

# Development Services

## From Concept to Construction

Phone: 503-823-7300 Email: [bds@portlandoregon.gov](mailto: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 27633 (3/30/22) for additional information

<b>Appeal ID:</b> 27751	<b>Project Address:</b> 1706 NW 24th Ave
<b>Hearing Date:</b> 5/11/22	<b>Appellant Name:</b> Mark Chubb
<b>Case No.:</b> B-015	<b>Appellant Phone:</b> 206-388-4355
<b>Appeal Type:</b> Building	<b>Plans Examiner/Inspector:</b> David Bartley
<b>Project Type:</b> commercial	<b>Stories:</b> 4 <b>Occupancy:</b> B <b>Construction Type:</b> III-B
<b>Building/Business Name:</b> Thesis	<b>Fire Sprinklers:</b> Yes - Throughout Building
<b>Appeal Involves:</b> Reconsideration of appeal	<b>LUR or Permit Application No.:</b>
<b>Plan Submitted Option:</b> pdf [File 1] [File 2] [File 3] [File 4] <b>Proposed use:</b> Office	

### APPEAL INFORMATION SHEET

#### Appeal item 1

**Code Section** 1006.3.1 & 1023.2

**Requires** OSSC §1023.2 requires the enclosure of exit stairways with fire barriers having a fire resistance rating not less than 2-hours when serving four or more stories. OSSC §1006.3.1 allows open stairways to connect up to three floors when constructed and arranged in accordance with OSSC §1019.3. These requirements limit the area of vertical floor openings around stairways and require draft-stops and closely spaced sprinklers to prevent smoke migration and flame spread through stairway floor opening.

**Code Modification or Alternate Requested** This appeal seeks to allow an additional story (4th floor) of connected space to be served by an exit stairway designed and constructed in accordance OSSC §1019.3. Specific mitigation measures in addition to those required by the conditions of this section are proposed to maintain fire resistance rated occupancy separation between the 2nd and 3rd floors.

**Proposed Design** This appeal proposes specific mitigation measures in addition to those required by the conditions of this section to maintain fire resistance rated occupancy separation between the 2nd and 3rd floors by installing a fire curtain tested in accordance with UL 10B, 10C & 10D. This curtain will maintain the fire separation when closed and prevent smoke and heated gases from entering the stairway and passing between floors. Draft-stops and closely spaced sprinklers are installed on other floors as prescribed in OSSC §1019.3 to achieve the same intent. In addition, a voice/alarm communication system is provided. Consequently, the capacity of the enclosed exit stairway is sufficient to accommodate the entire occupant load of the additional story in the event the open stairway is compromised or obstructed by a fire event.

\*\*\* RECONSIDERATION TEXT \*\*\*

A full set of updated architectural drawings is attached for review. This set is in PDF format and

scalable. It includes all request details and sections.

In addition, product data sheets for the proposed smoke and fire curtains are attached.

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**Reason for alternative** The owner and architect intend to expand the building in the future by constructing an addition that will be a mirror image of the proposed construction. This will include the construction of an additional, remote enclosed stairway. In the meantime, they wish to maintain open communication and connection through the entry stairway, which will serve as a convenience stair in future and a visually accessible means of connecting users and enhancing user experience in the current design condition.

\*\*\* RECONSIDERATION TEXT \*\*\*

The timing of the building addition remains uncertain, but is expected to occur within 24-60 months, depending upon market conditions.

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## APPEAL DECISION

**Addition of 4th story with existing 1 hour stair enclosures and fire curtain separation between the 2nd and 3rd floors: Denied. Proposal does not provide equivalent Life Safety protection.**

**Appellant may contact David Bartley (503-865-6529) with questions.**

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](http://www.portlandoregon.gov/bds/appealsinfo), call (503) 823-7300 or come in to the Development Services Center.

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TAG LEGEND

	WP-1	WALL PANEL TYPE 1 - THIN BRICK		WF/WA	FIBERGLASS WINDOW - SEE WINDOW SCHEDULE		GR-1	GUARDRAIL TYPE 1 - STEEL PICKET W/HP COATING
	WP-2	WALL PANEL TYPE 2 - ACM METAL PANEL COLOR 1		WC/WS	FIBERGLASS WINDOW		GR-2	GUARDRAIL TYPE 2 - STEEL PICKET PTD
	WP-2	WALL PANEL TYPE 3 - ACM METAL PANEL COLOR 2		WWS	ALUMINUM STOREFRONT		GR-3	GUARDRAIL TYPE 3 - GLASS GUARDRAIL

GENERAL PLAN NOTES

1. REFERENCE G SERIES DRAWINGS FOR CODE SUMMARIES AND PLANS.
2. REFERENCE TYPICAL ASSEMBLY SHEET FOR ALL WALL TYPE DETAILS AND FIRE-RATED ASSEMBLIES.
3. SEE TECHNOLOGY DWGS FOR ACCESS CONTROLS.
4. DO NOT SCALE DRAWINGS.
5. VERIFY DIMENSIONS SHOWN ON DRAWINGS. USE ONLY DIMENSIONS INDICATED. PRIOR TO STARTING OR CONTINUING WORK, NOTIFY ARCHITECT OF DISCREPANCIES OR CONDITIONS INCONSISTENT WITH THE INTENT OF THE CONSTRUCTION DOCUMENTS.
7. COORDINATE ALL OPERATIONS WITH OWNER SUCH AS AREAS USED FOR MATERIAL STORAGE ACCESS TO AND FROM THE SITE. TIMING OF WORK AND REQUIREMENTS OF NOISE ORDINANCE.
8. ALL EXTERIOR EXPOSED TIMBER STRUCTURE TO BE WEATHER SEALED.
9. U.N.O. ON T1 DWGS ALL FINISH FLOORS TO BE POLISHED CONCRETE.

BDS STAMP

PROJECT

1706 NW  
24TH AVE

1706 NW 24TH AVE  
PORTLAND, OR 97210

ARCHITECT

LEVER

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1 03.25.22 90 CDs & BID SET

ORIGINAL DOCUMENT SIZE

34" x 44"

PHASE

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DATE

MARCH 25, 2022

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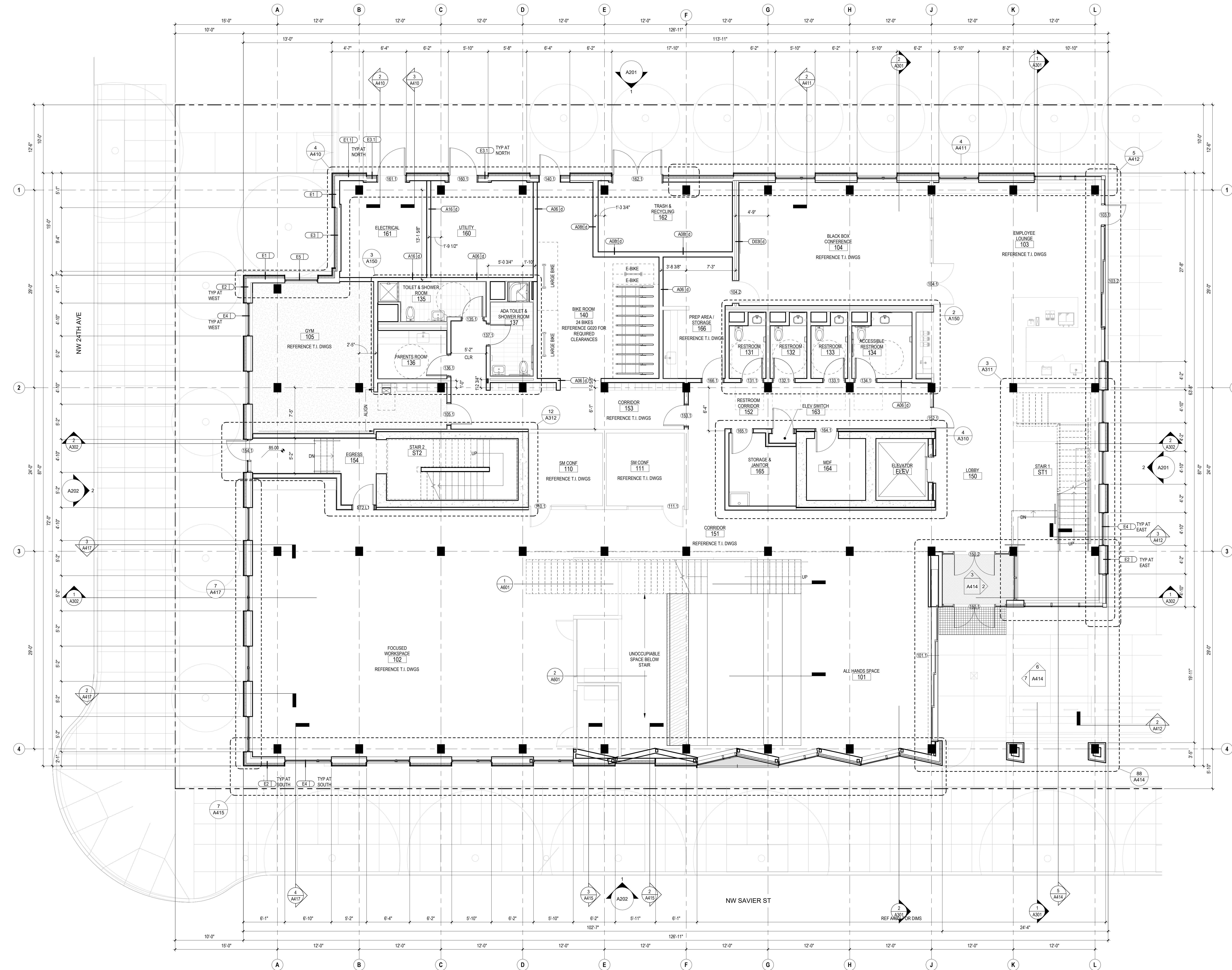
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SHEET TITLE

LEVEL 01 PLAN

A101



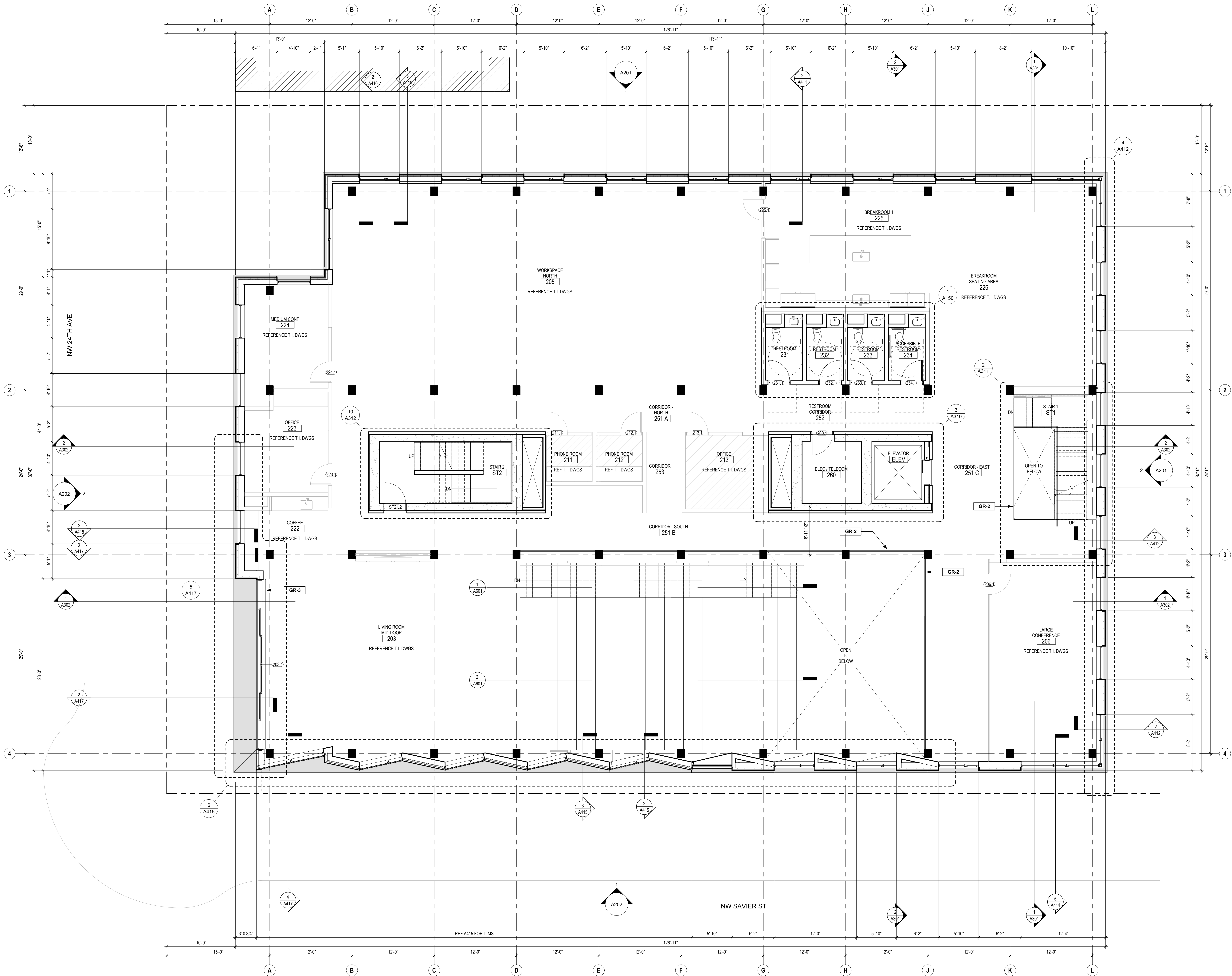
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TAG LEGEND

	WP-1	WALL PANEL TYPE 1 - THIN BRICK		WF	FIBERGLASS WINDOW - SEE WINDOW SCHEDULE		GR-1	GUARDRAIL TYPE 1 - STEEL PICKET W/HP COATING
	WP-2	WALL PANEL TYPE 2 - ACM METAL PANEL COLOR 1		WC	FIBERGLASS WINDOW		GR-2	GUARDRAIL TYPE 2 - STEEL PICKET PTD
	WP-2	WALL PANEL TYPE 3 - ACM METAL PANEL COLOR 2		WWS	ALUMINUM STOREFRONT		GR-3	GUARDRAIL TYPE 3 - GLASS GUARDRAIL

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7. COORDINATE ALL OPERATIONS WITH OWNER SUCH AS AREAS USED FOR MATERIAL STORAGE ACCESS TO AND FROM THE SITE. TIMING OF WORK AND REQUIREMENTS OF NOISE ORDINANCE.
8. ALL EXTERIOR EXPOSED TIMBER STRUCTURE TO BE WEATHER SEALED.
9. UNLESS NOTED OTHERWISE ALL FINISH FLOORS TO BE POLISHED CONCRETE.



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A102

LEVEL 02  
SCALE: 3/16" = 1'-0"

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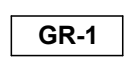

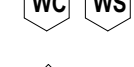
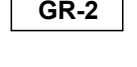

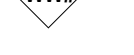
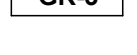
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LEVEL 02 PLAN

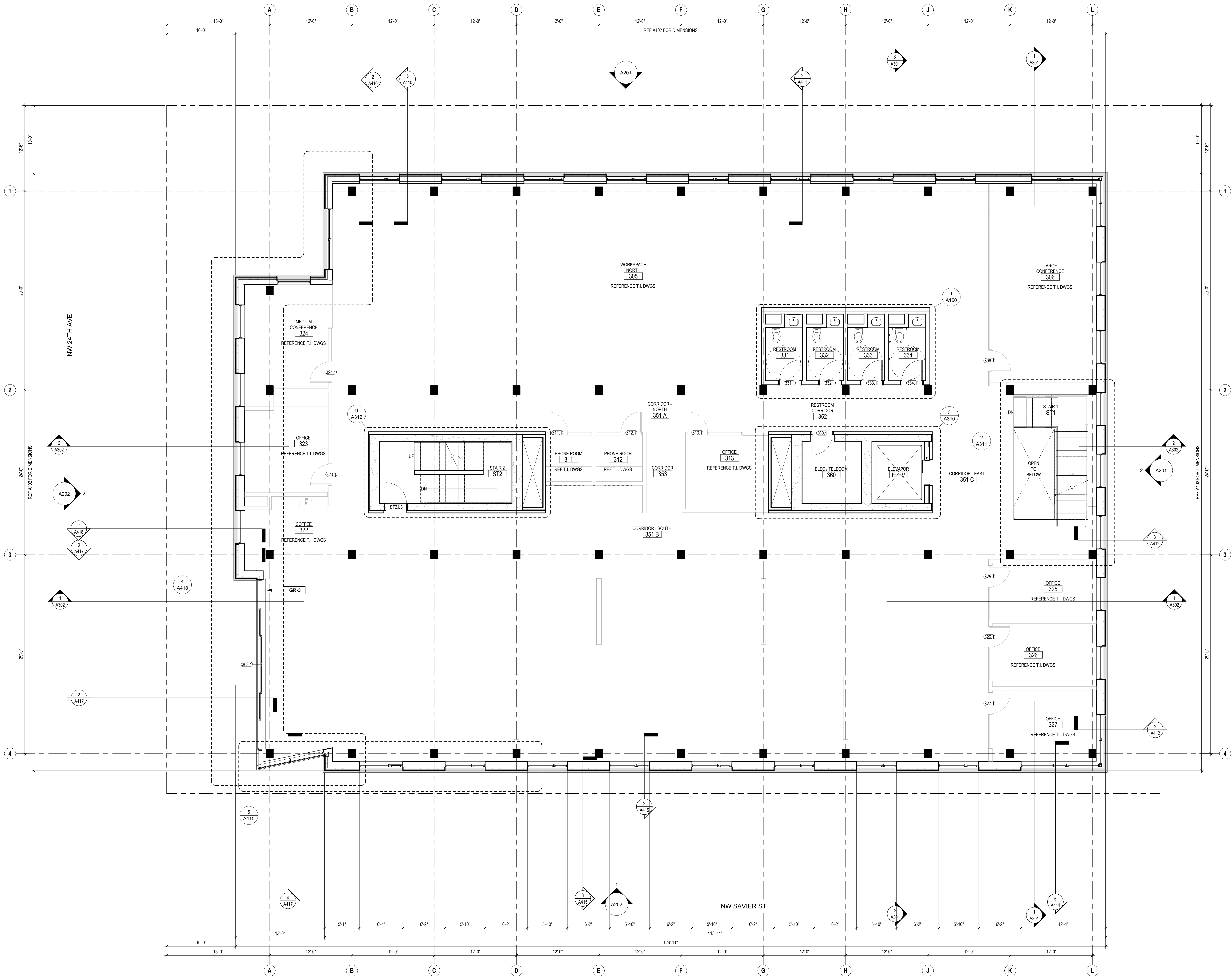
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TAG LEGEND

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	WP-2	WALL PANEL TYPE 2 - ACM METAL PANEL COLOR 1		WC	FIBERGLASS WINDOW		GR-2	GUARDRAIL TYPE 2 - STEEL PICKET PTD
	WP-2	WALL PANEL TYPE 3 - ACM METAL PANEL COLOR 2		WW	ALUMINUM STOREFRONT		GR-3	GUARDRAIL TYPE 3 - GLASS GUARDRAIL

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8. ALL EXTERIOR EXPOSED TIMBER STRUCTURE TO BE WEATHER SEALED.
9. U.N.O ON TI DWGS ALL FINISH FLOORS TO BE POLISHED CONCRETE.



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A103

LEVEL 03  
SCALE: 3/16" = 1'-0"

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SHEET TITLE

LEVEL 03 PLAN

A103





TAG LEGEND

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	WP-2	WALL PANEL TYPE 2 - ACM METAL PANEL COLOR 1		FIBERGLASS WINDOW		GUARDRAIL TYPE 2 - STEEL PICKET PTD
	WP-3	WALL PANEL TYPE 3 - ACM METAL PANEL COLOR 2		ALUMINUM STOREFRONT		GUARDRAIL TYPE 3 - GLASS GUARDRAIL

GENERAL NOTES

1. ALL EXTERIOR EXPOSED TIMBER STRUCTURE TO BE WEATHER SEALED.
2. ALL EXTERIOR DECKS ABOVE LEVEL 01 TO BE PEDESTAL PAVEL SYSTEM.
3. U.N.O.ON TTDWGS ALL FINISH FLOORS TO BE POLISHED CONCRETE.

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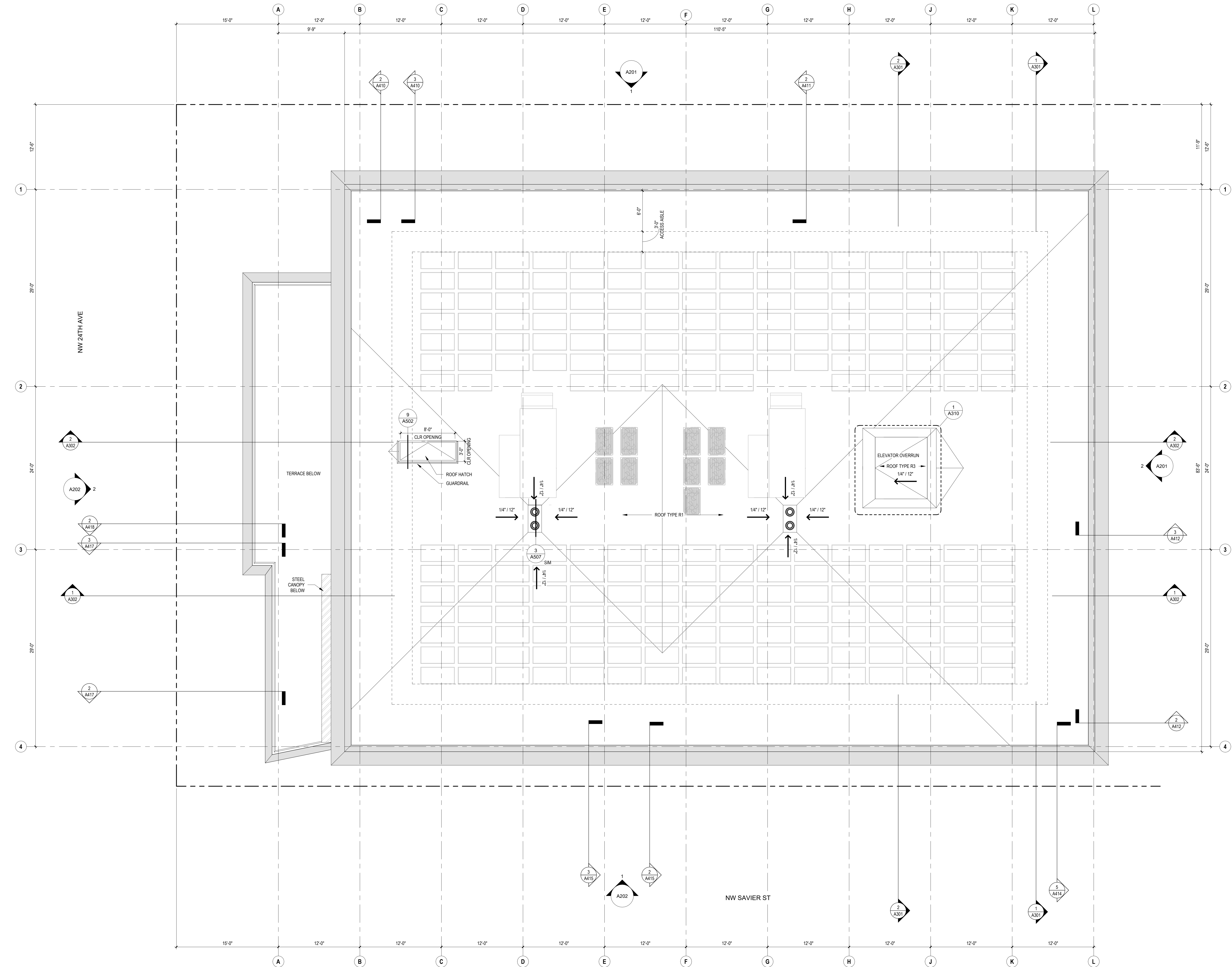
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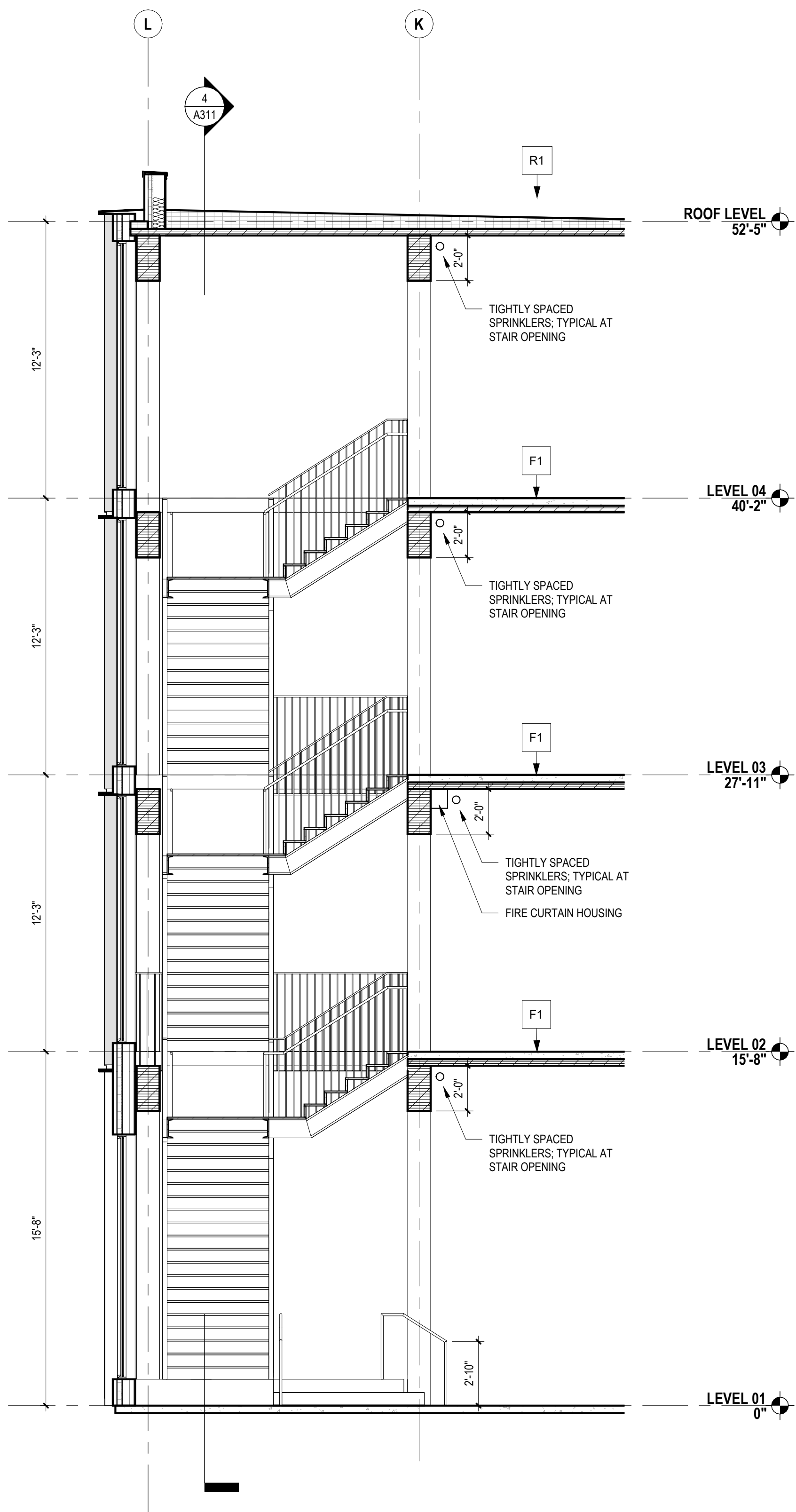
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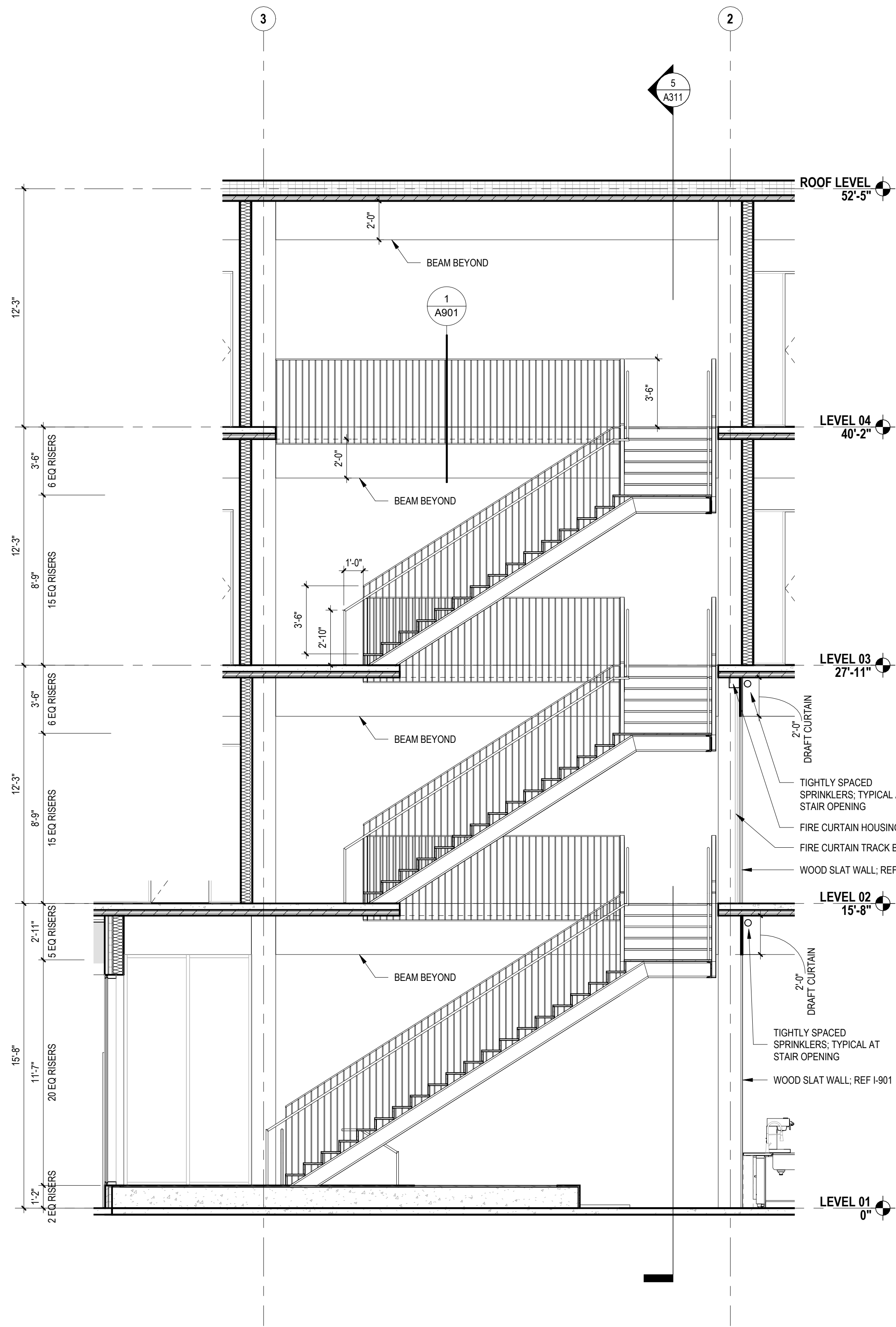
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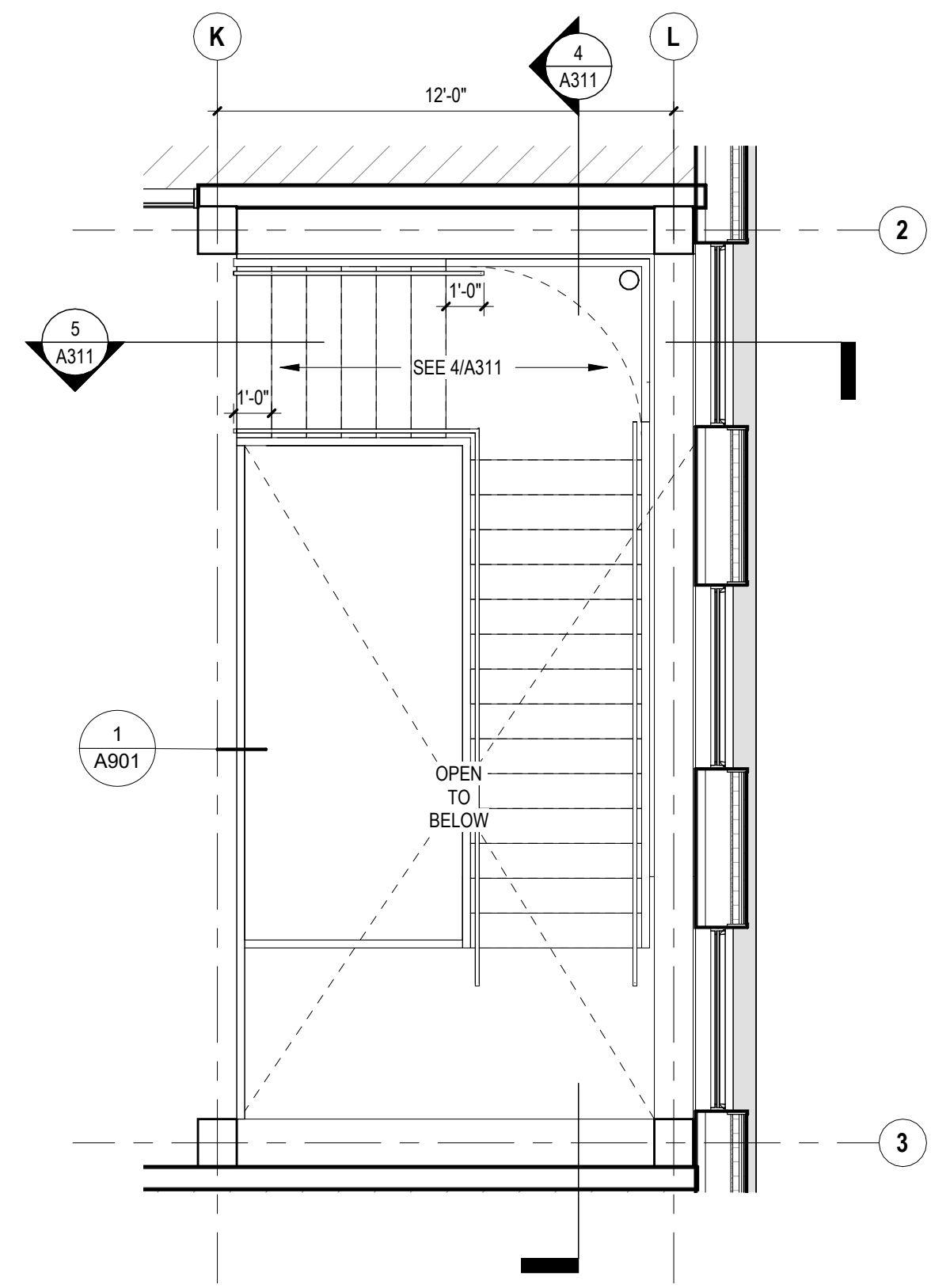
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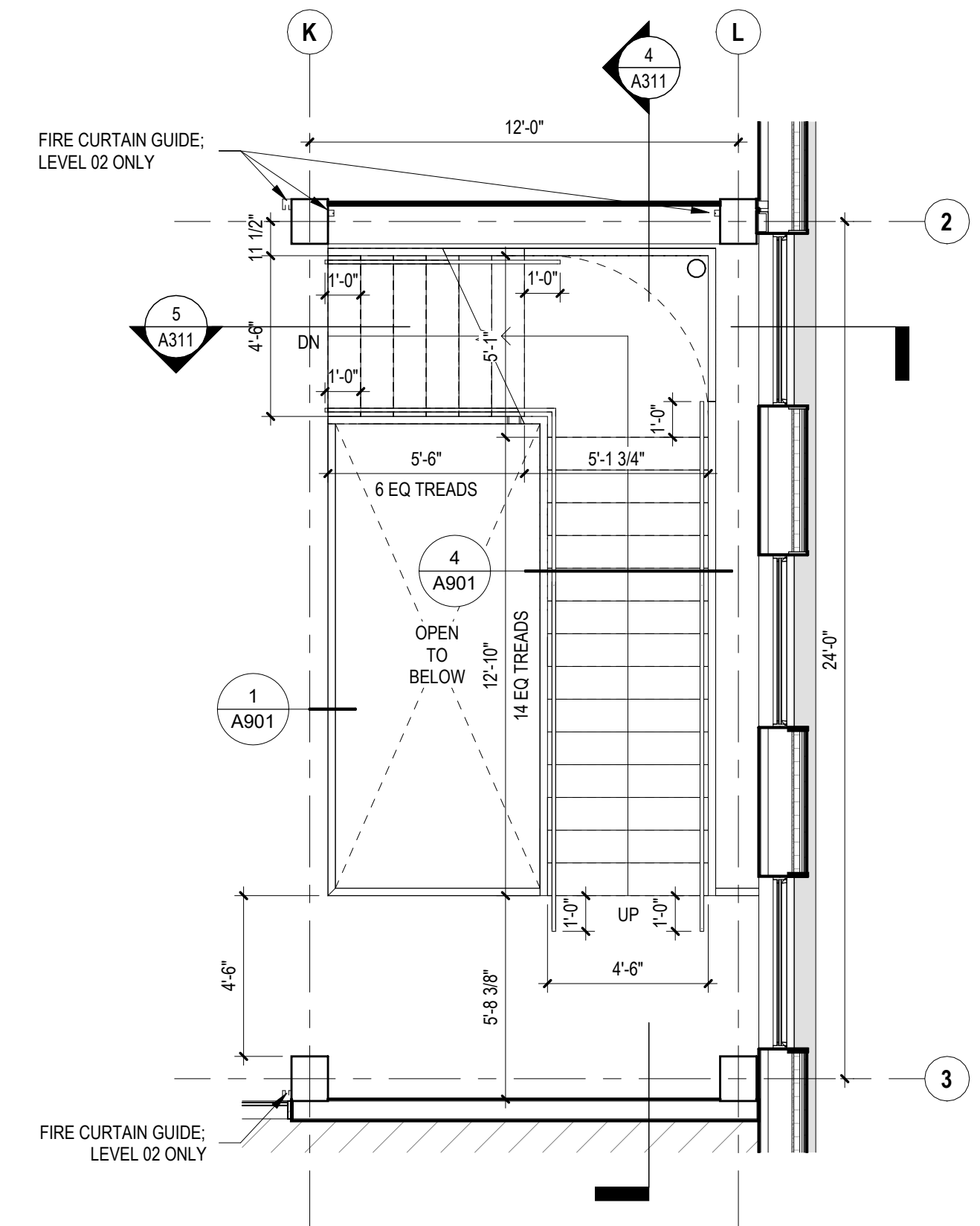
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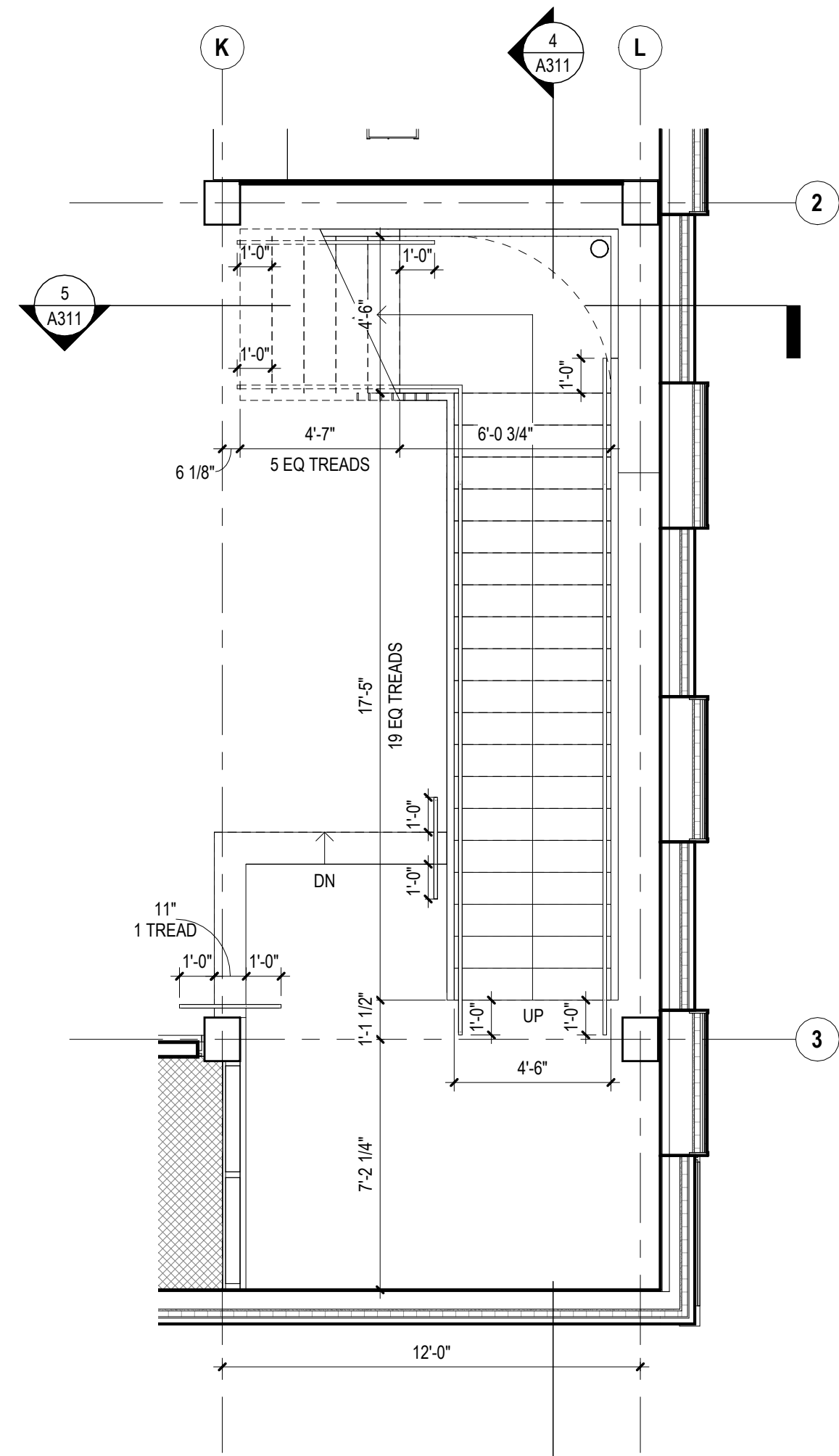
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3  
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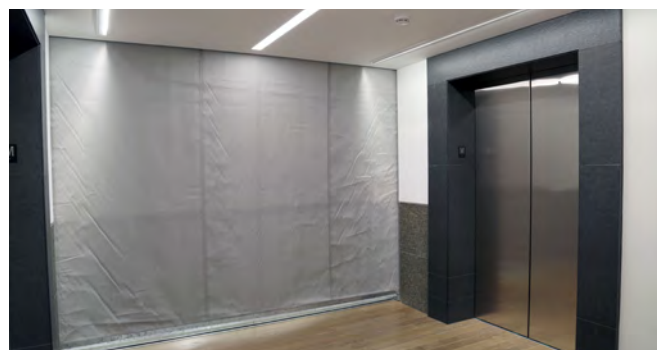
STAIR 1 SECTIONS AND  
PLANS

A311





## Model 2100 | fire + smoke curtain



### DIMENSIONS

- openings: ≤ 20' wide by ≤ 12' tall
- housing height: 6.25"
- housing depth: 6"

### STANDARDS

- UL 10B "Fire Tests of Door Assemblies" (20 min.) listed by Intertek
- UL 10C "Positive Pressure Fire Tests of Door Assemblies" (20 min.) listed by Intertek
- UL 10D "Fire Tests for Fire Protective Curtains" (up to 2 hr.) listed by Intertek
- UL 864 "Control Units for Fire Protective Signaling Systems" listed by Intertek
- UL 1784 "Air Leakage Tests of Door Assemblies" listed by Intertek

### CODE REFERENCES

- 2006/2009/2012 IBC Section 909
- 2009 IBC Section 711.5.2
- 2012 IBC Section 710.5.2.2
- NFPA 105 "Installation of Smoke Control Door Assemblies"
- NFPA 252 "Standard Methods of Fire Tests of Door Assemblies" (20 minute)

**System Description.** The Smoke Guard system Model 2100|Fire + Smoke curtain (M2100|FS) is a code compliant fire-rated assembly that is designed to protect openings as a component of the smoke control system. The M2100|FS consists of a fire-rated fabric curtain assembly mounted within a steel housing. The curtain is captured vertically on both sides by a side guide assembly. The curtain assembly is equipped with a bottom bar to seal the curtain at the bottom. M2100|FS comes in a standard galvanized finish. RAL color options are available.

**Codes and Standards.** M2100|FS fulfills IBC requirements to provide an opening protective, where these assemblies are permitted as passive barriers used in conjunction with smoke control systems. This fire + smoke-rated curtain system can serve as opening protective for counter tops, openings in walls, and certain applications in atrium construction.

**System Operation.** The system is deployed upon a signal from the local smoke detection system or from a smoke control panel. System power requirement is 120-volt AC. The unit is also equipped with a 24-volt DC battery back-up system that is maintained by the electronic controls. When required the system can also be connected to building standby power. The controls include a universal power supply that can be adapted to foreign electrical current requirements.

**Installation.** The system is typically mounted above the ceiling. It anchors to the ceiling above or on to a header assembly supported from the deck above. It may also be mounted to a wall. The side guides are secured to the walls on either side of the opening and may be surface mounted or embedded for smooth finish walls. All Smoke Guard system units are to be installed by factory recognized installation personnel. Preparation work required by others is outlined in the product specification. Installation requires clear, plumb, unobstructed wall surfaces for mounting the side guides, 120v AC power and, should local smoke detection be required, a smoke detector.



SMOKE GUARD® *system*

## Model 2100 | fire + smoke curtain



**Fail Safe Features.** The M2100|FS is a gravity fail safe system. The M2100|FS also features a fault report to indicate that the system requires a corrective action. The control unit monitors the state of curtain deployment.

**Listed Releasing Device.** The M2100|FS control has been tested in accordance with the UL 864 standard and listed by Intertek Laboratories. It also has a full interface to the fire service interface system (FSCS) as an option for dedicated smoke control.

**Door Activation Switch.** The door activation switch may be mounted on opposite sides of the opening. If the system remains in alarm, and the door activation switch is engaged, the system will retract to allow passage and then redeploy after a brief pause. When the alarm clears the curtain automatically retracts to the ready position.



*fire+smoke*  
CURTAINS

800.574.0330 | [www.smokeguard.com](http://www.smokeguard.com)



## Model 2500 | fire + smoke curtain



### DIMENSIONS

- drop lengths ≤12': housings are 10.25" high by 9" deep
- drop lengths >12' housings are 11.75" high by 10.5" deep

### STANDARDS

- UL 10B "Fire Tests of Door Assemblies" (20 min.) listed by Intertek
- UL 10C "Positive Pressure Fire Tests of Door Assemblies" (20 min.) listed by Intertek
- UL 10D "Fire Tests for Fire Protective Curtains" (up to 2 hr.) listed by Intertek
- UL 864 "Control Units for Fire Protective Signaling Systems" listed by Intertek
- UL 1784 "Air Leakage Tests of Door Assemblies" listed by Intertek

### CODE REFERENCES

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- 2012 IBC Section 710.5.2.2
- NFPA 105 "Installation of Smoke Control Door Assemblies"
- NFPA 252 "Standard Methods of Fire Tests of Door Assemblies" (20 minute)

**System Description.** The Smoke Guard system Model 2500|fire + smoke (M2500|FS) is a code compliant fire and smoke-rated assembly that is designed to protect openings as an element of a smoke control system. The M2500|FS consists of a fire + smoke-rated fabric curtain assembly mounted within a steel housing. The curtain is captured vertically on both sides by curtain loops secured by guide rods. The guide rods are attached by side guides anchored to the side walls. The curtain assembly is equipped with a bottom bar to seal the curtain at the bottom and optional bottom bar safety edge to detect obstructions to the deploying screen. M2500|FS comes in a standard galvanized finish. RAL color options are available.

**Codes and Standards.** M2500|FS fulfills IBC requirements to provide an opening protective, where these assemblies are permitted as passive barriers used in conjunction with smoke control systems. This fire + smoke-rated curtain system can serve as opening protective for counter tops, openings in corridor, and certain applications in atrium construction.

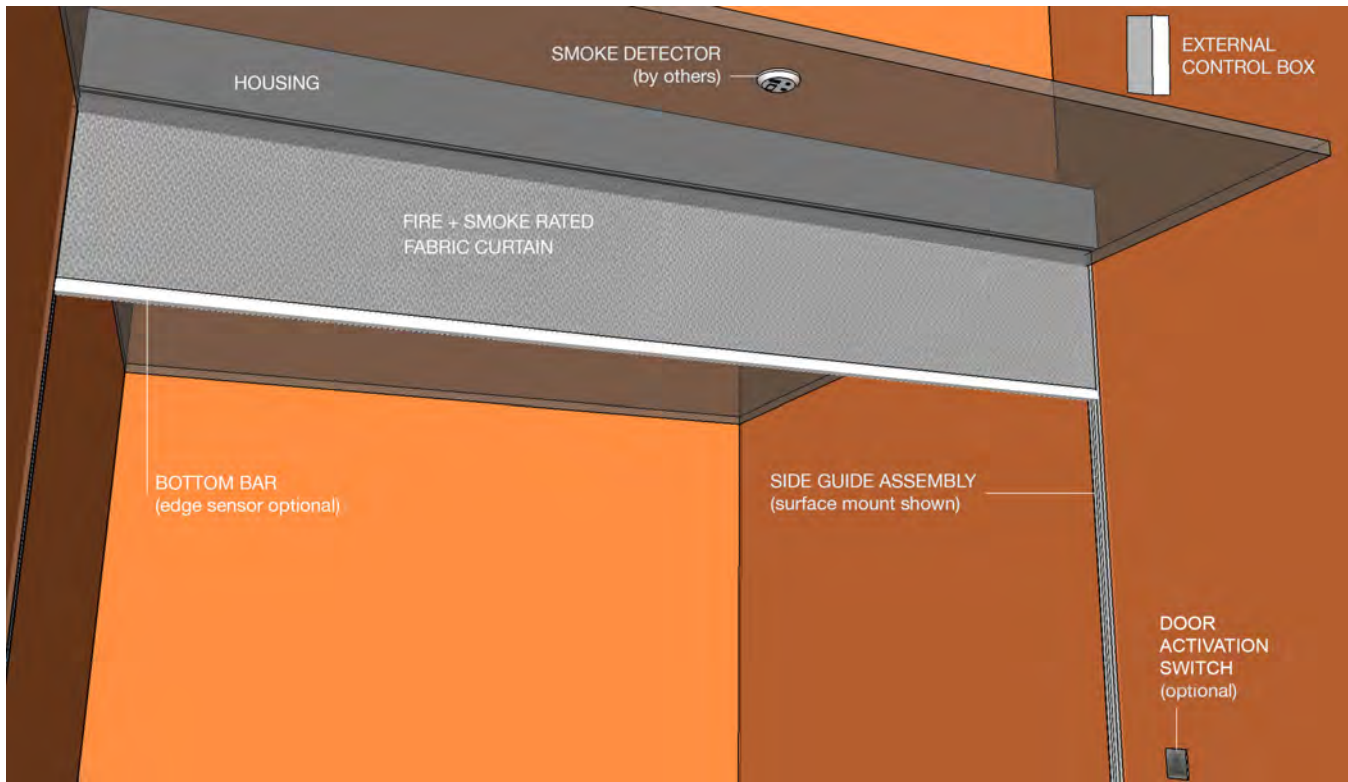
**System Operation.** The system is deployed upon a signal from the local smoke detection system or from a smoke control panel. System power requirement is 120-volt AC. The unit is also equipped with a 24-volt DC battery back-up system that is maintained by the electronic controls. When required the system can also be connected to building standby power. The controls include a universal power supply that can be adapted to foreign electrical current requirements.

**Installation.** The system is typically mounted above the ceiling. It anchors to the ceiling above or on to a header assembly supported from the deck above. It may also be mounted to a wall. The side guides are secured to the walls on either side of the opening and may be surface mounted or embedded for smooth finish walls. All Smoke Guard system units are to be installed by factory recognized installation personnel. Preparation work required by others is outlined in the product specification. Installation requires clear, plumb, unobstructed wall surfaces for mounting the side guides, 120v AC power and, should local smoke detection be required, a smoke detector.



SMOKE GUARD® system

## Model 2500 | fire + smoke curtain



US PATENTED AND PATENTS PENDING

**Fail Safe Features.** The M2500|FS is a gravity fail safe system. The M2500|FS also features a fault report to indicate that the system requires a corrective action. This control also monitors the state of curtain deployment. An optional bottom bar sensing edge may be mounted to the curtain to guard against obstructions during deployment.

**Listed Releasing Device.** The M2500|FS control has been tested in accordance with the UL 864 standard and listed by Intertek Laboratories. It also has a full interface to the fire service interface system (FSCS) as an option for dedicated smoke control.

**Door Activation Switch.** The door activation switch may be mounted on opposite sides of the opening. If the system remains in alarm, and the door activation switch is engaged, the system will retract to allow passage and then redeploy after a brief pause. When the alarm clears the curtain automatically retracts to the ready position.



*fire+smoke*  
CURTAINS

800.574.0330  
[www.smokeguard.com](http://www.smokeguard.com)







<b>Client Name:</b>	<b>Lever Architecture</b>		
Project Number:	C58-010A	Date:	5/5/2022
Distribution:	Logan Goins, Lever Architecture Doug Sheets, Lever Architecture		
Subject:	Open Stairway Code Analysis		
Referenced Codes and Standards:	<ul style="list-style-type: none"><li>• 2019 Oregon Structural Specialty Code (OSSC)</li><li>• 2021 Portland Fire Code (PFC)</li></ul>		
Building Name:	Thesis, 1706 NW 24 <sup>th</sup> Ave		
Room Area Affected:	East Exit Access Stairway (Stair 1)		
Appendix:	A – Floor Plan Markups B – Smoke Guard Smoke and Fire Curtain Cutsheets		

## 1 OVERVIEW

Lever Architecture is designing a new office building for Thesis, a digital media company, on NW 24<sup>th</sup> Ave in Portland, Oregon. The new building is four stories of sprinkler-protected Type III-B construction with a building area of ~10,850-sf. The project is under the jurisdictional review of the City of Portland. The current design situates the building on the site to accommodate a future expansion that would double the size of the building and replicate the proposed floor plan in mirror image.

The proposed building has two means of egress stairways serving each floor. The stairway serving the west half of the building (Stair 2) is fully enclosed and discharges directly outside at grade. The east stairway is partially enclosed and exits through a lobby and vestibule at grade.

Lever engaged Code Unlimited to evaluate whether the east stairway (Stair 1) can be open to more than two floors to facilitate openness and connection within the building. This proposal also considers the future expansion of the building, which will provide a second fully enclosed exit stairway with discharge to grade further east of the partially enclosed stairway serving the lobby. [The timing of this project remains uncertain, but is anticipated within the next 24 to 60 months, depending upon market conditions.]

## 2 CODE REQUIREMENTS

This section summarizes the requirements of the OSSC applicable to the proposed project.

## 2.1 Separated Mixed Occupancies

OSSC §508.3 and §508.4 specify requirements for the separation of mixed-use occupancies. These provisions may be applied alone or in combination. The separation of mixed-uses affects the application of fire separation, area/height, and fire protection requirements.

## 2.2 Occupant Load and Required Capacity of Exits

OSSC §1005 and §1006 require sufficient capacity and number of means of egress to accommodate the occupant load determined as prescribed in OSSC §1004. The primary function of occupied spaces within the building is office use, which has a design occupant load factor of 150-sf/person (gross). Areas occupied for assembly purposes are assigned design occupant loads based on the functions and type of seating in each area. Exercise rooms are also calculated based on gross floor area. The area of unoccupied vertical shafts for mechanical and electrical equipment is not included in floor area for occupant load calculations. Table 2.1 summarizes the occupant load of each floor and area:

<b>Table 2.1</b> <b>Occupant Loads</b>			
<b>Floor/ Space</b>	<b>Area (sf)</b>	<b>Occupant Load Factor (sf/person)</b>	<b>Occupant Load (persons)</b>
1 <sup>st</sup>	5,417	150 (gross)	37
Café	670	15 (net)	45
Trash	282	300 (gross)	1
Prep/Storage	171	300 (gross)	1
Bike Room	403	300 (gross)	2
Electrical	179	300 (gross)	1
Water	217	300 (gross)	1
Exercise	411	50 (gross)	9
All-Hands	1,710	Fixed Seating	155
2 <sup>nd</sup>	7,750	150 (gross)	52
Dining	647	15 (net)	43
All-Hands	1,717	Included Above	0
3 <sup>rd</sup>	10,080	150 (gross)	68
4 <sup>th</sup>	9,398	150 (gross)	63

Terrace	746	15 (net)	49
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## 2.3 Number, Capacity, and Remoteness of Exits

Each floor requires access to a minimum of two means of egress with a clear width not less than 36-in. The minimum width of stairways required by the code is 44-inches. Exits must be located a distance apart not less than one-third the greatest diagonal dimension of the room or area served. Exit access is limited to 250-ft in sprinkler-protected Group A occupancies and 300-ft in sprinkler protected- Group B occupancies.

## 2.4 Floors Served by a Single Exit

OSSC §1006.3.3 limits the number of floors served by a single exit or exit access and §1006.3.1 prohibits the path of egress travel (before entering an exit or discharging to the exterior) to one adjacent story. These sections may be applied along with OSSC §1019.3, which defines requirements for exit access stairways in buildings of other than Group I-2 or I-3 occupancy.

The maximum travel distance from any room or space on floors 2 through 4 to the nearest exit must not exceed 300-ft (OSSC Table 1017.2, Row 3). The travel distance for the all-hands seating area on the first and second floors must not exceed 250-ft (OSSC Table 1017.2, Row 1).

## 2.5 Exit Stairway Enclosure

OSSC §1023.2 requires the enclosure of exit stairways with fire barriers constructed in accordance with OSSC §707. Stairways connecting four or more floors requires fire barriers with a 2-hour fire resistance rating.

## 2.6 Exit Access Stairways

OSSC §1019.3 requires enclosure of exit stairways that do not meet specified conditions. Condition 4 permits exit access stairways to be open and connect up to four floors in sprinkler-protected buildings of Group B occupancy where the area of the vertical opening between floors does not exceed twice the horizontal project area of the stairway and the vertical opening between floors is protected by draft curtains and closely spaced sprinklers.

## 2.7 Voice/Alarm Communication System

In buildings protected throughout by automatic sprinklers that comply with OSSC §903.3.1.1 and voice/alarm communication systems that comply with OSSC §907.5.2.2, the capacity of vertical means of egress (stairways) may be calculated at 0.2-inches per person.

### 3 PROPOSED CONDITIONS

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Lever proposes one enclosed exit stairway protected by 2-hour fire barriers complying with OSSC §707 serving all floors and one open stairway serving all floors. The capacity of the enclosed stairway is sufficient to serve the largest number of occupants on any floor served by the protected exit stairway. This arrangement ensures that occupants can safely escape in the event either exit stairway is obstructed by fire or other emergency conditions. [See the updated drawing set submitted with this appeal for additional details and sections as requested in response to Appeal #27633.]

#### 3.1 Mixed-Use Separation

The non-separated mixed-use Group A and B occupancies on the 1<sup>st</sup> and 2<sup>nd</sup> floors are separated from the exclusively Group B occupancies on floors 3 and 4 by a one-hour fire resistance-rated floor ceiling assembly. Applying OSSC §508.3.2 and §508.4.3 together based on this separation permits a sprinkler-protected Type III-B building of 4-stories. A 1-hour fire curtain tested in accordance with UL 10D will be provided at the exit access stairway openings on the 1<sup>st</sup> and 2<sup>nd</sup> floors to maintain the occupancy separation required by OSSC §508.4.3. These curtains will be activated by smoke detectors located on the occupied side of the opening as required by NFPA 72, §17.7.5.6 and §21.8.

#### 3.2 Mixed Occupancy Egress Requirements

Excluding the all-hands seating area connecting the 1<sup>st</sup> and 2<sup>nd</sup> floors, assembly uses on all floors are accessory to the primary use of the building as a business use. The building complies with requirements for accessory and non-separated mixed-uses of Groups A-3 and B in OSSC §508.2 and §508.3.

#### 3.3 Open Stairway Protection

The open stairway is separated from adjacent areas by structural elements of sufficient depth to form a draftstop between the occupied area on each floor and the stairway. Closely spaced sprinklers (6-ft on-center) positioned more than 4-inches and less than 18-inches from the draftstop on the occupied floor side provide fire protection of the openings on floors 3 and 4 consistent with the requirements of OSSC §1019.3.

The gross area of Stair 1 is approximately 280-sf. The vertical opening between each floor connected by Stairway 1 is approximately 84-sf (less than one-half the area of the stairway). The beam at column line K between column lines 2 and 3 extends not less than 18-in vertically below the underside of the floor/ceiling above. A line of closely spaced sprinklers west of this column line provides additional protection of the floor opening as required by OSSC §1019.3, Condition 4.

### 3.4 Exit and Exit Access Capacity

Stair 1 has an egress capacity of 200 persons measured at the narrowest point (exit discharge 1<sup>st</sup> floor from vestibule). Stair 2 has an egress capacity of 180 persons measured at the narrowest point (exit doors to the stair enclosure on floors 2 through 4). The number and capacity of these exits is sufficient for the number of occupants on floors 2 through 4. An additional 36-in doorway on the north side at grade level from the 1<sup>st</sup> floor increases the available egress capacity on that level to not less than 640 persons.

As illustrated by the figures in Table 2.1, above, the occupant load of the building excluding the all-hands area is less than the available fixed seating in this area. The fixed seating feature is not intended for use by occupants other than the normal users of the building. As such, when this area is occupied at full capacity, egress from this space is not expected to impact the availability of egress for occupants in other portions of the building who may choose to use Stairway 1 to evacuate the building.

### 3.5 Exit and Exit Access Remoteness

The available exits and exit access points are located more than 88-ft apart. The greatest diagonal dimension of each floor does not exceed 145-ft. The separation and remoteness of exits and exit access points exceeds code requirements.

### 3.6 Exit Access Travel Distance

Although OSSC §1006.3.1 prohibits exit access from passing through more than one adjacent floor level, the travel distance from the most remote point on the 4<sup>th</sup> floor to the Stair 1 exit discharge on the 1<sup>st</sup> floor does not exceed 250-ft. Exit access travel distances from the all-hands seating areas to the available exits does not exceed 115-ft in any single instance. As noted, above the capacity of Stair 2 when calculated in accordance with OSSC §1005.3.1, Exception 1 and §1005.3.2 remains sufficient to accommodate the greatest occupant load on any single floor above the level of exit discharge in the event Stair 1 is unusable for any reason.

## 4 SUMMARY AND CONCLUSION

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OSSC §1006.3.3. requires a minimum of one exit and one exit access from each floor above the second floor above the grade plane. Although OSSC §1006.3.1 limits exit access through more than one adjacent story, the exit access travel distance from most remote point on the 4<sup>th</sup> floor to the exit discharge from Stair 1 does not exceed the travel distance permitted for Group B occupancies (300-ft). Stair 1 is also separated from adjacent spaces on each floor by a draft curtain and closely space sprinklers. The vertical opening between floors on the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> floors does not exceed half the area of the stairway. These conditions satisfy the requirements of OSSC §1019.3. Automatic sprinklers also protect the landings on each floor within the stairway.

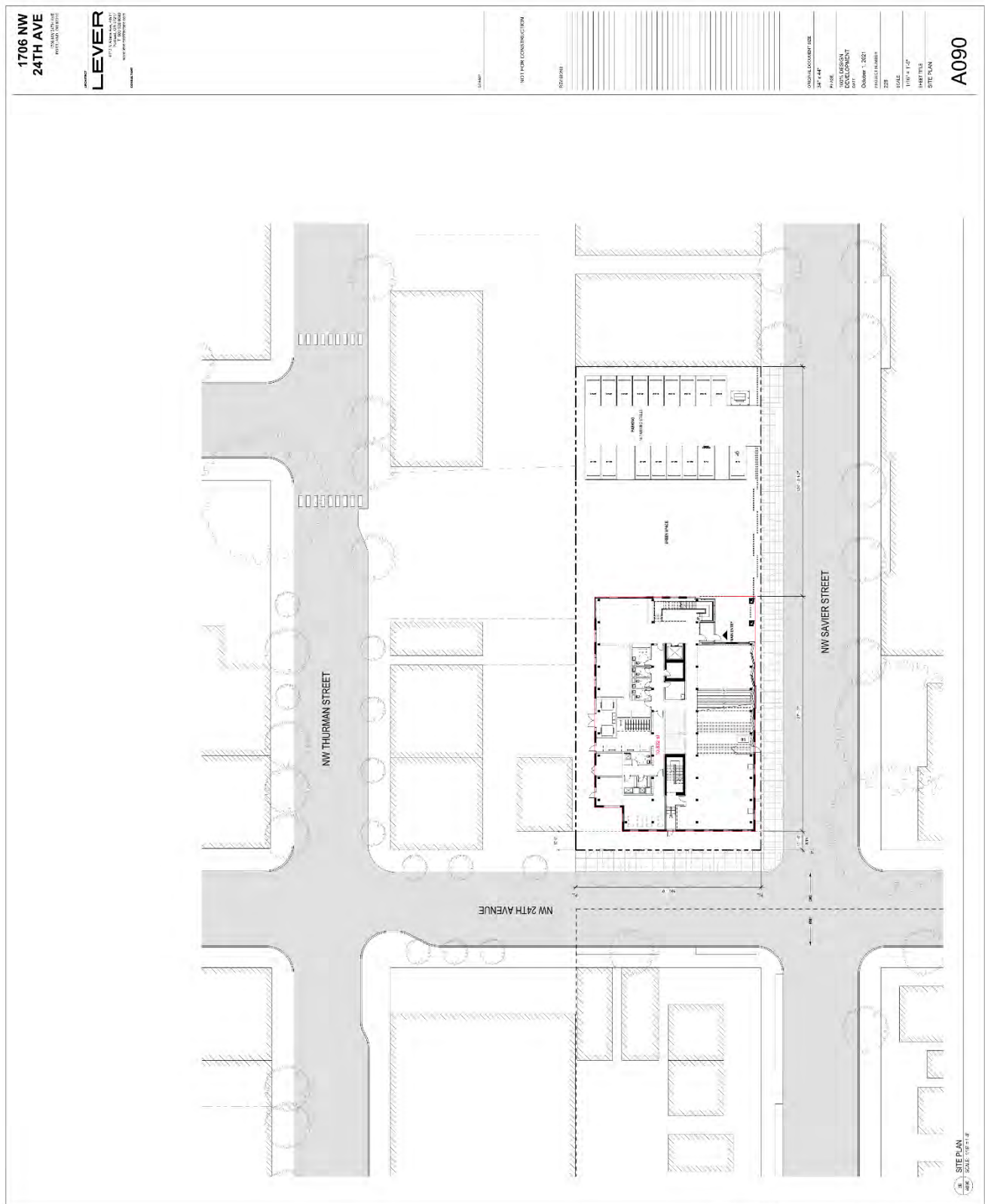
Stair 2 is fully enclosed and discharges to the exterior at grade. Additional exit capacity is provided on the first floor to accommodate the all-hands seating area connecting the 1<sup>st</sup> and 2<sup>nd</sup> floors.

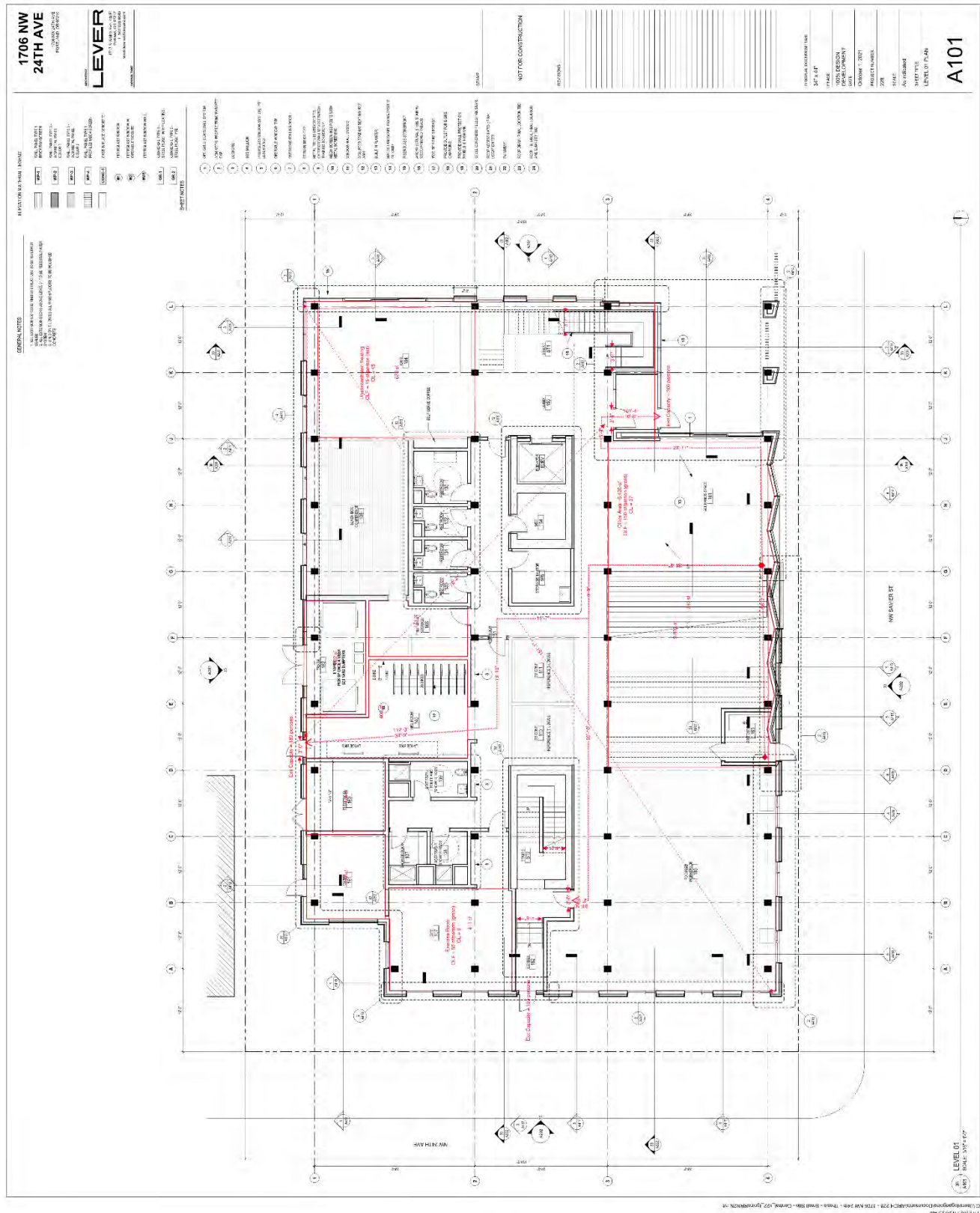


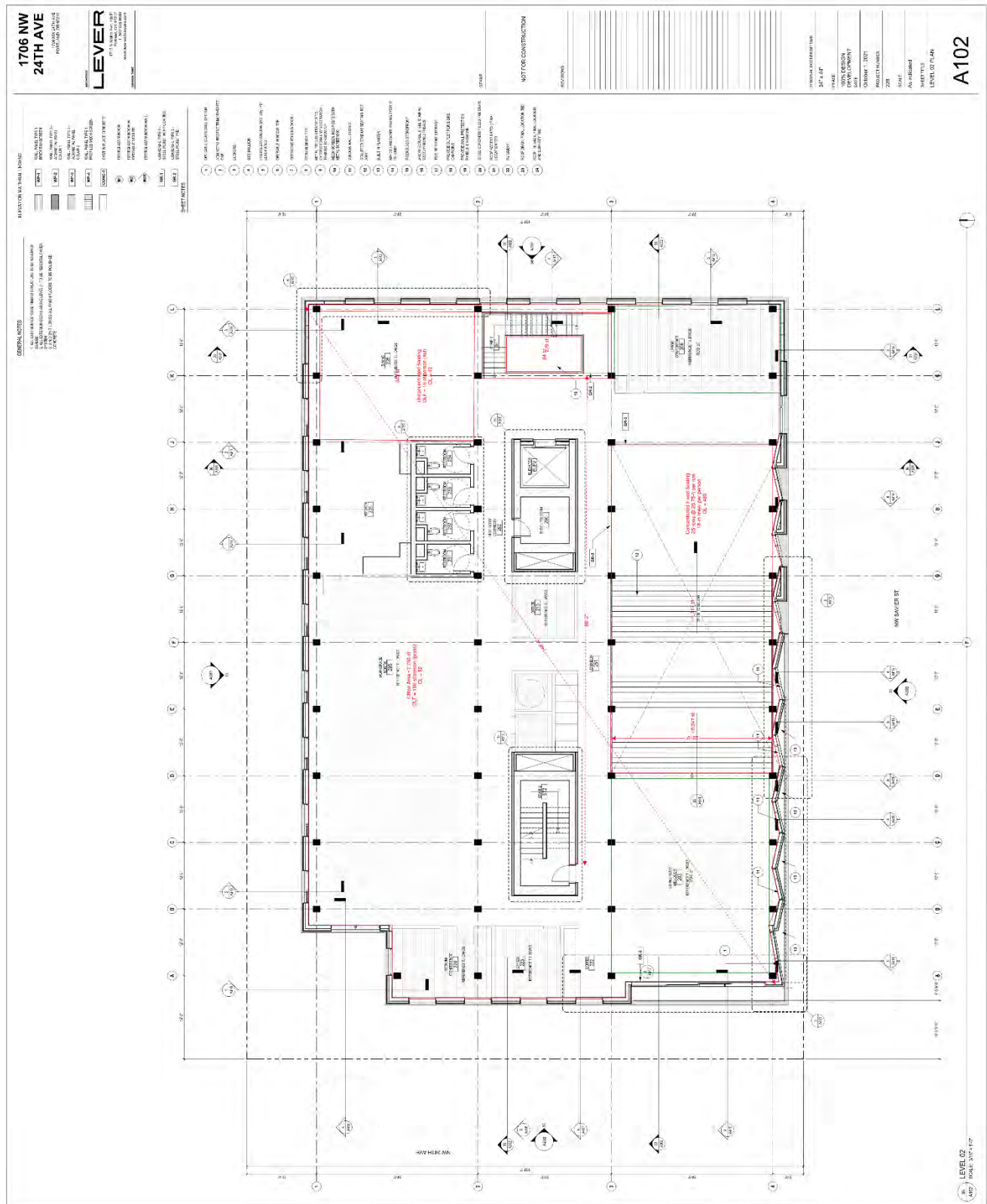
**Lever Architecture – Thesis, 1706 NW 24th Ave**

The conditions described in this report and the accompanying design documents suggest the proposed conditions are not less than equal in terms of life safety and egress capacity with those achieved by compliance with the prescriptive requirements of the OSSC for means of egress in new buildings. Consequently, the applicant seeks approval of the proposed conditions as provided in OSSC §104.10, notwithstanding the failure to comply fully with the prescriptive requirements of OSSC §1006.3.1.

## Appendix A – Floor Plan Markups



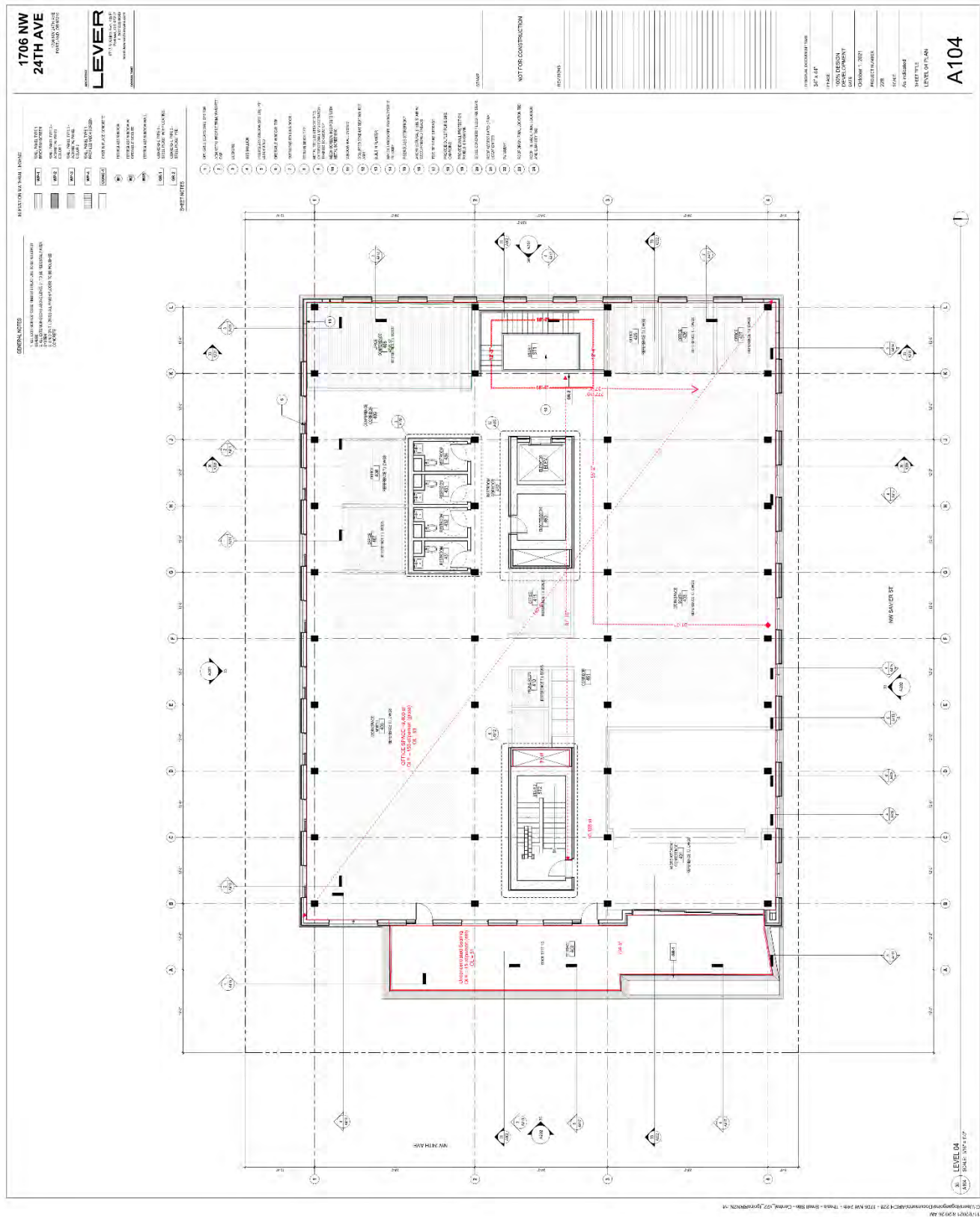


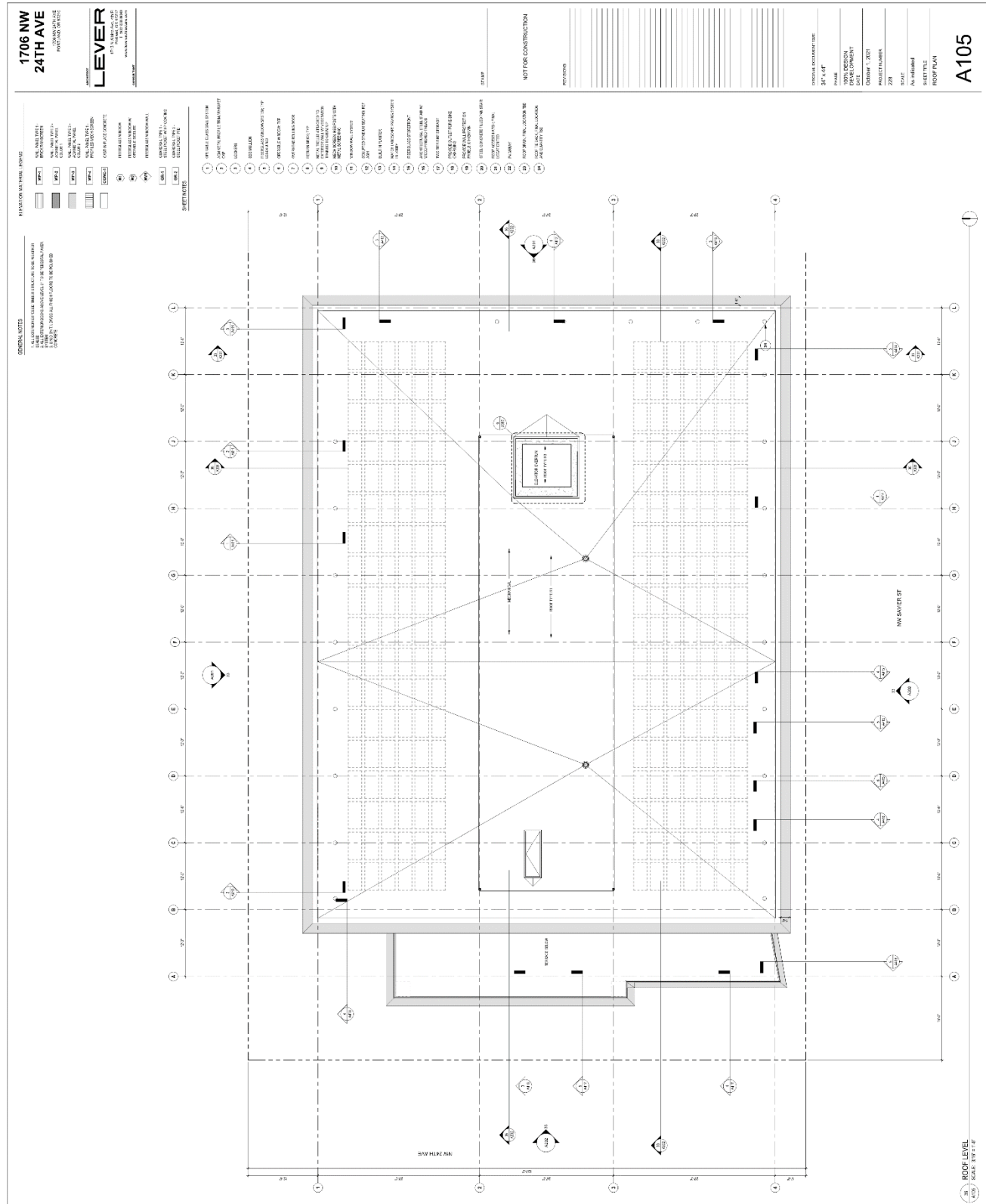












## Appendix B – Smoke Guard Cutsheets

SMOKE GUARD® system

### Model 2100 | fire + smoke curtain



#### DIMENSIONS

- openings: ≤ 16' wide by ≤ 12' tall
- housing height: 6.25"
- housing depth: 6"

#### STANDARDS

- UL 10B "Fire Tests of Door Assemblies" (20 min.) listed by Intertek
- UL 10C "Positive Pressure Fire Tests of Door Assemblies" (20 min.) listed by Intertek
- UL 10D "Fire Tests for Fire Protective Curtains" (up to 2 hr.) listed by Intertek
- UL 864 "Control Units for Fire Protective Signaling Systems" listed by Intertek
- UL 1784 "Air Leakage Tests of Door Assemblies" listed by Intertek

#### CODE REFERENCES

- 2006/2009/2012 IBC Section 909
- 2009 IBC Section 711.5.2
- 2012 IBC Section 710.5.2.2
- NFPA 105 "Installation of Smoke Control Door Assemblies"
- NFPA 252 "Standard Methods of Fire Tests of Door Assemblies" (20 minute)

**System Description.** The Smoke Guard system Model 2100|Fire + Smoke curtain (M2100|FS) is a code compliant fire-rated assembly that is designed to protect openings as a component of the smoke control system. The M2100|FS consists of a fire-rated fabric curtain assembly mounted within a steel housing. The curtain is captured vertically on both sides by a side guide assembly. The curtain assembly is equipped with a bottom bar to seal the curtain at the bottom. M2100|FS comes in a standard galvanized finish. RAL color options are available.

**Codes and Standards.** M2100|FS fulfills IBC requirements to provide an opening protective, where these assemblies are permitted as passive barriers used in conjunction with smoke control systems. This fire + smoke-rated curtain system can serve as opening protective for counter tops, openings in walls, and certain applications in atrium construction.

**System Operation.** The system is deployed upon a signal from the local smoke detection system or from a smoke control panel. System power requirement is 120-volt AC. The unit is also equipped with a 24-volt DC battery back-up system that is maintained by the electronic controls. When required the system can also be connected to building standby power. The controls include a universal power supply that can be adapted to foreign electrical current requirements.

**Installation.** The system is typically mounted above the ceiling. It anchors to the ceiling above or on to a header assembly supported from the deck above. It may also be mounted to a wall. The side guides are secured to the walls on either side of the opening and may be surface mounted or embedded for smooth finish walls. All Smoke Guard system units are to be installed by factory recognized installation personnel. Preparation work required by others is outlined in the product specification. Installation requires clear, plumb, unobstructed wall surfaces for mounting the side guides, 120v AC power and, should local smoke detection be required, a smoke detector.



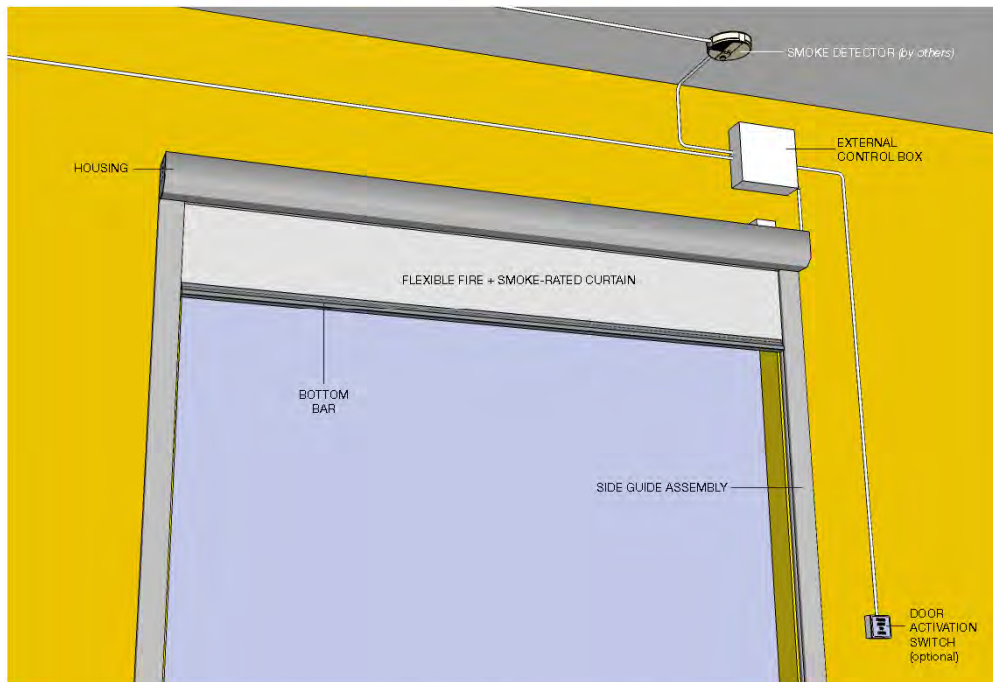
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SMOKE GUARD® system

## Model 2100 | fire + smoke curtain



**Fail Safe Features.** The M2100|FS is a gravity fail safe system. The M2100|FS also features a fault report to indicate that the system requires a corrective action. The control unit monitors the state of curtain deployment.

**Listed Releasing Device.** The M2100|FS control has been tested in accordance with the UL 864 standard and listed by Intertek Laboratories. It also has a full interface to the fire service interface system (FSCS) as an option for dedicated smoke control.

**Door Activation Switch.** The door activation switch may be mounted on opposite sides of the opening. If the system remains in alarm, and the door activation switch is engaged, the system will retract to allow passage and then redeploy after a brief pause. When the alarm clears the curtain automatically retracts to the ready position.



fire+smoke  
CURTAINS

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SMOKE GUARD® system

## Model 2500 | fire + smoke curtain



### DIMENSIONS

- drop lengths ≤12': housings are 10.25" high by 9" deep
- drop lengths >12' housings are 11.75" high by 10.5" deep

### STANDARDS

- UL 10B "Fire Tests of Door Assemblies" (20 min.) listed by Intertek
- UL 10C "Positive Pressure Fire Tests of Door Assemblies" (20 min.) listed by Intertek
- UL 10D "Fire Tests for Fire Protective Curtains" (up to 2 hr.) listed by Intertek
- UL 864 "Control Units for Fire Protective Signaling Systems" listed by Intertek
- UL 1784 "Air Leakage Tests of Door Assemblies" listed by Intertek

### CODE REFERENCES

- 2006/2009/2012 IBC Section 909
- 2009 IBC Section 711.5.2
- 2012 IBC Section 710.5.2.2
- NFPA 105 "Installation of Smoke Control Door Assemblies"
- NFPA 252 "Standard Methods of Fire Tests of Door Assemblies" (20 minute)

**System Description.** The Smoke Guard system Model 2500|fire + smoke (M2500|FS) is a code compliant fire and smoke-rated assembly that is designed to protect openings as an element of a smoke control system. The M2500|FS consists of a fire + smoke-rated fabric curtain assembly mounted within a steel housing. The curtain is captured vertically on both sides by curtain loops secured by guide rods. The guide rods are attached by side guides anchored to the side walls. The curtain assembly is equipped with a bottom bar to seal the curtain at the bottom and optional bottom bar safety edge to detect obstructions to the deploying screen. M2500|FS comes in a standard galvanized finish. RAL color options are available.

**Codes and Standards.** M2500|FS fulfills IBC requirements to provide an opening protective, where these assemblies are permitted as passive barriers used in conjunction with smoke control systems. This fire + smoke-rated curtain system can serve as opening protective for counter tops, openings in corridor, and certain applications in atrium construction.

**System Operation.** The system is deployed upon a signal from the local smoke detection system or from a smoke control panel. System power requirement is 120-volt AC. The unit is also equipped with a 24-volt DC battery back-up system that is maintained by the electronic controls. When required the system can also be connected to building standby power. The controls include a universal power supply that can be adapted to foreign electrical current requirements.

**Installation.** The system is typically mounted above the ceiling. It anchors to the ceiling above or on to a header assembly supported from the deck above. It may also be mounted to a wall. The side guides are secured to the walls on either side of the opening and may be surface mounted or embedded for smooth finish walls. All Smoke Guard system units are to be installed by factory recognized installation personnel. Preparation work required by others is outlined in the product specification. Installation requires clear, plumb, unobstructed wall surfaces for mounting the side guides, 120v AC power and, should local smoke detection be required, a smoke detector.



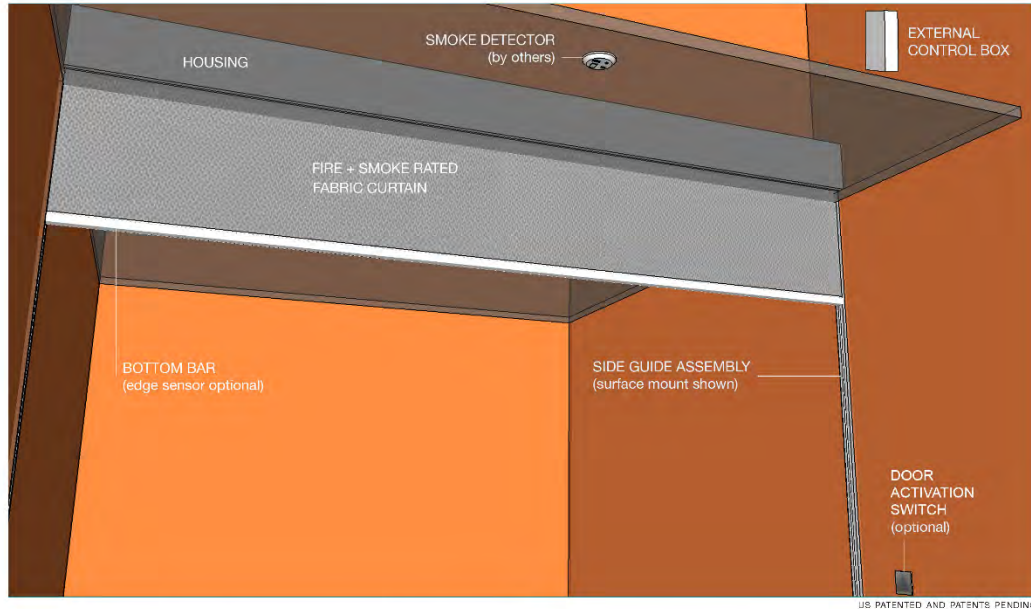
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SMOKE GUARD® system

Model 2500 | fire + smoke curtain



**Fail Safe Features.** The M2500|FS is a gravity fail safe system. The M2500|FS also features a fault report to indicate that the system requires a corrective action. This control also monitors the state of curtain deployment. An optional bottom bar sensing edge may be mounted to the curtain to guard against obstructions during deployment.

**Listed Releasing Device.** The M2500|FS control has been tested in accordance with the UL 864 standard and listed by Intertek Laboratories. It also has a full interface to the fire service interface system (FSCS) as an option for dedicated smoke control.

**Door Activation Switch.** The door activation switch may be mounted on opposite sides of the opening. If the system remains in alarm, and the door activation switch is engaged, the system will retract to allow passage and then redeploy after a brief pause. When the alarm clears the curtain automatically retracts to the ready position.



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