DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

This is to certify that Fox St Realty LLC **Located At** 109 FOX ST

Job ID: 2012-07-4559-CH OF USE **CBL:** 023- A-008-001

has permission to Change of use from Truck Repair to Distillery with Interior Renovations.
provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.	A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

09/12/2012

Fire Prevention Officer **Code Enforcement Officer / Plan Reviewer**

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

1. Close In Elec/Plmb/Frame prior to insulate or gypsum
2. Final Inspection/ Certificate of Occupancy

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

Job ID: 2012-07-4559-CH OF USE **Located At:** 109 FOX ST **CBL:** 023- A-008-001

Conditions of Approval:

Zoning

1. Separate permits shall be required for any new signage.
2. This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work. It is understood after hearing from the architect that there is no retail store in this building. The "store" front referred to on the drawings was generic describing the new entry way.

Fire

1. This permit is being approved on the basis of the plans submitted. Any deviation from the plans would require amendments and approval.
2. The occupancy shall comply with City Code Chapter 10 and the Fire Hazards Assessment dated July 18, 2012 authored by Mark Cummings FPE upon inspection.
3. Application may require State Fire Marshal approval.
4. Street addresses shall be marked on the structure and shall be as approved by the City E-911 Addressing Officer. Contact Michelle Sweeney at 874-8682 for further information.
5. Any Fire alarm or Sprinkler systems shall be reviewed by a licensed contractor(s) for code compliance. Compliance letters are required.
6. A separate Fire Alarm Permit is required. This review does not include approval of fire alarm system design or installation.
7. The fire alarm system shall comply with the City of Portland Fire Department Rules and Regulations. All fire alarm installation and servicing companies shall have a Certificate of Fitness from the Fire Department.
8. Fire Alarm system shall be maintained. If system is to be off line over 4 hours a fire watch shall be in place. Dispatch notification required 874-8576.
9. A separate Suppression System Permit is required for all new suppression systems or sprinkler work effecting more than 20 heads. This review does not include approval of sprinkler system design or installation.
10. Sprinkler supervision shall be provided in accordance with NFPA 101, Life Safety Code, and NFPA 72, National Fire Alarm and Signaling Code.
11. Sprinkler protection shall be maintained. Where the system is to be shut down for maintenance or repair, the system shall be checked at the end of each day to insure the system has been placed back in service.

12. The Fire Department will require Knox locking caps on all Fire Department Connections on the exterior of the building.
13. System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
14. A Knox Box is required.
15. Fire extinguishers are required per NFPA 1.

Building

1. Separate permits are required for any electrical: plumbing, sprinkler, fire alarm, HVAC systems, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.
2. Permit approved based on the plans submitted and reviewed w/owner/ contractor, with additional information as agreed on and as noted on attached email(s).
3. The project must comply with Section 603, of the IBC, 2009 (COMBUSTIBLE MATERIAL IN TYPE I AND II CONSTRUCTION).

Jonathan Rioux - Re: 101 Fox St.

From: Brian Stephens <brian@whittenarchitects.com>
To: "Jonathan Rioux" <JRIOUX@portlandmaine.gov>
Date: 9/14/2012 3:54 PM
Subject: Re: 101 Fox St.
CC: Luke Davidson <woodsmithluke@gmail.com>, Mark Cummings <wmark@fireriskmg...

Hi Jonathan,

I spoke with owner Luke Davidson and he was going to speak with Engineer Mark Cummings to make sure we were all on the same page with the construction type or if we could have a fire protection under the 2x6 floor deck of the mezzanine. I'll remind Luke and copy Mark to be sure to get a response to you ASAP.

Brian

Brian S. Stephens
Whitten Architects
37 Silver Street
Portland, Maine 04101

ph: 207.774.0111 x.103
e: brian@whittenarchitects.com

www.whittenarchitects.com

On Sep 14, 2012, at 3:46 PM, Jonathan Rioux wrote:

> Brian,
>
> I never received the info. i.e. Section 603, Combustible Materials in Type I & II Construction.
>
> Jonathan Rioux
> Code Enforcement Officer/ Plan Reviewer
>
> City of Portland
> Planning and Urban Development Department
> Inspection Services Division
> 389 Congress St. Rm 315
> Portland, ME 04101
> Office: 207.874.8702
> Support Staff: 207.874.8703
> jrioux@portlandmaine.gov
>
> >>> Jonathan Rioux 9/12/2012 10:57 AM >>>

Attached is an e-copy of your conditional building permit, JGR.

Jonathan Rioux
Code Enforcement Officer/ Plan Reviewer

City of Portland
Planning and Urban Development Department
Inspection Services Division
389 Congress St. Rm 315
Portland, ME 04101
Office: 207.874.8702
Support Staff: 207.874.8703
jrioux@portlandmaine.gov

City of Portland, Maine - Building or Use Permit Application
389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No:	Date Applied:	CBL:	
2012-07-4559-CH OF USE	**7/30/2012**	**023- A-008-001**	
Location of Construction: **101 FOX ST**	Owner Name: **FOX ST REALTY LLC**	Owner Address: **141 FOX STREET PORTLAND, ME 04101**	Phone:
Business Name: **Davidson & Farber LLC**	Contractor Name: **Nathaniel Davidson**	Contractor Address: **24 Marquis Road, Freeport, ME 04032**	Phone: **798-2528**
Lessee/Buyer's Name:	Phone:	Permit Type: **CHANGE OF USE**	Zone: **I-Lb**
Past Use: **Truck repair facility**	Proposed Use: **Change the Use to a Distillery with new mezzanine and stairs and new entry door to replace existing overhead door**	Cost of Work: **$15,000.00**	CEO District:
		Fire Dept: 9/4/12 1 Approved w/ conditions ___ Denied ___ N/A Signature: (58)	Inspection: Use Group: F-1 Type: IIB IBC 2009 (MUBEC) Signature:
Proposed Project Description: **Change of use from Truck Repair to Distillery**		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Lannie			

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building Permits do not include plumbing, septic or electrial work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
___ Shoreland	___ Variance	✓ Not in Dist or Landmark
___ Wetlands	___ Miscellaneous	___ Does not Require Review
___ Flood Zone	___ Conditional Use	___ Requires Review
___ Subdivision	___ Interpretation	___ Approved
___ Site Plan	___ Approved	___ Approved w/Conditions
___ Maj ___ Min ___ MM	___ Denied	___ Denied
Date: OK - with conditions 9/3/12	Date:	Date:

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

2012-07-4559

General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

I-Lib

Location/Address of Construction: 101 Fox Street		
Total Square Footage of Proposed Structure/Area	Square Footage of Lot 3200	
Tax Assessor's Chart, Block & Lot Chart# 23 Block# A Lot# 8	Applicant *must be owner, Lessee or Buyer* Name Davidson + Farber LLC Address 101 Fox St City, State & Zip Portland Me	Telephone: 798-2528
Lessee/DBA (If Applicable) Davidson + Farber LLC	Owner (if different from Applicant) Name Fox St. Realty LLC Address 141 Fox Street City, State & Zip Portland Me 04101	Cost Of Work: $ 15,000 C of O Fee: $ Total Fee: $

Current legal use (i.e. single family) Truck repair facility
If vacant, what was the previous use?
Proposed Specific use: Distillery
Is property part of a subdivision? _____ If yes, please name _____
Project description: interior work to install equipment for a distillery

Contractor's name: Nathaniel Davidson
Address: 24 Marquis Rd
City, State & Zip Freeport Me 798-2528 Telephone:
Who should we contact when the permit is ready: Luke Davidson 798-2528 Telephone:
Mailing address: 24 Marquis Rd Freeport

Please submit all of the information outlined on the applicable Checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at www.portlandmaine.gov, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

RECEIVED JUL 30 2012 Dept. of Building Inspections City of Portland Maine

Signature: [signature] Date: July 30, 2012

This is not a permit; you may not commence ANY work until the permit is issue

Jonathan Rioux - 101 Fox St

From: Jonathan Rioux
To: brian@whittenarchitects.com
Date: 8/31/2012 3:32 PM
Subject: 101 Fox St
CC: Munson, Tammy; Pirone, Chris; Wallace, Benjamin

Job #: 2012-07-4559-CH OF USE

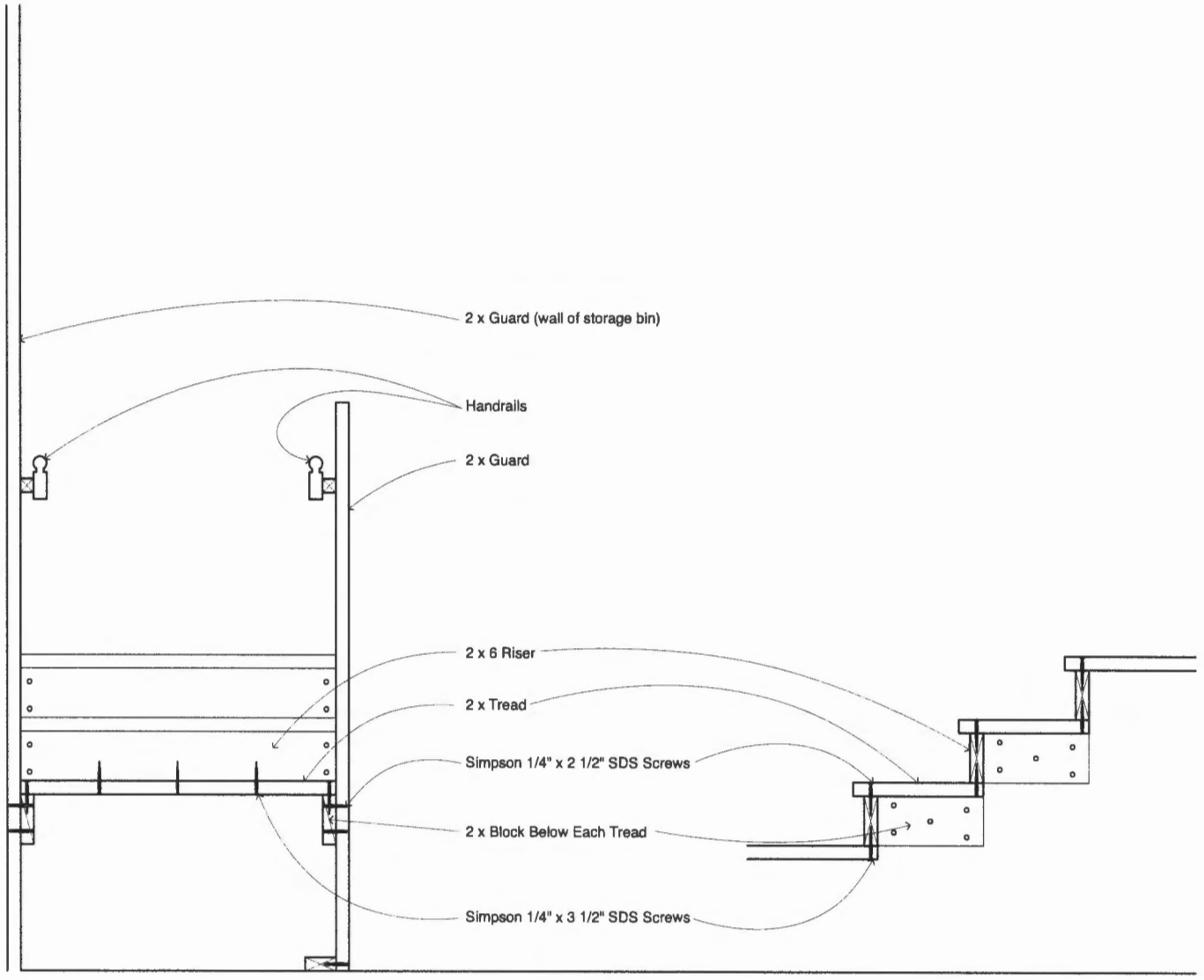
Brian,

Can you provide a response, see below:

- Can you provide a cross-section/ specs. for the new stairwell to the mezzanine?
- Handrails and guards shall be designed in compliance with 1607.7.1?
- Floor joist & Beam(s) type/ max spans and floor loads 1603.1.1?
- Footings, or is the existing concrete adequate?
- Is the mezzanine 230 of 3200 square feet, and what is under the mezzanine (sprinkled underneath)?

Jonathan Rioux
Code Enforcement Officer/ Plan Reviewer

City of Portland
Planning and Urban Development Department
Inspection Services Division
389 Congress St. Rm 315
Portland, ME 04101
Office: 207.874.8702
Support Staff: 207.874.8703
jrioux@portlandmaine.gov



STAIR SECTIONS

SCALE: 1" = 1'-0"

Project:

DAVIDSON & FARBER DISTILLERIES

101 FOX STREET
PORTLAND, MAINE

Architect:

Whitten Architects
37 Silver Street
Portland, Maine 04101

(207) 774-0111 x-103
brian@whittenarchitects.com

Drawing:

Details

Scale:

Date:

31 August 2012

Revisions:

Sheet:

A-400

Jonathan Rioux - Re: 101 Fox St

From: Brian Stephens <brian@whittenarchitects.com>
To: "Jonathan Rioux" <JRIOUX@portlandmaine.gov>
Date: 9/12/2012 10:34 AM
Subject: Re: 101 Fox St
CC: Chris Pirone <CPP@portlandmaine.gov>, Tammy Munson <TMM@portlandmaine.go...

Jonathan,

Please see my responses to your questions in RED below. Please get in touch with any additional questions.

Thanks, Brian

Brian S. Stephens
Whitten Architects
37 Silver Street
Portland, Maine 04101

ph: 207.774.0111 x.103
e: brian@whittenarchitects.com

www.whittenarchitects.com

On Aug 31, 2012, at 3:32 PM, Jonathan Rioux wrote:

> Job #: 2012-07-4559-CH OF USE
>
> Brian,
>
> Can you provide a response, see below:
>
> - Can you provide a cross-section/ specs. for the new stairwell to the mezzanine?

See attached sketch:

> - Handrails and guards shall be designed in compliance with 1607.7.1?

Yes (with area not accessible to general public with occupant load under 50).

> - Floor joist & Beam(s) type/ max spans and floor loads 1603.1.1?

3" x 8" hemlock beams at 24" o.c. with a span of 10'-6". 75psf uniform live load.

FIRE RISK MANAGEMENT, INC
1 Front St., Bath, ME 04530
207/442-7200 [-7272 (fax)]
FRM@fireriskmgt.com

Date: 18 July, 2012

Memo Report

From: W. Mark Cummings, P.E.

To: Mr. Luke Davidson; Davidson & Farber Distilleries

CC: Capt. Chris Pirone; Fire Prevention Division, Portland Fire Department

Subject: **Fire Hazards Assessment of the Davidson & Farber Distilling Site at 101 Fox St., Portland, ME.**

A review of the proposed installation/construction for a new distilling operation was performed on 28 June, 2012. The distillery is to be located within the end unit (north end) of a multi-unit industrial building; at 101 Fox St. in Portland, ME. The purpose of this review was to evaluate the proposed operations, materials, and equipment to be used in support of the distillation process and to ascertain potential fire/explosion and life safety hazards that may be present. The end result for this assessment is to develop recommendations to mitigate any potential fire and life safety hazards identified.

Background

The proposed distillery is intended to occupy the end unit (bay) (≈ 3200 ft^2) of an existing industrial building; which is currently divided into multiple, separate tenant spaces, separated by masonry (CMU) walls. The stated plan for this distillery is to produce quantities of a number of alcoholic beverages (spirits). To produce these various beverages, small stills are being installed in the space, which will be used to produce the various liquids; a variety of alcoholic beverages with alcoholic contents ranging from 40% to 60% by volume. It should be noted that the "wash" still will not be producing any flammable/combustible liquids.

Resulting from discussions with one of the owners, Mr. Luke Davidson, it was ascertained that a portion of the space will be used to store some of the finished products (whiskey & Rum) in wooden (oak) barrels as part of the overall aging process for these beverages. An exact quantity that is likely to be stored in this facility at any one time is not specifically known at this time. It is intended that those products that will not require aging may be temporarily stored in stainless steel drums (approx. 55 gal.) prior to being transferred into glass (750 ml) containers, which will ultimately be stored within cardboard cases until shipped from the facility. Once transferred to the smaller glass containers, the product will only be stored on site for relatively short periods of time prior to being shipped to clients. As such, this product will likely represent a small(er) percentage of the total product being stored on site. It is estimated that the quantity of this product would not exceed that which would be contained on more than four (4) shipping pallets; 1080 liters (285 gal) at any one point in time. Due to the aging process associated with the whiskey and rum products, these will be initially stored within wooden barrels. Based on the planned production schedule for these beverages, it is estimated that the maximum quantity of whiskey that may be stored on site could be upwards of 2000 gallons. However, it is anticipated that these maximum quantities would not be achieved until after a number of years of operation. Prior to leaving the distillery, both the whiskey and rum products will be transferred from the wood barrels to glass containers that will be placed in cardboard cases and installed on pallets in preparation for shipment.

Based on the parameters outlined in the International Building Code (IBC), the occupancy classification that best "fits" this distillery operation would be that of a "Factory Industrial, F-1, Moderate-hazard" occupancy. The building in which the distilling operations are to take place is constructed of masonry (CMU) exterior walls

that support large (exposed) steel beams that, in turn, support the steel roof joists. As such, this building would be classified as having Type IIB construction, as defined by the IBC. The space that will be used to house the distilling operations consists of approximately 3200 ft^2 of high bay area; with a ceiling height of approximately 17 ft, from the concrete floor to the underside of the insulating panels that are installed between the metal roof joists. Within this space, a small wood enclosure has been constructed that is to be used as the "Malt Drying Room." This structure is approximately 7.5 ft in height and has an open mezzanine area above that is being used primarily as an office area. Attachment 1 to this report provides a basic layout for the proposed distillery. As depicted in Attachment 1, the planned location for the "spirit" still, which will be producing the flammable liquids, is to be generally in the center of the space.

This space currently has no mechanical ventilation installed; other than two unit heaters (w/fans) that are installed near the ceiling of the space. Access and egress to the overall space is currently available through two personnel doors, one in the north exterior wall, near the east corner of the building, and one in the west exterior wall, near the northwest corner of the space; adjacent to the bathroom. Currently, two overhead doors occupy the majority of the east exterior wall. The northern-most roll-up door is to be removed and replaced with a new wood façade that will also include a single personnel door that will become the main access door for this space. Two additional personnel doors are currently installed at the western end of this space that provide access to the adjacent unit. However, these doors are locked and cannot not be used for egress.

The Federal Government has a requirement that all access doors to the space(s) where the beverages are being produced/stored must have a padlock installed. Such a configuration conflicts with the egress requirements of the Life Safety Code®, NFPA 101, which is adopted in the State of Maine. The owner has indicated that at any time when the facility is occupied the padlocks will be removed from all doors that are needed to maintain adequate egress from the facility. In this instance, it will need to include the doors installed in each of the east (new door) and west walls of the space. Currently, the space (and building) is provided with an installed dry-pipe fire sprinkler system, but no fire detection/alarm system exists; other than the water flow alarm (exterior electric bell) for the sprinkler system.

Fire / Explosion Hazards

In general, all the individual, constituent materials used to support the distillation and packaging processes do not represent significant fire hazards. The primary fire fuel loading that will be present in this space will be the newly constructed wood structure(s), empty wood barrels, and any cardboard cases that will ultimately be used in storing the finished products. Additionally, the building is supplied with natural gas, which will be used as the fuel to supply the burners for the stills. A new steel gas pipe line is to be installed into the space from the existing location of the gas meters, which is immediately adjacent to the north exterior wall of the space/building. The heating elements (burners) for the stills may not be fully enclosed and as such, their flames may be exposed to the surrounding environment.

The final stage of the distillation process is that which represents the greatest potential for a fire/explosion hazard; when the liquid has been distilled to the point that the alcohol content is increased to the point that the beverage becomes a "flammable liquid" and the ethanol and/or methanol (vapor) that is being produced by the distillation (boiling) process could result in the development of flammable vapor/air mixture that is within its lower flammability limit (LFL). The design of the stills that are being used by Davidson & Farber Distilleries are relatively basic and are not designed to operate under any significant pressure. At ambient atmospheric pressure, methanol and ethanol will boil at just over 64°C (147°F) and 78°C (172°F), respectively. Should the boiling rate within the still increase beyond that which is desired, pressure/vacuum relief devices are installed that will lift, thereby relieving any excessive pressure; albeit also releasing the ethanol or methanol vapor as well. These vapors are heavier than air and would ultimately migrate toward floor level. With an auto-ignition temperatures in excess of approximately 400°C (≈750°F), it is unlikely that the surface temperatures of the still will ever approach the point that it might be expected that contact by any of the flammable vapor/air mixtures with the still's hot surfaces could result in fire initiation. However, it is still this potential scenario, coupled with

the open flame below the still, which represents the greatest risk for a fire/explosion hazard associated with the actual distillation process being used by this distillery.

Due to the alcoholic content, 40% to 60% by volume, of the final product (liquid) being produced by the distillation process, it will primarily be classified as being a Class IC flammable liquid, as defined by NFPA 30, the *Flammable and Combustible Liquids Code*. This classification stems from the fact that beverages with alcoholic contents in the range specified above will have flash points between 22.8°C and 37.8°C (73°F and 100°F). Another potential fire hazard that will be associated with the distillery's operation is that of a potential spill of the flammable liquids, such that they, and any vapor that might then be produced, could then be exposed to a potential ignition source. It is reported[1] that the evaporation rate for ethanol at "standard" ambient temperatures of approximately 25°C (77°F) is relatively low, such that even the presence of natural ventilation should be sufficient to prevent the development of an ethanol vapor cloud that would be exceed its lower flammability limit. However, if a spill was of significant volume (quantity) or if the area where a spill occurred was subject to "stagnant" air, the potential still exists that the LFL could be achieved. It is beyond the scope of this evaluation to attempt to determine a specific spill volume(s) that could result in such an occurrence.

The presence of other stored materials, such as the wood structures, cardboard for the shipping cases, and the empty wood barrels, will also cause an increase in the overall fire fuel loading (fire potential) within this space. Given that the wood (oak) barrels have a relatively high ignition energy requirement, these represent a very low potential as being an "initial" fire source. Equally, the wood structure for the Malt Drying Room is mostly of heavy timber construction and would not be readily ignitable with a low energy source. The cardboard is much more readily "ignitable", but must still have another ignition source to result in fire initiation. Although not directly involved in the distillation process, the operations and materials associated with the office area also represent a potential source of fire initiation. However, this risk is no greater than any other typical office location.

The overall evaluation of the Davidson & Farber facility included an assessment of past research of available historical data involving fires and explosions associated with distilleries in general. Based onthat research, it is apparent that, in general, fires resulting from the distillation processes themselves are extremely rare. Most of the historical data indicates that the greatest risk of fires involving distilled beverages is primarily that resulting when these beverages are exposed to the effects of fires that originated from other sources not directly involving the distillation process. When these (flammable) liquids are exposed to the thermal insult from an adjacent fire, they will begin to rapidly evaporate, potentially producing significant volumes of a flammable vapor. Equally, an adjacent fire can result in the failure of the packaging of the stored liquids, thus resulting in spillage and a significant increase in fire intensity and if sufficient flammable vapors are produced; an explosion.

Review and Assessment of Code & Standards Requirements

Existing national building (IBC) and fire (NFPA) codes do not readily apply to the type and scope of distillery operations that are being proposed by Davidson & Farber Distilleries. Since the use of this space continues to fall within the "industrial" category of the existing building and no significant modifications are being made to this facility, the requirements of the International Building and Fire Codes (IBC & IFC) or the Maine Uniform Building & Energy Code (MUBEC) don't specifically apply to this situation; albeit the IBC & IFC (2009 ed.) were used as references in developing recommendations for this project, based on the requirements that would typically apply for new construction. Other codes that the State of Maine has adopted that are applicable to this project and that were used in the code evaluation for fire and life safety include the latest editions of the National Fire Protection Association's codes; NFPA 30 – *Flammable and Combustible Liquids Code*, NFPA 54 – the *National Fuel Gas Code*, and NFPA 101 – *Life Safety Code*®. Additionally, the applicable Factory Mutual (FM) Global Property Loss Prevention Data Sheet, 7-74 – Distilleries, was reviewed and used

[1] *Potential Explosion Hazards due to Evaporating Ethanol in Whiskey Distilleries*, HSL/2003/08, H.S. Ledin, Health & Safety Laboratory, Buxton, England.

as a source of information and reference, since much of the fire protection information provided in these sheets is based on historical data specific to that industry.

A primary focus for the review of both the IBC/IFC and NFPA 30 was to ascertain if there would be any limits on the amounts of flammable liquids (Class IC) that could be present / stored within the Distillery's space. The published limits on the amounts of flammable liquids that can be stored within a facility such as this, listed in both of these codes, were specifically exempted for alcoholic beverages that are contained in wood barrels and/or individual containers that do not exceed 1.3 gallons (5 liters); refer to para. 9.1.4 of NFPA 30 and para. 3401.2 of the IFC. One of the facility's owners has indicated that the spirits (flammable liquid) produced at this distillery will primarily be stored in the wooden barrels until ready for transfer to the individual 750 ml (0.2 gal) bottles that will be used for shipping. However, it was also indicated that the potential exists for some of the liquid (gin) to be temporarily stored in a stainless steel "drums"; having a capacity of approximately 55 gallons. The codes do not specifically address distilled spirits that are to be temporarily stored within the stainless steel (metal) tanks. As such, if only the requirements for storage of a Class IC flammable liquid are imposed, this would limit the maximum quantity stored, ostensibly in these tanks, to 240 gallons. The owner has indicated that it is not anticipated that any more than four (4) of the stainless steel tanks (220 gallon capacity) would ever be used for this temporary storage. The manner in which the codes are written would indicate that this is to be the maximum quantity allowed within this (control) area. However, given the fact that the product stored in the wooden barrels and glass bottles is not limited, this simply does not make practical sense for this situation. Equally, it appears that when storing the flammable liquids in a sprinklered facility, the codes would allow maximum quantities that far exceed that which is anticipated to be stored at any one time in this facility.

Other than the potential limitation on any product stored in the steel tanks, no other specific code limitations exist for the amounts that can be stored on site; such that no code restrictions exist that would specifically limit the total expected maximum quantities of the products (spirits) that are stored within either the barrels or small glass bottles. Also resulting from the exemptions provided for these products, no specific fire protection code requirements exist with regards to the "storage" of these liquids. NFPA 30 does, however, have specific requirements for "processing facilities" and those that "dispense, handle, transfer, or use" these liquids. The requirements that do apply to these distilling operations are primarily to provide a fire detection/notification system and a ventilation system that is designed to prevent the accumulation of flammable vapors; refer to chapters 17 and 18 of NFPA 30.

Without specifically performing calculations to ascertain a specific ventilation rate that will prevent the accumulation of flammable vapors, within 25% of the LFL, the code requires that a minimum ventilation rate of 1 cfm/ft^2 be provided. Given the approximate "foot print" of the area where the distilling operations are to be performed, this would require that a ventilation system that can provide approximately 3200 cfm be installed. Furthermore, the inlet and exhausts for this system must be located within 12 inches of the floor and should be installed on opposite sides/ends of the room, such that the air movement will "sweep" vapors from all areas of the space. The ventilation system should be installed such flow of air movement be such such that any vapors created by during "transfer operations" be moved away from the area(s) where the stills are located.

Chapter 17 of NFPA 30 also has separation requirements between a "processing" facility and any other facilities that could represent exposure hazards. Unfortunately, the requirements of this chapter do not adequately accommodate the Davidson & Farber Distilleries situation; whereby these operations occupy only a portion of a multi-tenant building. However, given the specifics associated with the planned distilling operation, coupled with the separation requirements outlined in Table 17.4.3 for the "process vessel", it would be necessary to keep the still at least 5 ft from any adjacent property line or building. If the walls that separate this unit from the others and the exterior are to be considered as the "property line", an argument can be made that the still should be located at least 5 ft from any wall within this facility. However, based on the specifics of the still configuration and the amounts of liquid involved, providing the 5-foot separation is not considered essential to maintaining a "fire safe" environment. The maintenance of this minimal separation distance between the still and any of the surrounding walls is unlikely to provide any notable benefits, either to property

protection or life safety that would warrant this being a mandated requirement for this operation. However, it is recommended that such a separation exist between the stills and any of the wood structures within the space.

As outlined above, many of the requirements in NFPA 30 do not apply to distilled spirits. Although in finished form these liquids are classified as flammable, they would not be considered a "hazardous" material. NFPA 30 does include some requirements with regards to containing and/or controlling spillage from storage containers. The plan for the Davidson & Farber Distilleries facility includes some storage of the finished product, both in small containers and in the larger wooden barrels and steel drums. The code specifically exempts any need for containment systems for the products stored in the small containers ($\leq$ 5 liters). However, the need to provide containment where the steel drums are to be stored is less clear. Currently, the facility is provided with a floor drain that is located in the vicinity of the planned storage areas for the barrels and drums. Should a spill occur that results in some of the product entering the municipal sewer system, it is likely that it would quickly be diluted below its flammable range, including the alcohol evaporating. Equally, there are no potential ignition sources within the immediate vicinity of the location where the product is to be stored; such that should a spill occur, there is no immediate danger of the product being ignited. With the possible exception of the filling process, which is being done manually and represents a very low risk of any significant spillage, the wood barrels and steel drums do not present a high risk of spillage or being accidently ruptured. Once filled, the wood barrels are not involved in any other process until such time has passed that the contents are ready to be transferred into the smaller containers for distribution/sale, which will also be a manual process. Any time the products are being transferred to/from the different containers, which represents the highest risk for leakage/spillage, personnel will be present and can quickly take actions to mitigate any spill that might occur. For these reasons, along with the lack of any specific code applicability regarding distilled spirits, it is not considered necessary that any "containment" system be included for the proposed storage location within this facility.

In general, all pertinent requirements associated with the Life Safety Code® (NFPA 101) are currently being met at the Davidson & Farber Distilleries space. Due to Federal regulations, it will be necessary to install padlocks on all doors that provide access to the area where the distilled liquids are to be stored. In general, NFPA 101 does not allow locks involving the need for keys to be installed on doors required for egress, but para. 7.2.1.5.4.1 does provide an allowance for this, along with other specific measures that must also be implemented, including the installation of a sign that indicates the door shall not be locked when the building is occupied.

Summary and Recommendations:

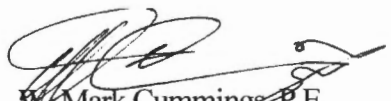
The research associated with this fire hazard assessment indicates that, in general, fires resulting directly from distillery operations are rare. However, should a fire occur that ultimately exposes/involves the distilled products (flammable liquids), the results could be catastrophic. Based on this assessment and the historical data reviewed, it is likely that the office area or the other systems within the Davidson & Farber Distilleries facility likely represent a greater risk of fire than does the actual distilling operations. This is based on the fact that the distilling operations will only occur while the facility is manned, such that any problem that might occur during these operations should be immediately identified and corrective measures implemented. However, this is not meant to imply that the operation of this distillery is not without inherent fire risks.

The facility is currently protected throughout by a dry-pipe fire sprinkler system. With the addition of the installed Malt Drying Room, the existing sprinkler system is to be extended to provide coverage within this new area. Additionally, portable fire extinguishers are provided; one installed by each of the two (current) access doors with a third that is present, but has yet to be permanently mounted. Although each appears to be in proper working order, the inspection on these extinguishers is out of date and should be rectified. In general, the fire protection and life safety systems/features of this facility appear to be more than adequate to support its new use as a small distillery.

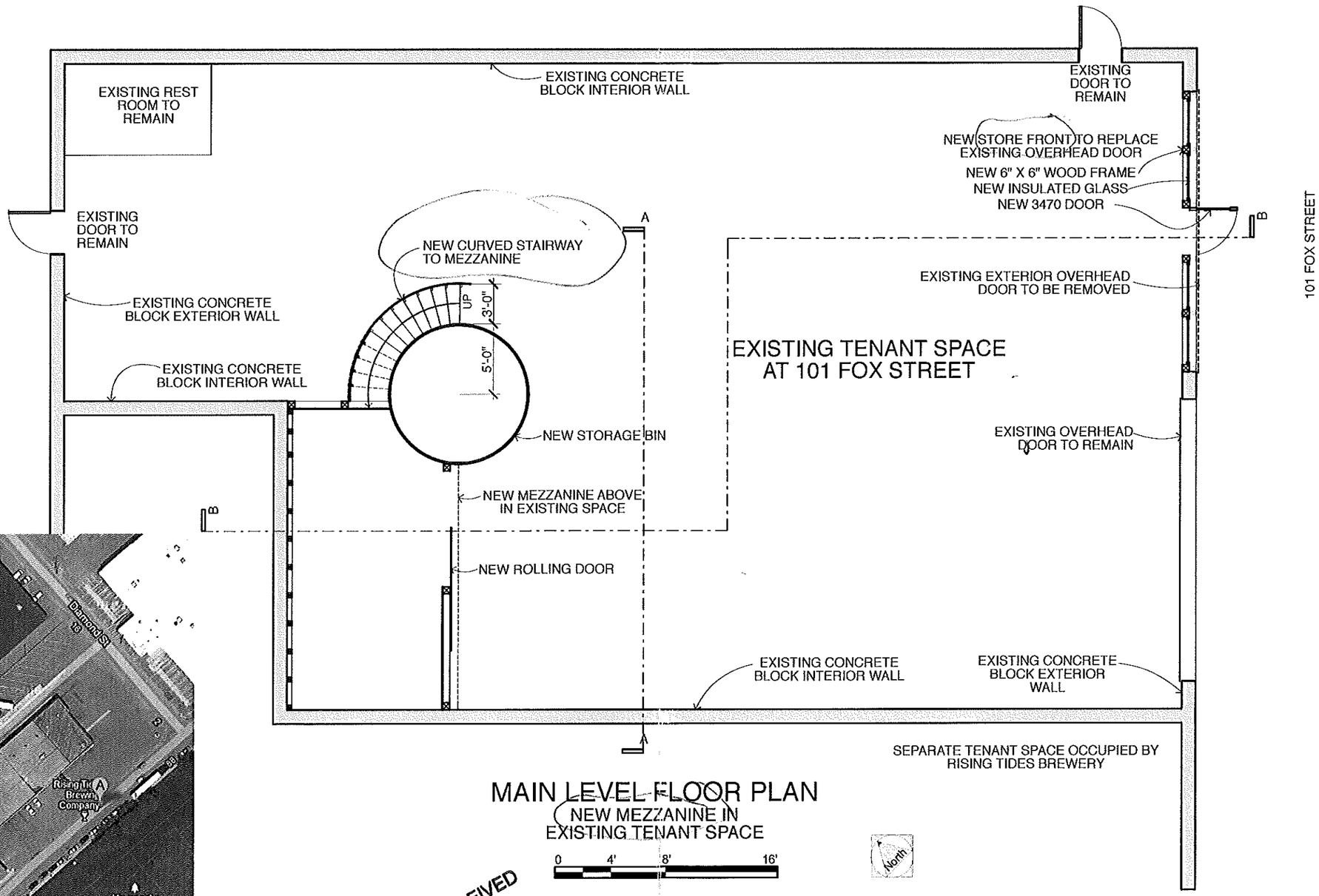
Based on the results of this assessment, including the site inspection, the following recommendations are provided:

1. Provide an installed fire detection/notification system. Based on the requirements within NFPA 30 for "processing facilities", this system is needed to provide early warning to occupants of the building, not just Davidson & Farber employees. Although a case can be made that the installed sprinkler system with its associated flow alarm constitutes a fire alarm system, a separate detection/notification system is recommended. Since a security system is already scheduled to be installed, the fire detection/notification feature could easily be included with this system and be monitored by the same entity. Given that the greatest risk to both the building and responding firefighters will be a fire occurring when the facility is not occupied, coupled with the storage of flammable liquids on site, early notification will significantly improve the fire safety of this facility. [*code requirement*]
2. Provide a means for emergency disconnect (closure) of the natural gas fuel supply system. It is recommended that the ability to remotely shut off the fuel supply to the still's heating element be provided to ensure that if a problem occurs with the still's operation, access to shut off the fuel supply will be readily accessible. The inclusion of a remote manual shutoff for the fuel gas supply, located such that it is readily accessible and preferably within the egress path to an exit, is recommended. Although the code (NFPA 54) does include a requirement [*code requirement*] for such a shut off device, it does not specifically mandate the type or location.
3. Provide a mechanical ventilation system. [*code requirement*] This system is needed to ensure no accumulation of potentially flammable vapors can occur, which could then present a fire risk; especially in the vicinity of electrical systems/components. Since the vapors will be heavier than air and would accumulate near the floor, the inlet and exhaust for the ventilation system must be within 12 inches of the floor. Absent of any specific calculations to determine the minimum ventilation rate required for the specific configuration used at the New England Distilling facility, it is recommended that a ventilation rate of at least3200 cfm be provided. The system should be arranged such that it facilitates the movement of air "away" from the proposed location for the stills (open flame). As such, this should also be in the direction (from the stills) of the location where the product transfer is to occur, such that any vapors produced during this operation will not migrate toward the stills.
4. Given the configuration of the still's heating element that involves an open flame, it is recommended that no combustible materials be located any closer than 5 feet from the stills. Any "stored" combustible materials should be kept a minimum of 10 feet from the stills.
5. Ensure that the sprinkler system is extended to provide coverage of the new Malt Drying Room prior to commencing full operation of the facility.
6. Contact the building owner to ensure that all fire extinguishers are maintained and inspected as required by NFPA 10.

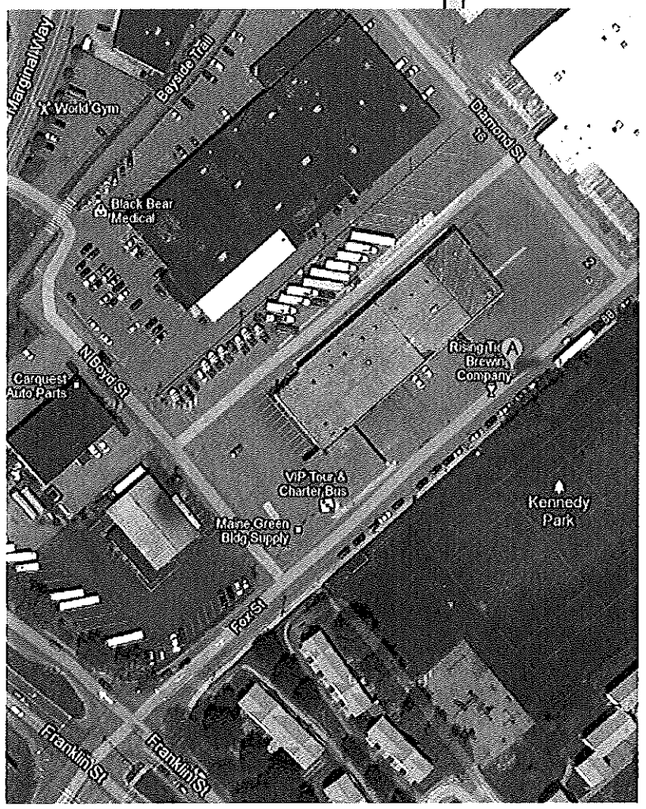
Should there be any questions regarding this assessment and the recommendations contained herein, please do not hesitate to contact me.



W. Mark Cummings, P.E.



MAIN LEVEL FLOOR PLAN
NEW MEZZANINE IN EXISTING TENANT SPACE



LOCATION MAP OF EXISTING BUILDING
(TENANT SPACE SHOWN IN RED BOX)

RECEIVED
JUL 30 2012
Dept. of Building Inspections
City of Portland Maine

Project:

DAVIDSON & FARBER DISTILLERIES

101 FOX STREET
PORTLAND, MAINE

Architect:

Whitten Architects
37 Silver Street
Portland, Maine 04101

(207) 774-0111 x-103
brian@whittenarchitects.com

Drawing:

Main Level Plan

Scale:

1/8" = 1'-0", 1:2.64

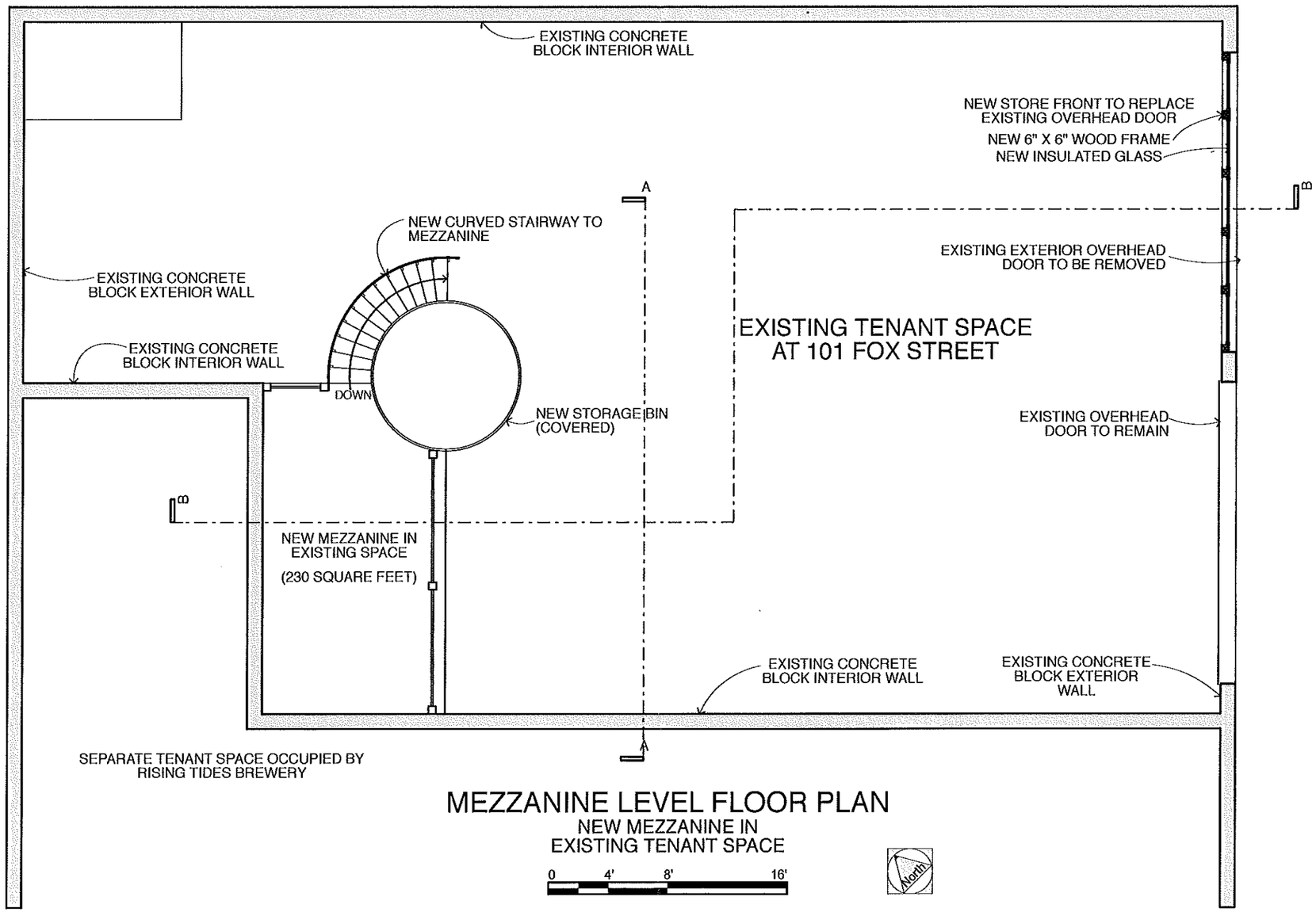
Date:

27 JULY 2012

Revisions:

Sheet:

A-100



MEZZANINE LEVEL FLOOR PLAN

NEW MEZZANINE IN
EXISTING TENANT SPACE

Project:

DAVIDSON & FARBER
DISTILLERIES

101 FOX STREET
PORTLAND, MAINE

Architect:

Whitten Architects
37 Silver Street
Portland, Maine 04101

(207) 774-0111 x-103
brian@whittenarchitects.com

Drawing:

Mezzanine Level Plan

Scale:

1/8" = 1'-0"

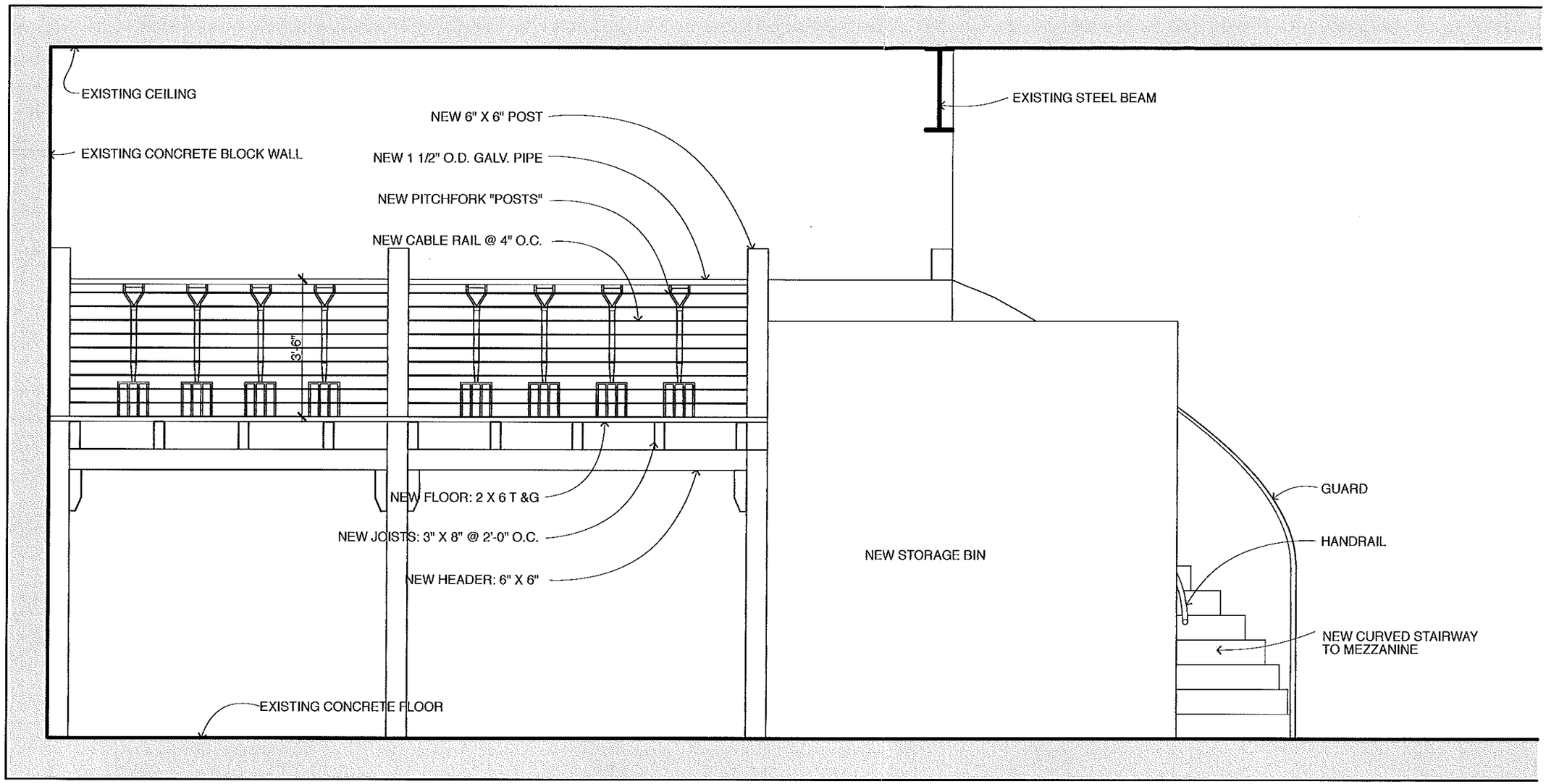
Date:

27 JULY 2012

Revisions:

Sheet:

A-101



SECTION A-A
AT NEW MEZZANINE IN EXISTING TENANT SPACE

0 2' 4' 6'

Project:

DAVIDSON & FARBER DISTILLERIES

101 FOX STREET
PORTLAND, MAINE

Architect:

Whitten Architects
37 Silver Street
Portland, Maine 04101

(207) 774-0111 x-103
brian@whittenarchitects.com

Drawing:

Section A-A

Scale:

3/8" = 1'-0"

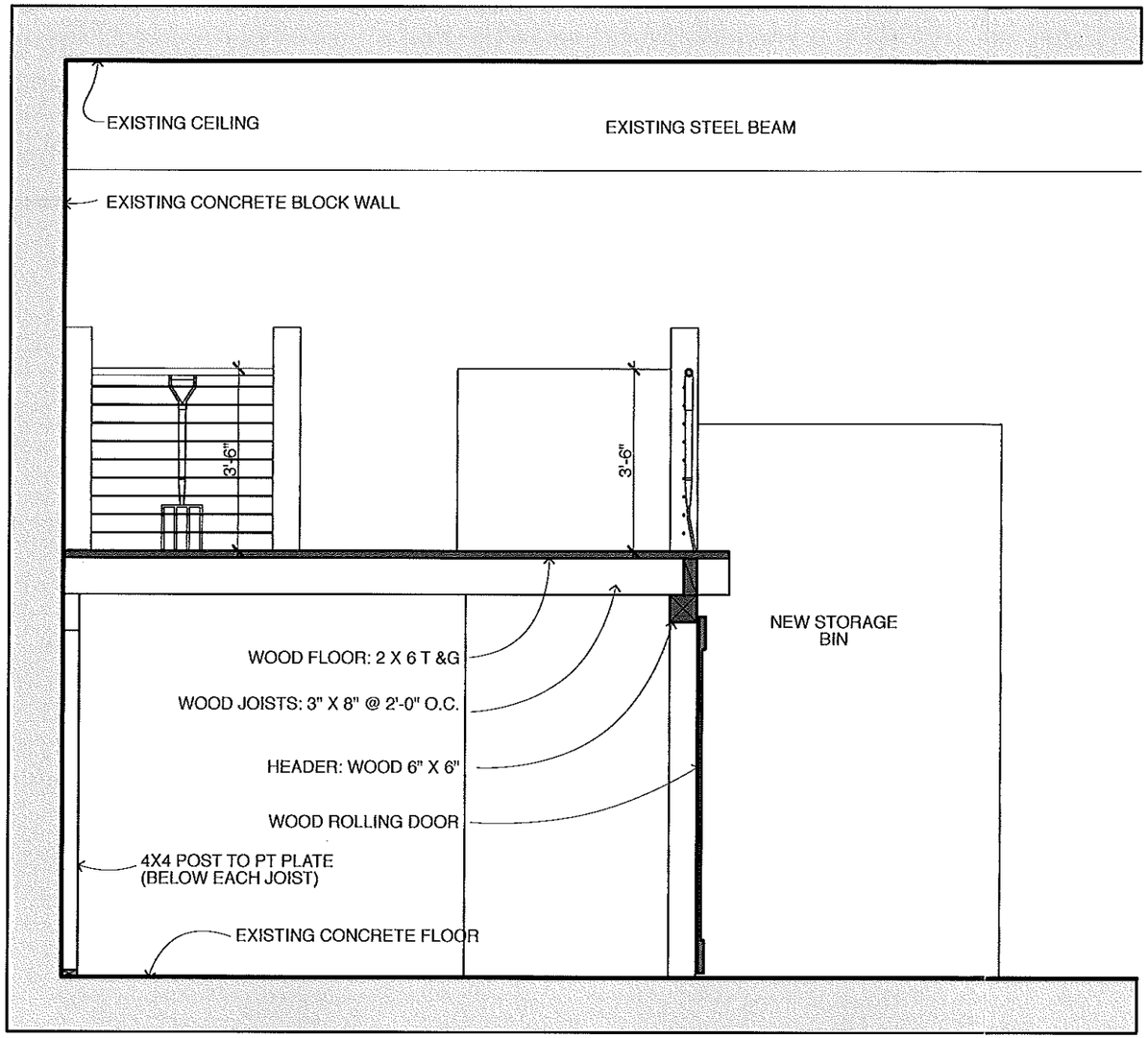
Date:

27 JULY 2012

Revisions:

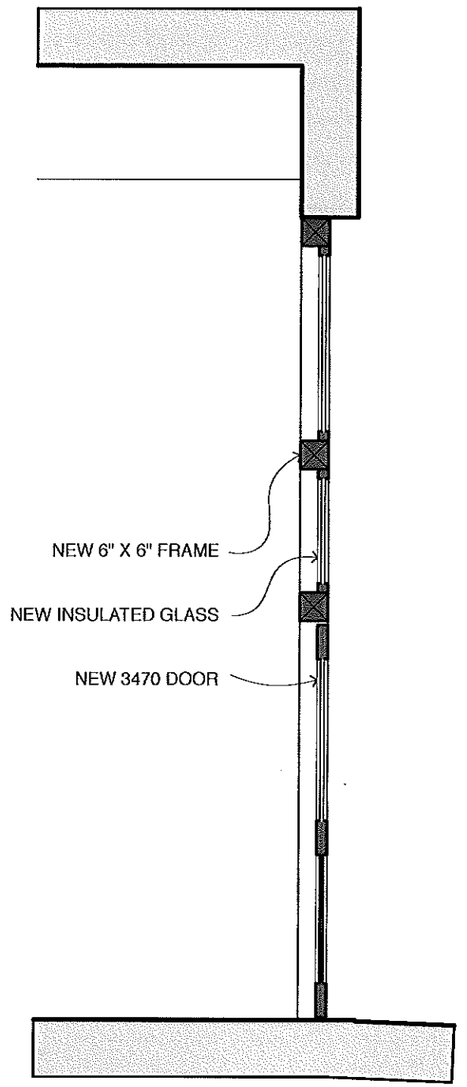
Sheet:

A-300



SECTION B-B
AT NEW MEZZANINE IN
EXISTING TENANT SPACE

0 2' 4' 6'



SECTION B-B
AT NEW STORE FRONT GLAZING
(TO REPLACE EXISTING
OVERHEAD DOOR)

0 2' 4' 6'

Project:

DAVIDSON & FARBER
DISTILLERIES

101 FOX STREET
PORTLAND, MAINE

Architect:

Whitten Architects
37 Silver Street
Portland, Maine 04101

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Drawing:

Section B-B

Scale:

3/8" = 1'-0"

Date:

27 JULY 2012

Revisions:

Sheet:

A-301