Accessibility Codes

- Fair Housing Act Section 504

The building is all new construction. It consists of six (6) stories with two (2) stair towers and an elevator. The first floor is of Type 1A Construction. This first level consist of mercantile (M) and an open parking garage (Low Hazard Storage S-2 occupancy) with accessory storage areas and mechanical equipment rooms and a lobby for the residents. Levels two (2) through six (6) are of Type 2A Construction and consist of apartments (Residential R-2

The building is designed with a podium level between the first and second floor. This 3-hour fire-resistance rated horizontal assembly creates two distinct buildings for the purpose of determining area limitations, continuity of fire walls, limitations of number of stories and type of construction. The building will be sprinkled with an NFPA full 13 sprinkler system.

Columns to be required to be fire-resistance rated require the entire column to be

Supporting more than 2 floors, and required to have a fire resistance rating, or

Exception: Individual encasement on all exposed sides provided protection is in

If required to be fire resistant rated, secondary members shall be protected by

Exception 1 fire-retardant-treated wood shall be permitted for balconies, porches,

Fire Seperation 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

705.6 Exterior walls shall have sufficient structural stability to remain in place for

Only the structural element within the floor system that supports the

vertical load of the wall must be fire resistance rated construction

decks and exterior stairways not used as required exits with Section 1406.3

individual encasement when supporting more than 2 floors. Membrane

705.2.1 Projections from walls of Type I or II construction shall be of

supporting a load bearing wall, shall be provided with individual encasement

Chapter 3- Use and Occupancy Classification Mixed Use 310.1 Residential Group R-2 Apartments at Levels 2-6 309.1 Mercantile Group M Retail Level 1 311.3 Low Hazard Storage Group S-2 Open Parking Garage

Chapter 4- Special Detailed Requirements Based on Use and Occupancy 403 High-Rise Definition - A building with an occupied floor located more than 75 feet above the lowest level of fire department vehicle access. Our lowest level of FD vehicle access is EL. 15'-0" and the highest occupied floor is at EL. 80'-2", which is 65'-2" above lowest lowest level, which means this is NOT a high rise building

Section 406 Motor Vehicle Related Occupancies **406.2 Parking Garages** (classified as an open parking garage per Section 406.3)

406.2.2 Clear height on each floor level in vehicle and pedestrian traffic areas shall not be less than 7 feet NFPA 101 requires a clear height of 7'-6" for egress (Section 7.1.5)

406.2.4 Vehicle Barrier Systems Not required- Vertical distance to ground is not greater than one foot

406.2.6 Floor Surface Parking surface concrete pavers.

406.2.7 Mixed Occupancy Separation

Parking garage is separated from R-2 Residential Use at Level 2 above by three (3) hour rated floor assembly in accordance with Section 509.2. (Parking garage does not require fire separation from the entrance lobby & elev. lobby (R-2) or storage units (S-2), but needs a 1hr separation from the retail (M) in accordance with Table 508.4 and NFPA 101 requires a 2-hour separation between parking and retail (Section 36.1.2.2.1)

406.3 Open Parking Garages 406.3.3.1 Openings

40 percent of the garage perimeter has openings that are uniformly distributed on no less than two sides.

406.3.5 Heights and Areas

Area and height of an open parking garages of Type IA construction are unlimited per Table 503.

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

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), except the podium level which is separated by a 3 hour rated horizontal assembly per Section 509.2

Chapter 5- General Building Heights and Areas

502.1 Grade Plane by Definition: 4 corner average grade - N 15.7' + E 14.92' + S 15.05' + W 16.7' = 62.37' / 4 =

Table 503 Allowable Heights and Areas Residential Group R-2 Type 2A Construction - 4 stories . 65 feet 24.000 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 2A Group R-2 (mutifamily residential): 5 stories . 85 feet

See also Section 508.2.3 for Accessory Occupancies

506.0 Building Area Modifications 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

Group R2: Type 2A: 24,000 + 2 x (24,000) = 72,000 sf allowable

506.4 Single Occupancy Buildings with More than One Story 506.4.1 Area Determination

Total allowable building area of a single occupancy building per item 2 with three or more stories above grade plane= Allowable building area per Section 506.1, multiply times 3 and Item 3. No story shall exceed the allowable building area per story per Section 506.1.

> Floor 1 Type 1A Construction: Unlimited Height and Area permitted Actual Areas= 8.768 sf Level 1 Floors 2-6 Type 2A Construction Total allowable building area = 72,000 sf x 3 = 216,000 sf Divided by 5 Floors= 43,200 sf maximum per floor

Floor 2 Actual Area = 8.768 sf Floor 3 Actual Area = 8.768 sf Actual Area = 8.768 sf Floor 4 Actual Area = 8.768 sf Floor 5 Actual Area = 7.187 sf Floor 6

Actual Area = 42,259 sf < 216,000 sf Total Floors 2-6

508 Mixed Use and Occupancy 508.1 General

Exception 1. Occupancies separated in accordance with Section 509.

508.2 Accessory Occupancies

Aggregate accessory occupancies, ancillary to principal occupancy, shall not occupy more than 10% of the building area of the story and shall not exceed Table 503 values (without building area increases). Accessory occupancies shall be individually classified.

508.2.4 No separation is required between accessory occupancies and the main occupancy. (Exception 2: R2 occupancy dwelling units must be separated from accessory occupancies per Section 420 (1 hour). 508.3 Non-Separated Occupancies

Buildings or portions of buildings that comply with the provisions of this section shall be considered non-separated occupancies. Level 1-Type 1A construction

Use Groups: Residential, Mercantile, Storage

508.4 Separated Occupancies Table 508.4 Open parking garage (S2) to Mercantile (M) 1 hr separation requirement in building protected by an automatic sprinkler system in accordance with section 903.3.1.1, NFPA 101 requires a 2-hour separation between parking and retail (Section 36.1.2.2.1)

508.4.3 Allowable Height: Each separated occupancy shall comply with building height limitations based on the type of construction

Type 1A: Occupancy Residential, Storage, Mercantile Unlimited Type 2A: Occupancy Increase R-2 Residential 4 Stories 1 Story 5 Stories 5 Stories

509 Special Provisions

R occupancy.

715.4 Fire Door and Shutter Assemblies

Table 715.4

Fire Walls

Type of Assembly

Fire Barriers (2 Hr)

Other Fire Barriers

Corridor walls

Other fire partitions

Piping, vents, etc.

studs or staggered studs as follows:

1. Vertically at ceiling and floor levels

2. Horizontally at intervals not exceeding 10'.

studs or staggered studs.

Fire Partitions

Exterior Walls

required at:

Smoke Barriers

control door assemblies

717 Concealed Spaces

509.2 Horizontal Building Separation Allowance A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of fire walls, limitation of number of stories and type of construction where all of the following conditions are met:

The buildings are separated with a horizontal assembly having a minimum

3-hour fire-resistance rating. The building below the horizontal assembly is no more than one story

above grade level. The building below the horizontal assembly is of Type IA construction.

Shaft, stairways, ramp and escalator enclosures through horizontal assembly shall have not less than a 2-hour fire-resistance rating with opening protectives in accordance with Section 715.4. The building above the horizontal assembly shall be permitted to have

The building below the horizontal assembly shall have an automatic sprinkler system per Section 903.3.1.1 and shall be permitted to be any of the following occupancies:

Residential lobbies, storage units serving the residences

S-2 Storage- Parking Garage

Uses incidental to operation of the building including lobbies, mechanical rooms, storage areas. etc.

Maximum building height shall not exceed limits from Table 503 for the building having the smaller allowable height (stories measured above horizontal assembly and height measured above average grade plane).

Required Assembly Rating

3 hours

2 hours

1 hour/.5 hour

1 hour

2 hours

1 hour

715.4.3.1 Fire door assemblies shall meet requirements for smoke and draft

717.2 In combustible construction fire barriers shall be installed to cut off

concealed draft openings and form a barrier between floors. Fireblocking

- Horizontal spacing not exceeding 10 feet

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

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

717.3.2 Use Group R-2 Draft stopping in floor/ceiling spaces not required per

Exception No. 1, Sprinkler system provided in accordance with Section

Connections between horizontal and vertical spaces (soffits, dropped

- Vertically at floors and ceilings

Stairways at top and bottom of run between stringers

Mineral wool allowed in double stud walls

Rating (hrs)

3 hours

3/4 hour

1/3 hour

3/4 hour

1/3 hour

1 1/2 hours

1-1/2 hours

Buildings above and below the horizontal assembly are distinct buildings. Firewalls separating building areas on upper building can stop at the horizontal assembly.

Chapter 8- Interior Finishes

Min Door Assembly Table 803.9 Interior Wall and Ceiling Finish Requirements By Occupancy- Sprinklered Rooms and Enclosed Spaces Exit Enclosures <u>Corridors</u> Class C (IBC) Class C Class A or B (NFPA 30.3.3.2) Class C Class C

Chapter 9- Fire Protection Systems

Class B

Chapter 6- Types of Construction

Building Element

Bearing Walls

Primary Structural Frame

Non-Bearing Walls and

Non-Bearing Walls and

Floor Construction and

Secondary Members

Secondary Members

x < 5'

5' <u><</u> x <10'

10' < x < 30'

x <u>></u> 30'

602.2 Type I & II Construction

Roof Construction and

Partitions. Exterior

Partitions, Interior

Exterior Walls

Interior Walls

Table 601 - Fire Resistance Ratings for Building Elements

1 hour

1 hour

1 hour

0 hour

1 hour

1 hour

Table 602- Fire Resistance Rating Requirements For Exterior Walls Based

**Higher of 2 determining factors (Tables 601 end 602) indicate exterior bearing

Noncombustible materials. Fire retardant treated wood (FRTW) is permitted in

limited uses. Other combustible materials are permitted as outlined in Section

603.1 - 1.3 Fire-retardant-treaded wood is permitted in roof construction

on Fire Separation Distance (non-loadbearing walls)

Type IA

Type 2A

Type 1A

Type 2A

walls to be 2 hour fire resistance rated from the inside.

Fire Separation Dist. Construction Type

(See Table 602)

Type 1A

3 hour

3 hour

3 hour

0 hour

2 hour

Group R, S2

1 hour

1 hour

1 hour

1 hour

1 hour

0 hour

Class C

1 1/2 hour

Group M

2 hours

2 hours

1 hour

1 hour

1 hour

(See Table 602)

ortland

Table 903.2 Occupancy Related Automatic Sprinkler Requirements <u>Threshold</u> Occupant Load Sprinklers required

Sprinklers required Sprinklers required

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

Class C

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 **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 automalic sprinkler system.

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 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 R-2, M and S occupancies: provided in accordance with NFPA 10

907 Fire Alarm and Detection Systems

street side of building).

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 required in buildings with more than 12 dwelling units in accordance with Section 907.5

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

Smoke detection required in corridors of multi-apartment buildings per Maine Statute Title 25, Part 6, Chapter 317 Section 2464

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

Total Building Occupance: 312

A minimum of 2 egress or stair locations provided at each floor (36" wide doors and 44" wide stairs)

Residential Level6 7,187 sf/ 200 = **36** 36 x .3" = 10.8" Stairs

1007 Accessible Means of Egress

1007.2.1 Elevators Required. In buildings where a required accessible floor is four or more stories above a level of exit discharge, at least one accessible means of egress shall be an elevator. (Backup Generator Reg'd).

1007.3 Stairways

Clear width 48". Not Required in buildings with automotic sprinkler system. Exception no. 2 Area of Refuge- Not Required in Group R-2, Exception no. 7

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

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" 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.

1008.1.4.4 Group R-2 occupancies building entry doors are permitted to be equipped with access control system.

1008.1.5 Provide a level landing on each side of door, except at exterior locations with 2% slope pitch for drainage. **1008.1.9.10** Interior stairway means of egress doors shall be openable from both

Exception 1: Stairway discharge doors shall only be locked from the opposite

1008.1.10 Electrical rooms with equipment rated at 1200 amps or more will

1009.1 Stairway width- Minimum required width of 44" is provided.

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

Roofs or penthouses containing elevator equipment must be accessed via a stairway per IBC Section 1009.14

within 36" horizontally to the edge of the open side.

1015.1 Two exits required from any space except as permitted by Table 1015.1

Occupant Load- Max./ Actual Doors Required/ Provided **Occupancy**

One means of egress is permitted from all apartment units per Exception

8.768 sf

less than 1/3 (exception #2) the length of the maximum overall diagonal dimension. Residential Floor Levels 2 - 6 Fire Area

Max. Diagonal 1/3 Min. Actual 50'-0" 51'-1"

Occupancy Max. Distance Sprinklered **Actual Distance** M - Mercantile S2 -Parking- Level 1 R2 -Residential- FI 2-5 (per NFPA 101, travel distance is limited to 125ft within a dwelling unit

1018 Corridors

Occupant Load Fire Rating with Sprinkler <u>System</u> Greater than 10

1018.2 Corridor Width: Minimum 44" provided. Exception No. 3: 36" minimum width allowed within dwelling units.

from point of entry to an exit. Elevator shall be fire resistance rated and smoke protection

Exception: Foyers, lobbies or reception rooms constructed as required for corridors shall not be constructed as intervening spaces.

905.4 Class I standpipe hose connections shall be provided in the following

1021 Number of Exits and Continuity **1021.1** All spaces within each story shall have access to at least 2 exits. Exception 4: 1 exit minimum from within individual dwelling units of Group R-2.

facilities are provided. 1022 Exit Enclosures

1022.1 Exit Enclosures Required- min. 2 hour rated fire barriers/ enclosures

1022.8 Floor level identification signs required at each floor landing within stair

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

AMES STRE BUILDING

ODE

SUMIM

2009 NFPA 101 Life Safety, including NFPA 1, Fire Code 2006 edition

PROJECT SUMMARY:

8.768 GSF 2ND FLOOR: 8,768 GSF 3RD FLOOR: 8.768 GSF 4TH FLOOR: 8,768 GSF 5TH FLOOR: 8.768 GSF

Table 705.8 Maximum Area of Wall Openings Based on Fire Separation

30° or greater 705.8.5 Vertical Separation of openings

indicated in Table 508.2.5.

Chapter 10- Means of Egress

1004 Occupant Load

1005 Egress Width

Residential

of Space

Parking- Garage Spaces

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

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

1022.1 (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

Unprotected, Sprinklered

705.11 Parapets

707.3.2 The fire resistance rating of exit enclosures shall comply with Section

Table 1004.1 Maximum Floor Area Allowances per Occupant

storage, stock, shipping

Accessory storage areas, mechanical equip room 300 gross st

Floor Area/

<u>Occupants</u>

Level 1 2,306 sf/ 200 = **12**

<u>lax. Fl Area</u> =

- grade floor areas

Level 1

Storage/ Stock

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). **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 Exception 2: Openings not limited to 156 sf or 25% of length at fire door

708 Shaft Enclosures (stairs, chutes, elevators, duct shafts, etc.) **708.1** 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** Shaft enclosures shall have a 2 hour fire resistance rating where connecting 4 stories or more, and shall have a fire resistance rating not less than the floor assembly penetrated but not exceeding 2 hours.

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

709 Fire Partitions (exit access corridors, dwelling unit separations, etc.)

709.3 Fire Resistance Ratings Fire partitions shall have a fire resistance rating of not less than 1 hour. Walls Separating Dwelling Units (420.2) One hour Corridor Walls per Table 1018.1 1/2 hour (when fully sprinklered per NFPA 13)

Trash collection rooms One hour per NFPA 101 **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

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. 712.3.1 Provide wire or other approved device above panels to prevent vertical

712.3.2 Rated access doors permitted in fire rated ceiling assemblies. **712.3.3** Ceiling membrane not required over unusable crawl spaces or unusable

displacement (ceiling assembly to remain in place)

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 Offset boxes by 24" on opposite sides of wall

an aggregate of 100 square inches/100 sf of wall Not required at sprinklers with escutcheon plate

714.4 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.

require panic hardware. 1009 Stairways

1009.12 Handrails required on each side of stair.

1013.1 Guard (rails) are required at stairs more than 30" above the floor and

1015- Exit and Exit Access Doorways Table 1015.1 Spaces with one exit or exit access doorway

Levels 2-6 (both fire areas)

1015.2.1 Two Exits or Exit Access Doorways= Exit doors shall be placed not

717.4 Draft Stopping In Attics 717.4.2 Group R-2 Not required in attics and concealed roof spaces per Exception No. 2, Sprinkler system provided in accordance with Section 903.3.1.1.

1016 Exit Access Travel Distance Table 1016.1 Exit Access Travel Distance

to the corridor; and 200ft from the corridor door to the exit (30.2.6.2) R2 -Residential- FI 6

Table 1018.1 Corridor Fire Resistance Rating Occupancy

1018.4 Dead Ends: 50' maximum dead end corridor allowed per Exception No. 2 for Group R-2 and B Occupancies in buildings with automatic sprinkler system. **1018.6 Corridor Continuity:** Fire resistance rated corridors shall be continuous

1021.1.2 Parking structures shall not have less than 2 exits from each parking tier. Vehicle ramps shall not be considered as required exits unless pedestrian

2009 International Building Code - IBC (except chapters 11 and 30)

State of Maine Human Rights Act ICC ANSI 117.1 Accessible and Usable Buildings and Facilities

Chapter 7- Fire and Smoke Protection Features

704 Fire Rating of Structural Members

protected on all sides for the full length

704.3 Primary Structural Frame

accordance with fire resistance rating

704.4 Secondary Structural Members

protection is permissible if supporting 2 floors or less.

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

704.2 Column protection

protection on all sides.

705 Exterior Walls

noncombustible materials

exposure from both sides.

705.5 Fire Resistance Ratings

6TH FLOOR: 7,187 GSF + 51,027 GSF

Distance and Degree of Opening Protection

Fire Separation Dist.	Degree of Opening Protection	Allowable Area
0' to less than 3'	Unprotected, Sprinklered	Not Permitted
3' to less than 5'	Unprotected, Sprinklered	15%
5' to less than 10'	Unprotected, Sprinklered	25%
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

200 gross sf

200 gross sf

300 gross sf

Req'd Egress

Width (1005.1)

12 x .3" = 5.1" Stairs

12 x .2" = 3.4" Other

44 x .2" = 8.8" Other

36 x .2" = 7.2" Other

2,548 sf/ 30 = **85** 88 x .3" = 26.4" Stairs

850 sf/ 300 = **3** 88 x .2" = 17.6" Other

Level 2-5 8,768 sf/ 200 = **44** 44 x .3" = 13.2" Stairs

30 gross sf

Not Required, Exception no. 2, Automatic Sprinkler System in Accordance with

per Table 705.8

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 "