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Project:
MOTHERHOUSE SENIOR HOUSING
 605 STEVENS AVENUE
 PORTLAND, MAINE 04103

Revisions:
 3 11/21/16 Clarif. to Bid Documents

Date:
 7 APR 2016
 Scale:
 12" = 1'-0"



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: | 16,263 SF. (Incl. A-3 Chapel - 256 SF) |
| Fifth Floor: | 13,050 SF. |
| Total: | 101,049 SF. |

Unit Count:
 88 Units

CODE SUMMARY IBC - INTERNATIONAL BUILDING CODE 2009:
 Chapter 3- Use and Occupancy Classification Mixed Use

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

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

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 S occupancies.

1015- Exit and Exit Access Doorways

1015.1.2 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 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

Table 503 Allowable Heights and Areas

| | |
|-------------------|---|
| 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 + 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-.025] W/30

F= If open perimeter
 P= If total perimeter
 W= 20 (varies from 20' - 30')

715.4 Fire Door and Shutter Assemblies

| 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/ 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'.

71 7.3.2 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.

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 Occupancy. (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.

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.

Type 3B:

| Proposed | Allowed | Increase | Total |
|---------------------------|---------|-----------|-----------|
| 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.

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.

CODE SUMMARY NFPA 101 LIFE SAFETY 2009:

SPRINKLED WITH NFPA 13

NFPA 6.1.8.1.5 OCCUPANCY - RESIDENTIAL (APARTMENT BUILDING)
NFPA 6.1.2.1 OCCUPANCY - ASSEMBLY (EXISTING CHAPEL)

NFPA TABLE A.8.2.1.2 CONSTRUCTION TYPE III(200)

7.2.2.3.1.2 STAIR MATERIALS SAME AS BUILDING CONSTRUCTION

| | |
|--------------------|--|
| 30.2.5.3.2 | COMMON PATH OF TRAVEL < 50 FT. 30.2.5.4.2 |
| 30.2.5.4.2 | DEAD END CORRIDOR < 50 FT. |
| 30.2.6.3.2 | TRAVEL DISTANCE FROM UNIT TO EXIT < 200 FT. |
| 30.2.6.2 | TRAVEL DISTANCE WITHIN UNIT < 125 FT. |
| 30.2.2.1.2 | SPRINKLED BLDG. EXIT ENCLOSURE 1 HOUR |
| 30.2.2.12.1 | AREA OF REFUGE NOT REQUIRED |
| 30.3.6.1.2 | CORRIDOR WALLS: 1/2 HOUR (SPRINKLED) |
| 30.3.6.2.1 | CORRIDOR DOORS: 20 MIN. RATED (.33 HOURS) |
| 30.3.6.2.3 | CORRIDOR DOORS: SELF CLOSING AND SELF LATCHING |
| 30.3.7.2 | DWELLING UNIT DEMISING WALLS: 1/2 HOUR (1 HOUR REQ. FOR IBC) |

T7.2.2.2.1(b) EXISTING STAIRS:
 MIN. WIDTH CLEAR: 36 INCHES
 MAX. HEIGHT OF RISER: 8 INCH
 MIN. TREAD DEPTH: 9 INCH
 MIN. HEADROOM: 6 FT. 8 IN.
 MAX. HEIGHT BETWEEN LANDINGS: 12 FT.

7.2.2.4.4.1 NEW HANDRAILS: NOT < 34 IN. AND NOT > 38 IN.
7.2.2.4.4.2 EXISTING HANDRAILS NOT < 30 IN. AND NOT > 38IN.
7.2.2.4.4.5 NEW HANDRAILS PROVIDE MIN. 2-1/4 IN. MIN. CLEARANCE BETWEEN RAIL AND WALL
7.2.2.5.4 STAIRWAY SIGNAGE SHALL COMPLY WITH 7.2.2.5.4.1 PARTS (A) THRU (M)

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 |
| 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.

905.4 Class 1 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 occupants.

907.2.9 Group R-2: Manual fire alarm station is required in buildings with more than 12 dwelling units in accordance with Section 907.5

907.2.9.2 Smoke alarms shall be installed per Section 907.2.11 (within sleeping units)

907.2.11.2 Group R-2: Smoke alarms shall be installed outside each sleeping area and within each room used for sleeping.

907.5.2.3.4 Group R-2: All dwelling and sleeping units shall be capable of supporting visual alarm notification and extended to the unit smoke detectors.

912.2.1 Fire Department Connections: Locations as approved by fire chief so vehicles and hose lines will not interfere with building access (visible location on street side of building).

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.

Chapter 10- Means of Egress

1004 Occupant Load
Table 1004.1 Maximum Floor Area Allowances per Occupant
 Assembly
 Residential
 Fixed Seating -pews to remain per NPS
 (See Occupancy calculation for fixed seating below)
 200 gross sf (121 Occupants, Largest Floor)

Fixed Seating Occupant Calculation
 Allow one person per 18" of fixed seating (1004.7 Fixed seating)

| |
|--|
| 26 pews @ 73.5" each = 4 people x 26 = 104 |
| 18 pews @ 45" each = 2 people x 18 = 36 |
| 10 pews @ 91" each = 5 people x 10 = 50 |
| 4 pews @ 51" each = 2 people x 4 = 8 |
| Total Occupant load = 198 |

1005 Egress Width

| Function of Space | Location | Floor Area | Occupants | Req'd Egress Width (1005.1) |
|-------------------|-----------|------------------------|-----------|-----------------------------|
| Assembly | Chapel | based on fixed seating | 198 x 2" | 40" |
| Other | | | | |
| Residential | Level 1-5 | 19,018 sf | 121 x 3" | 37" |
| Other | | | 121 x 2" | 25" |

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

Assembly Space Calculation of Plumbing Facilities
 (Calculation based on Public Use only as there will be no Permanent Employees for the Assembly Space)
 Total Occupant Load = 198
 Men = 99 and Women = 99
 Per Table 4-1, Uniform Plumbing Code, Minimum Plumbing facilities
 Male 1-100 = 1 WC, 1 Urinal, 1 Lavatory
 Female 51-100 = 4 WC's, 1 Lavatory

HISTORIC BUILDING - IEBC AND NFPA 101 LIFE SAFETY:

7.2.12.1.1 AREA OF REFUGE CONSISTING OF A STORY PROTECTED BY SUPERVISED AUTOMATIC SPRINKLER SYSTEM SHALL HAVE:
 1. EACH ELEVATOR LANDING PROVIDED WITH TWO-WAY COMM. SYSTEM TO FIRE COMMAND CENTER OR CENTRAL CONTROL POINT
 2. DIRECTIONS FOR USE OF TWO-WAY COMM. SYSTEM
 3. TWO-WAY COMM. SYSTEM INCLUDES BOTH AUDIBLE AND VISIBLE SIGNALS

1103.10 GUARDS- Guards shall comply with Sections 1103.10.1 and 1103.10.2.

1103.101 HEIGHT - Existing guards shall comply with the requirements of Section 505.
1103.10.2 GUARD OPENINGS - The spacing between existing intermediate railings or openings in existing ornamental patterns shall be accepted. Missing elements or members of a guard may be replaced in a manner that will preserve the historic appearance of the building or structure

1105.1 GENERAL - Historic buildings undergoing a change of occupancy shall comply with the applicable provisions of Chapter 9, except as specifically permitted in this chapter. When Chapter 9 requires compliance with specific requirements of Chapter 5, Chapter 6, or Chapter 7 and when those requirements are subject to the exceptions in Section 1102, the same exceptions shall apply to this section.

1105.4 OCC