Code Analysis for 660-662 Congress Street

660–662 Congress Street, Portland, ME

Existing 3 story brick mixed–use commercial and residential building. Basement floor area, 1,813 sf; 1st Floor area, 1819 sf; 2nd Floor area, 1,821 sf; 3rd Floor area, 1,791 sf (total of 7,247 sf). Building will be fully sprinklered. Per the State Fire Marshall, an elevator is not required.

IBC 2009 Code Review

Chapter 3 Use and Occupancy Classification	
Section 303	Occupancy T.B.D.
Section 310	Residential R–3
Chapter 4 Special Detailed Requirements Based on Use and Occupancy	
Section 420.2 Separation Walls	Walls separating dwelling units or dwelling units from other occupancies shall be constructed as fire partitions in accordance with Section 709.
Section 420.3 Horizontal Separation	Floor assemblies separating dwelling units or dwelling units from other occupancies shall be constructed as horizontal assemblies in accordance with Section 712.
Chapter 5 General Building Heights and Areas	
Construction Type	IIIB
Table 503 – Area Limitations (A–2)	9,500 sf per floor
	Existing 1,409 sf – OK
Table 503 – Area Limitations (R–3)	unlimited sf per floor
	Existing 1,582 sf – OK
Table 503 – Height limitation (A–2)	2 stories – OK, per Section 508.4.3
Table 503 – Height limitation (R–3)	4 stories – OK, per Section 508.4.3
Table 503 – Maximum Height	55' for Construction Type IIIB
	Existing 42'–3" – OK
Section 504.2 – Automatic Sprinkler system increase	if sprinklered, increase maximum height to 60' – OK
Table 508.4 – Required Separation	1 hour separation required between A–2 & R–3 if sprinklered
	No separation required between commercial kitchen and restaurant seating area
Section 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.
Chapter 6 Types of Construction	
Table 601 Fire Resistance Rating Requirements for Structure Elements	
Structural Frame	0 Hour – OK
Exterior bearing walls	2 Hours / Existing to remain, 2 hr – OK
Interior bearing walls	0 Hour – OK
Nonbearing walls and partitions	0 Hour – OK
Floor construction	0 – OK
Roof construction	0 – OK
Table 602 Fire Resistance Rating Requirements for Exterior Walls	
Less than 5'	1 Hour (A–2, R–3)
5' to 10'	1 Hour (A–2, R–3)
10' to 30'	1 Hour (A–2, R–3)
More than 30'	0 Hour (A–2, R–3)
Chapter 7 Fire and Smoke Protection Features	
Table 705.8 Max Area of Exterior Wall Openings Based on Fire Separation Dist.	
0 to 3'	Not permitted
3' to 5'	15%
5' to 10'	25%
10' to 15'	45%
15' to 20'	75%
More than 20'	No limit
Section 712.3 Fire Resistance Rating	Dwelling unit separations in building of Type IIIB construction shall have fire–resistance ratings of not less than 1/2 hour when sprinklered.
Table 715.4 Fire Door and Fire Shutter Fire Protective Ratings	
Fire Walls, 2 hour	1 1/2 Hour rating
Shaft, 1 hour	1 Hour
Exit enclosures, 1 hour	1 Hour
Corridor walls, 1 hour	20 Minutes
Chapter 8 Interior Finishes	
Section 803.1.1 Interior Wall and Ceiling Finish Material	
Class A	Flame spread index 0–25; smoke–developed index 0–450
Class B	Flame spread index 26–75; smoke–developed index 0–450
Class C	Flame spread index 76–200; smoke–developed index 0–450
Table 803.9 Interior Wall and Ceiling Finish Requirements By Occupancy	
Exit enclosures and exit passageways	B (A–2); C (R–3)
Corridors	B (A–2); C (R–3)
Rooms and enclosed spaces	C (A–2 & R–3)
Section 804.4 Interior Floor Finish Requirements	
Interior floor finish for exit enclosures, exit passageways and corridors	Not less than Class II and comply with DOCFF–1 "pill test"
Section 806 Decorative Material and Trim	
Fabric partitions suspended from the ceiling	Shall meet flame propagation performance criteria of Section 806.2 and NFPA 701 for Group A–2
Chapter 9 Fire Protective Systems	
Section 903.2 – Automatic Sprinkler Systems	An NFPA 13 sprinkler system shall be installed throughout the building.
Section 903.4.1 Monitoring	Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved supervising station.
Chapter 10 Means of Egress	
Table 1004.1.1 Max. Occupant Load (refer to drawings)	
Basement	
Ground Floor	
Second Floor	7 Occupants (Group R–3)
Third Floor	7 Occupants (Group R–3)
	Total occupant load = T.B.D.
Sec 1005 Egress Width	
Stairways	0.3" per person – OK
Doors, ramps and corridors	0.2" per person – OK
Sec 1005.2 Door encroachment	Doors and handrails shall not reduce required means of egress by more than 7". Doors in any position shall not reduce the required width by more than one–half.
Sec 1006.2 Illumination Level	Means of egress illumination level shall not be less than 1 foot–candle at the walking surface.
Sec 1006.3 Illumination Emergency Power	Power supply for means of egress illumination shall normally be provided by premises's electrical power.
	In power failure event, automatic illumination shall include corridors, exit enclosures, exit passageways, interior exit discharge elements for a duration of 90 minutes with battery backup or on–site generator.
Sec 1007.1 Accessible Means of Egress	
Accessible spaces must be provided with an accessible means of egress. Exception, accessible means of egress not required in alterations to existing buildings.	
Sec 1007.3 Stairways	
Minimum width between handrails	48" unless sprinklered – N/A
Sec 1008.1.1.1 Projections into Clear Width	No projections into required clear width allowed lower than 34" above the floor. Shall not exceed 4" between 34" and 80" above the floor.
Sec 1008.1.2 Door swing	Doors shall swing in the direction of egress travel where serving on occupant load of 50 or more persons.
Sec 1008.1.5 Floor Elevation	There shall be a floor or landing on each side of a door and shall be at the same elevation. Exterior may slope .25 / 12 units (2%).
Sec 1008.1.6 Landings at Doors	Landings shall have a width not less than the width of the stairway. When serving an occupant load of 50 or more, doors shall not reduce the landing to less than 1/2 its required width. Landings shall not have a length less than 44" in the direction of travel.
Sec 1008.1.7 Thresholds	Thresholds shall not exceed 1/2"
Sec 1008.1.10 Panic Hardware	Doors serving rooms or spaces with 50 or more occupants shall not be provided with a latch or lock unless it is panic hardware or fire exit hardware.
Sec 1009.1 Stairway width	
Minimum width	3'–8"
Exception serving less than 50	3'–0"
Min headroom	6'–8"
Sec 1009.4 Stair treads and risers	
Stair riser	Max 7"
Exception for R–3 occupancies	Max 7–3/4"
Stair riser	Min 4"
Stair tread	Min 11"
Exception for R–3 occupancies	Min 10"
Sec 1009.5 Stairway Landings	There shall be a floor or landing at the top and bottom of each stairway. The width shall not be less than the width of the stairway. The length must be at least the same as the width but need not exceed 48" in a straight run.
Sec 1009.7 Vertical Rise	Max 12' vertical rise between landings or levels
Sec 1009.12 Handrails	Handrails shall be on both sides of stairways
Sec 1012 Handrails	Between 34" and 38" above nosing
	Handrail gripping surfaces shall be continuous, without interruption
	Handrails shall return to a wall, guard, or be continuous.
	Handrails shall extend 12" horizontally above top riser and continue to slope for the depth of one tread beyond the bottom riser
Sec 1013.1 Guards	
When more than 30" above floor	Guards required
Height	3'–6"
Exception for R–3 occupancies	2'–10"
Sec 1014.2 Egress through intervening spaces	Shall not pass through adjoining spaces, including kitchens and storage rooms
Exception for dwelling units	Egress through kitchens within dwelling unit OK
Sec 1014.3, 1028.8 Common path of egress travel	
Commercial Occupancy T.B.D.	
Occupancy R–3 (sec 1014.3)	Not more than 75'
Table 1015.1 Spaces with 1 exit	
Commercial Occupancy T.B.D.	
Occupancy R–3	Max occupant load = 10
Table 1015.2.1 Two exits	
When 2 are required	Not less than 1/3 overall diagonal when sprinklered
Table 1016.1 Exit Access Travel Distance Limitations	
Occupancy A–2, R–3	250' (with sprinkler system)
Table 1018.1 Corridor Fire–Resistance Rating	
Occupancy A–2, corridor serving more than 30	0 Hour when sprinklered
Occupancy R–3, corridor serving more than 10	0.5 Hour when sprinklered
Sec 1018.2 Corridor Width	
Minimum width	44"
Req occupant capacity less than 50	36"
Sec 1018.4 Dead Ends	
Group A–2	Dead–end corridors shall not exceed 20'
Group R–3	Dead–end corridors shall not exceed 50' when sprinklered
1021.2 Single Exits	
Occupancy R–3	Only one exit required from R–3 Occupancy buildings
Mixed Occupancies	Permitted provided each occupancy complies with individual requirements of occupancy
Table 1021.2 Stories with One Exit	
First story or basement (A–2)	49 Occupants and 75' travel distance
Sec 1022 Exit Enclosures	
Stairway enclosure	2 Hour rating (4 stories)
Sec 1027 Exit Discharge	
Exits shall discharge directly to the exterior of the building and shall be at grade or direct access to grade. The exit discharge shall not reenter a building.	
Sec 1027.3 Exit Discharge Location	
Exterior balconies, stairways and ramps	Located at least 10' from lot lines
Sec 1029 Emergency Escape and Rescue	
Group R sleeping rooms below the fourth story shall have at least one exterior emergency escape and rescue opening.	
Sec 1029.2 Minimum Size	Emergency escape and rescue openings shall have a minimum net clear opening of 5.7 sf.
Minimum height	24" clear
Minimum width	20" clear
Maximum height from floor	44"
Sec 1029.4 Operational Constraints	Openings shall be operational from inside without the use of keys or tools.
Chapter 11 Accessibility	
Sec 1105.1 Public Entrance	Minimum 60% accessible entrances
Exception	See Sec 3407.1 Historic Buildings
Sec 1107.6.3 Group R–3	When there are 4 or more dwelling units in building, all units are to be Type B Unit.
Chapter 12 Indoor Environment	
Sec 1207.2 Air–borne Sound	Min STC of 49 for Wall and Floor assemblies between adjacent dwelling units and between dwelling units and adjacent public areas.
Chapter 13 Energy Efficiency	
Buildings shall be designed and constructed in accordance with the International Energy Code.	
Chapter 34 Existing Structures	
Sec 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.

NFPA 101 Life Safety Code Review

Chapter 7 Means of Egress	
Sec 7.1.3.1 Exit Access Corridors	1 Hour when occupant load exceeds 30
Exception	Does not apply to existing buildings if occupancy classification does not change
Sec 7.1.3.2 Exits	1 Hour separation for exits in existing buildings allowed when sprinklered
	Openings in exit limited to doors from normally occupied spaces and corridors and doors for egress from the enclosure
	An exit enclosure shall provide a continuous protected path of travel to an exit discharge
Sec 7.1.5.1 Means of Egress Headroom	Not less than 7'–6" with projections from the ceiling not less than 6'–8"
Sec 7.1.5.2 Headroom In Existing Buildings	Not less than 7'–0" with projections from the ceiling not less than 6'–8"
Sec 7.2.1.4.2 Door Swing Direction	When serving occupant load of 50 or more, doors shall swing in the direction of egress travel
Sec 7.2.1.4.4 Egress Encroachment	During its swing, a door in a means of egress shall not obstruct more than ½ of passageway and shall not project more than 7" when open
Sec 7.2.2.2.1 New Stairs	
Minimum width	36" when occupant load less than 50
	44" when occupant load less than 2000
Maximum riser	7"
Exception: Sec. 10–3 Amendment (g)	Maximum 7 ¾" riser permitted in one and two family dwellings
Minimum riser	4"
Minimum tread depth	11"
Minimum headroom	6'–8"
Maximum height between landings	12'
Sec 7.2.2.3.2 Landings	Not required to exceed 48"
Exception: Sec. 10–3 Amendment (g) City of Portland – Code of Ordinances	Maximum 7 ¾" riser permitted in one and two–family dwellings
Sec 7.2.2.4.1 Handrails	Stairs and ramps shall have handrails on both sides
Sec 7.2.2.4.5.2 Guards	Not less than 42"
Exception: Sec. 10–3 Amendment (g) City of Portland – Code of Ordinances	Minimum 36" guard height permitted in one and two–family dwellings
Sec 7.2.2.4.5.3 Open Guards	4" sphere shall not be able to pass through any opening to a height of 42"
	6" max sphere at triangular openings
Sec 7.2.2.5.2.1 Exposures	Where nonrated walls or unprotected openings enclose the exterior of a stairway, and the walls are exposed by other parts of a building at an angle of less than 180 degrees, the building enclosure walls within 10' shall be 1 Hour rated
Sec 7.2.2.5.3 Usable Space	Enclosed, usable spaces within exit enclosures shall be prohibited, including under stairs
Sec 7.3.1.2 Occupant Load	
Basement (T.B.D)	
1st Floor (T.B.D)	
2nd Floor (Residential – Apartments)	7 Occupants
3nd Floor (Residential – Apartments)	7 Occupants
Sec 7.5.1.3.4 Egress Arrangement	Distance between exits not less than 1/3 length of maximum diagonal dimension of building or space
Sec 7.7.2 Discharge through Areas on Level of Exit Discharge	Not more than 50% of required exits and egress capacity shall discharge through areas on the level of exit discharge
	The level of discharge shall be protected throughout by a sprinkler system
Chapter 24 One and Two–Family Dwellings	
This chapter applies to one and two–family dwellings, which includes buildings containing not more than two dwelling units.	
Sec 24.1.2.3 Mixed Use	Dwelling units and exits shall be separated from nonresidential occupancy by 1 Hour construction
	Nonresidential occupancy must be sprinklered and protected by automatic fire detection system
Sec 24.3.4.1 Smoke Alarms	Installed in all sleeping rooms, outside each separate sleeping area, and on each level of dwelling unit, including basements
Sec 24.3.5.1 Sprinkler System	Must be installed in all new one and two–family dwellings
Chapter 12 New Assembly Occupancies	
Sec 12.2.2.2.3 Door Lock	Doors serving rooms or spaces with 100 or more occupants shall not be provided with a latch or lock unless it is panic hardware.
Table 12.1.6 Construction Type Limitations	Any assembly type limited to 1 level below level of exit discharge
Sec 12.2.3.6 Main Entrance/Exit	Assembly occupancy to be provided with a main entrance/exit at the level of discharge or connected to a stair leading to street
	Shall be of width to accommodate 1/2 of total occupant load
Sec 12.2.5.1.2 Common Path of Travel	Shall not exceed 20' for any number of occupants and 75' for not more than 50
Sec 12.2.5.1.3 Dead–end Corridors	Shall not exceed 20'
Sec 12.2.5.2 Access Through Hazardous Areas	Shall not pass through kitchens, storerooms, platforms, etc.
Sec 12.2.6 Travel Distance to Exits	Shall not exceed 250' if sprinklered

Maine State Internal Plumbing Code (Uniform Plumbing Code 2009)

301.1.4 Existing Buildings	In existing buildings or premises in which plumbing installations are to be altered, repaired, or renovated, the Authority Having Jurisdiction has discretionary powers to permit deviation from the provisions of this code, provided that such a proposal to deviate is first submitted for proper determination in order that health and safety requirements, as they pertain to plumbing, shall be observed.
Table 4–1 Minimum Plumbing Facilities	
Occupant Load	The total occupant load shall be determined in accordance with the Building Code.
Dwellings	1 water closet, 1 lavatory & 1 shower/bathtub per dwelling
Commercial Unit (Occupancy T.B.D.)	T.B.D.
Male	WC – T.B.D.
	Urinal – T.B.D.
Female	WC – T.B.D.

2009 International Energy Conservation Code – Code Review

Chapter 1 Administration	
101.4.4 Mixed Occupancy	Where a building includes both residential and commercial occupancies, each occupancy shall be separately considered and meet the applicable provisions of Chapter 4 for residential and Chapter 5 for commercial.
101.4.5 Historic Buildings	See Section 3409 of the IBC
Chapter 3 Climate Zones	
Cumberland County, Maine	Climate Zone 6
Chapter 4 Energy Efficiency	
TABLE 401.1 (1) Prescriptive Envelope Requirements	
Wall Insulation (above grade)	R–15 (Recommended value for historic brick structures in cold climates similar to Portland, Maine.)
Ceiling Insulation	R–49
Windows	U–0.35
Skylights	U–0.60
407.2 High–efficiency lighting systems	A minimum of 50 percent of the lamps in permanently installed lighting fixtures shall be compact or linear fluorescent, or a lighting source that has a minimum efficacy of 40 lumens per input watt.

660-662 CONGRESS STREET

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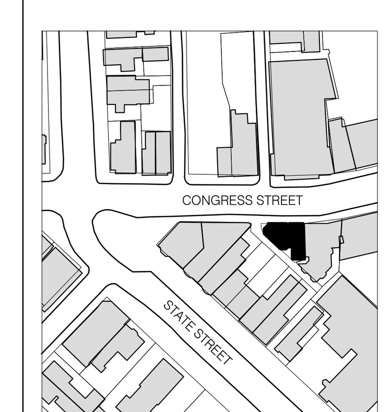
NO.	DATE	ISSUE
6	11/10/2014	PHASE 2 - REVISION 02
5	10/31/2014	PHASE 2 - REVISION 01
4	7/18/2014	PHASE 2 PERMIT ISSUE
3	1/15/2014	FIRE MARSHAL ISSUE
2	5/15/2013	PHASE 1 PERMIT ISSUE
1	3/28/2013	HPCA SET



NTS

B-SCAN:

DWG. CONTENTS:

CODE ANALYSIS

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