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
- State of Maine Human Rights Act
- ADAAG Americans with Disabilities Act
- ICC ANSI 117.1 Accessible and Usable Buildings and Facilities

PROJECT SUMMARY:

100,000 square foot, mixed-use building, housing approximately 90,000 SF of office space and potentially 10,000 SF of retail space. The building is a mix between 3 and 4 stories. There is a roof deck of approximately 20,000 SF.

NFPA 13 Sprinkler
Type 2A Construction

Square Footages:

1st Floor	- 30,624 SF
2nd Floor	- 31,353 SF
3rd Floor	- 31,353 SF
4th Floor	- 9,336 SF
TOTAL	- 102,666 SF

CODE SUMMARY :

Chapter 3- Use and Occupancy Classification Mixed Use)

303.1 Assembly Group A-3	Rooftop assembly space
304.1 Business Group B	Office at Levels 1-4
309.1 Mercantile Group M	Retail at Level 1

Chapter 5- General Building Heights and Areas

Table 503 Allowable Heights and Areas

Business Group B	Type 2A Construction - 3 stories , 65 feet, 37,000 SF
Mercantile Group M	Type 2A Construction - 4 stories, 65 feet, 21,500 SF
Assembly Group A-3	Type 2A Construction - 3 stories, 65 feet, 15,500 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 2A	
Group B (Business):	4 stories
Group M(Mercantile):	5 Stories
Group A-3(Assembly):	4 Stories

506.0 Building Area Modifications
506.1 General Equation S-1
Aa= {At+ [At x If] + [At x Is]}

Table 503 for Type 2A Construction, B Business Use
Aa= 37,000 sf + 0 + (37,000 x 2)
Aa= 111,000 sf Allowable building area per story

506.3 Automatic Sprinkler System Increase
Approved Automatic Sprinkler System in accordance with Section 903.3.1. More than one-story above grade= 200% increase above Table 503 tabular area allowed:
Group B: Type 2A: 37,000 + 2 x (37,000) = 111,000 sf allowable
Group M: Type 2A: 21,500 + 2 x (21,500) = 64,500 sf allowable
Group A-3: Type 2A: 15,500 + 2 x (15,500) = 46,500 sf allowable

508 Mixed Use and Occupancy
508.3 Non-Separated Occupancies
Buildings or portions of buildings that comply with the provisions of this section shall be considered non-separated occupancies.

508.3.1 Occupancy Classification
Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to the building of portion thereof in which the nonseparated occupancies are located.

508.3.2 Allowable building area and height
The allowable building area and height of the building or portion thereof shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1

508.3.3 Separation
No separation is require between nonseparated occupancies.

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

Building Element	**Type 2A**
Primary Structural Frame	1 hour
Bearing Walls	
Exterior Walls	1 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

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

Fire Separation Dist.	Construction Type	Group M	Group A, B
x < 5'	All	2 hour	1 hour
5' < x <10'	Type 2A	1 hour	1 hour
10' < x < 30'	Type 2A	1 hour	1 hour
x > 30'	All	0 hour	0 hour

602.2 Type II Construction
Noncombustible materials. Fire retardant treated wood (FRTW) is permitted in limited uses. Other combustible materials are permitted as outlined in Section 603.1.

Chapter 7- Fire and Smoke Protection Features

704 Fire Rating of Structural Members
704.3 Primary Structural Frame
Primary structure Supporting more than 2 floors, and primary structural members supporting a load bearing wall or a non-load bearing wall more than two stories high, required to have a fire resistance rating, 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
705.2.1 Projections from walls of Type II construction shall be of noncombustible 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 Structural Stability
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**
10' to less than 15'	Unprotected, Sprinklered	45%
15' to less than 20'	Unprotected, Sprinklered	75%
20' to less than 25'	Unprotected, Sprinklered	No Limit
25' to less than 30'	Unprotected, Sprinklered	No Limit
30' or greater	Unprotected, Sprinklered	Not Required

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. 6 where the wall is permitted to have at least 25% of the exterior wall areas containing unprotected openings per Table 705.8.

707 Fire Barriers (shafts, exit and floor opening enclosures)
707.3.1 Shaft Enclosures
Shaft enclosures shall comply with Section 708.4
(2 hours where connecting 4 or more stories)
(1 hour where connecting less than 4 stories)

707.3.2 Exit Enclosures
The fire resistance rating of exit enclosures shall comply with Section 1022.1
(2 hours where connecting 4 or more stories)
(1 hour where connecting less than 4 stories)

707.4 Exterior Walls
Where exterior walls serve as a part of a required fire-resistance-rated shaft or exit enclosure, or separation, such walls shall comply with the requirements of Section 705 for exterior walls and the fire-resistance-rated enclosure or separation requirements shall not apply.

707.5 Continuity
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
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).

707.6 Openings in fire barrier shall be protected in accordance with Section 715. Openings shall be limited to a maximum aggregate width or 25% of length of wall, with max area of any single opening not to exceed 156 sf. Openings in exit enclosures and passageways shall comply with Sections 1022.3 and 1023.5.
- Exception 1: Openings not limited to 156 sf with automatic sprinkler systems.
- Exception 2: Openings not limited to 156 sf or 25% of length at fire door serving exit enclosure.

708 Shaft Enclosures (stairs, chutes, elevators, duct shafts, etc.)
708.1 General
Shaft enclosures to be constructed as fire barriers

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

708.4 Fire Resistance Rating
Shaft enclosures shall have a 2 hour fire resistance rating where connecting 4 stories or more, and not less than 1 hour where connecting less than 4 stories. Shaft enclosures shall have a fire resistance rating not less than the floor assembly penetrated but not exceeding 2 hours.

708.6 Exterior Walls
Where exterior walls serve as a part of a required shaft enclosure, such walls shall comply with the requirements of Section 705 for exterior walls and the fire-resistance-rated enclosure requirements shall not apply.

708.4 Openings
Openings in a shaft enclosure shall be protected in accordance with Section 715 as required for fire barriers. Doors shall be self or automatic-closing by smoke detection in accordance with 715.4.8.3

708.8.1 Penetrations
Penetrations other than those necessary for the purpose of the shaft shall not be permitted.

708.14.1 Elevator Lobby Enclosure
Not required per exception no. 4 ... "building is protected by an automatic sprinkler system in accordance with section 903.3.1.1 "

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

709.4 Continuity
Fire partitions shall extend from floor below to underside of floor/roof sheathing above. Supporting structure shall be protected simliarly 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 Exterior Walls
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.

713 Penetrations
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

714 Fire-Resistant Joint Systems
714.1 General
Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roof or roof/ceiling assemblies shall be protected by an approved fire-resistant joint system matching the require fire resistance rating.

714.4 Exterior Curtain Wall/Floor Intersection
Where fire resistance rated floor/ceiling assemblies are required, voids along curtain wall and floors shall be sealed with an approved system, matching the fire resistance rating of the floor system.

715.4 Fire Door and Shutter Assemblies
Table 715.4

Type of Assembly	**Required Assembly Rating**	**Min Door Assembly Rating (hrs)**
Fire Barriers (2 Hr)	2 hours	1-1/2 hours
Fire Barriers (1 Hr)		
Shafts/Exit Encl.	1 hour	1 hour
Other Fire Barriers	1 hour	3/4 hour

715.4.3.1 Smoke and Draft Control
Fire door assemblies shall meet requirements for smoke and draft control door assemblies

715.4.6 Labeled Protective Assemblies
Fire door assemblies shall be labeled by an approved agency. The labels shall comply with NFPA 80, and shall be permanently affixed to the door or frame.

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
B	Class B	Class C	Class C
M	Class B	Class C	Class C

Chapter 9- Fire Protection Systems

903.3.1.1 NFPA 13 Sprinkler Systems
The building will be equipped throughout with an automatic sprinkler system in accordance with NFPA 13.

903.4 Actuation
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.

905.4 Class I 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
- Where roof slope is less than 4:12 each standpipe shall be provided with a hose a connection either on the roof or the highest landing of a stairway with stair access to roof.
- On each side of the wall adjacent to exit opening of horizontal exit (Not required where hose stream is reachable).

906 Portable Fire Extinguishers- Required in Group A, B, and M occupancies: provided in accordance with NFPA 10
- Exception: In Group A and B 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.

907.2.2 Group B: Manual fire alarm system required.

907.2.7 Group M: Manual Fire Alarm system required.

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

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

Assembly	15 net sf. Un-concentrated
Business	100 gross sf
Mercantile	Grade Floor area= 30 gross sf

1005 Egress Width

1007 Accessible Means of Egress

1007.3 Stairways
Clear width 48" . Not Required in buildings with automatic sprinkler system. Exception no. 2
Area of Refuge- Not Required in buildings with automatic sprinkler system. Exception no. 1 and 3

1007.4 Elevators Exception 2: Area of refuge not required if building equipped with automatic sprinkler system.

1007.8 Two-way communication system shall be provided at each elevator landing.

1007 .10 Directional signage shall be provided at elevator landings.

1008 Doors, Gates and Turnstiles
1008.1.1 Size of Doors- Minimum Clear width = 32", maximum leaf width 48"

1008.1.5 Provide a level landing on each side of door, except at exterior locations with 2% slope pitch for drainage.

1008.1.8 48" plus door width required minimum space between doors in series.

1008.1.9.10 Interior stairway means of egress doors shall be openable from both sides
Exception 1: Stairway discharge doors shall only be locked from the opposite side.

1008.1.10 Doors serving an occupancy load of 50 or more in Group A shall be provided with panic hardware. Electrical rooms with equipment rated at 1200 amps or more will also require panic hardware.

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.

1015- Exit and Exit Access Doorways
1015.1 Two exits required from any space except as permitted by Table 1015.1

1015.2.1 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.

	Fire Area	Max. Diagonal	1/3 Min.	Actual
1st Floor	30,624 sf	338'-11"	112'-11"	144'-4"
2nd Floor	31,353 sf	338'-11"	112'-11"	144'-4"
3rd Floor	31,353 sf	338'-11"	112'-11"	144'-4"
4th Floor	9,336 sf	163'-7"	54'-6"	55'-1"

1016 Exit Access Travel Distance
Table 1016.1 Exit Access Travel Distance

Occupancy	**Max. Distance Sprinklered**	**Actual Distance**
A3-Assembly	250'	110'-8"
B-Business (Level 1)	300'	84'-0"
B-Business (Level 2-3)	300'	126'-6"
B-Business (Level 4)	200'	84'-0"
M-Retail	250'	TBD

1021 Number of Exits and Continuity
Table 1021.1 Minimum Number of Exits for Occupant Load

	Occupant Load	**Min. Number of Exits**
1st Floor (B)	207	2
1st Floor (M)	334	2
2nd Floor	314	2
3rd Floor	314	2
4th Floor (B)	94	2
4th Floor (A-3)	900	3

1022 Exit Enclosures
1022.1 Exit Enclosures Required
2 hour rated fire barriers/ enclosures provided.

1022.6 Exit Enclosure Exterior Walls
Exterior exit walls comply with Section 705

1022.8 Floor Identification Signs
Floor level identification signs required at each floor landing within stair (tactile).

1023 Exit Passageways
1023.1 Exit Passageway
Exit passageway used to connect stairway enclosure to an exterior door
· 44" min. width
· Wells, floor and ceilings shall be of not less than 1 hour fire resistance rated construction and constructed as fire barriers in accordance with Section 707.

1027 Exit Discharge
1027.1 General - Exits shall discharge directly to the exterior of the building. Exit Stair is allowed to egress through the Main lobby per the following;
Exceptions:

1. A maximum of 50 percent of the number and capacity of the exit enclosure is permitted to egress through areas on the level of discharge provided all of the following are met:
   1.1. Such exit enclosures egress to a free and unobstructed path of travel to an exterior exit door and such exit is readily visible and identifiable from the point of termination of the exit enclosure.
   1.2. The entire area of the level of exit discharge is separated from areas below by construction conforming to the fire-resistance rating for the exit enclosure.
   1.3. The egress path from the exit enclosure on the level of exit discharge is protected throughout by an approved automatic sprinkler system. All portions of the level of exit discharge with access to the egress path shall either be protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, or separated from the egress path in accordance with the requirements for the enclosure of exits.

1509.2.1 Height Above Roof
A Penthouse or other projection above the roof shall not exceed 28 feet above the roof where used as an enclosure for tanks or for elevators that run to the roof and in all other cases shall not extend more than 18 feet above the roof.

1509.2.2 Area Limitation
the aggregate area of penthouses and other rooftop structures shall not exceed one-third the area of the supporting roof. Such penthouses shall not contribute to either the building area or number of stories as regulated by Section 503.1. The area of the penthouse shall not be included in determining the fire area define in Section 903

1509.2.3 Use Limitations
A Penthouse of other similar projection above the roof shall not be used for purposes oither than shelter of mechanical equipment or shelter of vertical shaft opeingings in the roof.

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