FLOOR / CEILING ASSEMBLY TO BE UL L511 2 HR FIRE RATED BETWEEN THE FIRST FLOOR MERCANTILE OCCUPANCY AND THE SECOND FLOOR BUSINESS OCCUPANCY. THIS WILL REQUIRE A 2HR RATING AT THE UNDERSIDE OF THE NEW STAIR.

UL DESIGN NO. L511 - UNRESTRAINED ASSEMBLY RATING 2 HR.

SYSTEM NO. 4

1. TOP LAYER - TO CONSIST OF 19/32 IN. THICK PLYWOOD STRUCTURAL PANEL, MIN. GRADE UNDERLAYMENT. FACE GRAIN OF PLYWOOD TO BE PERPENDICULAR TO JOISTS WITH JOINTS STAGGERED. .010 IN. THICK ROSIN PAPER
2. BOTTOM LAYER - 19/32 IN. THICK PLYWOOD STRUCTURAL PANELS, MIN. GRADE UNDERLAYMENT. FACE GRAIN OF PLY. PERPENDICULAR TO JOISTS WITH JOINTS STAGGERED.
3. FRAMING - SEE STRUCTURAL FRAMING PLANS, FIRESTOPPED.
4. CEILING - TO HAVE TWO LAYERS OF 5/8 IN. TYPE X GYPSUM BOARD WITH A RESILENT CHANNEL SANDWICHED BETWEEN.
5. RESILIENT FURRING CHANNELS - FORMED OF 25 MSG ELECTROGALVANIZED STEEL, SPACED 24 IN. OC PERPENDICULAR TO JOISTS AND LOCATED 12 IN. FROM EACH LONG EDGE OF EXTERIOR WALL. CHANNELS PLACED WITH 1/4 IN. CLEARANCE AT ENDS AND FASTENED TO EACH JOIST WITH 1 7/8 IN. LONG FURRING SCREWS. MIN. END DLEARANCE OF CHANNELS TO WALLS SHALL BE 3/8 IN. ADDITIONAL PIECES, 60 IN. LONG, PLACED IMMEDIATELY ADJACENT TO CHANNELS FOR ATTACHMENT OF END JOISTS OF SECOND LAYER, SECURED WITH 1-7/8 IN. LONG FURRING CHANNEL SCREWS DRIVEN THROUGH WALLBOARD TO JOISTS. ENDS TO EXTEND 6 IN. BEYOND EACH SIDE OF END JOINT.
6. SHEETROCK - FIRST LAYER OF 5/8" GYPSUM BOARD INSTALLED PERPENDICULAR TO JOISTS WITH BUTTED END JOINTS OF BOARDS LOCATED AT THE JOISTS. SECOND LAYER SECURED TO FURRING CHANNELS BY 1 IN. LONG WALLBOARD SCREWS, WITH LONG EDGE PERPENDICULAR TO FURRING CHANNELS, WITH THE CENTER LINE OF BOARDS LOCATED UNDER A JOIST AND SO PLACED THAT THE LONG EDGE JOINTS ARE STAGGERED WITH THE BUTTED END JOINT OF THE FIRST LAYER. SECURED TO FURRING CHANNELS WITH 1 IN. WALLBOARD SCRESS 12 IN. OC. BUTTED END JOINTS OF WALLBOARD FASTENED AT ADDITIONAL FURRING CHANNELS. ALL SCREWS LOCATED 1 AND 1-3/4 IN. FROM THE LONG EDGES AND THE BUTTED END OF BOARDS, RESPECTIVELY.
7. FURRING CHANNEL SCREWS - CASE-HARDENED STEEL, 1-7/8" LONG 0.150 IN DIA. SHANK, DIAMOND POINT, 0.335 IN. DIA PHILLIPS TYPE HEAD.
8. WALLBOARD SCREWS - CASE-HARDENED STEE, 1 IN. LONG, 0.150 IN. DIA. SHANK, SELF-DRILLING AND SELF-TAPPING, 0.335 IN. DIA. PHILLIPS TYPE HEAD.

Code Review - NFPA 101 (Life Safety) 2009

Chapter 6 - Classification of Occupancy

Section 6.1.10 This building is classified as "Mercantile". The Studio portion of the building is classified as "General Industrial" per section 6.1.12 and Chapter 40 section 40.1.4.1.1(1) low hazard industrial operations.
Section 6.1.14.1 - This occupancy shall be classified as a "Multiple Occupancy" and further defined as a Mixed Occupancy.
Section 6.1.14.4 - The "Business" portion of the building shall be separated from the "General Industrial" portion of the building as per Table 6.1.14.4.1(b) by a 2 hour fire-resistive assembly. "Business" portion of the building shall be separated from the "Mercantile" portion of the building by a 2 hour fire-resistive assembly.

Chapter 7 - Means of Egress

Section 7.1.3.2.1(1) - All new exits connecting three stories or less shall be 1-hour fire rated.
Section 7.2.1 - Doors shall comply with this section (including panic hardware and fire exit hardware, section 7.2.1.7).
Section 7.2.2 - All stairs shall comply with this section. Minimum new stair width for occupant load less than 50 is 36" clear with the exception of 4-1/2" projection total for handrails as per 7.2.2.2.1.2(a).
Table 7.3.1.2 - Occupant Load: see Egress Plans.
Mechanical spaces: 1 person per 300 square feet
Mercantile use (first floor, Main Block): 1 person per 30 square feet
Business use (first floor, Ell and second floor Main Block): 1 person per 100 square feet
General Industrial use: 1 person per 100 square feet
Section 7.4.1.1(1) - Single means of egress allowed as permitted in Chapter 37 Existing Business Occupancies 37.2.4.3 for a mezzanine within a Class C occupancy with a common path of travel less than 75 feet.

Chapter 8 - Features of Fire Protection

Table 8.2.1.2 - Construction Type shall be Type II (000)
Section 8.2.2.3 - Fire barriers shall be continuaous from outside wall to outside wall or from fire barrier to fire barrier, including continuity through all concealed spaces, such as those found above ceilings and other interstitial spaces.
Section 8.2.3.2 - Fire resistance rated floors shall be classified as unrestrained in accordance with NFPA 251, *Standard Methods of Tests of Fire Endurance of Building Construction and Materials*; ASTM E 119; or UL 263
Section 8.6.8.2 - The unenclosed vertical opening shall be permitted as per Chapter 38 as the stair connects only two adjacent stories. This unenclosed opening serves as the means of egress from the upper level Business Occupancy.
Section 8.6.9.3.1 - Mezzanines do not have to be open and unobstructed to level below if occupant load is less than 10 persons.

Chapter 37 - Existing Mercantile Occupancies

Section 37.1.4.2.1(3) - Occupancy shall be classified as Class C as mercantile occupancy is less than 3,000 sq ft and
Section 37.2.5.3.2 - Common path of travel shall not exceed 75 feet within a single tenant space having an occupant load not exceeding 30.
Section 37.2.6.2 - Travel distance to exit shall not exceed 150 feet.
Section 37.2.8 - Means of Egress shall be illuminated in accordance with Section 7.8.
Section 37.2.9 - Emergency Lighting shall be provided in accordance with Section 7.9.
Section 37.2.10 - Means of egress signage shall be provided in accordance with Section 7.10.

Chapter 39 - Existing Business Occupancies

Section 39.2.4.3. - A single exit shall be permitted for a room or area with a total occupant load of fewer than 100 persons when travel distance is less than 100 feet and stairs are less than 15 feet vertical.
Section 39.2.6.2 - Travel distance to exit shall not exceed 200 ft
Section 39.2.8 - Means of Egress shall be illuminated in accordance with Section 7.8.
Section 39.2.9 - Emergency Lighting shall be provided in accordance with Section 7.9.
Section 39.2.10 - Means of egress signage shall be provided in accordance with Section 7.10.

Chapter 40 - Industrial Occupancies

Section 40.1.4.1.1 - The Studio portion of the property shall be classified as General Industrial as it houses low hazard industrial operations.
Section 40.2.4.1.1 - Not less than two means of egress shall be provided for each floor level.
Table 40.2.5 - Dead end corridors shall not exceed 50 feet, and common path of travel shall not exceed 50 feet in unprotected buildings.
Table 40.2.6 - Maximum travel distance to exits shall not exceed 200 feet in unprotected buildings.
Section 40.2.8 - Means of Egress shall be illuminated in accordance with Section 7.8.
Section 40.2.9 - Emergency Lighting shall be provided in accordance with Section 7.9.
Section 40.2.10 - Means of egress signage shall be provided in accordance with Section 7.10.
Section 40.3.4.1 - A fire alarm system shall not be required as the total occupant load is under 100 persons.

Code Review - IEBC 2009

Chapter 3 - Prescriptive Compliance Method

Section 303.1 - Alterations must be no less conforming to IBC than existing. There will be no change of occupancy.
Section 303.3 - Structural upgrades shall comply with requirements for new construction.
Section 303.6 - Means of egress does not need to meet Section 1005.1 of the IBC. The components of the means of egress shall be considered complying in any alteration, if in the opinion of the *code official*, they do not constitute a distinct hazard to life.
Section 308.1 - The property is currently not recognized as historic. TTL Architects initiated a conversation with the Maine Historic Preservation Commission to determine if the property is eligible for Historic Rehabilitation Tax Credits. The project likely would qualify under an investigation of the history of laundries from the early 20th Century. This property is one of many owned by the Greeley family of Portland who operated laundries from the late 1880's through the 1950's. The current owner may not pursue designation or historic tax credits.
Section 310.4 - Any change of use would trigger accessibility upgrades. The owner plans to retain the existing occupancies.

Chapter 4 - Classification of Work

Section 401.3 - Occupancy and use as per IBC Chapter 3 shall be considered Group M Mercantile Group B Business and Group F1 Factory Moderate Hazard.
Section 404.1 - Alteration Level 2 - Rework doors and windows. Work area does not exceed 50% aggregate, therefore does not trigger Level 3. Level 2 needs to meet requirements of Chapters 6 and 7.

Chapter 6 - Alterations - Level 1

Section 603.1 - Fire Protection - Alterations shall be done in a manner that maintains the level of fire protection provided.
Section 604.1 - Means of Egress - Repairs shall be done in a manner that maintains the level of protection provided for the means of egress.
Section 605.1 - Accessibility - ADA upgrades shall be made where "technically feasible".
Section 605.1.10 - Accessible toilet room may be technically infeasible given the existing grading of the property and small building footprint.
Section 605.1.13 - Thresholds and building entries shall be ADA compliant interior thresholds are allowed to be 3/4" in height with bevelled edges.
Section 605.2.1 - Toilet rooms shall not be required to be on accessible route from primary function if cost of providing the route exceed 20 percent of the cost of the alternation affecting the area of primary function (Mercantile Occupancy portion of first floor).
Section 606.2 - Structural upgrades shall conform to the load requirements of the International Building Code.

Chapter 7 - Alterations - Level 2

Section 701.3 - New construction elements, components, systems and spaces shall comply with the requirements of the IBC with the exception of windows, electrical to meet Section 708, dead-end corridors to meet Section 705.6 and min. ceiling height shall be 7'-0".
Section 703.2.1 - Vertical openings, exception **5.1 -** In Business occupancies, vertical enclosure is not required if building is less than 3,000 sq ft.
Section 703.2.3 - Exception for stairway enclosure.
Section 704.2.2 - Automatic sprinkler system in Groups M, B and F1 - not required by exception 2, as the work area does not exceed 50%.
Section 704.4 - Fire alarm and detection systems shall be installed in accordance with NFPA 72.
Section 705.3.1.1 - Within the work area, a single exit is allowed for Mercantile occupancy if exit is at level of exit discharge and occupant load is less than 50 persons. Single exit is allowed for Business occupancy if not more than two stories, less than 3,500 sq ft and exit access travel distance is less than 75 feet. *This exception does call for exit enclosure to be 1 hour fire rated - (exception)?*
Section 705.4.2 - Doors do not have to swing in the direction of travel if the occupant load is less than 50 persons.
Section 705.4.4 - Do not need panic hardware because there is no assembly occupancy.
Section 705.8 - Exit signs are required within the work area as per the requirements of the IBC.
Section 707.2 - New structural elements shall meet the requirements of the IBC.
Section 708.1 - Electrical equipment and wiring in newly installed partitions and ceilings shall comply with all applicable requirements of NFPA 70.
Section 709.1 - All reconfigures spaces within the work area and intended for occupancy shall be provided with natural or mechanical ventilation in accordance with the *International Mechanical Code*.
Section 7.11.1 - Level 2 alterations to existing buildings are permitted without requiring the entire building comply with the *International Energy Conservation Code*. Those portions within the work area shall conform to the IECC.

2 C-1 UPPER LEVEL EGRESS PLAN
1/4" = 1'-0"

PARTITIONS BETWEEN MERCANTILE AND BUSINESS AND BETWEEN BUSINESS AND GENERAL INDUSTRIAL SHALL BE 2 HR FIRE RATED

UL DESIGN NO. U334 - BEARING WALL RATING 2 HR.

1. Wood Studs - Shall be nominal 2 by 4 in., spaced 16 in. OC. Studs cross braced at mid-height and effectively fire-stopped at top and bottom of wall.
2. Furring Channel - Resilient, 25 MSG gal steel, nom 2-1/2 in. wide spaced vertically max. 24 in. OC, flange portion attached to each intersecting stud with 1 in. long Type S steel screws.
3. Gypsum Board - Install two layers of 5/8 in. thick Type X GWB, 4 ft. wide each side of wall framing. Attached to furring channels at one side only; base layer with 1 i. long Type S steel screws spaced max 24 in. OC, face layer with 1-5/8 in. long Type S steel screws spaced max 12 in. OC. Attached to wood studs: base layer with 1-7/8 in. long 6d coated nails spaced max 14 in. OC, face layer with 2-3/8 in. long 8d coated nails spaced 7 in. OC. Base layers installed vertically. Face layers installed horizontally with butt joints offset 16 in. from base layers.
4. Batts - Infill wall cavity with No 2 in. thick mineral wool insulation, 96 in. long, cut to 15 in. widths, friction fitted between studs in wall cavity. Insulation shall bear UL Classification Mark.
5. Joint Tape and Compound - Vinyl, dry or premixed joint compound, applied to joints, screw head, and nail heads (two applications); paper tyape, 2 in. wide, embedded in first layer of compound over all joints.

1 C-1 FIRST FLOOR EGRESS PLAN
1/4" = 1'-0"

0' 5' 10' 25' 100'

PERMIT SET

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JOHN TURK No. 2059 REGISTERED ARCHITECT STATE OF MAINE

Rehabilitation of the Main Block and Ell at
131 Washington Avenue
Jonathan Edwards Lofts
Portland, Maine

Date: 2 October 2015
Scale: As Shown
Revisions: 23 Dec 2015

Title:
Egress Floor Plans

Sheet No: C-1

Date: 12/30/15