

CODE RED
CONSULTANTS

**10th Edition MA Building Code Changes
And Regulatory Updates**

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About Us

We are a Fire Protection & Life Safety Consulting Firm

Our mission is to enhance public safety nationwide. We work with architects, developers, and building owners to tackle safety challenges effectively. With experience across commercial, residential, industrial, institutional, education, and healthcare sectors, we provide tailored solutions to meet the unique needs of each project and client.

73
Team Members

42
States where we've completed projects

11
Years in business

3
Office Locations

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Code Adoption Timeline

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10th Edition Code Adoption Timeline

July 1st, 2022

December 9th, 2022
Fire Code
The new fire code (527 CMR 1.00) adopts the 2021 addition of NFPA 1 with no concurrency

March 2023
Electrical Code
The electrical code (527 CMR 12.00) was updated to 2023 NFPA 70 (NEC) No concurrency period

July 1st, 2023
Energy Code
(1) New stretch code (with 2021 IECC) applicable
(2) Opt-In code for select municipalities; the time of adoption varies by municipality

December 2023
Plumbing Code

January 1st, 2024
Opt-In Code

10/11/2024
Building Code
10th Edition 780 CMR
- Based on the 2021 IBC w/ amendments
- Concurrency ends July 1, 2025
- Will reference the following 2021 ICC codes: 2021 IMC, 2021 IECC (for non-stretch code communities)

March 19, 2025

In the Works
- Revised MAAB to align with the ADA
- New Fire Code based on 2024 NFPA 1

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Energy Code
Municipal Opt-In

Massachusetts Building Energy Code Adoption by Municipality

Massachusetts Energy Codes

- Base Energy Code (50 city/town)
- Stretch Energy Code - 225 CMR 22.00 and 225 CMR 23.00 (268 c/t)
- Specialized Energy Code - 225 CMR 22.00 (appx. RC) and 225 CMR 23.00 (appx. CC) (* 33 c/t)

* Acton, Amherst, Aquinnah, Arlington, Bedford, Belmont, Boston, Brookline, Cambridge, Carlisle, Chelmsford, Concord, Lexington, Lincoln, Maynard, Medford, Melrose, Needham, Newton, Northampton, Norwood, Salem, Sherborn, Somerville, Stow, Swampscott, Turo, Wakefield, Watertown, Wellesley, Wellfleet, Weston, and Worcester adopted the Specialized Energy Code (as of 3-12-24)

- Effective July 1, 2023 (Brookline, Cambridge, Somerville, Watertown)
- Effective January 1, 2024 (Acton, Aquinnah, Arlington, Boston, Concord, Lexington, Lincoln, Maynard, Newton, Northampton, Sherborn, Stow, Turo, Wellesley, Wellfleet)
- Effective July 1, 2024 (Amherst, Bedford, Carlisle, Chelmsford, Medford, Melrose, Needham, Norwood, Salem, Swampscott, Wakefield, Weston, Worcester)
- Effective January 1, 2025 (Belmont)

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Laboratory Suites

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Laboratory Suites

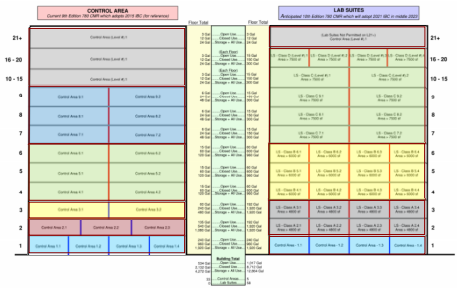
- Entirely new section in 2018 IBC (Section 428). Heavily amended in MA for 10th Edition.
- Allows additional quantities of hazardous materials without Group H classification.
- Similar to control area concept, but with increased number of units and MAQ's.



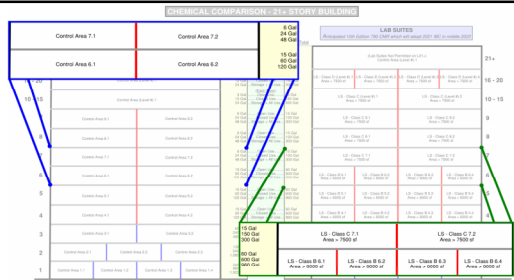
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Laboratory Suites

Control Areas vs. Lab Suites



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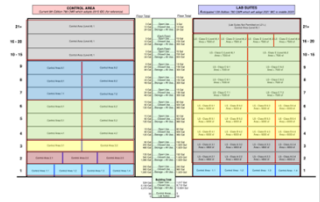


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Laboratory Suites

Pivots for Existing Buildings

- Rated interior partitions
- Rated floor assemblies and supporting construction
- Sprinkler densities
- Standby power
- Laboratory ventilation



BLOG POST: <https://coderedconsultants.com/insights/laboratory-suites-in-existing-buildings/>

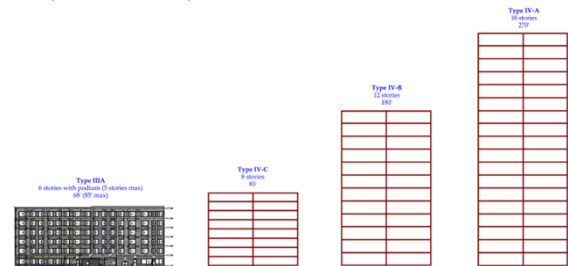
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Tall Mass Timber

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Tall Mass Timber

Examples for Scale (Group R Limitations)



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Tall Mass Timber

Type IV – A,B,C Height Limitations and Exposure Allowances

Occupancy	Type IV-A 270 ft (All Concealed)	Type IV-B 180 ft (~30% Exposed)	Type IV-C 85 ft (All Exposed)
Group A	18 stories	12 stories	6 stories
Group B	18 stories	12 stories	9 stories
Group R	18 stories	12 stories	8 stories

All have a 2-hr rating requirement
(and Type IV-A requires 3-hr columns)

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Tall Mass Timber

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Tall Mass Timber

Concealed Spaces

- Existing Type IV: Concealed spaces not allowed at all
- New Legacy Type IV-HT: Now allowed to have concealed spaces, protected per 3 options of NFPA 13
- Type IV-A/B/C: Concealed spaces must be protected with gypsum wallboard

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Tall Mass Timber

Other Miscellaneous Provisions

- Redundant connections to fire pump
- Redundant connections to water main
- Non-combustible covering of exterior walls
- Shafts needing to non-combustible or covered with GWB
- Sealants at edges of CLT floors and walls
- Non-combustible toppings on floors
- Certain amount of fire ratings needing to come from GWB
- Special inspections and testing

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Means of Egress

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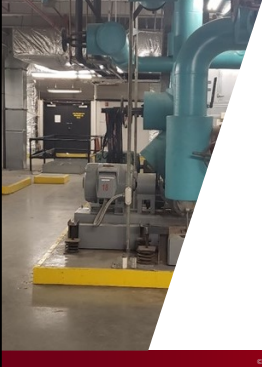
Business Use Occupant Load Factors

100 gross sf / occ → 150 gross sf / occ
 Concentrated Business Factor → 50 gross sf/occ
 32,000sf → 39,500sf

34,000 sf Office Space (10% Assembly)
 2 x 44" Exit Stairs: 440 Egress Capacity

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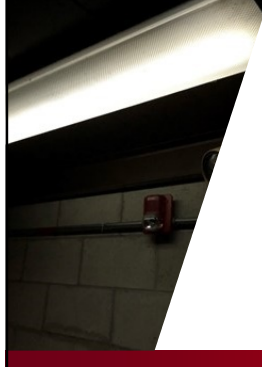


Means of Egress
Other Provisions

- 1006.2.1 Exception 3; MEP rooms are not subject to common path of travel limitations; travel distance is considered instead

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Increased Stairway Lighting

- Increased stairway lighting from 1 foot-candle to 10 foot-candle when the stairway is in use (IBC 1008.2.1).
- Consistent with NFPA 101
- Only required when the stair is in use; motion switches OK

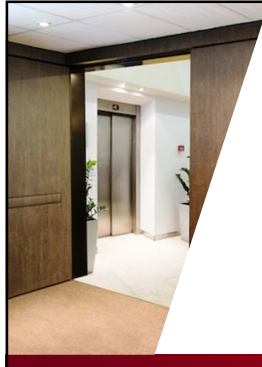
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Elevators & Lobbies

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Protection into Rated Corridors

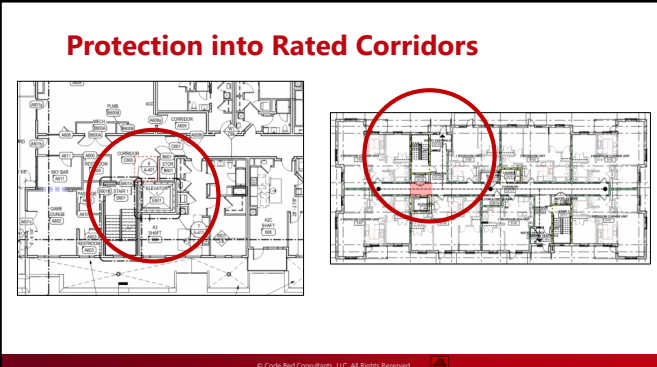
Elevator hoistway protection now required for all elevators that open into fire-resistance-rated corridors (3006.2.1).

Impact on low-rise residential projects.

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Protection into Rated Corridors



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Occupied Roofs

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Occupied Roofs

Elevators

Occupied roofs are now considered for the elevator accessible means of egress requirements.

2015/ 2018
Elevator and Generator Required
5 stories + deck

2021
Elevator and Generator Required
4 stories + deck

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Parking & EVs / Batteries & Energy Storage

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Parking

Automatic Stackers – Now Codified

406.4 Mechanical-access enclosed parking garages. Mechanical-access enclosed parking garages shall be in accordance with Sections 406.4.1 through 406.4.4.4.

406.4.1 Separation. Mechanical-access enclosed parking garages shall be separated from other occupancies and accessory uses by fire-rated fire barrier walls constructed in accordance with Section 707 or by one hour fire-rated mechanical smokeproof enclosure constructed in accordance with Section 711, or both.

406.4.2 Smoke removal. A mechanical smoke-removal system, installed in accordance with Section 916C, shall be provided for all areas containing **406.4.3 Fire control equipment.** Fire control equipment, consisting of the fire alarm control unit, mechanical ventilation controls and an emergency shutdown switch, shall be provided in a room located above the occupancy in which the equipment is located. The room shall be located above the building. The room shall be not less than 50 square feet (4.65 m²) in area and shall be fire-resistant walls approved by the fire code official.

406.4.4 Emergency shut-down switch. The mechanical parking system shall be provided with a manually actuated emergency shut-down switch for use by emergency personnel. The switch shall be fire-resistant and shall be accessible to the fire code official.

406.4.4.1 Fire department access doors. Access doors shall be provided in accordance with Section 1206.7 of the International Fire Code.

[BG] MECHANICAL-ACCESS ENCLOSED PARKING GARAGE. An enclosed parking garage that employs parking machines, lifts, elevators or other mechanical devices for vehicle moving from and to street level and in which public occupancy in the garage is prohibited in all areas except the vehicle access bay.

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Parking

Open Garages

- Open garages exceeding 48,000 total sf now require sprinkler protection
- More stringent of this vs. MGL 26G must be taken
- Anticipate Insurance Underwriters asking for sprinklers

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Energy Storage Systems

- NFPA 855: Standard for the Installation of Stationary Energy Storage Systems
- Government incentives encouraging EV chargers in garages, ESS systems. Little to no money available for fire service in combating these new hazards.
- Permitting challenges are real
 - Community Risk Assessment
 - Chemical, Electrical, Explosion Hazards

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Energy Storage Systems

- Hazard Mitigation Analysis
 - >600 kWh Lithium Ion, NaNiCl, Flow
 - >200 kWh Other
 - Two or more battery technologies
 - New technology
- Evaluate failure modes
 - Thermal runaway
 - Systems failures
- Criteria for AHJ approval

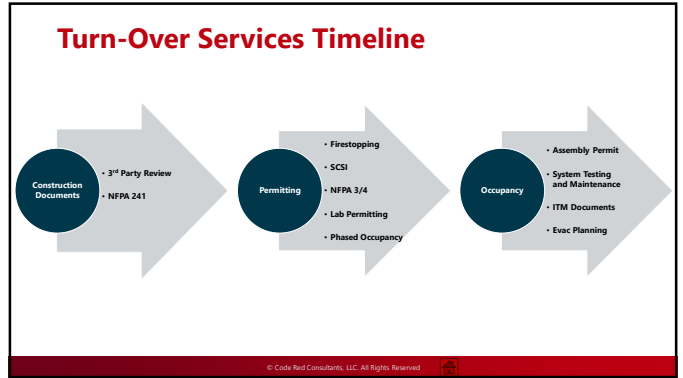
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Permitting, Occupancy, and NFPA 4

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NFPA 241 Scoping

- Remember – MA is referencing the 2022 Edition (as of 12/8/2022)
- General requirements for all projects
 - Owner's responsibilities
 - Fire Prevention Program
 - Means of Egress
 - Notification and Emergency Reporting
 - Fire Alarm Systems
 - Standpipes
 - Hydrants
 - Detection and Alarms
 - First-aid Firefighting Equipment
 - Temporary Protection
 - Access for Firefighting
 - Construction Materials for Enclosures and Fire Separation
 - Installation, Testing, and Maintenance
 - Fire Protection Markings (signs)
- **Site Security**
- **Large Wood Frame/Mass Timber**



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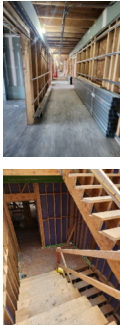
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Large Wood Frame Structures

NFPA 241 – 2022 Edition


A large wood structure is required to be considered all wood structures that meet one of the following:

- Up to, and including, three stories and greater than 150,000 SF aggregate total floor area.
- Over three stories, or over 40 feet above the lowest level of fire department vehicular access, and greater than 50,000 SF aggregate total floor area.



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Fire Exposure Analysis – 2022 Edition of NFPA 241

WHAT?

Before construction begins, a study shall be conducted to ensure that the installation of passive and active fire protection features, combined with the separation provided between other structures on the same or adjacent lots, are adequate to allow safe egress and to prevent fire spread to the exposed structures.

Said another way – The NFPA 241 fire exposure analysis must demonstrate that fire will not spread to exposed structures.

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Fire Exposure Analysis – 2022 Edition of NFPA 241

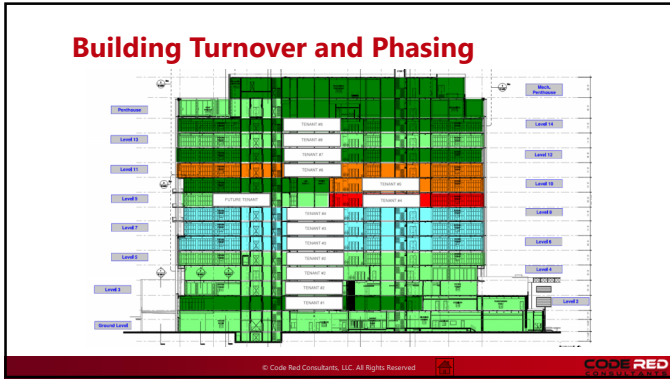
WHEN?

The analysis is required to be included with the construction documents submitted with the building permit and acceptable to the AHJ.

Construction is required to comply with the requirements established by the fire exposure analysis.

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NFPA 3 & 4

- NFPA 3: Standard for Commissioning of Fire Protection and Life Safety Systems
- NFPA 4: Standard for Integrated Fire Protection and Life Safety System Testing
- Will be integral to a fire departments acceptance testing process. Expect variability in its application.

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NFPA 4

Figure A.3.3.25.4 Integrated System, (Source: R.P. Schiffler Associates, Inc.)

INTEGRATED SYSTEMS
Individual systems are each covered by other specifications, governing laws, codes, or standards.

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    graph TD
      A[Automatic sprinkler] -- "Typical one-way physical system connection" --> B[Fire alarm or signaling system]
      C[Supervising station alarm system] -- "Typical one-way wireless system connection" --> B
      D[Elevators, fire doors, dampers, etc.] --> B
      E[Other monitored system] --> B
      B -- "Typical two-way physical system connection" --> F[Smoke or HVAC control]
      B --> G[Emergency comm. system]
      G --> H[Fire and smoke doors, dampers, etc.]
      I[Typical individual system] --> B
  
```

Note: An integrated system may rely on the performance of individual systems with no direct connection to other individual systems.

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