

Capital budget Request

New Hampshire Building at Eastern States Exposition

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|---|--------------------|
| Brick repointing, 2 end walls of the building: | \$27,300.00 |
| Demolish and replace 2 end wall chimneys: | \$60,480.00 |
| Refurbish 2 "Old Man in the Mountains" decorative medallions: | \$ 8,000.00 |
| Replace rotting trim and siding on building dormers: | \$40,000.00 |
| Demolish old and construct new 3 story fire escape that is out of code: | <u>\$25,000.00</u> |
| | Tot. \$160,780.00 |
| Architectural/Engineering and DPW fees (at 13%): | \$ 21,000.00 |

This request is to make repairs to the New Hampshire Building at the Eastern States Exposition grounds in W. Springfield, MA. The state of New Hampshire DAMF owns and manages the property which was built in 1930. The building is a stylized replica of New Hampshire's original statehouse that was constructed in Portsmouth. Each New England state is represented at the fair with a similar building representative of that state. NHDAMF operates the state's presentation at the annual exposition which is a 17-day event that draws over 1.5 million people each year.

- 1) The brick end walls of the building are in need of repointing. A considerable amount of the mortar has disintegrated. \$27,300.00
- 2) Two faux chimneys have also degraded to the point of public safety concerns and need to be reconstructed. \$60,480.00
- 3) Two "Old Man in the Mountains" decorative medallions that date to the time of building construction in 1930, crown the top of each side wall. These medallions need to be refurbished not only to highlight their design, but to protect and preserve them. \$8,000.00
- 4) The wood clapboard siding and trim on the front dormers is showing water damage and rot and needs to be replaced in a manner that preserves the historical appearance of the structure, but ideally is a material that is relatively maintenance free, such as plastic or fiberglass. \$40,000.00
- 5) The fire escape is old and local fire inspection has revealed concerns that it does not meet current safety standards for egress from the second floor of the building. The recommendation is to demolish the old fire escape and construct a new one on the side of the building. \$25,000.00











New Hampshire
*Department of Agriculture,
Markets & Food*

The New Hampshire Building at the Big E

The New Hampshire Building at the Eastern States Exposition (Big E) is a replica of the Granite State's original State House, which was located in Portsmouth from 1769 until 1809. The New Hampshire Building was built in 1930 on the Exposition's Avenue of States. It was built to showcase New Hampshire's agriculture and commerce to New England fairgoers. Today, all aspects of New Hampshire are featured: agriculture, commerce, tourism, food, culture and the arts. Each of the New England states has its own building along the Big E Avenue of States, offering a unique opportunity to fairgoers to visit all six New England states in a day.

The New Hampshire Building and its immediate property are owned and maintained by the State of New Hampshire. There are three floors in the New Hampshire Building. The ground floor is the public space where exhibits and concessions are located. The second floor holds the building operations office, meeting room and exhibitor only area. The third floor houses sleeping dormitories for exhibitors and staff.

The Big E draws over 1.5 million people each year during its 17-day run. It is estimated that at least 85-90% of all Big E fairgoers visit the state buildings on the Avenue of States each year.

Approximately \$50,000 of revenue is generated every year for New Hampshire from rental fees charged to exhibitors. Most of this income covers building operation expenses generated annually for staff, security, entertainment, general maintenance (lawn maintenance, minor repairs, etc.), equipment purchases (picnic tables, door mats, etc.) and special displays.

The department is committed to encouraging small businesses in New Hampshire, which comprise the majority of New Hampshire Building exhibitors. Surveys have shown that income generated from the Big E represents 25-80% of these exhibitors' annual income. Several exhibitors have grown from their participation at the Big E and "graduated" to bigger opportunities. Another 30 or so New Hampshire businesses are presented in the consignment shop that operates in building every year. This gives more NH businesses sales opportunity and exposure.

The New Hampshire Building operates with four contracted workers and the oversight of the Director of the Division of Agricultural Development. In addition, there are over 150 individuals that volunteer at the New Hampshire Building every year, working for various NH organizations.



17 Brian Road ◇ Lancaster, MA 01523



BIG E

NEW HAMPSHIRE BUILDING

1305 MEMORIAL AVE, WEST SPRINGFIELD, MA 01089

Preliminary Chapter 34 Investigation & Evaluation Report

Prepared For:

New Hampshire Department of Agriculture, Markets and Food
Division of Agricultural Development
PO Box 2042
Concord, NH 03302-2042

NH 20-001

March 5, 2020

Executive Summary

Big E is an existing building located on the Big E campus in Springfield, MA. It contains a large exhibition hall, administrative offices, and dormitory areas for exhibitors and staff. The facility is open and used for only a few weeks each year during the Big E annual show. The intent of this report is to provide some background on existing state of compliance and code compliance considerations that should be addressed as a priority given existing conditions.

| | | | | | | | |
|---|--|---------------|-----------------|-------------|---------|------------------|--|
| 780 CMR Retroactive Provisions | As an existing building, the Massachusetts State Building Code (780 CMR) has limited provisions retroactively applicable to existing buildings. These provisions are found in Chapter 1 and relate to minimum egress capacity and number of exits, exit arrangement and minimum lighting and ventilation. | | | | | | |
| 780 CMR Chapter 34 Existing Building Code Method | All other provisions of 780 CMR as applicable to existing buildings is dependent on permitted work being proposed or performed. Chapter 34 of 780 CMR addresses existing building provisions based on work to be performed. 3 options are offered: <ul style="list-style-type: none"> 1. The Prescriptive Method 2. The Work Area Method and 3. The Performance Method <p>The Work Area Method would be the preferred method to use until emergency responder radio coverage and sprinklers are provided throughout the building.</p> | | | | | | |
| Uses | <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Assembly, A-3</td> <td>Exhibition Hall</td> </tr> <tr> <td>Business, B</td> <td>Offices</td> </tr> <tr> <td>Residential, R-1</td> <td>Dormitory (R-1 because users stay is less than 30 days and therefore considered transient)</td> </tr> </table> | Assembly, A-3 | Exhibition Hall | Business, B | Offices | Residential, R-1 | Dormitory (R-1 because users stay is less than 30 days and therefore considered transient) |
| Assembly, A-3 | Exhibition Hall | | | | | | |
| Business, B | Offices | | | | | | |
| Residential, R-1 | Dormitory (R-1 because users stay is less than 30 days and therefore considered transient) | | | | | | |
| Special Uses | The sleeping rooms are considered special uses. It is assumed that there are no hazardous materials in the building except those permitted under an exempt quantities/control area approach (i.e. no hazardous use classifications). | | | | | | |
| Historic | The building is historic. | | | | | | |
| Mixed Use Approach | A non-separated mixed use is assumed given the lack of separations noted. | | | | | | |
| Risk Category | Per Table 1604.5, the building is considered a risk category III (Assembly with aggregate occupant load greater than 300). | | | | | | |
| General Building Height & Area | The main portion of the building has 3 stories. The exhibition hall is a single story (Double height space). The building is <70 feet in height above grade plane. As an existing building that is not undergoing a change in use or addition, the existing height and area is deemed compliant. | | | | | | |
| Construction Classification | Most closely resembles Type IIIB, Noncombustible exterior walls, Non-Rated Construction (based on visual observation). The building is largely nonrated, noncombustible construction; however, some wood assemblies were noted. The exterior bearing walls are masonry and 2 hour rated based on the calculation methods in Section 722. Based on this information, Type IIIB Construction is the highest classification which can be assigned. | | | | | | |

Executive Summary (Continued)

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|---|--|
| Fire Walls or Separation Walls | No fire walls or separation walls were noted. |
| Exterior Walls & Openings | If no changes are proposed, the existing exterior walls and openings are “presumed” compliant with code in effect at the time of construction. The building is afforded setbacks of at least 20 feet which would allow unlimited unprotected openings. |
| Sprinklers | The building is not equipped with sprinklers. |
| Standpipes | The building is not equipped with standpipes. |
| Fire Extinguishers | The building is equipped with fire extinguishers. |
| Fire Alarm System | A fire alarm system is provided with radio transmission for monitoring by Fire Department. This consists of manual pull stations, smoke detection and CO detection. |
| Emergency Responder Radio Coverage | Emergency responder radio coverage is not provided. |

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INTRODUCTION

BACKGROUND

The New Hampshire Department of Agriculture, Markets and Food has retained Building, Fire & Access, Inc. to provide fire protection, life safety, and accessibility consulting services to review the New Hampshire Building Big E. This report serves as a Preliminary Chapter 34 Investigation & Evaluation Report for the building. The term preliminary is used because the ultimate code application is dependent on proposed work which has not yet been identified. For the purpose of this report, the following scenarios are considered:

- a. Identify existing deficiencies in terms of minimum egress compliance,
- b. Consider a Repair project,
- c. Consider a Level 1 Alteration project,
- d. Consider a Level 2 Alteration project, and
- e. Consider a Level 3 Alteration project.

APPLICABLE CODES

The following primary codes are applicable to this project:

- **Accessibility** - Massachusetts Architectural Access Board, 521 CMR and the Americans with Disabilities Act 2010 ADA Standards for Accessible Design (2010 ADASAD).
- **Building** - Massachusetts State Building Code Ninth Edition, 780 CMR. 780 CMR is an amended version of the 2015 International Building Code.
 - **Existing Building Code** - International Existing Building Code, 2015, as amended by 780 CMR (IEBC).
 - **Mechanical** - International Mechanical Code, 2015, as amended by 780 CMR (IMC).
 - **Energy Conservation** – 2018 International Energy Code as amended by 780 CMR (IECC).
- **Fire Prevention** - Massachusetts Fire Prevention Regulations, 527 CMR. 527 CMR is an amended version of the 2015 National Fire Code, NFPA 1.
 - **Electrical** - Massachusetts Electrical Code, 527 CMR 12.00. The Massachusetts Electrical Code is an amended version of the 2017 National Electrical Code (NFPA 70).

This report focuses on the key issues relative to compliance with 780 CMR.

ASSUMPTIONS

The code review and report have been completed based on the assumption that if any hazardous materials are to be located within the building now or in the future, the amount of such materials will be limited to the exempt amounts permitted by 780 CMR using a control area method.

EXISTING CONDITIONS SUMMARY

| | |
|------------------------|---|
| Building Uses | Assembly (A-3), Business (B) & Residential (R-1) |
| Historic | The building is historic. |
| Construction | Type IIIB, Noncombustible |
| Building Height | 3 stories above grade |
| Building Area | Approx. 40,000 gsf in the aggregate |
| Risk Category | III (Assembly with Occupant load > 300) |
| Fire Protection | The building is not provided with sprinklers or standpipes. A fire alarm system is provided. Fire extinguishers are provided. An emergency responder radio coverage system is not provided. |

780 CMR AND 527 CMR RETROACTIVE REQUIREMENTS

In general, 780 CMR & 527 CMR do not have retroactive provisions except as follows:

1. Maintenance Provisions (780 CMR 102.8 and 527 CMR 1.03)

Maintenance provisions can be enforced to require any work necessary to maintain compliance with codes at the time of construction or last substantial renovation.

2. Existing Means of Egress, Lighting and Ventilation (780 CMR 102.6.4)

This provision may be enforced regardless of compliance at the time of original construction or last substantial renovation. The provision is specifically intended to ensure minimally:

- a. Adequate number of exits
- b. Adequate exit capacity
- c. Adequate exit arrangement
- d. Adequate lighting
- e. Adequate ventilation

If in the opinion of the building code official any of these are not adequate, abatement orders may be issued.

REVIEW

The exhibition area is compliant with items a through e in my professional opinion.

- Approximate occupant load = 500-600 persons,
- 3 exits are required, and 3 exits are provided.
- The 3 exits provide with capacity for 840 persons.
- Exit arrangement meets travel distance, common path of travel and other exit access arrangement criteria. All exits are accessible via a "racetrack" pattern of large aisles that connect to two pair of rear doors and to front doors.
- Adequate lighting and ventilation are presumed based on visual observation of fixtures and equipment.

The Second Level is compliant with items a through e in my professional opinion.

- Approximate occupant load = 30-50 persons (3,300 gsf @ 1/100 gsf/person = 33),
- 2 exits are required, and 2 exits are provided.
- The 2 exits provide capacity for 100 persons (2 ea. 36" wide staircases).
- Exit arrangement meets travel distance, common path of travel and other exit access arrangement criteria
- Adequate lighting and ventilation are presumed based on visual observation of fixtures and equipment.

The Third Floor is compliant with items a, b, d and e in my professional opinion.

- Approximate occupant load = 66-75 persons (3,300 gsf @ 1/50 gsf/person = 66),
- 2 exits are required, and 3 exits are provided (2 internal stairways and 1 fire escape from the exhibition roof; there are 3 sleeping rooms and each is provided with an exit door to the exhibition roof; from there they converge to a 1 story fire escape to grade).
- The 3 exits provide capacity for 150 persons (50 per staircase and 50 per the fire escape).
- Adequate lighting and ventilation are presumed based on visual observation of fixtures and equipment.

However, item c is not satisfied based on:

1. The limited aisle accessways provided between beds to reach the exit doors from each sleeping room,
2. Steps up to the roof right at the doors,
3. Door hardware,
4. Emergency egress lighting, and
5. Exit Signage.

RECOMMENDATIONS

The above items are considered Priority 1 and should be addressed as soon as possible and before the dormitories are occupied again.

1. Minimum 36" clear aisles should connect all exit doors and the stairs. This path must be maintained unobstructed at all times.
2. While the steps up to the roof must remain, contrasting marking and warning signs should be provided.
3. All dead bolts should be removed from doors.
4. All knobs should be replaced with lever type handles.
5. Additional emergency egress lighting should be provided to ensure the minimum lumens are provided at the floor (1 foot-candle at the floor) and the emergency lighting is provided for the path across the roof and at the exit discharges.
6. Replace all paper exit signs with internally illuminated exit signs.
7. Remove all storage from the 3rd and 2nd Floors.

In addition to the above to meet minimum egress criteria, the following items are considered Priority 2 items which, if completed, will improve the overall life safety for occupants during their stay.

8. Replace outdated fire escape with a full size exterior stairway.
9. Create smoke tight partitions between each sleeping room and between the 2nd and 3rd Floors. Namely doorways should be replaced to create tight fitting barriers at the internal stairways and the doorways separating the sleeping rooms from the other areas of the 3rd Floor.
10. Improve Stairway guardrails by increasing height to 42".
11. Retrofit automatic sprinkler protection throughout the 3-story portion at a minimum, but throughout the exhibition hall as well.

SPRINKLER CONSIDERATIONS

MASSACHUSETTS GENERAL LAW CHAPTER 148 SECTION 26G

The Massachusetts General Law Chapter 148 Section 26G (M.G.L.c.148 §26G) is the state's enhanced sprinkler law. The building is not compliant with M.G.L.c.148 §26G. However, the law as it applies to existing buildings does not require sprinklers unless 33% of the building value is spent on work in a 5 year period.

780 CMR CONSIDERATIONS

As an existing building, 780 CMR Chapter 34 is applicable. 780 CMR Chapter 34 is an amended version of the 2009 International Existing Building Code (IEBC). Chapter 34 requires a project to comply with one of three permissible methods (780 CMR 101.5): 1) The Prescriptive Method, 2) The Work Area Method, or 3) The Performance Method.

The prescriptive method requires a minimum set of criteria be satisfied before it may be used. It is noted that under the 9th Edition of 780 CMR Chapter 34 (IEBC 2015), an Emergency Responder Radio Coverage System will be necessary to use the Prescriptive Method. Therefore, this method is not recommended unless an emergency responder radio coverage system is installed. Springfield Fire Department will have a specific set of criteria which needs to be satisfied for such a system.

The Performance Method entails a point system evaluation to assess if a minimum level of safety is achieved. Based on the limited features at the existing building, insufficient points are available to make the Performance Method viable (notably, without a fire sprinkler system the required point value is not achieved).

The Work Area Method would be the preferred method to use until emergency responder radio coverage and sprinklers are provided throughout the building.

Sprinklers would not be required under the Work Area Method unless a Level 2 Alteration or Higher work classification occurs. In layman's terms, more than half a floor would need to be altered.

CONCLUSION

Sprinklers are not required unless appreciable work is completed and/or dollars are spent. That said, the life safety benefits of sprinklers are superior to any other improvement that can be made for the dormitories.



Figure 1 - Obstructed Door and Noncompliant Exit Sign



Figure 2 - Same as Figure 1 but Further from Door



Figure 3 - Exit Aisles between Beds is Insufficient



Figure 4 - Another Exit Door Obstructed and Noncompliant Exit Sign



Figure 5 - Internal Stairway 1 and Enclosure which is not Smoke-Tight



Figure 6 - Noncompliant door hardware and Unpermitted Dead Bolt



Figure 7 - Move Wardrobe Units and Curtain to Maintain Clear Path to Stairs

Figure 8 - Doors to Exhibition Roof



Figure 9 - Internal Stairway #2



Figure 10 - Exit Doors to Roof (Exterior)



Figure 11 - Path from Doors to Fire Escape



Figure 12 - Fire Escape at Rear of Building



Figure 13 - Fire Escape at Rear of Building

END OF REPORT