

Residence Inn by Marriott

City of Portland Cumberland County, Maine

CODE REVIEW

A. Summary of the Work:

This project consists of a new five story hotel facility of steel and plank construction containing 179 guestrooms and assembly space (Meeting, and Breakfast Rooms, Swimming Pool) for the sole use of the hotel guests. The first floor also contains retail space. The entire building is sprinkled in accordance with NFPA-13.

- Construction Type: 2A
- Use Group: R-1: Hotel (Second thru Fourth Floors)
A-3: Assembly (First Floor Lobby, Pool and Meeting Rooms)
M: Mercantile
Separated use groups shall be separated from adjoining use groups with a 1 hour fire separation wall (table 302.3.3 exception 1 sprinklers)
- Applicable Codes:
 - International Building Code - 2003
 - International Energy Conservation Code - 2003
 - Maine State Plumbing Code - Based on International Energy Plumbing Code
 - International Energy Mechanical Code - 2003
 - NFPA 2003
 - The National Electrical Code - 2005
 - American with Disabilities Act - 524 CMR 1998 / IBC 2003
 - NFPA 101 Life Safety Code

B. Allowable Area Calculations Data:

Use Group: R-1 (IBC 2003)		Use Group: A-3 (IBC 2003)	
Construction Type: 2A		Construction Type: 2A	
Allowable Area: (Table 503)	10,200 sf	Allowable Area: (Table 503)	15,500 sf
Area Modification: (Sec. 506, 506.2, 506.3)		Area Modification: (Sec. 506, 506.2, 506.3)	
$A_a = 24,000 + \frac{24,000 \times 34.5}{100} + \frac{24,000 \times 200}{100}$		$A_a = 15,500 + \frac{15,500 \times 34.5}{100} + \frac{15,500 \times 200}{100}$	
$A_a = 24,000 + 8,280 + 48,000$		$A_a = 15,500 + 5,347 + 31,000$	
$A_a = 36,720$		$A_a = 51,847$	
Allowed Area: 36,720 sf		Allowed Area: 51,847 sf	
Max. per Floor		Max. per Floor	
Allowable Height: (Table 503)	4 st 65'-0"	Allowable Height: (Table 503)	3 st 65'-0"
Sprinkler Increase: (Sec. 504.2)	1 st 20'-0"	Sprinkler Increase: (Sec. 504.2)	1 st 20'-0"
4 st, 60'-0" limit (504.2)		4 st, 60'-0" limit (504.2)	
Adjusted Height:	4 st 60'-0"	Adjusted Height:	4 st 85'-0"

Use Group: M (IBC 2003)	
Construction Type: 2A	
Allowable Area: (Table 503)	21,500 sf
Area Modification: (Sec. 506, 506.2, 506.3)	
$A_a = 21,500 + \frac{21,500 \times 34.5}{100} + \frac{21,500 \times 200}{100}$	
$A_a = 21,500 + 7,447 + 43,000$	
$A_a = 71,947$	
Allowed Area: 71,947 sf	
Max. per Floor	
Allowable Height: (Table 503)	4 st 65'-0"
Sprinkler Increase: (Sec. 504.2)	1 st 20'-0"
4 st, 60'-0" limit (504.2)	
Adjusted Height:	5 st 85'-0"

C. Building Areas Per Floor:

Floor	Actual Gross Area per Floor	Allowable Gross Area per Floor (Table 503)
R-1		
First	6,817 sq. ft.	36,720 sq. ft.
Second	26,001 sq. ft.	Maximum allowable floors of 4 stories (Section 504.2)
Third	26,001 sq. ft.	
Fourth	26,001 sq. ft.	
Fifth	26,001 sq. ft.	
Total	110,821 sq. ft.	146,880 sq. ft.

First Floor
 Allowable Area Ratio (Section 302.3.2 must be less or equal to 1.0)
 $R-1(6,817/36,720) + A-3(19,063/51,847) + M(1,987/71,947) = (.19) + (.38) + (.03) = .60$

Second Floor
 Allowable Area Ratio (Section 302.3.2 must be less or equal to 1.0)
 $R-1(26,001/36,720) + A-3(4,253/51,847) + M(0) = (.71) + (.08) + (0) = .79$

Typical Floor
 Allowable Area Ratio (Section 302.3.2 must be less or equal to 1.0)
 $R-1(26,001/36,720) + A-3(0) + M(0) = (.71) + (0) + (0) = .71$

Floor	Actual Gross Area per Floor	Allowable Gross Area per Floor (Table 503)
A-3		
First	19,063 sq. ft.	51,847 sq. ft.
Second	Exterior Courtyard 4,253 sq. ft.	per floor - 4 allowed floors
Total	23,316 sq. ft.	207,388 sq. ft.

Floor	Actual Gross Area per Floor	Allowable Gross Area per Floor (Table 503)
M		
First (only)	1,987 sq. ft.	71,947 sq. ft.
Total	1,987 sq. ft.	359,735 sq. ft.

Actual Square Footage (Interior Spaces)	
First Floor	27,867 sq. ft.
Second Floor	26,001 sq. ft.
Third Floor	26,001 sq. ft.
Fourth Floor	26,001 sq. ft.
Fifth Floor	26,001 sq. ft.
Total	131,871 sq. ft.

D. Public Toilet Room Design:

MINIMUM FACILITIES FOR BUILDING OCCUPANCY (Table 4-1 Maine State Plumbing Code)			
Use Group (Hotel)	Plumbing Facilities (Table 4-1 Lounge & Restaurant)	Other Facilities	Use Group (Mercantile)
First Floor Assembly: 239 occupants Bar / lounge and Meeting area. 25 Employees Total 264	Men Required: 132 design occupant load 2 WC per 51-150 people 1 Urinal per 150 people 1 Lav. per 150 people Provided-First Floor: 2 WC and 1 urinal provided 3 WC and 2 urinals provided 1 Lav. Req. 3 provided	Women Required: 132 design occupant load 2 WC per 51-150 people 1 Lav. per 150 people Provided-First Floor: 2 WC provided 5 WC provided 1 Lav. Req. 3 provided	Required: Total Assembly: 264 occupants 1 Drinking Fountain / 150 (table 4-1 public building) 2 Drinking Fountain Required 1 Service Sink Required Provided: 1 HI 1 LO Drinking Fountain Provided 1 Service Sink Provided
Second through fifth floors	Men and Women Required: 15 design occupant load 1 WC per 1-15 people 0 Urinal per 1-9 people 1 Lav. per 40 people Provided-Men and Women: 1 WC required 1 WC provided 1 Lav. provided		First Floor Mercantile: 30 occupants Men and Women Required: 15 design occupant load 1 WC per 1-15 people 0 Urinal per 1-9 people 1 Lav. per 40 people Provided-Men and Women: 1 WC required 1 WC provided 1 Lav. provided
Assembly	N/A		

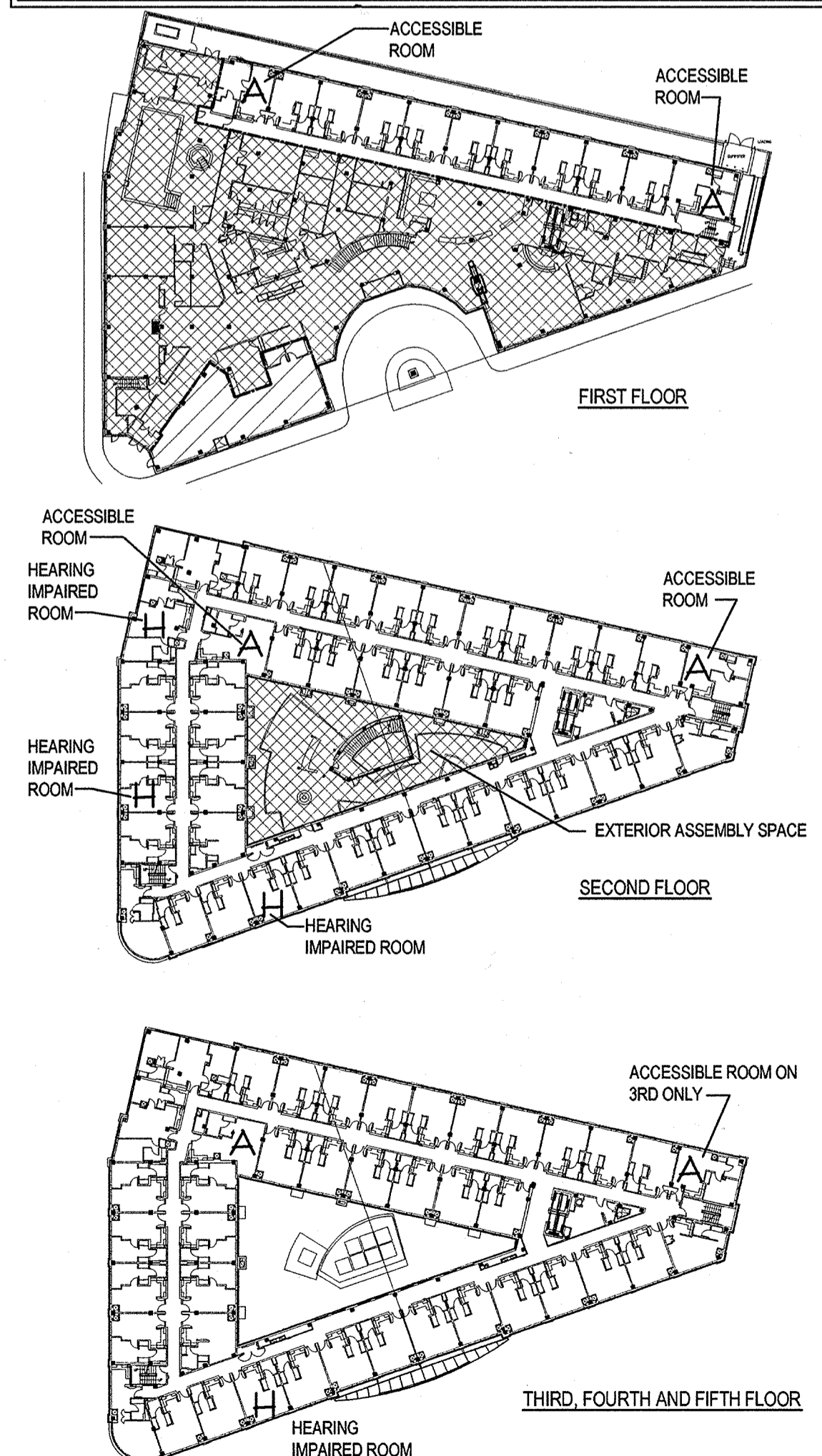
E. Construction Summary:

FIRE RESISTANCE RATINGS OF STRUCTURE ELEMENTS (TABLE 601)	
Structure Element	Rating
Structural Frame	1 hour
Bearing Walls - Exterior	1 hour
Bearing Walls - Interior	1 hour
Nonbearing Walls - Exterior (Table 602) (greater or = to 30 feet) (< 30 feet)	1 hour
Floor Construction	1 hour
Roof Construction (With beams and Joist)	1 hour

INCIDENTAL USE AREAS (table 302.1.1)	
Area	Rating
Fumace Rooms with Equipment over 400,000 BTU input	1 hour or automatic sprinkler
Boilers over 15 PSI and 10 HP	1 hour or automatic sprinkler
Laundry Rooms over 100 S.F.	1 hour or automatic sprinkler
Storage Rooms over 100 S.F.	1 hour or automatic sprinkler
Waste and linen collection rooms over 100 S.F.	1 hour
Boiler and fumace rooms	Automatic sprinkler
Storage rooms	Automatic sprinkler and smoke separation walls

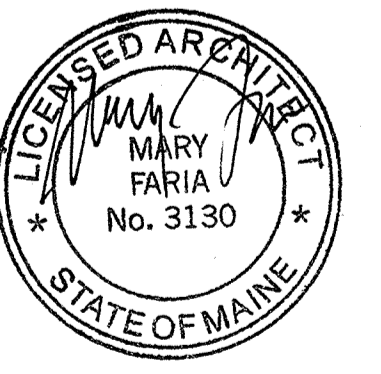
ADDITIONAL FIRE RESISTANCE RATINGS	
Building Element	Rating
R-1 Sleeping Unit Separation	1 hour
Separated Uses (R-1, M to A-3 Table 302.3.3 Except, 1 Sprinkler)	1 hour
Stair exit enclosure shafts	2 hour
Elevator shafts	2 hour
All other shafts (connecting 4 stories 707.4)	2 hour
Exit access corridors (table 1016.1) (with sprinkler) Assembly and Mercantile Residential	1 hour 1/2 hour
All door ratings to comply with Table 715.3	
Interior finishes: (Table 803.5) (Sprinklered)	R-1 Class B A-3 Class B Class C Class C
Vertical Exits and passageways	
Exit Access corridors	
Rooms or enclosed areas	
Roof Covering: Roof Material Classification (sect. 1505.1)	Class B

Note:
 All penetrations through fire treated assemblies shall be fire stopped or otherwise protected to maintain the integrity of the assembly in the event of fire. See fire stopping details.
 All shafts and/or ducts penetrating a rated assembly for two or more floors continuous to have 2 hour gypsum board rated assembly wrap.



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