TeiBI
file in
B. I. file
for University Commons

July 25, 2008

Ms. Carol Potter
University of Southern Maine
25 Bedford Street
Portland, ME 04104

114 D23

#000148

Re: University of Southern Maine - University Commons

Dear Carol,

We have visited the above-referenced project at various stages during construction to observe construction progress, including the architectural work for which Koetter Kim & Associates has been responsible for designing, and the engineering work for which the consultants working under contract to Koetter Kim were the designers.

We have received test reports from Summit Environmental Consultants, Inc., Testing Agency, and Quality Assurance Laboratories, which state that the various components of the building that have been tested by them during construction, have been constructed to meet the Contract Plans and Specifications.

Therefore, to the best of our knowledge, information and belief, University Commons at the University of Southern Maine has been constructed substantially in accordance with the Contract Plans and Specifications for this project.

Sincerely,

Susie Kim
President

Cc: KKA File

LICENSED ARCHITECT
SUSIE SUNG
HEA KIM
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OCT 20

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Sullivan Code Group
R.W. Sullivan, Inc.

CODE SUMMARY

Osher Lifelong Learning Institute & Muskie School
Portland, Maine

Date: May 22, 2007

Prepared By: Mark Verrochi

Reviewed By: Doug Anderson

The following code summary is based on our review of the 100% Construction Documents dated April 3, 2006 (received April 3, 2006) and basement, first floor, and second floor drawings dated November 17, 2006 (received May 9, 2007) for the proposed new building.

As currently designed the OLLI/Muskie building will be a 4-story building with 1 basement level below grade for mechanical use.

APPLICABLE CODES
City of Portland Ordinances

- 2003 International Building Code, amended
- 2003 NFPA 101: Life Safety Code, amended

When the Building Code and Life Safety Code conflict, the more restrictive requirement is used.

2003 INTERNATIONAL BUILDING CODE

1. **Occupancy Classification:**

   Use Group A-3 (Large classrooms, multi-purpose rooms)
   Use Group B (Offices, Adult Educational Classrooms)

2. **Min. Construction Type:**

   Type IIB

3. **Height and Area Limitations:**

   The height and area limitations are indicated on the table below for the two proposed use groups:

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Height and Area Limitations

Code Reference	Construction Type IIB, B		Construction Type IIB, A-3	
	Height	Area	Height	Area
Table 503	4 Stories	23,000 ft^2	2 Stories	9,500 ft^2
Section 504.2 Sprinkler Height Increase	+ 1 Story		+ 1 Story	
Section 506.3 Sprinkler Area Modification		+ 46,000 ft^2 [A]		+ 19,000 ft^2 [A]
Total Allowed	**6 Stories**	**69,000 ft^2**	**3 Stories**	**28,500 ft^2**
Actual Size Height and Area	**5 Stories**	**12,940 ft^2**	**1 Story**	**3,345 ft^2**

A. Additional increase is available due to street frontage, but is not necessary for this project.

The building complies with non-separated use groups for area but not for height. Construction type IIB can be used when the more height restrictive A-3 use group is separated from the less restrictive B use group by a one-hour floor and wall separations. This would require that all construction supporting the separated floor also be one-hour construction.

The following spaces are required to be one hour separated: Lee Hall and the Multi-Purpose Room. These spaces are considered assembly spaces and are required to be one hour separated from the business uses.

The Use Group separation is illustrated on the Table below:

4	Use Group B		
3	Use Group B		
2	Use Group B		
1	Use Group A-3	Use Group B	Use Group A-3

4. Fire Resistance Ratings:

The table shown below summarizes the requirements for the building as outlined in Table 601 & 602.

Building Element	Type 1A (modified) Rating (Hours)
Structural frame Including columns, girders, trusses	0[B]

Bearing walls Exterior	0[B]
Bearing walls Interior	0[B]
Non-Bearing Walls and Partitions Exterior	0[A]
Non-Bearing Walls and Partitions Interior	0
Floor Construction Including supporting beams and joists	0[B]
Roof Construction Including supporting beams and joists	0
Shaft Enclosures	0[C]
Storage rooms (greater than 100 ft^2)	1 or sprinkler system
Boiler Rooms (over 15 psi and 10 horsepower)	1 or sprinkler system
Trash Rooms (over 100 ft^2)	1 or sprinkler system
Emergency Electrical Room	2
Elevator Machine room	2

A. Not less than rating based on fire separation distance (see non-loadbearing exterior walls)
B. Not less than rating of walls supported
C. See Section 8 of this report for shaft enclosure requirements.

5. Exterior Wall Openings & Fire Resistance Rating:

The exterior wall rating requirements and opening limitations are based on the fire separation distance for each wall. The fire separation distance is measured perpendicular to the exterior wall to the centerline of a public street, an interior lot line, or an imaginary lot line between two buildings on the same lot (Section 702).

If the fire separation distance is greater than 10 feet the exterior walls of the building are not required to be rated and may have unlimited openings (Table 704.8 Exception g).

6. Interior Finish:

The following interior wall and ceiling finishes are allowable per 2003 IBC Table 803.5:

- Exit Stairs & Passageways – Class B
- Exit Access Corridors – Class B
- Other Rooms and Spaces – Class C

7. Means of Egress:

The occupant load for each floor calculated in accordance with Table 1004.1.2 is as follows:

Occupant Load

Floor	Area	Floor Area (ft^2)	Floor Area Per Occupant (ft^2/occupant)	Occupant Load
Basement	Mechanical/Storage	2,895	300 gross	10
			Floor Total =	**10**
1st Floor	Business	3,880	100 gross	39
	Multi-Purpose Room	1,700	7 net	243
	Lee Comm Hall	2,250	Actual Seats	172
	Classrooms	1,075	20 net	54
	Public Forum Seating Area	735	15 net	49
	Atrium Lobby	370	15 net	25
	Library & Computer Labs	735	50 net	15
	Reading, Lounge, Conference, Meeting	480	15 net	32
	Kitchen	136	100 gross	2
	Storage	250	300 gross	1
			Floor Total =	**632**
2nd Floor	Business	6,925	100 gross	70
	Classrooms	2,115	20 net	106
	Meeting & Work Rooms	495	15 net	33
	Faculty Lounge	465	15 net	31
	Storage	245	300 gross	1
			Floor Total =	**241**
3rd Floor	Business	8,545	100 gross	86
	Meeting Rooms	1,205	15 net	81
	Library	585	50 net	12
	Storage	200	300 gross	1
			Floor Total =	**180**
4th Floor	Business	9,470	100 gross	95
	Meeting, Conf Rooms & Small Classrooms	1,365	15 net	91
			Floor Total =	**186**

Based on the occupant loads estimated above, the following minimum number of exits are required from each floor level:

Number of Required Exits

Floor	Occupant Load	Required Number of Exits	Number of Exits Provided
Basement	10	2	2
1st Floor	662	3	6
2nd Floor	241	2	2
3rd Floor	180	2	2
4th Floor	186	2	2

Exit Capacity (Modified with NFPA 101 – More restrictive)

Floor	Occupant Load	Exit Allowance (in/person)	Total Exit Capacity Provided (persons)		Status
Basement	10	0.3 (Stair) 0.2 (Door)	Stair 099 36"door/0.2=180 36"stair/0.3=120	Areaway[A] 70"door/0.2=350 36"stair/0.3=120	Compliant
			Total = 240		
1st Floor	632	0.3 (Stair) 0.2 (Door)	Vestibule 110 70"door/0.2=350	Stair 191 34"door/0.2=170	Compliant
			Vestibule 111 52"door/0.2=260	Forum Doors 70"door/0.2=350	
			Stair 194 34"door/0.2=170	Vestibule 126 70"door/0.2=350	
			Total = 1650		
2nd Floor	241	0.3 (Stair) 0.2 (Door)	Stair 291 34"door/0.2=170 44"stair/0.3=146	Stair 294 34"door/0.2=170 48"stair/0.3=160	Compliant
			Total = 306		
3rd Floor	180	0.3 (Stair) 0.2 (Door)	Stair 391 34"door/0.2=170 44"stair/0.3=146	Stair 394 34"door/0.2=170 48"stair/0.3=160	Compliant
			Total = 306		
4th Floor	186	0.3 (Stair) 0.2 (Door)	Stair 391 34"door/0.2=170 44"stair/0.3=146	Stair 494 34"door/0.2=170 48"stair/0.3=160	Compliant
			Total = 306		

A. Minimum width of stairs is 36 inches per NFPA 101 Table 7.2.2.2.1(a).

Other egress requirements:

- Two exits are required from a boiler, incinerator and furnace room over 500 ft^2. The two exits must be spaced at least ½ of the maximum horizontal distance of the room (2003 IBC 1014.3).

- All exit stair doors and doors serving more than 50 people must swing in the direction of egress travel

- Maximum Exit Access Travel Distance < 250 feet (2003 IBC Table 1015.1).

- Maximum Dead End Corridor Length < 20 feet (2003 IBC 1016.3) for floors with Assembly Use. Maximum Dead End Corridor Length < 50 feet (2003 IBC 1016.3) for floors with only Business Use.

- In assembly spaces with theater style seating the minimum width of the aisle shall be:
  - 48" for stairs with seating on both sides
  - 36" for stairs with seating on one side
  - 42" for level or ramped aisles with seating on both sides
  - 36" for level or ramped aisles with seating on one side (780 CMR 1012.2.6)

Theatre Egress
Both rooms with the fixed seating (multi-purpose and Lee) must meet the applicable requirements of IBC Section 1024.0. This section addresses the minimum required aisle width, spacing between rows of seats, tread and riser sizes, etc.

8. Floor Openings:

The current plans indicate a two-story floor opening located between the first and second floors. The IBC and NFPA-101 treat two story floor openings differently.

IBC Section 707.2 Exception 7 states that a shaft enclosure is not required for a floor opening that complies with the following:

A. Does not connect more than two stories.

The floor opening is only two stories.

B. Is not part of the required means of egress system except as permitted in Section 1019.1.

The stairways that are not a required means of egress element are not required to be enclosed (IBC Section 1019.1). The two enclosed stairwells provide adequate capacity for the second and third floors and the stairways in the openings are not required in order to meet the occupancy load requirement.

C. Is not open to a corridor in Group I and R occupancies.

The building does not contain any Group I or R occupancies.

D. Is not open to a corridor on nonsprinklered floors in any occupancy.

The building is fully sprinklered.

E. Is separated from floor openings serving other floors by construction conforming to required shaft enclosures.

The only floor openings occur between the first and second floors.

Under these conditions of the 2003 IBC, the floor opening is not considered an atrium and is not required to comply with IBC Section 404.

NFPA 101 Section 38.3.1.1 requires vertical openings to be enclosed in accordance with Section 8.6. This Section provides options for compliance so that the openings may remain unenclosed (i.e. not in a shaft enclosure). Section 8.6.8.1 states that a vertical opening serving as other than an exit enclosure, connecting only two adjacent stories, and piercing only one floor shall be permitted to be open to one of the two stories.

To confine the vertical opening to only the second floor, one-hour fire shutters have been added on both sides of the Olli Lobby and at the West ends of the North and South Corridors. These fire shutters are required in all of the three Use Separation options described in Section 3 of this report.

NFPA 101 8.6.8.1 does not require a specific rating for the elements used to prevent the opening from piercing the second floor.

9. **Fire Protection Systems:**

   The following is a list of fire protection systems required:

   - Automatic Sprinkler System (2006 IBC Section 903)
   - Standpipe System (2006 IBC Section 905)
   - Fire Alarm and Detection Systems (2006 IBC Section 907)

10. **Accessibility:**

    Accessibility must meet both the provisions of IBC Chapter 11 and the ADA.

Sullivan Code Group
R.W. Sullivan, Inc.

MEMORANDUM

TO: Tom Beddall, Koetter Kim & Associates

FROM: Doug Anderson

DATE: May 22, 2007

SUBJECT: OLLI Muskie Floor Openings

This memo is written in response to the City of Portland's request for defining the subject building's floor openings.

The IBC's approach to floor openings is to classify them either as "atriums" (Section 404) or "floor openings not requiring a shaft enclosure" (Section 707.2 Exceptions).

This approach is confirmed by the 2003 IBC Commentary, which indicates in Section 404 that "*Section 404 is applicable when a shaft enclosure would normally be required by Section 707.2, but because of the nature, design or use of the space, the shaft enclosure is not provided and, therefore, does not comply with the provisions of Section 707.*"

The subject floor openings meet all exceptions of IBC Section 707.2 Exception 7. If this exception, or any of the others in Section 707.2, was not met, then by default the floor openings become an "atrium" and must therefore meet the requirements of Section 404; or the openings would be required to be enclosed in shaft enclosures.

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