage of Flammable Liquids, Combustible Liquids, and Flammable Gases

* Follows NFPA 30 requirements
* Class I and II liquids (flashpoints below 73 degrees F and up to 140 degrees F) to are stored more than 50-feet from the building and do not exceed 60-gallons total
* Storage areas are clear of weeds, debris, and unnecessary combustibles
* There are no open flames or smoking
* There are No Smoking signs posted
* Flammable Storage signs posted

Handling of Flammable and Combustible Liquids

* Follows NFPA 30 requirements
* Stored in flammables safety cans
* Are not used or dispensed in the presence of spark or an open flame
* A Spill kit is available

Storage and Handling of Flammable and Combustible Gases

* Follows NFPA 54 and 58 requirements
* Secure bottles from falling over
* No smoking or open flame in this area

Explosives

* Follows NFPA 495 requirements
* Blasting operations are under the direct supervision of a licensed individual with the required permits

Cooking Areas

* No cooking allowed on jobsites

Reference: NFPA 241, Chapter 5

## Utility Safeguards

Electrical and Temporary Wiring

* All electrical devices and wiring shall be installed by a licensed electrician in accordance with NFPA 70.
* Electrical devices appear in safe condition
* Extension cords are not damaged
* Damaged extension cords removed from service
* Disconnects are readily accessible and labeled

Lighting

* All lights have guards or are deeply recessed to prevent damage
* Lights are not in contact with combustible materials
* Lights appear in safe condition
* Lights suspended by their cords are designed for this use
* Splices are insulated
* Temp lighting removed upon completion of construction or permanent lighting installation

Fuel Gas Piping

* Piping is cleaned and purged prior to commissioning or decommissioning
* Fuel gas is not used for the cleaning process

Reference: NFPA 241, Chapter 6

## Fire Protection Safeguards

Access Roadways

* Every building has 20-feet of unobstructed roadway width and 13’6” height

Stairs

* At least one stairway in usable condition
* Stairway(s) is lighted
* Exit stairways have signs to identify:
  + Floor level
  + Stair designation
  + Exit path direction

Hoists and Elevators

* Available to firefighters when they are the only efficient means to provide firefighting equipment to upper floors

Hydrants

* Free and clear access at all times

Fire-Fighting Equipment

* All temporary buildings or temporary-use areas inside the building have a fire extinguisher
  + Exemptions only apply if the area is less than 150 sq ft, has automatic sprinklers, or has other protection
* Extinguishers are in plain sight on each floor at each usable stairway when significant combustible materials are present
* Every self-propelled equipment has an extinguisher
* All extinguishers or other fire equipment have free access

Means of Egress

* All paths of travel necessary for workers to enter or exit a building are always maintained clear; this can include:
  + Exits and entries
  + Hallways
  + Stairways
  + Interior doorways
* All exits are marked with easily visible signs
* Exit signs are no more than 100 feet apart

Emergency Action Plans

* The pathway(s) to exit a building is either:
  + Immediately obvious to workers
  + Posted as instructions and/or a map
* The safe meeting area outside the building has been communicated to all workers.

Protection of Fire Sprinkler and Equipment

* The following equipment is protected where damage, physical contact, or spray/coating coverage is possible:
  + Sprinkler heads
  + Fire alarm pull stations
  + Exit signs
  + Fire extinguisher and fire hose cabinets
  + Fire system electronic controls
  + Fire system valves and physical controls

Disabled Fire Sprinklers. Fire Protection Systems, and Alarms

Residential, Commercial, and Industrial buildings may have disabled or damaged fire systems and alarms. This situation can put the building and/or occupants at further risk. Every building and location can be different. Interim Life Safety Measures may need to be put in place, depending on the type of building, the occupants (if any), and/or the Authority Having Jurisdiction. This could include:

* Extra fire extinguisher placement
* Notice to the local fire department
* Immediate correction of fire hazards
* Hiring fire watches to patrol the building during work hours
* Hiring security/monitoring services during non-work hours

Prior to starting work on a building with disabled or damaged fire systems and alarms, assure that:

* The Contractor has evaluated the building for disabled fire protection

Or

* The Authority Having Jurisdiction has identified the requirements necessary to maintain fire protection

Reference: NFPA 241, Chapter 7 and NFPA 101 Section 7.10

## Construction and Alteration Safeguards

Construction Materials

* Combustible construction materials are stored at least 30 feet from the structure under construction or alteration.

Temporary Separation Walls

* When construction, alteration, or demolition operations have a higher fire hazard than the rest of an occupied building, a wall or other protection has been installed.
* The wall has at least 1-hour fire resistance rating
* The opening protection has at least 45-minute fire resistance rating
* An automatic sprinkler system is operational, which exempts the need wall or opening protection fire rating

Reference: NFPA 241, Chapter 8

## Demolition-specific Safeguards

The Demolition Contractor shall assure the following:

Charged hose lines are available during demolition of:

* Floors soaked with oil or other flammable liquids
* Dust accumulations
* Combustible insulation where hot work is being performed
* Flammable and combustible liquids, residue, and sludge are drained from tanks and machinery reservoirs.
* Heat is maintained during cold-weather demolition
* A minimum temperature of 40 degrees F is maintained in areas with wet sprinkler systems
* Smoking is prohibited in demolition areas.
* Demolition of buildings with explosives is performed by a qualified contractor.
* Electrical service is minimized and live circuits are identified.
* Gas supply to the building is turned off and capped outside the building.
* Gas lines inside the building are purged after capping.
* Vertical and horizontal fire cutoffs are retained as long as possible.
* Fire doors are closed at the end of each working day.
* Sprinkler systems remain operational as long as the need exists.
* Sprinkler control valves are only operated by authorized persons and affected parties are notified.
* When the sprinkler system is turned on and off during demolition, control valves are verified operational at the end of each work shift.
* Standpipes remain in service as long as possible.
* Some form of Fire Protection is always provided.

Reference: NFPA 241, Chapter 10