

**CODE SUMMARY**

**Applicable Codes**

- MUBEC - Maine Uniform Building and Energy Code
- 2009 International Building Code - IBC (except chapters 11 and 30)
- 2009 IECC, International Energy Conservation Code
- NFPA 101 Life Safety

**Accessibility Codes**

- UFAS Fair Housing Act Section 504
- State of Maine Human Rights Act
- ADAAG Americans with Disabilities Act
- ICC ANSI 117.1 Accessible and Usable Buildings and Facilities

**PROJECT SUMMARY:**

Historical adaptive re-use of an existing convent building with internal chapel space in accordance with the National Park Service Guidelines for Rehabilitating Historic Buildings and the Maine Housing Quality Standards and Procedures Manual 2014 Edition. The work will entail the conversion of the five (5) story building space into senior housing units using existing egress corridors and stairs, and two existing (rehabilitated) elevators. The work will affect all aspects of the building including, but not limited to, the foundations, the masonry, the internal structure and walls, existing historical elements for repair and replacement, doors (interior and exterior), windows, roofing and flashing. The building will be sprinkled with an NFPA 13 system.

**Square Footages:**

First Floor:	23,647 SF.	
Second Floor:	23,875 SF.	
Third Floor:	24,194 SF.	(Incl. A-3 Chapel - 5,073 SF)
Fourth Floor:	16,283 SF.	(Incl. A-3 Chapel - 256 SF)
Fifth Floor:	13,650 SF.	
<b>Total:</b>	<b>101,649 SF.</b>	

**Unit Count:**

88 Units

**CODE SUMMARY IBC - INTERNATIONAL BUILDING CODE 2009:**

**Chapter 3- Use and Occupancy Classification Mixed Use**

<b>303.1 Assembly Group A-3</b>	Chapel at Third Floor
<b>310.1 Residential Group R-2</b>	Apartments at Levels 1-5

**707 Fire Barriers (shafts, exit and floor opening enclosures)**

707.3.1 Shaft enclosures shall comply with Section 708.4 (2 hours)

707.3.2 The fire resistance rating of exit enclosures shall comply with Section 1022.1 (2hours).

707.5 Fire barriers shall extend from the top of the floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above.

707.5.1 Supporting construction shall be protected to required fire resistance rating of the fire barrier supported (fireblocking is required in cavities if shaft extends through the floor level at every floor level).

707.6 Openings in fire barrier shall be protected in accordance with Section 715. Openings shall be limited to a maximum aggregate width or 25% of length of wall, with max area of any single opening not to exceed 156 sf. Openings in exit enclosures and passageways shall comply with Sections 1022.3 and 1023.5.

- Exception 1: Openings not limited to 156 sf with automatic sprinkler systems.
- Exception 2: Openings not limited to 156 sf or 25% of length at fire door serving exit enclosure.

708 Shaft Enclosures (stairs, chutes, elevators, duct shafts, etc.)

708.1 Shaft enclosures to be constructed as fire barriers

708.2 Fire barrier construction not required at piping, conduits, etc. penetrations if protected per Section 712.4

708.4 Shaft enclosures shall have a 2 hour fire resistance rating where connecting 4 stories or more, and shall have a fire resistance rating not less than the floor assembly penetrated but not exceeding 2 hours.

708.8.1 Penetrations other than those necessary for the purpose of the shaft shall not be permitted.

708.14.1 Elevator Lobby Enclosure  
Not required per exception no. 4 ... "building is protected by an automatic sprinkler system in accordance with section 903.3.1.1"

**Chapter 10- Means of Egress**

**1004 Occupant Load**

<b>Table 1004.1 Maximum Floor Area Allowances per Occupant</b>	
Assembly	15 net sf. Un-concentrated (339 Occupants)
Residential	200 gross sf (121 Occupants, Largest Floor)

**1005 Egress Width**

Function of Space	Location	Floor Area	Occupants	Req'd Egress Width (1005.1)
Assembly	Chapel	5,073 sf	339 x 2"	68" Other
Residential	Level 1-5	19,018 sf	121 x .3" 121 x 2"	37" Stairs 28" Other

**Notes:**

- A minimum of 2 egress or stair locations provided at each floor (36" wide doors and 44" wide stairs)

1008.1.4.4 Group R-2 occupancies building entry doors are permitted to be equipped with access control system.

1008.1.5 Provide a level landing on each side of door, except at exterior locations with 2% slope pitch for drainage.

1008.1.9.1.0 Interior stairway means of egress doors shall be operable from both sides

Exception 1: Stairway discharge doors shall only be locked from the opposite side.

1008.1.1.0 Doors serving an occupancy load of 50 or more in Group A shall be provided with panic hardware. Electrical rooms with equipment rated at 1200 amps or more will also require panic hardware.

**Chapter 4- Special Detailed Requirements Based on Use and Occupancy**

**420 Group R-2**

420.2 Separation Walls-Walls separating Dwelling Units from Dwelling Units and from other occupancies are Fire Partitions in accordance with Section 709 (1 hour rated).

420.3 Horizontal Separation- Floor Assemblies separating Dwelling Units from Dwelling Units and from other occupancies are Horizontal Assemblies in accordance with Section 712 (1 hour).

**Chapter 5- General Building Heights and Areas**

<b>Table 503 Allowable Heights and Areas</b>	
Residential - R-2	Type 3B Construction - 4 stories, 16,000 sf
Assembly - A-3	Type 3B Construction - 2 stories, 9,500 sf

504.2 Automatic Sprinkler System Increase (Building Height)  
In buildings equipped with an NFPA 13 automatic sprinkler system, the maximum building height is increased by 20 feet and the maximum number of stories is increased by one.

Construction Type 3B	
Group R-2:	5 stories
Group A-3:	2 stories

**506.0 Building Area Modifications**

**506.1 General Equation 5-1**

Aa= [At+ (At x If) + (At x Is)]  
 Table 503 for Type 3B Construction, R-2 Residential Use  
 Aa= 16,000 sf + 0 + (16,000 x 2)  
 Aa= 48,000 sf Allowable building area per story (24,194sf Proposed)

**506.2 Frontage Increase Equation 5-2- Not Applied**

If= [F/P - 0.25] W/30

F= If open perimeter

P= If total perimeter

W= 20 (varies from 20' - 30')

**709 Fire Partitions (exit access corridors, dwelling unit separations, etc.)**

**709.3 Fire Resistance Ratings**

Fire partitions shall have a fire resistance rating of not less than 1 hour.  
 • Walls Separating Dwelling Units (420.2) One hour  
 • Corridor Walls per Table 1018. 1/2 hour (when fully sprinklered per NFPA 13)

709.4 Continuity: Fire partitions shall extend from floor below to underside of floor/roof sheathing above. Supporting structure shall be protected similarly to wall. Fire blocking is not required if equipped with automatic sprinkler system and sprinklers are installed within combustible floor/ceiling and roof/ceiling spaces.

709.5 Where exterior walls serve as part of the required fire resistance rating separation, walls shall comply with Section 705 Exterior Walls and fire resistance rated requirements shall not apply.

712.3 Horizontal assemblies separating dwelling units shall be a minimum of 1 hour fire resistance rated construction.

712.3.1 Provide wire or other approved device above panels to prevent vertical displacement (ceiling assembly to remain in place)

712.3.2 Rated access doors permitted in fire rated ceiling assemblies.

712.3.3 Ceiling membrane not required over unusable crawl spaces or unusable ceiling spaces.

713.1.1 Penetrations of fire resistance rated walls by ducts (not protected by dampers); Sleeves through walls, in cavity construction, shall be securely fastened (a fire stop assembly is required between sleeve and pipe/duct).

713.3.2 Membrane penetrations shall be limited to 16 square inches each and an aggregate of 100 square inches/100 sf of wall  
 • Offset boxes by 24" on opposite sides of wall  
 • Not required at sprinklers with escutcheon plate

**1007 Accessible Means of Egress**

1007.2.1 Elevators Required. In buildings where a required accessible floor is four or more stories above a level of exit discharge, at least one accessible means of egress shall be an elevator. (BACKUP GENERATOR REQ'D)

**1007.3 Stairways**

Clear width 48". Not Required in buildings with automatic sprinkler system. Exception no. 2.

Area of Refuge: Not Required in Group R-2, Exception no. 7

1007.4 Elevators Exception 2: Area of refuge not required if building equipped with automatic sprinkler system.

1007.8 Two-way communication system shall be provided at each elevator landing.

1007.10 Directional signage shall be provided at elevator landings.

**1008 Doors, Gates and Turnstiles**

1008.1.1 Size of Doors- Minimum Clear width = 32", maximum leaf width 48" Exception no. 1. Minimum and maximum widths do not apply to door openings not part of the required means of egress in Group R-2 occupancies.

1008.1.4.4 Group R-2 occupancies building entry doors are permitted to be equipped with access control system.

1008.1.5 Provide a level landing on each side of door, except at exterior locations with 2% slope pitch for drainage.

1008.1.9.1.0 Interior stairway means of egress doors shall be operable from both sides

Exception 1: Stairway discharge doors shall only be locked from the opposite side.

1008.1.1.0 Doors serving an occupancy load of 50 or more in Group A shall be provided with panic hardware. Electrical rooms with equipment rated at 1200 amps or more will also require panic hardware.

**508 Mixed Use and Occupancy**

508.1 General  
Exception 1. Occupancies separated in accordance with Section 509.

**508.2 Mixed-Use Occupancies**

508.4 Separated Occupancies  
Buildings or portions of buildings that comply with the provisions of this section shall be considered as separated occupancies.

**508.4.1 Occupancy Classification**

Separated occupancies shall be individually classified in accordance with Section 302.1. Each separated space shall comply with this code based on the occupancy classification of that portion of the building.

**508.4.3 Allowable height**

Each separated occupancy shall comply with the building height limitations based on the type of construction of the building in accordance with Section 503.1.

Occupancy	Allowed	Increase	Total	Proposed
R-2 Residential	4 Stories	1 Story	5 Stories	5 Stories
A-3 Assembly	2 Stories	-	2 Stories	2 Stories

**508.4.4 Separation**

Individual occupancies shall be separated from adjacent occupancies in accordance with Table 508.4.

Sprinkled building separation between A-3 and R-2 is 1 hour.

**508.4.4.1 Construction**

Required separations shall be fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both, so as to completely separate adjacent occupancies.

**715.4 Fire Door and Shutter Assemblies**

**Table 715.4**

Type of Assembly	Required Assembly Rating	Min Door Assembly Rating (hrs)
Fire Walls	3 hours	3 hours
Fire Barriers (2 Hr)	2 hours	1-1/2 hours
Other Fire Barriers	1 hour	3/4 hour
Fire Partitions		
Corridor walls	1 hour/1.5 hour	1/3 hour
Other fire partitions	1 hour	3/4 hour
Exterior Walls	2 hours	1 1/2 hours
Smoke Barriers	1 hour	1/3 hour

715.4.3.1 Fire door assemblies shall meet requirements for smoke and draft control door assemblies

**717 Concealed Spaces**

717.2 In combustible construction fire barriers shall be installed to cut off concealed draft openings and form a barrier between floors. Fireblocking required at:

- Mineral wool allowed in double stud walls  
-Vertically at floors and ceilings
- Horizontal spacing not exceeding 10 feet
- Connections between horizontal and vertical spaces (soffits, dropped ceilings, etc.)
- Stairways at top and bottom of run between stringers
- Piping, vents, etc.

717.2.5 Double Stud Walls Batts or blankets of mineral or glass fiber insulation shall be allowed as fire blocking in walls constructed using parallel rows of studs or staggered studs.

717.2.2 Concealed Wall Spaces Fire blocking shall be provided in concealed spaces of stud walls and partitions, including furred spaces, and parallel rows of studs or staggered studs as follows:  
 1. Vertically at ceiling and floor levels  
 2. Horizontally at intervals not exceeding 10'.

717.3.2 Use Group R-2 Draft stopping in floor/ceiling spaces not required per Exception No. 1. Sprinkler system provided in accordance with Section 903.3.1.1.

**1009 Stairways**

1009.1 Stairway width- Minimum required width of 44" is provided.

1009.12 Handrails required on each side of stair.

1009.13. Stairway to Roof- In buildings four or more stories in height, one stairway shall extend to the roof surface. In buildings without an occupied roof, access to the roof from the top story shall be permitted to be by an alternating tread device.

1013.1 Guard (rails) are required at stairs more than 30" above the floor and within 36" horizontally to the edge of the open side.

**Section 1014 Exit Access**

1014.3 Common Path of Egress Travel- 125' maximum per exception no. 4. In buildings with automatic sprinkler system, for Group R-2 occupancy, 100' maximum per exception No.1 in Group 5 occupancies.

**1015- Exit and Access Doorways**

1015.1 Two exits required from any space except as permitted by Table 1015.1

1015.2.1 Two Exits or Exit Access Doorways= Exit doors shall be placed not less than 1/3 (exception #2) the length of the maximum overall diagonal dimension.

Residential Floor Levels 1 - 5			
Fire Area	Max. Diagonal	1/3 Min.	Actual
24,194 sf	265'-0"	88'-4"	182'-0"

Assembly Space			
Fire Area	Max. Diagonal	1/3 Min.	Actual
5,073 sf	122'-0"	40'-8"	107'-0"

**Chapter 6- Types of Construction**

**Table 601 - Fire Resistance Ratings for Building Elements**

Building Element	Type 3B
Primary Structural Frame	0 hour
Bearing Walls	
Exterior Walls	2 hours
Interior Walls	0 hour
Non-Bearing Walls and Partitions, Exterior	(See Table 602) N/A
Non-Bearing Walls and Partitions, Interior	0 hour
Floor Construction and Secondary Members	0 hour
Roof Construction and Secondary Members	0 hour

**602.3 Type III Construction**

Exterior walls are to be noncombustible materials and interior building elements are any materials permitted by Code.  
Fire retardant treated wood is permitted as substitute for noncombustible materials for framing within exterior wall assemblies of a 2 hour rating or less. The exterior surfaces of the wall must be noncombustible.

**717.4 Draft Stopping in Attics**

717.4.2 Group R-2 Not required in attics and concealed roof spaces per Exception No. 2, Sprinkler system provided in accordance with Section 903.3.1.1.

**Chapter 8- Interior Finishes**

**Table 803.9 Interior Wall and Ceiling Finish Requirements**

By Occupancy - Sprinklered Group	Exit Enclosures	Corridors	Rooms and Enclosed Spaces
A-3	Class B	Class B	Class C
R-2	Class C	Class C	Class C

**Chapter 9- Fire Protection Systems**

**Table 903.2 Occupancy Related Automatic Sprinkler Requirements**

Threshold	Occupant Load	Comment
A-3	Fire area over 5,000 sf	over 100 occ. Required
R-2	Sprinklers required	Any level -

903.3.1.1 NFPA 13 Sprinkler Systems  
The building will be equipped throughout with an automatic sprinkler system in accordance with NFPA 13.

903.3.2 Quick response or residential automatic sprinklers shall be installed in dwelling units.

903.4 Valve controlling water supply for automatic sprinkler system shall be electronically supervised by a fire alarm control unit.

905 Standpipe Systems  
905.2 Standpipe Systems will be provided in accordance with NFPA 14

905.3.1 Height- Class 1 Standpipes are allowed in buildings equipped throughout with an automatic sprinkler system.

**1016 Exit Access Travel Distance**

**Table 1016.1 Exit Access Travel Distance**

Occupancy	Max. Distance Sprinklered.	Actual Distance
A3-Assembly	250'	32'
R2 -Residential	250'	105'

**1018 Corridors**

**Table 1018.1 Corridor Fire Resistance Rating**

Occupancy	Occupant Load	Fire Rating with Sprinkler System
A	Greater than 30	0 hour
R-2	Greater than 10	.5 hour (1 Hr. Req'd)

1018.2 Corridor Width: Minimum 44" provided. Exception No. 3. 36" minimum width allowed within dwelling units.

1018.4 Dead Ends: 50' maximum dead end corridor allowed per Exception No. 2 for Group R-2 Occupancies. (A3 occupancy allows 20' max dead end corridor) in buildings with automatic sprinkler system.

1018.6 Corridor Continuity: Fire resistance rated corridors shall be continuous from point of entry to an exit. Elevator shall be fire resistance rated and smoke protected.

Exception: Foyers, lobbies or reception rooms constructed as required for corridors shall be not be construed as intervening spaces.

**3409 Historic Buildings**

3409.1 Historic buildings  
The provisions of this code relating to the construction, repair, alteration, addition, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings where such buildings are judged by the building official to not constitute a distinct life safety hazard.  
Exception:  
Historic buildings that are: 1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places; 2. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or 3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

**Chapter 7- Fire and Smoke Protection Features**

**704 Fire Rating of Structural Members**

704.3 Primary Structural Frame  
Supporting more than 2 floors, and required to have a fire resistance rating, or supporting a load bearing wall, shall be provided with individual encasement protection on all sides.  
Exception: Individual encasement on all exposed sides provided protection is in accordance with fire resistance rating

**704.4 Secondary Structural Members**

If required to be fire resistant rated, secondary members shall be protected by individual encasement when supporting more than 2 floors. Membrane protection is permissible if supporting 2 floors or less.

**705 Exterior Walls**

705.2.2 Projections from walls of Type III construction shall be of any approved materials.

**705.5 Fire Resistance Ratings**

Fire Separation Distance of greater than 10 feet, at exterior walls, shall be rated for exposure from the inside. Fire separation less than 10' shall be rated for fire exposure from both sides.

705.6 Exterior walls shall have sufficient structural stability to remain in place for duration of the time required by the fire resistance rating.

- Supporting elements must be fire resistance rated
- Band joist, or supporting beam, must be fire rated
- Only the structural element within the floor system that supports the vertical load of the wall must be fire resistance rated construction

**705.8.5 Vertical Separation of openings**

Not Required, Exception no. 2, Automatic Sprinkler System in Accordance with 903.3.1.1

**705.11 Parapets**

Not required on exterior walls per Exception No. 1 where the wall is not required to be fire-resistance rated in accordance with Table 602 because of fire separation distance.

905.4 Class I standpipe hose connections shall be provided in the following locations:  
• In every stairway at an intermediate floor level between floors, unless otherwise approved by the fire code official

906 Portable Fire Extinguishers- Required in Group A, R-2 occupancies: provided in accordance with NFPA 10  
• Exception: In Group A occupancies extinguishers only required on each floor.

**907 Fire Alarm and Detection Systems**

907.2 Where Required-New Buildings and Structures  
• Exception 2: Automatic heat detection is not required in buildings with automatic sprinkler system

907.2.1 Group A: Manual fire alarm system with occupant notification system required in areas over 50 occupancies.

907.2.9 Group