Development Services

From Concept to Construction

Phone: 503-823-7300 Email: bds@portlandoregon.gov 1900 SW 4th Ave, Portland, OR 97201
More Contact Info (http://www.portlandoregon.gov//bds/article/519984)

APPEAL SUMMARY

Status: Decision Rendered - Held over from ID 23429 (2/5/20) for additional information

Appeal ID: 23511	**Project Address:** 2400 NE Broadway St
Hearing Date: 2/26/20	**Appellant Name:** Joshua Klyber
Case No.: B-018	**Appellant Phone:** 5032091458
Appeal Type: Building	**Plans Examiner/Inspector:** Chanel Horn
Project Type: commercial	**Stories:** 1 **Occupancy:** A-2, F-2 **Construction Type:** V-B
Building/Business Name: Broadway Brewery	**Fire Sprinklers:** Yes - Throughout
Appeal Involves: Alteration of an existing structure,Reconsideration of appeal	**LUR or Permit Application No.:** 19-248077-LU
Plan Submitted Option: pdf [File 1] [File 2] [File 3] [File 4] [File 5] [File 6]	**Proposed use:** Brewery

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	OSSC Section 1011.15
Requires	Ship's ladders are permitted to be used in Group I-3 as a component of a means of egress to and from control rooms or elevated facility observation stations not more than 250 square feet with not more than three occupants and for access to unoccupied roofs. The minimum clear width at and below the handrails shall be 20 inches.
Code Modification or Alternate Requested	To allow the use of a ship's ladder as a convenience access within an F-2 occupancy.
Proposed Design	---------- Additional Information The design proposes using a ship's ladder as a convenience for personnel to access brewery tanks for monitoring and maintenance. This proposal would meet the prescriptive requirements of OSSC 1011.15 except that it is not installed in an I-3 occupancy. The required means of egress for the brewery area is provided via a 36" wide access aisle leading to a door that exits directly to the exterior. Access to the brewery area is provided by the same route. Use of the ship's ladder will be restricted by keypad lock, limiting access to brewery personnel only. The ship's ladder will be marked with signage stating that it is not an exit. The owner will ensure compliance with OSHA section 1910.25(e) regarding ship stairs, as well as provide any OSHA required fall protection and training per OSHA section 1910. The ship's ladder will exceed minimum design standards for permanent ladders as described in

OMSC section 306.5 and meet the requirements for ship's ladders as described in OSSC 1011.15. The ladder will be fabricated of steel with tread depth of 6-1/2 inches and riser height of 8-1/2". The tread will be projected such that the total of the tread depth plus the nosing projection is no less than 8-1/2 inches.

Handrails will be provided on both sides of ship's ladders. The minimum clear width at and below the handrails will be 20 inches. Steel mesh will be provided below the ship ladder such that a 4" diameter sphere cannot pass through between open treads. The ladder will be 2' 6" wide.

Original Text

The design proposes using a ship's ladder as a convenience for personnel to access brewery tanks for monitoring and maintenance. This proposal would meet the intent of the code for permanent ladders per OSSC 1011.16 while exceeding the design requirements for permanent ladders by utilizing a ship's ladder configuration. The required means of egress for the brewery area is provided via a 36" wide access aisle leading to a door that exits directly to the exterior. Access to the brewery is provided by the same route. Use of the ship's ladder will be restricted by keypad lock, limiting access to brewery personnel only. The ship's ladder will be marked with signage stating that it is not an exit. The owner will ensure compliance with OSHA section 1910.25 (e) regarding ship stairs, as well as provide any OSHA required fall protection and training per OSHA section 1910.

The ship's ladder will exceed minimum design standards for permanent ladders as described in OMSC section 306.5 and meet the requirements for ship's ladders as described in OSSC 1011.15. The ladder will be fabricated of steel with tread depth of 6-1/2 inches and riser height of 8-1/2". The tread will be projected such that the total of the tread depth plus the nosing projection is no less than 8-1/2 inches. Handrails will be provided on both sides of ship's ladders. The minimum clear width at and below the handrails will be 20 inches. Steel mesh will be provided below the ship ladder such that a 4" diameter sphere cannot pass through between open treads. The ladder will be 4' wide.

Reason for alternative ---

Additional Information

The ship's ladder is proposed as a convenience access for employee use meeting the prescriptive requirements of OSSC 1011.15.

A stairwell, compliant with both the OSSC 1011 and OSSC 1103.2.2, cannot be feasibly installed. OSSC 1103.2.2 allows employee areas to be exempt from accessibility requirements, except for the ability to approach, enter, and exit the work area. In order for a wheelchair user to exit the work area at this location, there must be a 48" clear floor space in front of the door to accommodate a 30" by 48" wheelchair clear floor space. This requirement is also identical in the ADA Standards for Accessible Design (ADAS) Section 203.9 which makes the 48" landing a federal accessibility requirement.

Using the required minimum riser height and tread depth of 7" and 11"per OSSC 1011.5.2, and the required 11" handrail extensions required by OSSC 1014.6, the stair would block egress from the brewing area. A ship's ladder would not block the egress route.

The ship's ladder will be used as a convenience access only. There will be no transporting of any

material items by means of the ship's ladder. All grain will be brought into the building basement by the egress door that is direct to the exterior. Grain will not be transported into the 1st floor brewing area. There will be no filling of kegs in the brewery area. All kegs will be stored in the basement cooler and will be piped to the bar.

The ship's ladder will be 2'6" wide so that a user will be able to reach both handrails.
The ladder is not part of the required means of egress and will be marked with signage stating that it is not an exit. The proposed exit will be clearly marked with an illuminated sign per OSSC 1013. All employees will be trained in the location of the required mean of egress.

We believe that due to the technical infeasibility of providing a stair, that the ship's ladder is a convenience, that it is not part of the required means of egress, and that it is compliant with the design requirements of section 1011.15, we request approval of this appeal.

Original Text

The ship's ladder is proposed as a convenience access for employee use meeting the intent of OSSC 1011.16. The ladder is not part of the required means of egress and will be marked with signage stating that it is not an exit. The proposed exit will be clearly marked with an illuminated sign per OSSC 1013. All employees will be trained in the location of the required mean of egress. All design requirements of permanent ladders as described in OMSC 306.5 will be exceeded and OSHA regulations regarding employee use of fixed ladders will be adhered to.

We believe that the ship's ladder is a convenience, is not part of the required means of egress, and is compliant with the design requirements of section 1011.15. Therefore, we request approval of this appeal.

Appeal item 2

Code Section	OSSC §705.8.1 Allowable Area of Openings
Requires	The maximum area of unprotected and protected openings permitted in an exterior wall in any story of a building shall not exceed the percentages specified in Table 705.8 based on the fire separation distance of each individual story. Exceptions: In other than Group H occupancies, unlimited unprotected openings are permitted in the first story above grade plane where the wall faces one of the following: a. A street and has a fire separation distance of more than 15 feet b. An unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall be not less than 30 feet in width and shall have access from a street by a posted fire lane Buildings whose exterior bearing walls, exterior non-bearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.
Code Modification or Alternate Requested	For existing windows close to the property line to be sprinklered and allowed to remain.
Proposed Design	--- Reconsideration

The Broadway Brewery is Type-VB construction and will be sprinklered throughout. The east façade of the building and a portion of the building on the south side is located one-foot one-inch from the property line. Openings are not allowed in these locations due to inadequate Fire Separation Distance per OSSC Table 705.8.

It is proposed to provide Tyco Model WS sprinklers on the inside of the window per ICC ESR-2397. Dry barrel quick response upright sprinkler heads will be used in a horizontal position on the exterior of the windows.

These sprinklers will be centered and towards the top of the glazing to allow for a full washing on the glazing. This requires a fixed single pane window.

There are three (3) different existing window conditions at the Broadway Brewery (see attached)

Fixed windows without horizontal mullions - No window replacement required
Fixed windows consisting of two (2) panes, a fixed pane and an operable hopper pane. - These windows will be replaced with a single fixed pane window
Single pane center pivot windows without horizontal mullions - These windows will be permanently fastened in the closed position

The single pane pivot windows are located on the Northeast corner of the building. There is an adjacent building built on the property line, one-foot one-inch from the windows. It is impractical to replace these windows. These windows will be permanently fastened in the closed position effectively making them single fixed pane windows.

Original Text

The Broadway Brewery is Type-VB construction and will be fully sprinklered. The east façade of the building is located one-foot one-inch from the property line. A portion of the building on the south side is located one-foot one-inch from the property line. A separate portion of the south façade is seven-feet one-inch from the property line. All three (3) do not have adequate Fire Separation Distance to allow for existing unprotected openings per OSSC Table 705.8.

There are three (3) window conditions at the Broadway Brewery (see attached):

Fixed windows without mullions - No replacement required
Fixed windows consisting of two (2) panes, a fixed pane and an operable hopper pane -
These windows will be replaced with a single fixed pane window

Single pane center pivot windows without mullions -To be permanently fastened in the closed position

All windows will have a single fire sprinkler centered and towards the top of the glazing to allow for a full washing on the interior of the glazing. The existing fixed windows do not require any modification other than the interior fire sprinkler. The two (2) pane windows with an operable hopper will be replaced with a single fixed pane to allow for full uninterrupted coverage of the fire sprinkler. The single pane pivot windows are located on the Northeast corner of the building, where it is impractical to replace these windows due to the one-foot one-inch distance between the exterior wall and the adjacent building. These windows will be permanently fastened in the closed position effectively making them single fixed pane windows.

The proposed design is to replace the windows that have horizontal elements with a single fixed pane of glass, permanently fasten the pivot windows in a closed position and to provide protection for each of the openings on the east and south façades by utilizing closely spaced automatic sprinklers on the interior of the windows.

Reason for alternative ----------

Reconsideration

This proposal is to install sprinklers on each side of the windows in the exterior walls in order to maintain the existing natural light entering the building and reduce the amount of interior electric light provided.

The northeast corner of the building is only one foot one inch from the adjacent building which is directly on the property line. This adjacent building has a rated masonry wall, which reduces fire exposure from the exterior. Because of the Broadway Brewery's proximity to the other building, exterior modifications are impractical.

If the windows were located 3 feet from the property line, the openings would be limited to 15% of the wall area per Table 705.8. None of the opening percentages exceed 15%.

The east façade has the following opening percentages:

Main level opening area is approximately 90 SF, less than 9% of the 1080 SF main level façade. Basement level opening area is approximately 63 SF, less than 14% of the 451 SF basement façade.

The south façade has the following opening percentages:

Main level opening area is approximately 78 SF, or 6% of the 1,275 SF main level façade. Basement level opening area is approximately 70 SF, or 11% of the 630 SF basement level façade.

Per Table 602, exterior walls located less than 5 feet from property line are required to be 1 hour rated. If the windows were located three feet from the property line they would be required to be 45-minute rated per Table 716.5. Per ICC ESR 2397, when Tyco sprinklers are placed on both sides of the window, then the window is considered equivalent to a 2-hour rated wall. It is proposed to add Tyco WS sprinklers on the interior side of each window.

Tyco WS sprinklers cannot be located on the exterior side of the wall due to potential freezing. Therefore, dry type quick response "upright" sprinklers are to be provided in a horizontal installation to protect the exterior windows. This sprinkler discharge will be directed to wet the exterior side of window, providing cooling of the glass.

One sprinkler will be centered widthwise on each window and will be placed between six and twelve inches away from the glazing in order to provide full coverage.

ICC ESR 2397 requires that the windows be fixed single pane glass windows. All windows are already either single pane or will be replaced with single pane windows. All windows will be either be fixed or permanently closed. None of the windows will have horizontal mullions to prevent the entire pane of glass from being washed.

As this is an existing condition, if there were no change in occupancy the openings would have remained as currently installed. By installing sprinklers at each of the windows that is too close to

the property line, the fire / life safety of the existing conditions is being improved.

Due to the small percentage of openings (less than 15%), the additional protection provided by the sprinklers (approximately equivalent to a two hour rating), we ask that this proposal be considered equivalent or better to the prescriptive requirements.

Original Text

The northeast corner of the building is only one foot one inch from the adjacent building which is directly on the property line. This adjacent building has a rated masonry wall, which reduces fire exposure from the exterior. Because of the Broadway Brewery's proximity to the other building, exterior modifications are impractical.

Replacing the old hopper style windows and installing sprinklers on the interior for each of the window openings provides a greater level of fire protection than the prescriptively required ¾ of an hour fire-resistive-rating per OSSC Table 716.1(2). One sprinkler will be centered widthwise on each window and will be placed between six and twelve inches away from the glazing in order to provide full coverage.

The east façade has the following opening percentages:

Main level opening area is approximately 90 SF, less than 9% of the 1080 SF main level façade. Basement level opening area is approximately 63 SF, less than 14% of the 451 SF basement façade.

The south façade has the following opening percentages:

Main level opening area is approximately 78 SF, or 6% of the 1,275 SF main level façade. Basement level opening area is approximately 70 SF, or 11% of the 630 SF basement level façade.

As this is an existing condition, if there were no change in occupancy the openings would have remained as currently installed. By installing sprinklers at each of the windows that is too close to the property line, the fire / life safety of the existing conditions is being improved.

Due to the closely spaced sprinklers on glass, the small percentage of openings, and the improvement to the existing conditions, we ask that this proposal be considered equivalent or better to the prescriptive requirements.

Appeal item 3

Code Section 307.4 – High-hazard Group H-2

Requires

Buildings and structures containing materials that pose a deflagration hazard or a hazard from accelerated burning shall be classified as Group H-2. Such materials shall include; but not be limited to, the following:

Combustible dust where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 414.1.3.

Code Modification or Alternate Requested	That the brewery's grain milling room be considered an F-2 occupancy and not an H-2 occupancy.
Proposed Design	---------- Additional Information Originally this was Item #4 on Appeal #23429. A dust hazard analysis report was requested. This report details the grinding process, including the specified equipment. Please see the attached report. ---------- Original Text The Broadway Brewery is Type-VB construction and will be fully sprinklered. The Grain Milling Room at the Broadway Brewery is located on the basement level with an adjacent Grain Storage Room. The grain will be stored in 50 lb bags on pallets. There are 40 bags per pallet and there will be an approximate maximum of 80 bags in the building at any given time. There is no mechanical equipment in the Grain Milling Room or in the Grain Storage Rooms that would be a potential ignition source. The grain will be hand carried from the Grain Storage Room, into the Grain Milling Room and fed into the mill feed hopper. The milling process cracks the grain and does not mill it into fine flour. The grinding equipment is UL Listed with dust tight housing. From the outlet of the mill the grain is transported by chain and disc conveyor to the grist case. The Grain Milling Room will incorporate an extraction fan that will operated whenever the mill and associated equipment are in use. The Grain Milling Room will be used approximately once or twice a week and will be hand cleaned after each milling cycle in accordance with NFPA 654 section 8
Reason for alternative	---------- Original Text The milling process at the Broadway Brewery cracks the grain as opposed to milling the grain into flour and will not generate significant amounts of combustible dust. There are no silos proposed on the site and the grain will be stored in individual 50 lb bags. Because of the milling process, closed system, ventilation, regular cleaning procedures, and the lack of any ignition sources, the facility does not produce an environment that meets the code definition of a High-Hazard Occupancy. We request the Grain Milling Room be classified as an F-2 occupancy.

APPEAL DECISION

1. Use of ship's ladder to access brewery tanks: Granted as proposed.

2. Type 13 water curtain sprinkler protection at non-fire rated openings in exterior walls where openings are not allowed: Granted as proposed.

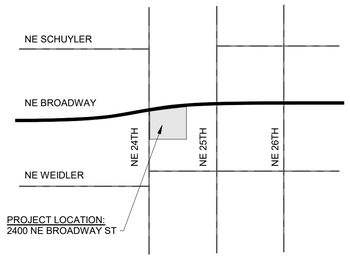
3. Exemption from high hazard occupancy classifiation for grist milling system: Denied. Proposal does not provide equivalent Life Safety protection.

Appellant may contact John Butler (503 823-7339) with questions.

For the items granted, the Administrative Appeal Board finds that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; and that special conditions unique to this project make strict application of those code sections impractical.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 90 calendar days of the date this decision is published. For information on the appeals process, go to www.portlandoregon.gov/bds/appealsinfo, call (503) 823-7300 or come in to the Development Services Center.

SHEET SIZE : 24" x 36"



VICINITY MAP
NOT TO SCALE

SITE INFORMATION

LOT AREA: - 8,374 S.F.

IMPERVIOUS AREA:

(N) EGRESS PATH - 323 S.F.
(N) SIDEWALK PAVING - 164 S.F.

TOTAL (N) IMPREVIOUS AREA: - 487 S.F.

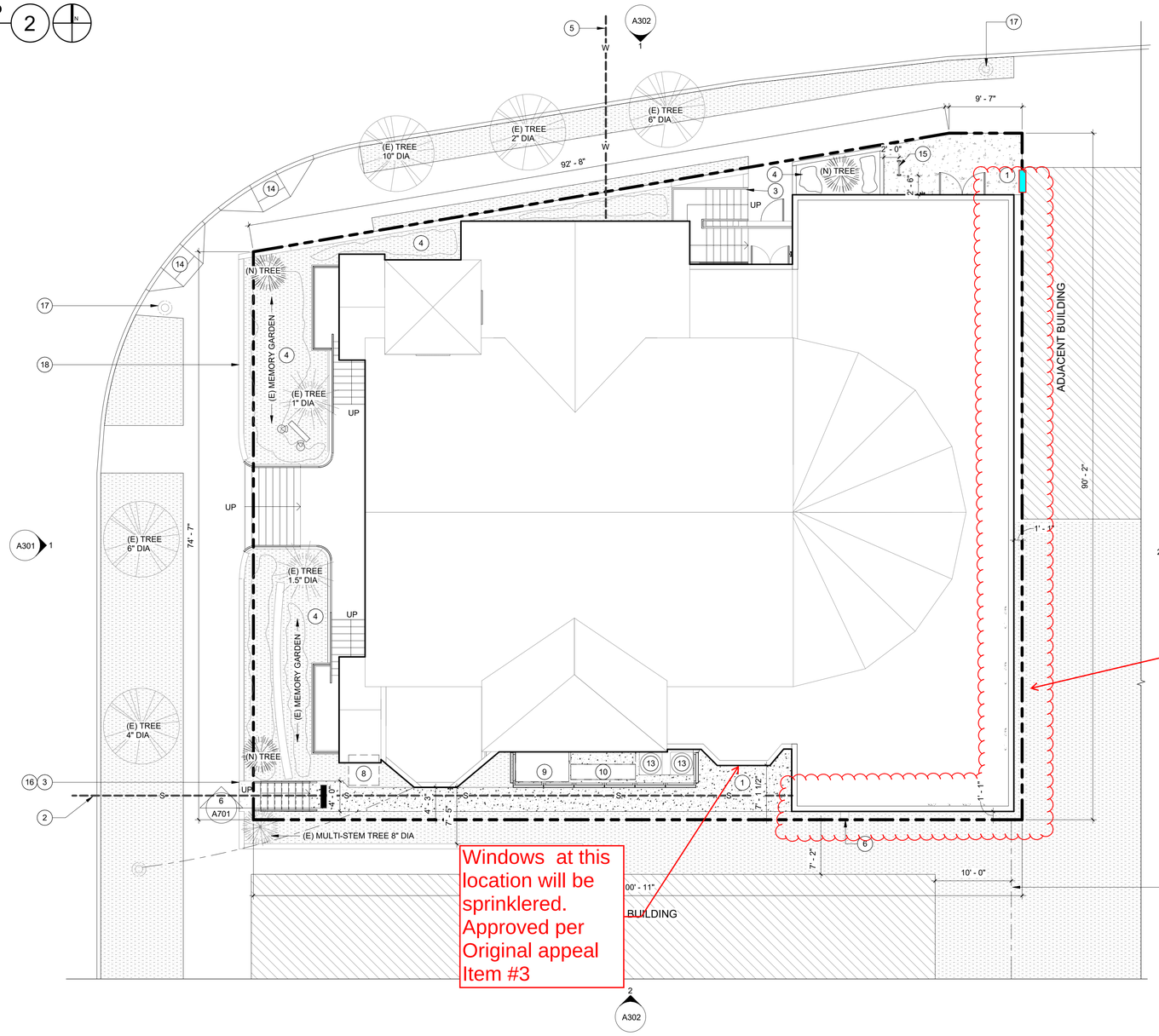
BUILDING COVERAGE: - 6,252 S.F.

PROJECT LEGAL DESCRIPTION:

ID# R128151
BLOCK 2, LOT 3&4

NE BROADWAY ST

NE 24TH AVE.



Windows along these exterior walls will be sprinklered. Item # 2.

Windows at this location will be sprinklered. Approved per Original appeal Item #3

SITE PLAN
1/8" = 1'-0"

GENERAL NOTES - SITE PLAN & EROSION CONTROL

1. THIS DRAWING IS FOR GENERAL GUIDANCE ONLY. THE G.C. SHALL MEET ALL CITY OF PORTLAND EROSION/SEDIMENT CONTROL REQUIREMENTS.

2. HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL INCLUDING THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS.

3. CONSTRUCT EROSION CONTROL IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE STANDARDS.

4. THE G.C. SHALL LIMIT CONSTRUCTION TRAFFIC TO PAVED AREAS TO PREVENT AND MINIMIZE SEDIMENT TRACKING OFF-SITE. G.C. SHALL SWEEP OR VACUUM PAVED AREAS IF SEDIMENT ACCUMULATION OCCURS.

5. PROVIDE PORTABLE WASH-OUT CONTAINER FOR CONCRETE TRUCKS.

6. EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING PERIMETER SEDIMENT CONTROL, MUST BE IN PLACE BEFORE SEDIMENT IS DISTURBED AND MUST REMAIN IN PLACE AND BE MAINTAINED, PREPAIRED, AND PROMPTLY IMPLEMENTED FOLLOWING PROCEEDURES ESTABLISHED FOR THE DURATION OF CONSTRUCTION, INCLUDING PROTECT FOR ACTIVE STORM DRAIN INLETS AND CATCH BASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS.

KEYNOTES - SITE PLAN

1	(N) CONCRETE PAVING IN AREA OF REMOVED RETAINING WALL.
2	(E) 4" SEWER LINE
3	(N) GUARDRAILS AND HANDRAILS AT ALL (E) & (N) EXTERIOR STAIRS. SEE DETAILS.
4	SEE LANDSCAPE PLAN FOR PROPOSED PLANTINGS
5	(E) WATER SUPPLY
6	(E) GAS METER TO REMAIN
7	(E) FENCE TO REMAIN
8	(N) SAMPLING VAULT. LOCATE 10" BELOW GROUND. SEE DETAILS ON A701.
9	(N) GLYCOL CHILLER SHOWN FOR REFERENCE. FINAL LOCATION BY MECHANICAL SUBCONTRACTOR.
10	REMOTE CONDENSER FOR (N) CHILLER SHOWN FOR REFERENCE. FINAL LOCATION BY MECHANICAL SUBCONTRACTOR.
11	(E) TRANSFORMER TO REMAIN
13	(E) CONDENSERS TO REMAIN
14	(E) CURB CUT TO REMAIN
15	(N) PUBLIC BIKE RACKS
16	(N) CONCRETE STAIR. SEE DETAIL.
17	(E) UTILITY POLE TO REMAIN
18	(E) RETAINING WALL TO REMAIN

OPEN CONCEPT ARCHITECTURE

NOT FOR CONSTRUCTION

NE BROADWAY BREWERY

2400 NE BROADWAY ST.
PORTLAND, OR 97232

OPEN CONCEPT ARCHITECTURE

REVISION LIST
DATE DESC.

ISSUE DATES

PROJECT #: D19-020

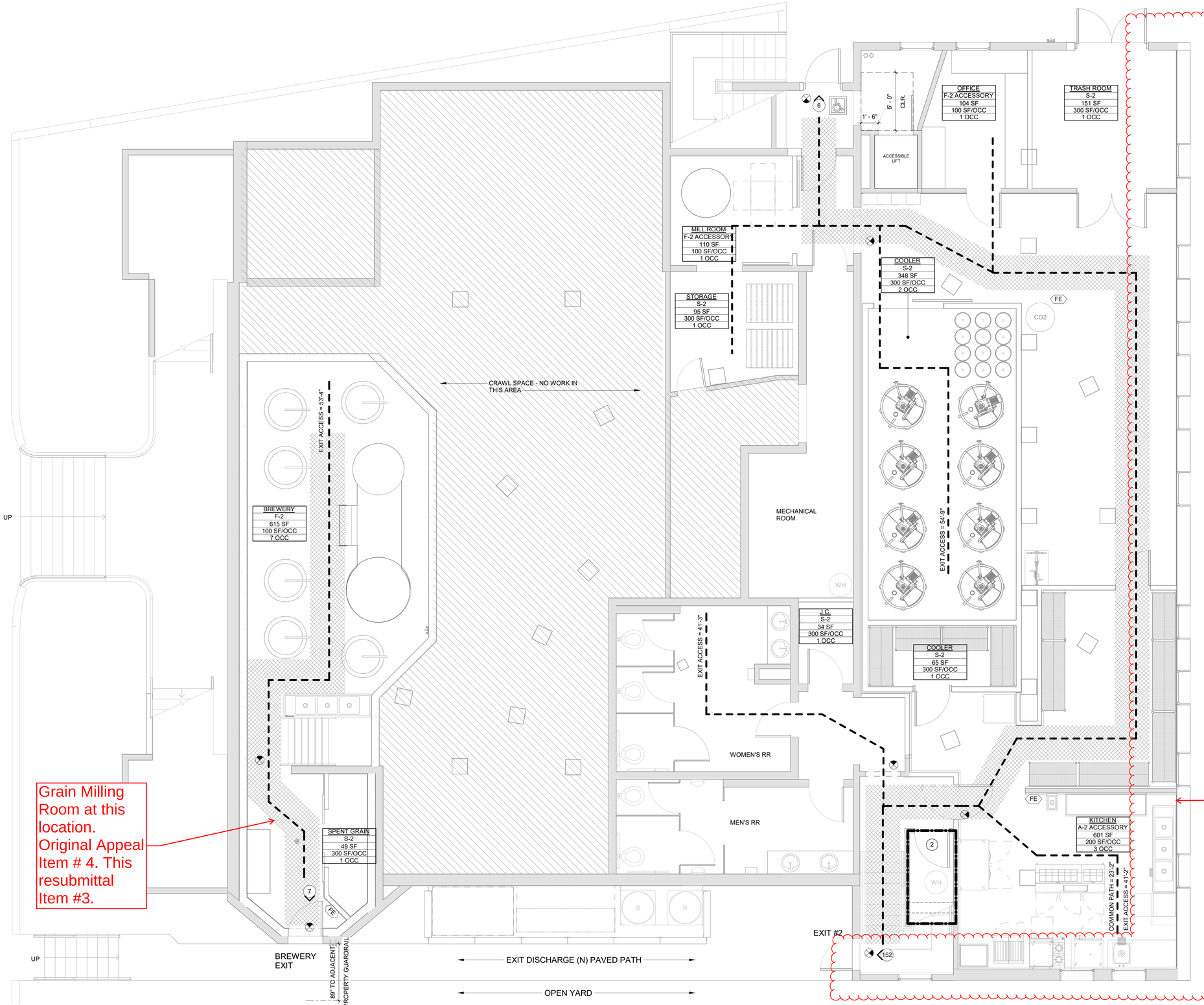
A002

PROPOSED SITE PLAN

PUBLIC WORKS CONCEPT

1/24/2020 12:14:23 PM

SHEET SIZE : 24" x 36"



BASEMENT - CODE PLAN

1/4" = 1'-0"

GENERAL NOTES - CODE SUMMARY

1. PROVIDE UL APPROVED FIRESTOPPING AT ALL PENETRATIONS THROUGH RATED CONSTRUCTION.
2. DOOR LEAVES IN PATH OF EGRESS TO BE MINIMUM 36" WIDE.
3. DIMENSIONS SHOWN ON SHEETS G001 THROUGH G002 ARE FOR CODE ANALYSIS ONLY.
4. ALL WORK SHOWN ON THIS SHEET IS INCLUDED IN THE CONTRACT FOR CONSTRUCTION, WHETHER SHOWN ELSEWHERE OR NOT. CONTRACTOR SHALL MAKE ALL ALLOWANCES FOR CONNECTION, HOOKUP, ETC. AS REQUIRED SO THAT ITEMS, EQUIPMENT, ETC. ARE FIT FOR INTENDED PURPOSE.
5. SEE ELECTRICAL & MECHANICAL PLANS FOR ADDITIONAL SYMBOLS.

LEGEND

- PROPERTY LINE
- 1 HOUR FIRE PARTITION
- 44" AT >50 OCC. / 36" AT <50 OCC. — EGRESS PATH OF TRAVEL WITH TRAVEL WIDTH REQUIRED (PROVIDE 1 FOOT-CANDLE MINIMUM ILLUMINATION ACROSS ENTIRE EGRESS PATH AS MEASURED AT FLOOR LEVEL - REFER TO ELECTRICAL DRAWINGS).
- EXIT ACCESS DISTANCE
- COMMON PATH OF EGRESS TRAVEL
- 595 — OCCUPANT LOAD AT OPENING
- 595 — CUMMULATIVE OCCUPANT LOAD AT OPENING
- BUILDING EXIT
- # — BUILDING CODE APPEAL
- LIGHTED EXIT SIGN - SHADING INDICATES LIGHTED FACE(S) DIRECTION ARROW CORRESPONDS TO DIRECTION ARROW ON SIGN
- LIGHTED EXIT SIGN - CEILING MOUNTED
- LIGHTED EXIT SIGN - WALL MOUNTED
- FE — FIRE EXTINGUISHER (AND CABINET WHERE OCCURS)
- ACCESSIBLE ENTRANCE
- EL — EMERGENCY EGRESS LIGHTING & BATTERY PACK (WHERE OCCURS)

OCCUPANCY LOAD SCHEDULE - LEVEL 02

Number	NAME	AREA	OCCUPANT LOAD FACTOR	OCCUPANCY
A-2 ACCESSORY	KITCHEN	601 SF	200	4
A-2 ACCESSORY: 1		601 SF		4
F-2	BREWERY	615 SF	100	7
F-2: 1		615 SF		7
F-2 ACCESSORY	OFFICE	104 SF	100	2
F-2 ACCESSORY	MILL ROOM	110 SF	100	2
F-2 ACCESSORY: 2		214 SF		4
S-2	COOLER	65 SF	300	1
S-2	COOLER	348 SF	300	2
S-2	TRASH ROOM	151 SF	300	1
S-2	J.C.	34 SF	300	1
S-2	SPENT GRAIN	49 SF	300	1
S-2	STORAGE	95 SF	300	1
S-2: 6		743 SF		7
Grand total: 10		2172 SF		22

KEYNOTES - CODE PLAN

1	PER IEBC 305.6 EXCEPTION 2 ACCESSIBLE REQUIRED IN ALTERATIONS TO (E) BUILDI
2	1 HR FIRE RATING PROVIDED AT CEILINGS ENCLOSURE.

Grain Milling Room at this location. Original Appeal Item # 4. This resubmittal Item #3.

Windows along these exterior walls will be sprinklered. Item # 2.

OPEN CONCEPT ARCHITECTURE

NOT FOR CONSTRUCTION

NE BROADWAY BREWERY

2400 NE BROADWAY ST.
PORTLAND, OR 97232

OPEN CONCEPT ARCHITECTURE

REVISION LIST
DATE DESC.

ISSUE DATES

PROJECT #: D19-020

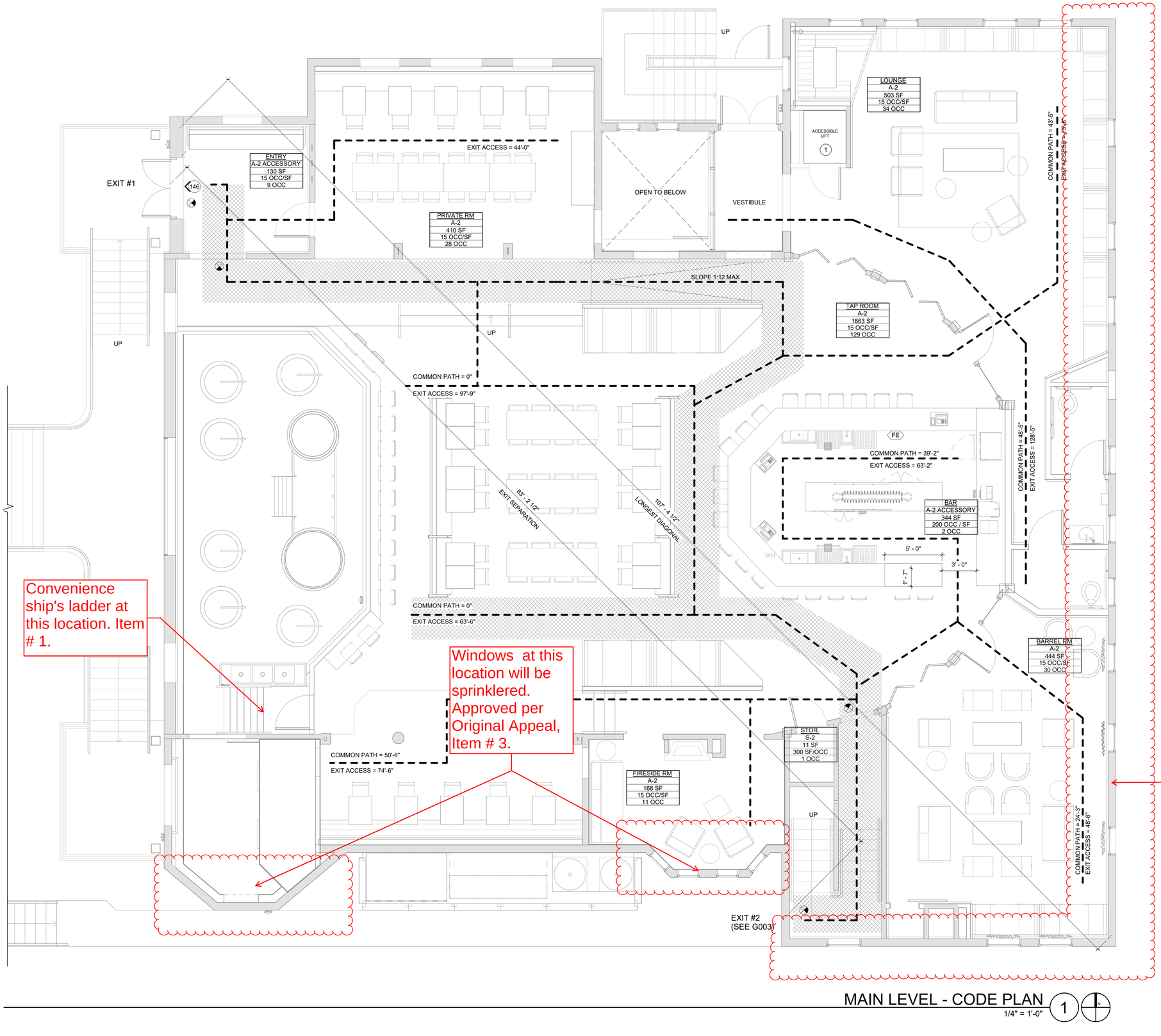
G003

CODE PLAN - BASEMENT

PUBLIC WORKS CONCEPT

1/24/2020 11:57:30 AM

SHEET SIZE : 24" x 36"



MAIN LEVEL - CODE PLAN

1/4" = 1'-0"

GENERAL NOTES - CODE SUMMARY

1. PROVIDE UL APPROVED FIRESTOPPING AT ALL PENETRATIONS THROUGH RATED CONSTRUCTION.
2. DOOR LEAVES IN PATH OF EGRESS TO BE MINIMUM 36" WIDE.
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5. SEE ELECTRICAL & MECHANICAL PLANS FOR ADDITIONAL SYMBOLS.

LEGEND

- PROPERTY LINE
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- EXIT ACCESS DISTANCE
- COMMON PATH OF EGRESS TRAVEL
- 555 — OCCUPANT LOAD AT OPENING
- 555 — CUMMULATIVE OCCUPANT LOAD AT OPENING
- BUILDING EXIT
- # — BUILDING CODE APPEAL
- LIGHTED EXIT SIGN - SHADING INDICATES LIGHTED FACE(S) DIRECTION ARROW CORRESPONDS TO DIRECTION ARROW ON SIGN
- LIGHTED EXIT SIGN - CEILING MOUNTED
- LIGHTED EXIT SIGN - WALL MOUNTED
- FE — FIRE EXTINGUISHER (AND CABINET WHERE OCCURS)
- ACCESSIBLE ENTRANCE
- EL — EMERGENCY EGRESS LIGHTING & BATTERY PACK (WHERE OCCURS)

OCCUPANCY LOAD SCHEDULE - MAIN LEVEL

CLASSIFICATION	NAME	AREA	O.L.F.	OCCUPANCY
A-2	PRIVATE RM	410 SF	15	28
A-2	LOUNGE	503 SF	15	34
A-2	BARREL RM	444 SF	15	30
A-2	TAP ROOM	1863 SF	15	125
A-2	FIRESIDE RM	168 SF	15	12
A-2: 5		3388 SF		229
A-2 ACCESSORY	ENTRY	130 SF	15	9
A-2 ACCESSORY	BAR	344 SF	100	4
A-2 ACCESSORY: 2		474 SF		13
S-2	STOR.	11 SF	300	1
S-2: 1		11 SF		1
Grand total: 8		3873 SF		243

KEYNOTES - CODE PLAN

1	PER IEBC 305.6 EXCEPTION 2 ACCESSIBLE MEANS OF EGRESS ARE NOT REQUIRED IN ALTERATIONS TO (E) BUILDINGS.
2	1 HR FIRE RATING PROVIDED AT CEILINGS AND WALLS OF UNDER STAIR ENCLOSURE.

OPEN CONCEPT ARCHITECTURE

NOT FOR CONSTRUCTION

NE BROADWAY BREWERY

2400 NE BROADWAY ST.
PORTLAND, OR 97232

OPEN CONCEPT ARCHITECTURE

REVISION LIST
DATE DESC.

ISSUE DATES

PROJECT #: D19-020

G004

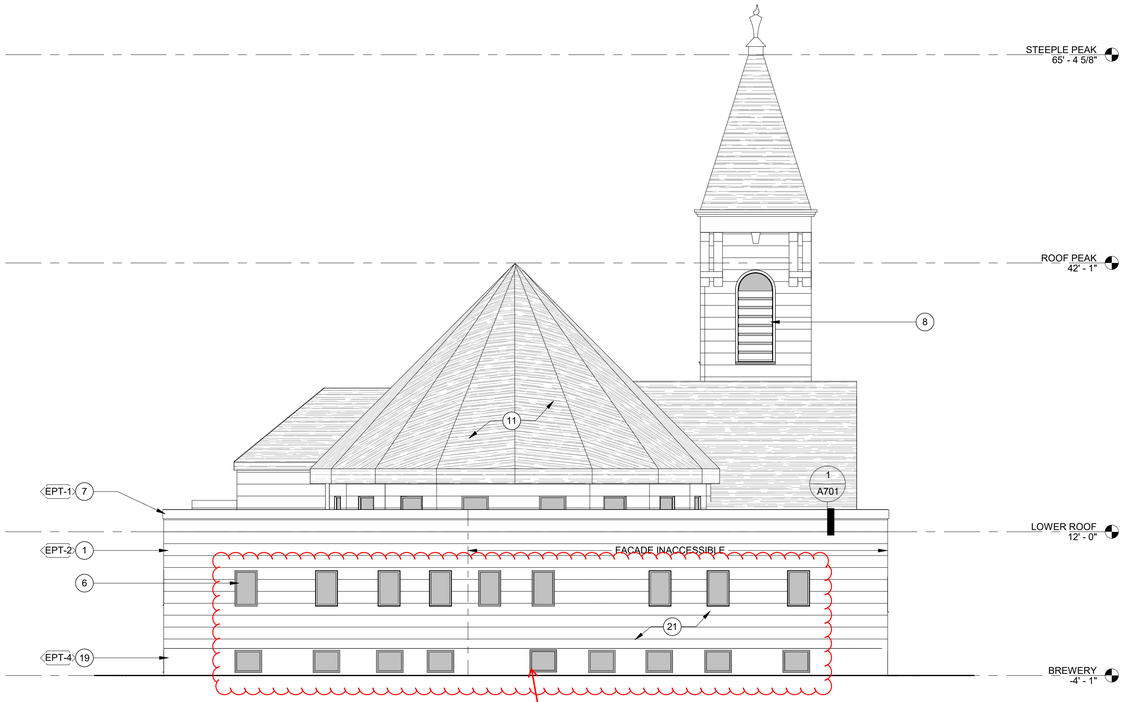
CODE PLAN - MAIN LEVEL

PUBLIC WORKS CONCEPT

1/24/2020 11:59:32 AM

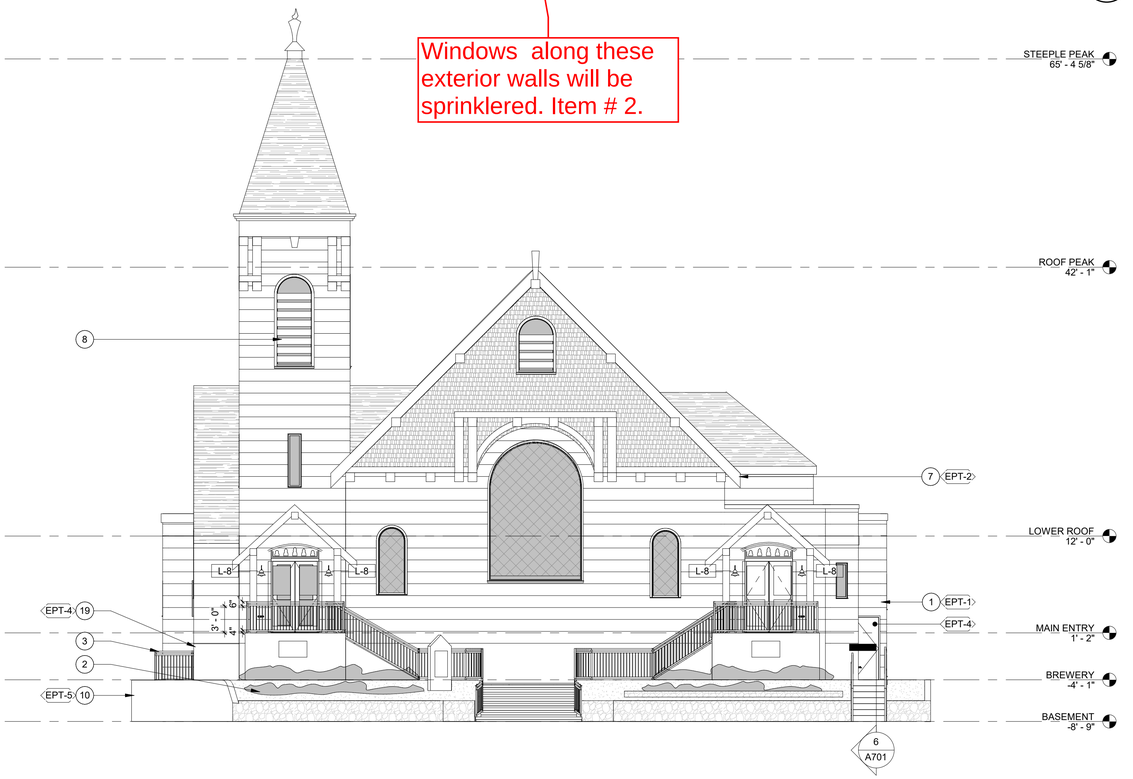
SHEET SIZE : 24" x 36"

KEYNOTES - EXTERIOR ELEVATIONS	
1	ALL (E) WOOD SHINGLE SIDING TO BE PAINTED, TYP
2	SEE LANDSCAPE PLAN FOR (N) PLANTINGS
3	(N) POWDER COATED STEEL GUARDRAILS AND HANDRAILS AT ALL EXTERIOR STAIRS
4	ONE (N) SHORT-TERM BIKE RACKS TO BE PROVIDED. RACK TO BE BELSON OUTDOORS, STAINLESS STEEL, SURFACE MOUNT U RACK.
5	(N) PAIR OF DOORS. SEE DOOR SCHEDULE.
6	(E) WINDOWS TO REMAIN, U.O.N.
7	ALL (E) WOOD TRIM TO BE REPAINTED, TYP
8	(E) LOUVERS
9	ALL (E) STAINED GLASS WINDOWS TO REMAIN
10	REPAINT (E) CONCRETE RETAINING WALL
11	(E) SHINGLE ROOFING TO REMAIN, TYP
12	ALL (E) DOORS TO REMAIN, U.O.N.
13	(N) DOOR
15	(N) MECHANICAL SCREEN BY AMETCO. ANNODIZED FIXED LOUVER ALUMINUM SCREEN. 100% OBSCURING, PHOENIX MODEL. ACCESS GATES TO BE PROVIDED AS NEEDED FOR EQUIPMENT ACCESS.
19	REPAINT (E) CONCRETE FOUNDATION WALL
21	INACCESSIBLE PORTION OF FACADE WILL NOT RECEIVE PAINT
23	(N) PLANTER AND LANDSCAPING. SEE LANDSCAPE PLAN FOR PLANTINGS.



PROPOSED BUILDING ELEVATION - EAST
1/8" = 1'-0" (2)

Windows along these exterior walls will be sprinklered. Item # 2.



PROPOSED BUILDING ELEVATION - WEST
1/8" = 1'-0" (1)

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NE BROADWAY BREWERY

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PROJECT #: D19-020

PUBLIC WORKS CONCEPT

A301

EXTERIOR ELEVATIONS

1/24/2020 11:57:12 AM

SHEET SIZE : 24" x 36"

KEYNOTES - EXTERIOR ELEVATIONS	
1	ALL (E) WOOD SHINGLE SIDING TO BE PAINTED, TYP
2	SEE LANDSCAPE PLAN FOR (N) PLANTINGS
3	(N) POWDER COATED STEEL GUARDRAILS AND HANDRAILS AT ALL EXTERIOR STAIRS
4	ONE (N) SHORT-TERM BIKE RACKS TO BE PROVIDED. RACK TO BE BELSON OUTDOORS, STAINLESS STEEL, SURFACE MOUNT U RACK.
5	(N) PAIR OF DOORS, SEE DOOR SCHEDULE.
6	(E) WINDOWS TO REMAIN, U.O.N.
7	ALL (E) WOOD TRIM TO BE REPAINTED, TYP
8	(E) LOUVERS
9	ALL (E) STAINED GLASS WINDOWS TO REMAIN
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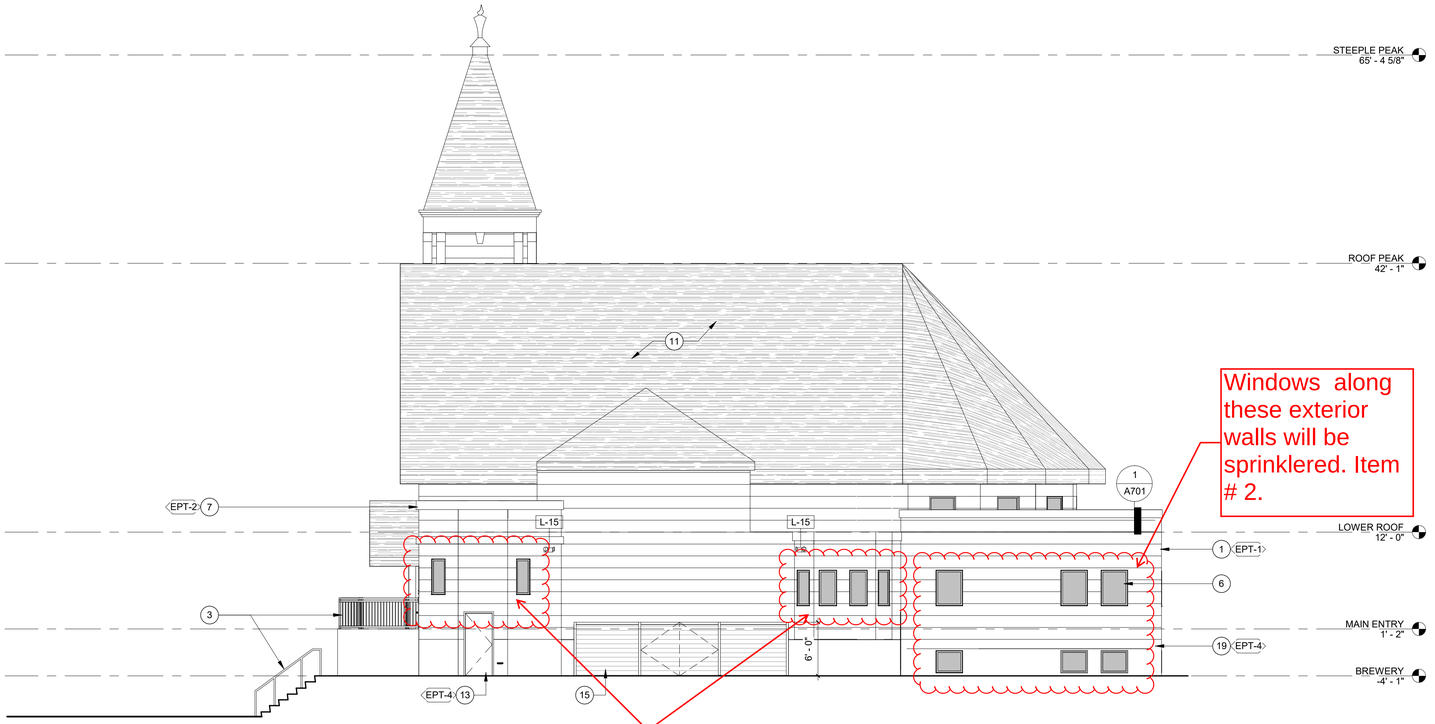
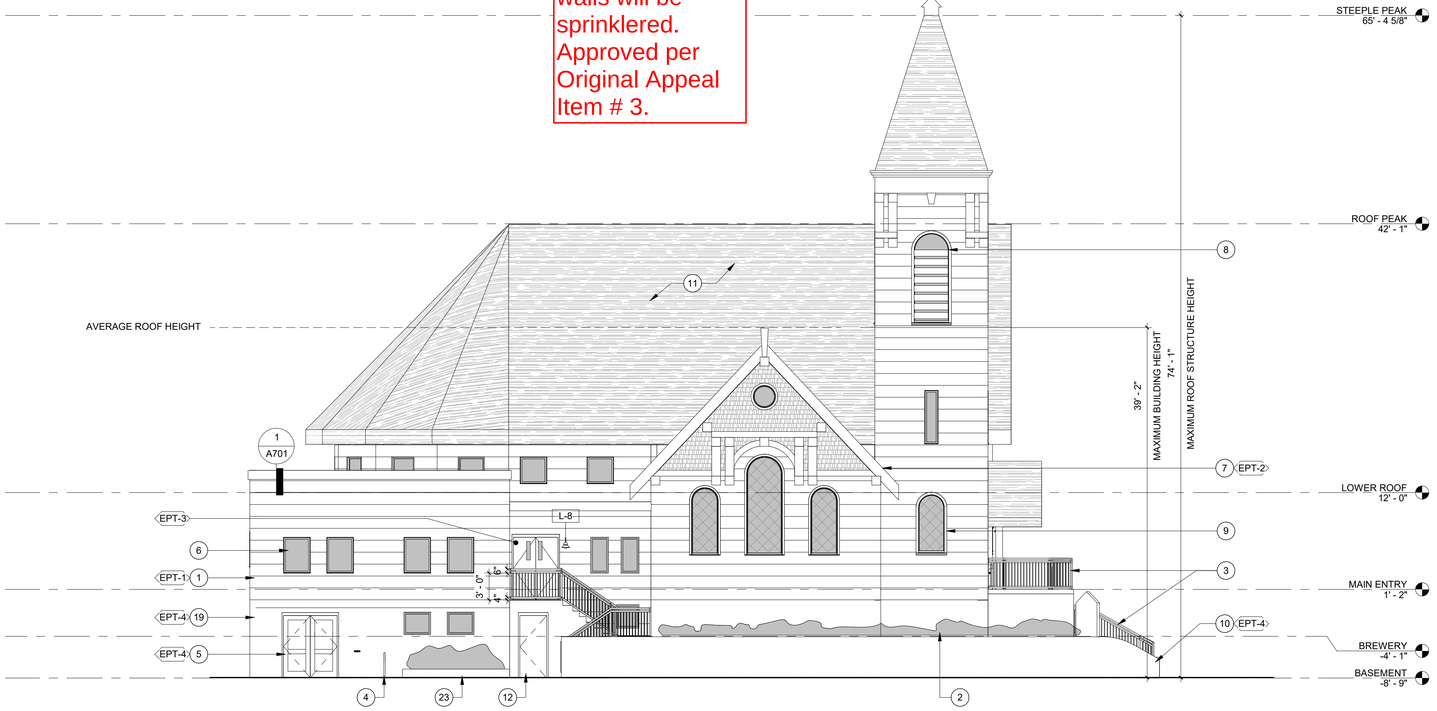
11	(E) SHINGLE ROOFING TO REMAIN, TYP
12	ALL (E) DOORS TO REMAIN, U.O.N.
13	(N) DOOR
15	(N) MECHANICAL SCREEN BY AMETCO. ANNODIZED FIXED LOUVER ALUMINUM SCREEN, 100% OBSCURING, PHOENIX MODEL. ACCESS GATES TO BE PROVIDED AS NEEDED FOR EQUIPMENT ACCESS.
19	REPAINT (E) CONCRETE FOUNDATION WALL
21	INACCESSIBLE PORTION OF FACADE WILL NOT RECEIVE PAINT
23	(N) PLANTER AND LANDSCAPING. SEE LANDSCAPE PLAN FOR PLANTINGS.



PROPOSED BUILDING ELEVATION - SOUTH 2
1/8" = 1'-0"



PROPOSED BUILDING ELEVATION - NORTH 1
1/8" = 1'-0"

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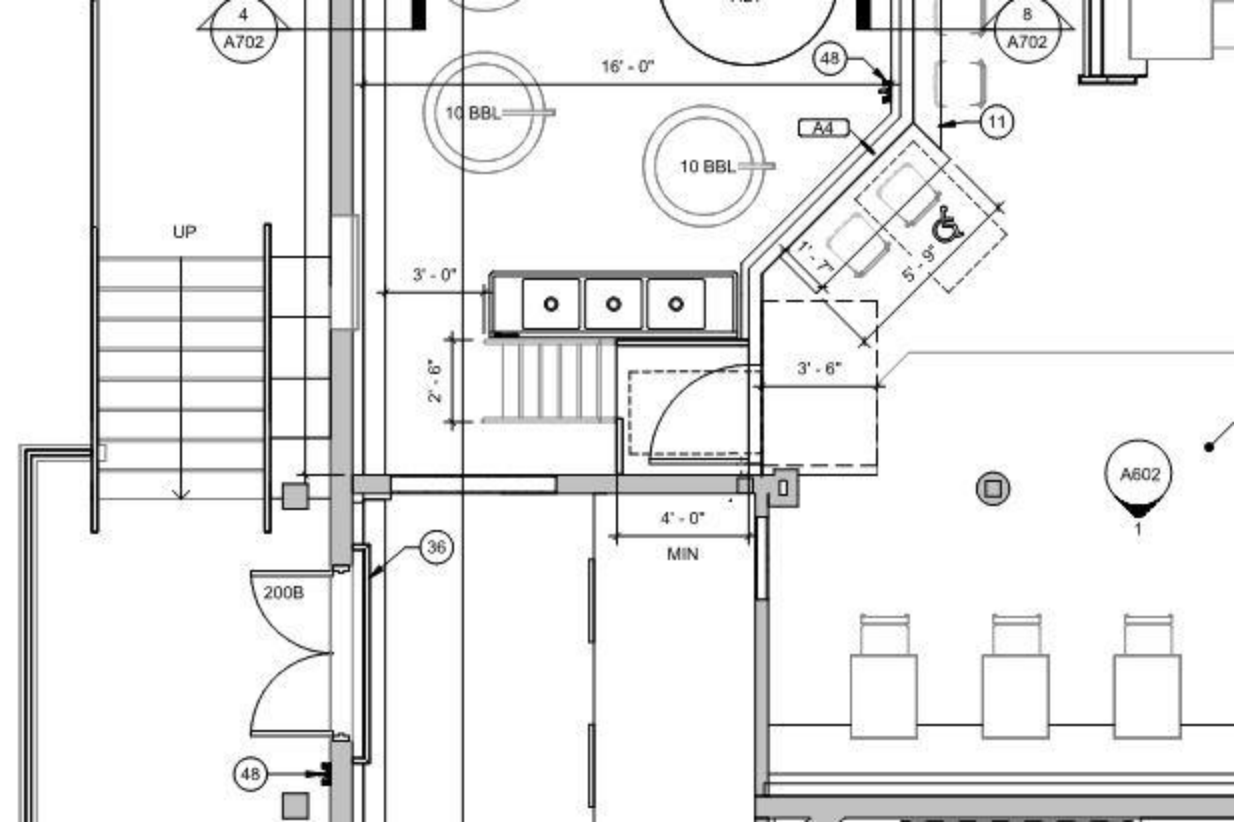
PROJECT #: D19-020

PUBLIC WORKS CONCEPT

A302

EXTERIOR ELEVATIONS

1/24/2020 11:57:15 AM


4
A702
8
A702
16' - 0"
48
11
10 BBL
10 BBL
A4
UP
3' - 0"
1' - 7"
5' - 9"
2' - 6"
3' - 6"
A602
1
4' - 0"
MIN
36
200B
48

BUILDING CODE | ACCESSIBILITY | FIRE EXPERTS
A Minority-Owned Business
Office Locations: OR | WA | NY | TN | CO
Main Phone Attendant: 503-488-5651

Client Name:	**Open Concept**		
Project Number:	C00320-001A.1	Date:	2/20/2020
Distribution:	Broadway Brewery, Open Concept		
Subject:	Malt Cracking Process Dust Analysis		
Referenced Codes and Standards:	• 2019 Oregon Structural Specialty Code (OSSC) • 2019 Oregon Fire Code (OFC) • 2016 NFPA 652 - Standards on the Fundamentals of Combustible Dust • 2017 NFPA 61 - Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities • 2017 NFPA 70 – National Electric Code • 2018 Bureau of Development Serves Code Guide OSSC3/#5 and OSSC 4/#5		
Building Name:	Broadway Brewery		
Area Affected:	Grinding Room		
Appendix	Equipment Specification Sheets		

1 OVERVIEW

Broadway Brewing is a prospective brewery facility in Portland, Oregon. The building is Type V-B construction. The first story includes the brewhouse operation. The basement will have a 110 square foot, F-1 room dedicated cracking of malted hops and another for the storage of the raw material. The cracking of this material has the potential for producing a combustible dust hazard.

Code Unlimited was requested to analyze the process and mitigation strategies where the proposed system is expected to generate dust in accordance with OFC 5003.1(1), note q and OSSC 414.1.3. It was determined relatively small quantities of combustible dust may occur in the closed system milling operation but will not be present outside the processing equipment during normal operations. The dust will be mixed with larger particle sized grains. The closed piped system is dust-proof and all electrical equipment in the system is Class II Division 1. Broadway Brewing will use good housekeeping procedures per NFPA 652 to ensure dust will not accumulate in or around the equipment. Therefore, the dust is not expected to present a combustible dust hazard in the operation.

2 ANALYSIS

The Equipment Specification Sheets, site plans, and the Client's cracking process description of was reviewed to determine if a combustible dust hazard will exist in the milling process.

2.1 **Grain Cracking Process**

The proposed design processes malted grains into particles of a desired size. The grains are hand loaded into a hopper above the mill and the lid is closed before the mill is started. The material is then cracked by a two-roller Sasquatch Roller Grinder. Cracked grains are moved through a closed piped chain and disk conveyor to the grist tank, and again conveyed through a closed chain and disk conveyor to the brewhouse mixer where it is added to water. This system is dust tight and employs other active mitigations for deflagration hazards related to combustible dusts, which are outlined in section 2.2 below.

2.1.1 Housekeeping Procedures

The grain cracking process occurs within a closed system which contains any generated dust particulates. Fugitive dust is not expected but good housekeeping practices will be used if any dust does escape. The Client has indicated that any spills or escaped fines will be cleaned promptly and disposed of outdoors.

2.2 **Code Requirements**

Code Reference	Requirement	Comments
OFC §2203.3, NFPA 61 §8.5, OFC §2204.1, NFPA 70 §500.5(C)(2)	Sources of ignition will be controlled. Equipment shall be electrically classified for combustible dust.	The ingredients and final product are noncombustible. Only dust created inside the closed-use milling system could potentially be a fire hazard. Electrical equipment inside the closed system, including the roller grinder and conveyor motor are electrically classified Class II Division 1.
NFPA 652 §8.8	Dust emission control shall be employed if combustible dust is liberated in normal operations.	Dust is not expected to escape the system in quantities large enough to create a dust hazard. The lid on the mill's hopper will be closed before grinding begins and the entire closed-use

Code Reference	Requirement	Comments
		system is dust tight. Good housekeeping methods will ensure any fugitive dust is removed promptly.
NFPA 652 §8.4, OFC §2203.4	Accumulation of combustible dusts shall be kept to a minimum. Only approved methods of housekeeping will be used.	Good housekeeping methods shall be employed. The roller grinder and entire closed-use system will be cleaned after each use.

2.3 Classification of Combustible Dust Hazards

During the grain cracking process, it is not advantageous to create finely milled materials. Chemicals such as tannins from the husks could be extracted due to over-cracking, the expected particle size distribution is discussed in Section 2.3.1 below. The 2019 OFC Chapter 2 defines a combustible dust as a finely divided solid with a diameter of 420 µm or less which can ignite. NFPA 652 provides combustible dust data for malt which indicates an even smaller particle size is required to create a dust hazard, which is discussed further in Section 2.3.2 below.

2.3.1 Particle Size Distribution in Two-Roller Milling

Table 1. Expected Particle Size Distribution of Two-Roller Cracked Malted Hops

TYPICAL GRIST ANALYSIS	
Sieve Size	Mash Tun
mm	%
1.30	53
1.00	14
0.60	16
0.25	6
0.15	3
flour	8

The Table 1 shows the relative distribution of particle size expected. The expected particle size distribution demonstrates that a large distribution of fines is created, greater than 80% of which are not of the 420 µm diameter necessary to be classified as combustible dust. Additionally, as this is a composite mixture of fines, the explosivity potential of a single dust particle becomes significantly reduced in the presence of larger particles.

2.3.2 Physical Properties of Generated Dust

Table 2. Malt Combustible Dust Properties per NFPA 652 Table A.5.2.2(a)

Dust Material	Particle Size (µm)	Dust K_{st} (bar·m/sec)	Dust P_{max} (bar·g)
Malt	72	170	7.5

Table 2 details the general properties of malted grains and is not results from tests of a sample from the operation. This combustible dust data is only for 72 µm particle size malt dust. It is expected that this process will create much larger particle sizes as discussed in Section 2.3.2 below. Larger sized particles have little to no the deflagration hazard. Only 8% of the grist is expected to be a fine flour less than 150 µm in diameter, and these fines will be mixed with the noncombustible particle sizes.

3 CONCLUSION

It was determined relatively small quantities of combustible dust may be present in the closed system milling operation but will not be present outside the processing equipment during normal operations. The closed use system is dust-proof and all equipment contained in the system are Class II Division 1. The dust will be mixed with larger sized particulates and will not present a deflagration hazard if accumulation is minimized. Broadway Brewing will use good housekeeping procedures to ensure dust will not accumulate in or around the equipment. Therefore, the dust is not expected to present a combustible dust hazard during normal operations.

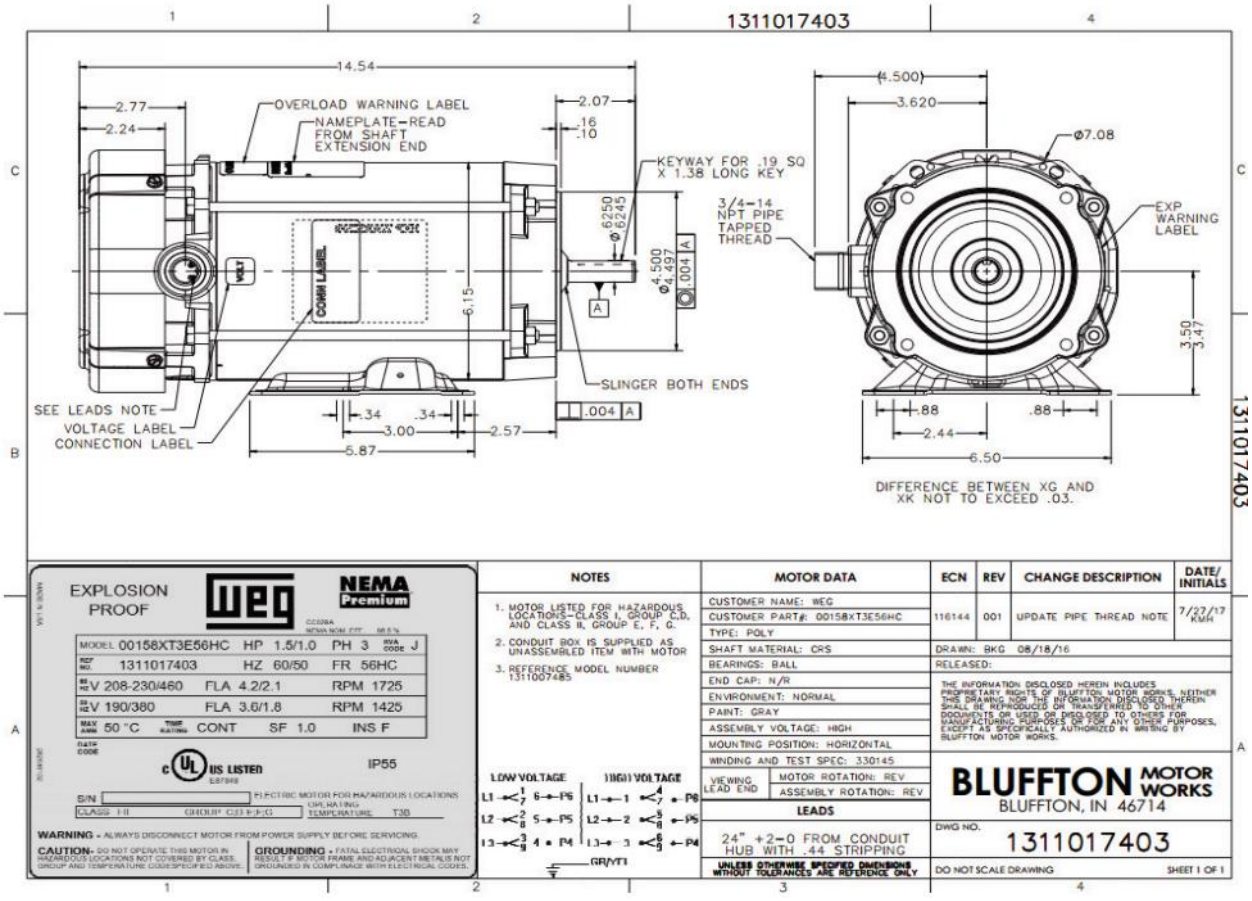
Prepared By:

Breanna O'Connell
Senior Hazardous Materials and Process Expert

Reviewed by:

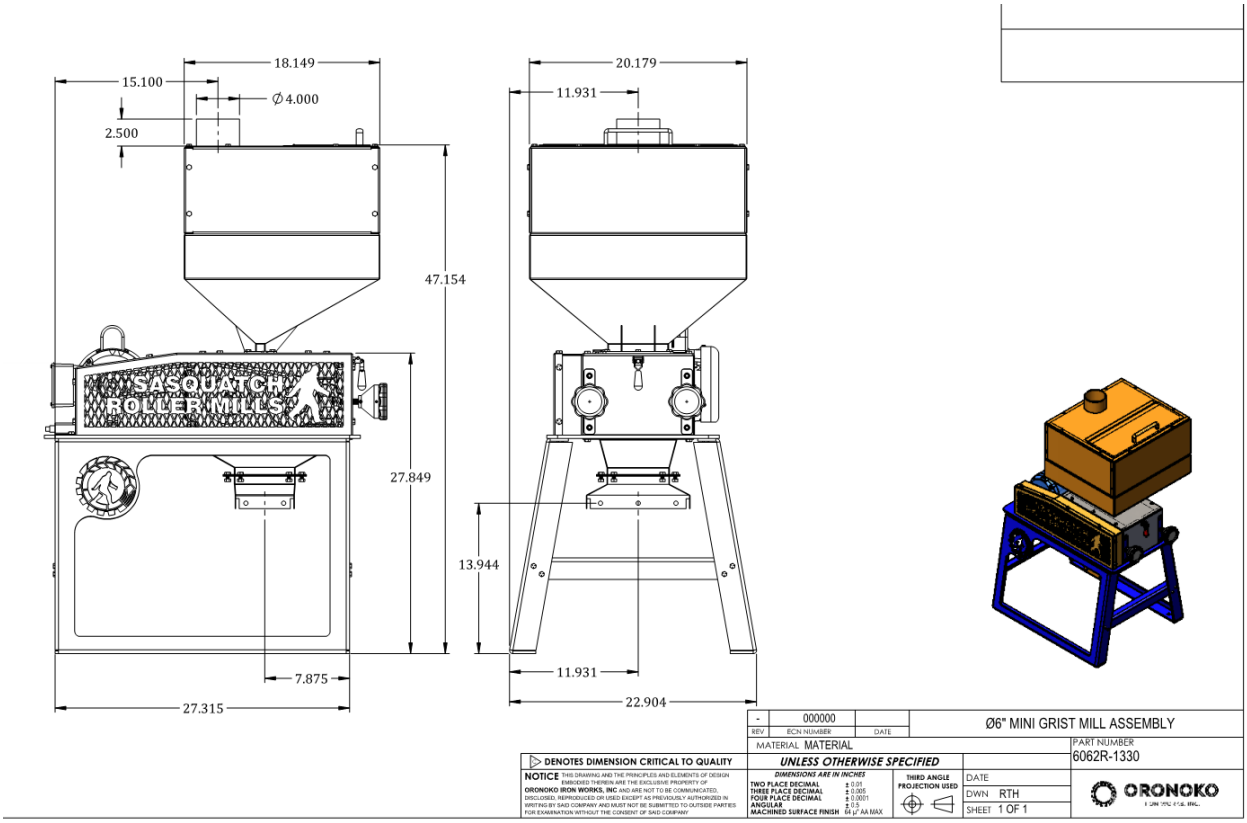
ICC licensed Fire Plans Examiner
ICC Licensed Building Plans Examiner

Appendix A



Mill XP Motor Spec

Open Concept – Broadway Brewery



Grist Mill Assembly