

CODE ANALYSIS REPORT

SECOND FLOOR

384 DWIGHT STREET
HOLYOKE, MA

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INTRODUCTION

The following report is a preliminary analysis of potential code issues relative to the use of spaces in an existing building. We have conducted a field visit to review the building, but have not conducted a detailed inspection, nor have we performed any testing, exploratory demolition, or other such research. We are relying on information conveyed to us by building owners, available documentation on the building, and information available to us through City of Holyoke resources.

The code review consists of an analysis of the following codes and regulations relating only to the current or proposed use of the space in question:

- Eighth Edition Building Code – 780 CMR, which consists of the 2009 International Building Code as modified by the Massachusetts Amendments
- 2009 International Existing Building Code as modified by the Massachusetts Amendments
- 2009 International Energy Conservation Code as modified by the Massachusetts Amendments
- Massachusetts Architectural Access Board Regulations – 521 CMR

The Plumbing and Fuel Gas Code, Electrical Code, and Elevator Code were not reviewed for this report.

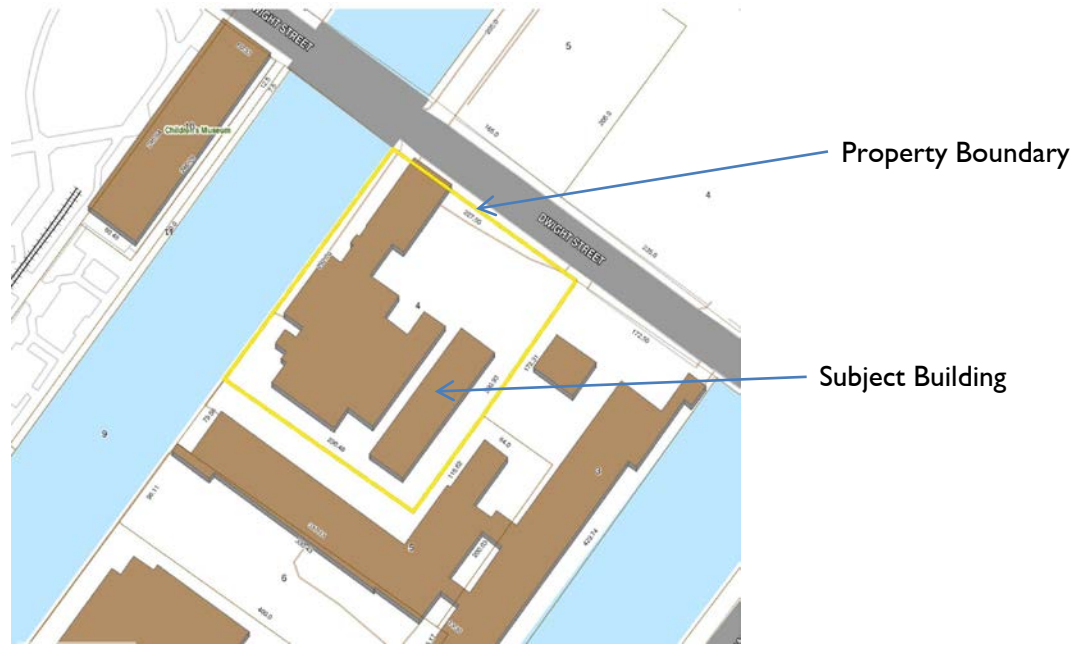
SECOND FLOOR OF 384 DWIGHT STREET

The second floor of 384 Dwight Street, is located above the Creative Arts Center, which occupies the first floor and part of the basement of the two story building for their classes in crafts.

The current uses of the space, in an undivided fashion, include offices and work areas for industrial designers, creative arts promoters, and a professional chef/farming advocate. The current maximum occupancy of the space is in the range of 10 – 20 people at any given time.



The building is a free-standing structure within a multi-building complex on Dwight Street between the First and Second Canals.



Locus Plan

RECOMMENDATIONS

Based on observations made on site and the code analysis performed herein, the following actions should be undertaken:

- Provide lighted exit signs at all exits and provide exit signs with arrows to direct occupants through the space to the exits. *Although there are currently no partitions in the space, therefore making it easy to see the exits, there are plans to put in partitions, which might mean the addition of new lighted exit signs.*
- Provide emergency lighting. *The possible locations of this lighting will need to be studied if new partitions are installed.*
- Correct the existing sprinkler system by upsizing the end runs to the heads to meet NFPA 13.
- Provide a clearly marked 33 inch wide clear pathway on the floor to all exits and limit encroachment by furniture, materials, and other objects. *Similarly, ensure that materials are properly stored, do not block egress paths, and do not come in contact with lights, electrical panels, etc.*
- Provide hard-wired outlets and eliminate the use of extension cords.
- Obtain a Certificate of Occupancy for the new use. *This will document the new use.*

SECOND FLOOR

348 Dwight Street
Holyoke, MA

Existing:

The existing structure is a two story, masonry bearing wall, heavy timber framed structure with 6,160 gross square feet per floor. There are two enclosed stairs on either end of the building and the building is 100% sprinklered.

Planned:

Proposed *repairs* and *alterations* to the second floor only are the upgrade of the existing fire sprinkler system, provision of hard-wired outlets and the possible partitioning of the space to separate the different tenants.

Summary

- Existing building construction date: c. 1945
- Building Code applicable at time of original construction: None.
- Existing building statistics:

Basement	6,160 sf
First Floor	6,160 sf
<u>Second Floor</u>	<u>6,160 sf</u>
Total	18,480 sf gross

- Existing building Use Group: Factory Group F-2 (Low Hazard) and Storage Group S-2 (Low Hazard)
- Proposed Use Group: Business Group B (Offices)
- Existing Hazard Index: 4
- Proposed Hazard Index: 4
- Building Construction: Heavy timber framed, exterior brick bearing walls
- Construction Type: Type IV – Heavy Timber or Type VB – Unprotected Wood Frame
- Height and Area Limitations (without allowable increases for access and fire protection):

Heavy Timber	5 stories and 36,000 sf per floor
Unprotected Wood Frame	2 stories and 9,000 sf per floor

**2009 INTERNATIONAL EXISTING BUILDING CODE
With Massachusetts Amendments**

Chapter I: Scope and Administration

Section	Title	N/A and comments
101	GENERAL	
101.5	Compliance Methods	Subject to Work Area Compliance Method Alteration Level I
101.5.4.0	Mass amendment – Investigation and Evaluation. Subject to Mass amendment 107.6 to the IBC, a written report is required to be submitted to the Building Official.	Provided herein on a preliminary basis. When final scope of work is defined, should be submitted with permit documents.
101.5.4.1	Mass amendment – IBC Level Seismic Refer to Table 101.5.4.1.0	Not applicable
101.5.4.2 Exceptions	Mass amendment – Exceptions 1. 50% 2009 IBC prescribed forces when directed to this section by 807.4.3 2a. 50% 2009 IBC prescribed forces when directed to this section by 1003.3.1 and the vertical addition increases the building area by 30% or less. 2b. 75% 2009 IBC prescribed forces when directed to this section by 1003.3.1 and the vertical addition increases the building area between 30% and 50%.	Not applicable
101.9	Mass amendment - Cumulative effects.	
101.9 Exceptions	Mass amendment - Cumulative effects must be considered except when all: 1. Structural work does not involve more than 2% of the total tributary area of horizontal framing members of any existing framed floor or roof. 2. Structural work does not alter shear walls above the foundation. 3. Structural work does not alter columns or diagonal braces. 4. Structural work does not create an opening in any framed floor or roof that has an area more than 2% of the framed floor or roof. 5. Structural work does not alter any floor or roof diaphragm and its connections such that in-plane shear resistance is reduced by more than 5%. 6. Structural work does not remove or reconfigure lateral load resisting frames, or foundations supporting them.	Not applicable

101.10	<p>Mass amendment - Masonry walls. Must follow Appendix A1 where any of the following conditions exist:</p> <ol style="list-style-type: none"> 1. Work area > 50% aggregate area 2. Occupancy increase by more than 25% and total occupancy is 100 or more. 3. Occupancy change to a relative hazard category of 1 or 2 per Table 912.5 or educational occupancy K to 12. 4. A Level 2 Alteration to Occupancy Category IV per ASCE 7-05 table 1-1. 	<p>Work area less than 50% aggregate area. Occupancy calculation stays the same. No change in occupancy category. Level 1 Alteration.</p>
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Chapter 2: Definitions		
Section	Title	N/A and comments
202	GENERAL DEFINITIONS	
	<p>Alteration. Any construction or renovation to an existing structure other than a <i>repair</i> or <i>addition</i>. Alterations are classified as Level 1, Level 2, and Level 3.</p>	
	<p>Change of occupancy. A change in the purpose or level of activity within a building that involves a change in application of the requirements of this code.</p>	
	<p>Existing building. A building erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued.</p>	
	<p>Repair. The restoration to good or sound condition of any part of an <i>existing building</i> for the purpose of its maintenance.</p>	
	<p>Work area. That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.</p>	

Chapter 3: Prescriptive Compliance Method		
Section	Title	N/A and comments
301	GENERAL	
301.1	Scope. Controls alteration, repair, addition and change of occupancy	Proposed work is alterations and repairs.
301.2	Building Materials. Existing materials can remain. New materials shall meet current Building Code. Like materials permitted if not hazardous.	Proposed work uses materials compliant with current Building Code.
303	ALTERATIONS	
303.1	General. Existing stairways shall not be required to comply with the Building Code for new construction. Existing stair handrails shall not be required to comply with the Building Code for new construction regarding full extension of handrails.	Existing stairways and handrails do not require alteration.
303.2	Flood hazard area.	Not applicable.
303.3	Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an <i>alteration</i> causes an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by the Building Code for new structures.	No increase in loads.
303.4	Mass amendment - Existing structural elements carrying lateral load Does the alteration: <ul style="list-style-type: none"> ▪ increase design lateral loads? or ▪ create a structural irregularity? or ▪ decrease the capacity? 	No increase in loads.
303.4.1	Seismic	Not applicable.
304	REPAIRS	
304.1	General.	
304.2	Substantial structural damage to vertical elements of the lateral-force resisting system. (refer to definition of “substantial structural damage” in Chapter 2)	No substantial structural damage observed.
304.3	Substantial structural damage to gravity load-carrying components.	No substantial structural damage observed.
304.4	Less than substantial structural damage. Repairs shall be allowed that restore the building to its pre-damaged state using materials and strengths that existed prior to	If repairs needed.

	the damage. New structural members and connections used for this <i>repair</i> shall comply with the detailing provisions of the Building Code for new buildings of similar structure, purpose and location.	
304.5	Mass amendment - Flood hazard area.	Not applicable.
307	CHANGE OF OCCUPANCY	
307.1	Conformance. No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancy or in a different group of occupancies, unless such building is made to comply with the requirements of this code for such division or group of occupancy.	Change in use from Factory to Business occupancy.
307.2	Certificate of Occupancy. A certificate of occupancy shall be issued where it has been determined that the requirements for the new occupancy classification have been met.	Tenant shall obtain a Certificate of Occupancy due to the change in use.
307.4	Seismic. When a <i>change of occupancy</i> results in a structure being reclassified to a higher occupancy category, the structure shall conform to the seismic requirements for a new structure of the higher occupancy category.	Change in use is not a higher occupancy category, so not applicable.
307.5	Energy. Buildings undergoing a change in occupancy that would result in an increase in demand for either fossil fuel or electrical energy shall comply with the <i>International Energy Conservation Code with Massachusetts Amendments</i> .	No increase in fuel or energy demand.
307.8	Mechanical. The code official shall certify that the structure meets the intent of the provisions of law governing building construction for the proposed new occupancy and that such <i>change of occupancy</i> does not result in any hazard to the public health, safety or welfare.	Review by code official required.
308	HISTORIC BUILDINGS	
308.1	Historic buildings.	Not applicable.
310	ACCESSIBILITY FOR EXISTING BUILDINGS	
310.1	Scope. Accessibility requirements shall be in accordance with 521 CMR Massachusetts Architectural Access Board Regulations.	See separate analysis below.

308.2	Flood hazard areas.	Not applicable.
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Chapter 4: Classification of Work (Work Area Compliance Method)		
Section	Title	N/A and comments
401	GENERAL	
401.2	Work area. The <i>work area</i> , as defined in Chapter 2, shall be identified on the construction documents.	The work area is potentially the whole second floor, for a total of 6,160 square feet or 33% of the overall square footage of the building.
402	REPAIRS	
402.1	Scope. <i>Repairs</i> , as defined in Chapter 2, include the patching or restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.	Minor repairs to existing finishes are proposed.
403	ALTERATIONS—LEVEL I	
403.1	Scope. Level I alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose. Comply with Chapter 6.	Minor alterations are proposed.
404	ALTERATIONS—LEVEL 2	Not applicable.
405	ALTERATIONS—LEVEL 3	Not applicable.
406	CHANGE OF OCCUPANCY	Comply with Chapter 9.
407	ADDITIONS	Not applicable.
408	HISTORIC BUILDINGS	Not applicable.
409	RELOCATED BUILDINGS	Not applicable.

Chapter 5: Repairs (Work Area Compliance Method)		
Section	Title	N/A and comments
501	GENERAL	
501.1	Scope. Repairs as described in Section 402 shall comply with the requirements of this chapter.	
501.2	Conformance. The work shall not make the building less conforming than it was before the <i>repair</i> was undertaken.	
501.3	Flood hazard areas	Not applicable.
502	BUILDING ELEMENTS AND MATERIALS	
502.1	Existing building materials. Materials already in use in a building in	No building code in existence at the time of construction (1945). Existing materials to

	conformance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the <i>code official</i> to render the building or structure unsafe or <i>dangerous</i> as defined in Chapter 2.	remain.
502.2	New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alterations, provided no <i>dangerous</i> or <i>unsafe</i> condition, as defined in Chapter 2, is created. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.	Like materials permitted. No lead based paint or asbestos to be used.
503	FIRE PROTECTION	
503.1	General. Repairs shall be done in a manner that maintains the level of fire protection provided.	Existing NFPA 13 system in place.
503.2	Major Alterations. Repairs shall be done in a manner that maintains the level of fire protection provided.	Not applicable.
504	MEANS OF EGRESS	
504.1	General. Repairs shall be done in a manner that maintains the level of protection provided the means of egress.	Existing space has two remote means of egress.
505	ACCESSIBILITY	
504.1	General. Repairs shall be done in a manner that maintains the level of accessibility.	Existing space is not accessible. See separate analysis below.
506	STRUCTURAL	
506.1	General	
506.2.1	Repairs for less than substantial structural damage. (refer to definition of “substantial structural damage” in Chapter 2)	None required.
506.2.2	Repairs for substantial structural damage to vertical elements of the lateral-force-resisting system.	Not applicable.
506.2.4	Flood hazard areas.	Not applicable.

Chapter 6: Alterations—Level I (Work Area Compliance Method)		
Section	Title	N/A and comments
601	GENERAL	
601.1	Scope. Level I alterations as described in Section 403 shall comply with the requirements of this chapter.	
601.2	Conformance. <i>An existing building</i> or portion thereof shall not be altered such that the building becomes less safe than its existing condition.	No alterations proposed that would trigger this.
601.3	Flood hazard areas.	Not applicable.
602	BUILDING ELEMENTS AND MATERIALS	
602.1	Interior finishes. All newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the Building Code.	Existing finishes are painted brick, gypsum wallboard, and particle board.
602.2	Interior floor finishes. New interior floor finish, including new carpeting used as an interior floor finish material, shall comply with Section 804 of the Building Code.	Existing floor is wood plank flooring. No new flooring finishes proposed.
602.3	Interior trim. All newly installed interior trim materials shall comply with Section 806 of the Building Code.	Existing trim is wood. No new trim proposed.
603	FIRE PROTECTION	
603.1	General. Alterations shall be done in a manner that maintains the level of fire protection provided.	
603.2	Major Alterations. In addition to the requirement in section 603 automatic sprinkler systems may be required in buildings undergoing major alterations per section 102.2.1.1.	Major alterations not proposed.
604	MEANS OF EGRESS	
604.1	General. Repairs shall be done in a manner that maintains the level of protection provided for the means of egress.	
604.2	Major Alterations. Alterations shall be done in a manner that maintains the level of protection provided for the means of egress, and in accordance with section 102.2.2.1.	No alterations to means of egress proposed.
605	ACCESSIBILITY	

605.1	General. Accessibility requirements shall be in accordance with 521 CMR.	Existing space is not accessible. See separate analysis below.
606	STRUCTURAL	
606.1	General . Where alteration work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the provisions of this section shall apply.	Not proposed.
606.2	Addition or replacement of roofing or replacement of equipment. Where addition or replacement of roofing or replacement of equipment results in additional dead loads, structural components supporting such reroofing or equipment shall comply with the gravity load requirements of the Building Code.	Not proposed.
607	ENERGY CONSERVATION	
607.1	Minimum requirements. Level I alterations to existing buildings or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the International Energy Conservation. The alterations shall conform to the energy requirements of the International Energy Conservation Code as they relate to new construction only.	Only window replacement contemplated. If windows replaced, they must have a U-value of 0.40 and an SHGC of 0.40.

Chapter 7: Alterations—Level 2 (Work Area Compliance Method)

Section	Title	N/A and comments
701	GENERAL	Not applicable.

Chapter 8: Alterations—Level 3 (Work Area Compliance Method)

Section	Title	N/A and comments
801	GENERAL	Not applicable.

Chapter 9: Change of Occupancy (Work Area Compliance Method)

Section	Title	N/A and comments
901	GENERAL	
901.1	Scope. The provisions of this chapter shall apply where a <i>change of occupancy</i> occurs, as defined in Section 202. including: I. Where the occupancy classification is not	Change in occupancy, but no change in occupancy classification.

	changed, or 2. Where there is a change in occupancy classification or the occupancy group designation changes.	
901.2	Change in occupancy with no change of occupancy classification. A change in occupancy, as defined in Section 202, with no <i>change of occupancy</i> classification shall not be made to any structure that will subject the structure to any special provisions of the applicable <i>Codes</i> , including the provisions of Sections 902 through 911, without the approval of the <i>code official</i> . A certificate of occupancy shall be issued where it has been determined that the requirements for the change in occupancy have been met.	Change in occupancy, but no change in occupancy classification.
901.2.1	Repair and alteration with no change of occupancy classification. Any <i>repair</i> or <i>alteration</i> work undertaken in connection with a <i>change of occupancy</i> that does not involve a <i>change of occupancy</i> classification shall conform to the applicable requirements for the work as classified in Chapter 4 and to the requirements of Sections 902 through 911.	Change in occupancy, but no change in occupancy classification.
901.4	Certificate of occupancy required. A certificate of occupancy shall be issued where a <i>change of occupancy</i> occurs that results in a different occupancy classification as determined by the Building Code.	New Certificate of Occupancy not required.
903	BUILDING ELEMENTS AND MATERIALS	
903.1	General. Building elements and materials in portions of buildings undergoing a <i>change of occupancy classification</i> shall comply with Section 912.	Change in occupancy, but no change in occupancy classification.
902.2	Underground buildings	
907	STRUCTURAL	
907.1	Gravity loads . Buildings or portions thereof subject to a <i>change of occupancy</i> where such change in the nature of occupancy results in higher uniform or concentrated loads based on Tables 1607.1 and 1607.6 of the <i>International Building Code</i> shall comply with the gravity load provisions of the Building Code.	Former occupancy - Manufacturing: 125 to 250 psf uniform load, 2,000 to 3,000 pounds concentrated load Proposed occupancy – Business: 50 to 80 psf, uniform load, 2,000 pounds concentrated load Therefore, no increase in uniform or concentrated loads for change in use

Chapter 10: Additions (Work Area Compliance Method)

Section	Title	N/A and comments
1001	GENERAL	Not applicable.

Chapter 11: Historic Buildings (Work Area Compliance Method)

Section	Title	N/A and comments
1101	GENERAL	Not applicable.

Chapter 12: Relocated or Moved Buildings (Work Area Compliance Method)

Section	Title	N/A and comments
1201	GENERAL	Not applicable.

Chapter 13: Performance Compliance Method

Section	Title	N/A and comments
1301	GENERAL	Not applicable.

MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REGULATIONS

Chapter 3: Jurisdiction

Section	Title	N/A and comments
3.1	SCOPE	
	All work performed on <i>public buildings or facilities</i> (see 521 CMR 5.00: DEFINITIONS), including <i>construction, reconstruction, alterations, remodeling, additions, and changes of use</i> shall conform to 521 CMR.	This is a <i>public building or facility</i> , therefore 521 CMR applies.
3.3	EXISTING BUILDINGS	
	All <i>additions to, reconstruction, remodeling, and alterations or repairs</i> of existing <i>public buildings or facilities</i> , which require a building permit or which are so defined by a state or local inspector, shall be governed by all applicable subsections in 521 CMR 3.00: JURISDICTION .	521 CMR applies to <i>repairs and alterations</i> .
3.3.1	<p>If the work being performed amounts to less than 30% of the <i>full and fair cash value</i> of the <i>building</i> and</p> <p>a. if the work costs less than \$100,000, then only the work being performed is required to comply with 521 CMR or</p> <p>b. if the work costs \$100,000 or more, then the work being performed is required to comply with 521 CMR. In addition, an <i>accessible public entrance</i> and an <i>accessible toilet room, telephone, drinking fountain</i> (if toilets, telephones and drinking fountains are provided) shall also be provided in compliance with 521 CMR.</p>	<p>The proposed work for this space costs less than \$100,000, therefore compliance with 521 CMR is not required.</p> <p>However, if cumulatively, over the space of three years, more than 30% of the value of the building is spent, then full compliance will be triggered.</p>
3.3.1	<p>Exceptions: Whether performed alone or in combination with each other, the following types of <i>alterations</i> are not subject to 521 CMR 3.3.1, unless the cost of the work exceeds \$500,000 or unless work is being performed on the entrance or toilet. (When performing exempted work, a memo stating the exempted work and its costs must be filed with the permit application or a separate building permit must be obtained.)</p> <p>a. Curb Cuts: The construction of <i>curb cuts</i> shall comply with 521 CMR 21.00: CURB CUTS.</p>	

	<p>b. <i>Alteration</i> work which is limited solely to electrical mechanical, or plumbing systems; to abatement of hazardous materials; or retrofit of automatic sprinklers and does not involve the <i>alteration</i> of any <i>elements</i> or <i>spaces</i> required to be <i>accessible</i> under 521 CMR. Where electrical outlets and controls are altered, they must comply with 521 CMR.</p> <p>c. Roof repair or replacement, window repair or replacement, repointing and masonry repair work.</p> <p>d. Work relating to septic system repairs, (including Title V, 310 CMR 15.00, improvements) site utilities and landscaping.</p>	<p>Proposed work to the existing sprinkler system and the electrical wiring upgrades fall into this exempt category, therefore the cost of this work does not factor into the overall 30% of <i>full and fair value</i> trigger.</p> <p>Therefore, only partition erection would fall into this category.</p>
3.3.3	<p>Alterations by a tenant do not trigger the requirements of 521 CMR 3.3.1b and 3.3.2 for other tenants. However, <i>alterations, reconstruction, remodeling, repairs, construction, and changes in use</i> falling within 521 CMR 3.3.1b and 3.3.2, will trigger compliance with 521 CMR in areas of <i>public use</i>, for the owner of the <i>building</i>.</p>	

The property as a whole, including this building and the rest of the buildings at 420 Dwight Street is currently assessed as follows:

Building value	\$240,000
Land value	49,400
Total value	\$290,000

The building value as established by the assessor's office equals the full and fair cash value of the building. As this building represents only a small percentage of the overall square footage of the complex, the triggers for full compliance with accessibility are quite low. This will need to be carefully monitored into the future. Given the low values of real estate, it may be possible to obtain variances from the Architectural Access Board going forward, although there is no guarantee of success.