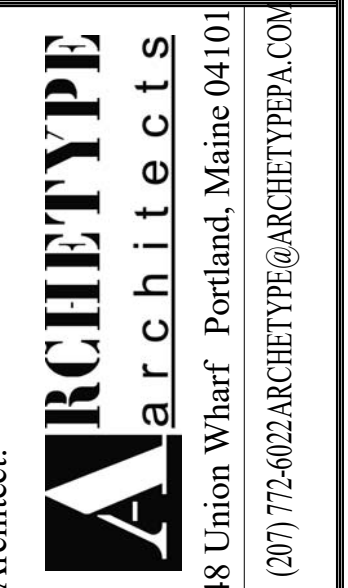


Prepared For:
Bramhall Row, LLC
 307 CUMBERLAND AVE.
 PORTLAND, ME 04101

Consultant:



Architect:

Project:
BRAMHALL ROW
 749 CONGRESS ST
 PORTLAND, MAINE

Revisions:

Scale: 12" = 1'-0"

Date: 21 NOV 2016

AC0.1

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

Table 705.8 Maximum Area of Wall Openings Based on Fire Separation Distance and Degree of Opening Protection

Fire Separation Dist.	Degree of Opening Protection	Allowable Area
0' to less than 3'	Unprotected, Non-sprinklered	Not Permitted
3' to less than 5'	Unprotected, Non-sprinklered	Not Permitted
5' to less than 10'	Unprotected, Non-sprinklered	10%
10' to less than 15'	Unprotected, Non-sprinklered	15%
15' to less than 20'	Unprotected, Non-sprinklered	25%
20' to less than 25'	Unprotected, Non-sprinklered	45%
25' to less than 30'	Unprotected, Non-sprinklered	70%
30' or greater	Unprotected, Non-sprinklered	No Limit

705.8.5 Vertical Separation of openings
 Not Required, Exception no. 2, Automatic Sprinkler System in Accordance with 903.3.1.1 or 903.3.1.2

705.11 Parapets
 Not required on exterior walls per Exception No. 5 where the wall is permitted to have at least 25% of the exterior wall areas containing unprotected openings per Table 705.8, and Exception No.5 where the entire building is covered with a class C roof covering, the exterior wall shall be allowed to terminate at the underside of the roof sheathing or deck in Type III, IV, or V construction provided the roof sheathing or deck is constructed of approved fire retardant treated wood for a distance of 4'.

Table 602- Fire Resistance Rating Requirements For Exterior Walls Based on Fire Separation Distance (non-loadbearing walls)

Fire Separation Dist.	Construction Type	Group R
x < 5'	All	1 hour
5' ≤ x < 10'	Type 5A	1 hour
10' ≤ x < 30'	Type 5A	1 hour
x ≥ 30'	All	0 hour

602.5 Type V Construction
 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.

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, as determined in Section 703.

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 V 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.

Chapter 5- General Building Heights and Areas
Table 503 Allowable Heights and Areas
 Residential Group R-2 Type 5A Construction - 3 stories, 50 feet 12,000 sf
 Proposed: 4 stories, 12,000 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. For Group R buildings equipped with an NFPA 13R automatic sprinkler system the building height may be increased by 20 feet and the maximum number of stories is increased by one (1) but shall not exceed 60 feet or four (4) stories respectively.

Construction Type 5A
 Group R-2 (multifamily residential): 4 stories

See also Section 508.2.3 for Accessory Occupancies

Chapter 6- Types of Construction
Table 601 - Fire Resistance Ratings for Building Elements

Building Element	Type 5A
Primary Structural Frame	1 hour
Bearing Walls	1 hour
Exterior Walls	3 hours
Interior Walls	1 hour
Non-Bearing Walls and Partitions, Exterior	(See Table 602)
Non-Bearing Walls and Partitions, Interior	0 hour
Floor Construction and Secondary Members	1 hour
Roof Construction and Secondary Members	1 hour

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
- UFAS Fair Housing Act Section 504

PROJECT SUMMARY:
 New construction of a four-story building on an urban infill site in Portland. 7 townhouse dwelling units. Wood-framed construction. Two-car garage at each. Site amenities include parking and landscaping.
 Fully sprinkled with NFPA 13R system.

Square Footages:
 Footprint = 4,590 sf
 Total = 18,360 sf

Unit Count:
 7 Units

CODE SUMMARY :

Chapter 3- Use and Occupancy Classification Mixed Use)

310.1 Residential Group R-2 Apartments

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).

707 Fire Barriers (shafts, exit and floor opening enclosures)
707.3.1 Shaft enclosures shall comply with Section 708.4 (2 hours)

707.3.6 Incidental Accessory Occupancies Fire barriers separating incidental accessory occupancies shall have a fire resistance rating of not less than that indicated in Table 508.2.5.

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).

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

709 Fire Partitions (exit access corridors, dwelling unit separations, etc.)
 Fire partitions shall have a fire resistance rating of not less than 1 hour.

- Walls Separating Dwelling Units (420.2) One hour

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.

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

715.4 Fire Door and Shutter Assemblies
Table 715.4

Type of Assembly	Required Assembly Rating	Min Door
Fire Walls	3 hours	Rating (hrs) 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/ 1/2 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

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:

- Vertically at ceiling and floor levels
- Horizontally at intervals not exceeding 10'.

717.4 Draft Stopping in Attics
717.4.2 Group R-2 Required in attics and concealed roof spaces above, and in line with, sleeping units and dwelling unit separation walls that do not extend to the underside of the roof sheathing above. Exception 3. - In occupancies in Group R-2 that do not exceed four stories above grade plane, the attic space shall be subdivided by draftstops into areas not exceeding 3,000 square feet or above every two dwelling units, whichever is smaller.

Chapter 8- Interior Finishes
Table 803.9 Interior Wall and Ceiling Finish Requirements
 By Occupancy, Sprinklered Group, Exit Enclosures, Corridors, Rooms and Enclosed Spaces

Group	Exit Enclosures	Corridors	Rooms and Enclosed Spaces
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
R-2	Sprinklers required	Any level

903.3.1.2 NFPA 13R sprinkler systems. Automatic sprinkler systems in Group R occupancies up to and including four stories in height shall be permitted to be installed throughout in accordance with NFPA 13R.

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
 A standpipe system in this building would be of minimal value to the fire department as the units do not share common stair towers or corridors from which to fight a fire. Each dwelling has a separate entrance and is separated from the other units by a 1-hour fire partition, permitting ready access to fires and effective containment through compartmentation. (Language taken from the commentary to the 2015 IBC).
 A standpipe system is not being proposed.

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

907.2.9 Group R-2: Manual fire alarm station is not required in buildings with fewer than 12 dwelling units in accordance with Section 907.5

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.

1008.1.5 Provide a level landing on each side of door, except at exterior locations with 2% slope pitch for drainage.
 Exceptions: 1. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply: 1.1. A door is permitted to open at the top step of an interior flight of stairs, provided the door does not swing over the top step. 1.2. Screen doors and storm doors are permitted to swing over stairs or landings.

1009 Stairways
1009.1 Stairway width- Minimum required width of 44" is provided.
 Exception 1. Stairways serving an occupant load of less than 50 shall have a width of not less than 36 inches.

1009.6.3 Enclosures under stairways - The walls and soffits within enclosed usable spaces under enclosed and unenclosed stairways shall be protected by 1-hour fire-resistance-rated construction or the fire-resistance rating of the stairway enclosure, whichever is greater. Access to the enclosed space shall not be directly from within the stair enclosure.
 Exception: Spaces under stairways serving and contained within a single residential dwelling unit in Group R-2 or R-3 shall be permitted to be protected on the enclosed side with 1/2-inch gypsum board.

1009.12 Handrails required on each side of stair.
 Exception 2. Stairways within dwelling units are permitted to have a handrail on one side only.

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.

1013.2 Height - Required guards shall be not less than 42 inches (1067 mm) high, measured vertically above the adjacent walking surfaces, or the line connecting the leading edges of the treads.
 Exceptions: 1. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards on the open sides of stairs shall have a height not less than 34 inches measured vertically from a line connecting the leading edges of the treads. 2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches and not more than 38 inches measured vertically from a line connecting the leading edges of the treads.

1015- Exit and Exit Access Doorways
1015.1 Two exits required from any space except as permitted by Table 1015.1
 Exception: In Group R-2 and R-3 occupancies, one means of egress is permitted within and from individual dwelling units with a maximum occupant load of 20 where the dwelling unit is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

1016 Exit Access Travel Distance
Table 1016.1 Exit Access Travel Distance

Occupancy	Max. Distance Sprinklered
R2 -Residential	250'

789.2.9.2 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 10- Means of Egress
1004 Occupant Load
Table 1004.1 Maximum Floor Area Allowances per Occupant

Residential	200 gross sf			
1005 Egress Width				
Function of Space	Location	Floor Area	Occupants	Req'd Egress Width (1005.1)
Residential	Each Unit	2,407 sf	/200 = 12	N/A Stair and Door widths determined by code minimums

CODE SUMMARY NFPA 101 LIFE SAFETY 2009:

SPRINKLED WITH NFPA 13R

NFPA 6.1.8.1.5
 OCCUPANCY - RESIDENTIAL (APARTMENT BUILDING)

NFPA TABLE A.8.2.1.2
 CONSTRUCTION TYPE V(000)

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)

7.2.2.4.4.1 NEW HANDRAILS: NOT < 34 IN. AND NOT > 38 IN.
7.2.2.4.4.5 NEW HANDRAILS PROVIDE MIN. 2-1/4 IN. MIN. CLEARANCE BETWEEN RAIL AND WALL

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.

1008.1.5 Provide a level landing on each side of door, except at exterior locations with 2% slope pitch for drainage.
 Exceptions: 1. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply: 1.1. A door is permitted to open at the top step of an interior flight of stairs, provided the door does not swing over the top step. 1.2. Screen doors and storm doors are permitted to swing over stairs or landings.

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