Development Services

From Concept to Construction

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APPEAL SUMMARY

Status: Decision Rendered

Appeal ID: 22242	**Project Address:** 2735 NE 82nd Ave
Hearing Date: 12/18/19	**Appellant Name:** Tom Jaleski
Case No.: B-012	**Appellant Phone:** 503.488.5651
Appeal Type: Building	**Plans Examiner/Inspector:** John Cooley
Project Type: commercial	**Stories:** 3 **Occupancy:** A-1, A-3, A-5, B, E, S-1 **Construction Type:** I-B, II-B
Building/Business Name: Madison High School	**Fire Sprinklers:** Yes - Throughout Main and Gym Building
Appeal Involves: Alteration of an existing structure,Addition to an existing structure	**LUR or Permit Application No.:** 19-116412-CO
Plan Submitted Option: pdf [File 1] [File 2] [File 3] [File 4]	**Proposed use:** High School - Main and Gym Building, Grandstands

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	§404.5 Smoke Control
Requires	A smoke control system shall be installed in accordance with Section 909. Exception: Smoke control is not required for atriums that connect only two stories.
Proposed Design	The Madison High School Main Building is three stories and includes atmospheric connections between all levels during normal operations. These vertical openings classify as an “Atrium” in accordance with the Chapter 2 definition. In lieu of providing a smoke control system, the building will meet the intent of the §404.5 exception for two-story atriums by providing rated separation in a fire event as follows: Interior Exit Stairways • Stair S3 and Stair S6, extend from Level 0 to Level 2. • They are protected as interior exit stairway enclosures and separated from the rest of the building by a combination of 2-hour fire barriers and min 2-hour fire-resistance-rated accordion-type, sliding doors; the sliding door can be released to accommodate egress. Flexible Learning Space • Double height space on Level 0, extending to Level 1, connected atmospherically through the Commons to Level 2. • Separated at Level 1 by two different assemblies. The first, a glass smoke partition with sprinklers, provided prescriptively in accordance with §404.6 Exception 1; the second, a 1-hour fire-resistance-rated coiling fire door.

Tiered Seating
• Gathering area that extends from Level 0 to Level 1, connected atmospherically through the Commons to Level 2.
• Separated at Level 0 with a 1-hour fire-resistance-rated coiling fire door; a person-door is integral to the system to accommodate egress as a second means.
• Smoke detection will be installed around the perimeter of the floor opening between Level 0 and Level 1; spaced per NFPA 72.

Reason for alternative

The proposed design controls smoke utilizing active protection by means of separation in lieu of active protection by means of mechanical ventilation; this method provides an equivalent level of protection to what the code requires.

In an event, the only area where all three stories are connected is at the Tiered Seating. In this condition, Stair 4 is a convenience stairway included in the Tiered Seating space and is not required for means of egress per Chapter 10. In addition, the Tiered Seating has low combustible loading as it will be constructed using cast-in-place concrete with solid wood seating. The area of the Tiered Seating in plan is approximately 1% of the atrium area on Level 1 and, in an event, is separated from the egress system on Level 0. Including this stepped area as part of the atrium in the levels above does not increase the fire hazard that this code provision is addressing.

The proposed design meets the intent of the exception for an atrium combining only two stories because the atrium is not atmospherically connected to Level 0 in a fire event, other than at the Tiered Seating, which is more of a stepped floor condition than a connection between stories. The separation of the openings in the Level 1/2 atrium from Level 0 prevents smoke from migrating throughout three interconnected levels. The separation will meet the enclosure provisions of §404.6 so that the building provides equivalent fire life safety protection to what the code requires.

Other atrium considerations are met:
• To meet the intent of §404.8, the interior finish of walls and ceilings within the atrium space are Minimum Class B.
• To meet the intent of §404.9, travel distance within the Commons Area portion of the atrium space is no greater than 200 feet. Portions of the remainder of the building that are technically within the atrium space, but outside of the Commons Area, are within 250 feet of an exit.

The proposed design will prescriptively meet all other requirements of an atrium throughout areas not separated from the atrium.

Therefore, in lieu of providing mechanical smoke control, it is requested that the Interior Exit Stairways, Flexible Learning Space, and Tiered Seating be allowed an alternate for active separation strategies that are triggered by the fire alarm.

ATTACHMENT
E02-029AMHS AppealAtrium Smoke Control includes:
• Floor plans of the Main Building indicating the Tiered Seating, Flexible Learning, and atrium spaces (3 sheets)
• Building sections with Tiered Seating indicated (3 sheets)
• Detail of Tiered Seating (1 sheet)
• Cookson rolling fire door cutsheet (2 sheets)
• McKeon vertical coiling fire door with deployable egress cutsheet (2 sheets)
• Won-Door FireGuard horizontal sliding accordion fire door cutsheet (10 sheets)

Appeal item 2

Code Section §2902.1 Minimum Number of Fixtures

Requires	Plumbing fixtures shall be provided for the type of occupancy or use of space in relation to Table 2902.1 and in the minimum number shown in Table 2902.1. Types of occupancies not shown in Table 2902.1 shall be considered individually by the building official and shall reflect the use of the space being served by the fixtures. The number of occupants shall be determined by this code. Occupancy classification and use of space shall be determined in accordance with Chapter 3.
Proposed Design	The Main Building at Madison High School includes a Theater and Black Box (Level 1), and the Gym Building includes a Main Gym and Auxiliary Gym (Level G2). These spaces will be used as Group E educational instruction during typical day-use, and Group A assembly event spaces for after-school activities. The site also includes Grandstands that will be used for outdoor assembly events. The proposed number of plumbing fixtures is less than the minimum number required if plumbing fixtures were to incorporate the maximum occupant load of classrooms, indoor assembly events, and outdoor assembly events all simultaneously. In lieu of providing permanent additional fixtures to accommodate the maximum occupant loads of all spaces simultaneously, the building is designed according to the following scenarios: • Classroom Use • Theater Event • Gym Event • Outdoor Assembly Event
Reason for alternative	The proposed number of plumbing fixtures is sized to accommodate a school day scenario (classroom use), indoor assembly events, and an outdoor assembly event as separate scenarios to demonstrate that the building has a sufficient number of fixtures in all uses. Conservative occupant loads were applied in each scenario such that the maximum occupant load is larger than would realistically be anticipated. The Classroom Use scenario is the largest overall scenario and accommodates approximately 4,551 occupants in the building simultaneously. This scenario is a conservative approach: • Anticipated enrollment numbers provided by PPS include 1,850 students and faculty. • Proposed plumbing fixtures provide for nearly 2.5x the number of people anticipated for enrollment. • Proposed scenario incorporates occupant loads for classroom use in the Gym, Library, Locker Rooms, Auditorium, Commons. • The proposed number of fixtures still exceeds the required number of fixtures when restricted access restrooms are removed from the plumbing fixture count, without discounting any occupants. • The fixtures are provided within a travel distance of 500 feet; on upper floors, the required number is provided on the story and within one story below. In addition, • Past approved appeals, such as Grant High School (attached) were approved using non-simultaneous occupant load at the Auditorium, Gym, Locker Rooms, Commons, and even some miscellaneous spaces. • Grant, Franklin, and Roosevelt were anticipated to have enrollment numbers similar to Madison; the water closets were provided as follows: Grant (95), Franklin (77), Roosevelt (90). • Madison is proposed to have 117 (101 unrestricted) water closets, exceeding the number of fixtures required, as well as the precedent set by other high schools in the area with the same anticipated enrollment numbers. The four scenarios are: • Classroom Use (4,551 occupants) – Main and Gym Building

o Occupied Classrooms (20 / 50 sf/occupant, depending on function; W/C at 1 per 50)
o Occupied Theater/Black Box (50 sf/occupant; W/C at 1 per 50)
o Occupied Gym (50 sf/occupant; W/C at 1 per 50)
o Unoccupied Grandstands (0 sf/occupant)

• Theater Event (947 occupants) – Main Building Only
o Unoccupied Classrooms (0 sf/occupant)
o Occupied Theater/Black Box (fixed seating and 15 sf/occupant for stage; W/C at 1 per 125 and 1 per 65)
o Unoccupied Gym (0 sf/occupant)
o Unoccupied Grandstands (0 sf/occupant)

• Gym Event (2,313 occupants) – Gym Building Only
o Unoccupied Classrooms (0 sf/occupant)
o Unoccupied Theater/Black Box (0 sf/occupant)
o Occupied Gym (See Appeal #21879 Item 4 approved 09/11/2019)
o Unoccupied Grandstands (0 sf/occupant)

• Outdoor Event (1,864 occupants) – Gym Building Only
o Unoccupied Classrooms (0 sf/occupant)
o Unoccupied Theater/Black Box (0 sf/occupant)
o Unoccupied Gym (0 sf/occupant)
o Occupied Grandstands (1 occupant per 18” with storage at 1 per 300; W/C at 1 per 75 and 1 per 40 with storage at 1 per 100)

Therefore, it is requested that the required number of plumbing fixtures be permitted to be calculated separately based on the use scenarios described, rather than at the maximum occupant load for all spaces simultaneously.

E02-029A_MHS Plumbing Count Strategy includes:

• Plumbing Fixture Counts for all scenarios (1 sheet)
• Floorplan highlighting the locations of plumbing fixtures for occupants on each floor and which are restricted access (5 sheets)
• Grant High School Appeal ID #15102 (separate; 2 sheets appeal + 5 sheets attachment)

Appeal item 3

Code Section	§707.2 Materials (Fire Barriers)
Requires	Fire barriers shall be of materials permitted by the building type of construction.
Proposed Design	The Main Building at Madison High School is an existing three-story building that will be undergoing additions and alterations. The building will include a Media Center / Library on Level 1. The Media Center / Library egresses through an exit passageway that extends from Stair S3 to the exterior exit doors. The Media Center / Library is separated from the exit passageway by 2-hour fire-resistance-rated construction. For a portion of the separation, it is proposed that the separation be constructed of glass in a noncombustible, hollow metal frame, protected by Tyco WS sprinklers on both sides in accordance with ICC ESR-2397. In lieu of a pony wall, a 2-inch deep, 4-inch high base frame is proposed. The doors will be a 90-minute fire-resistance-rated assembly.
Reason for alternative	As evaluated by the International Code Council (ICC), Tyco Model WS window sprinklers are allowed for use as part of a wet-pipe fire suppression system to provide equivalence to a 2-hour

fire-resistance-rating for fixed, glazed wall assemblies that are non-load-bearing, interior walls. As described in the ICC ESR-2397 report (attached), the sprinklers are designed to wet the entire surface of the glass to provide the required level of fire resistance.

The proposed assembly will be designed to meet the specifications of Section 4 of the ICC ESR-2397 report. The fixed, glazed assembly will not have intermediate horizontal mullions that would interfere with uniform distribution of water. In lieu of the pony wall suggested in §5.11, the glass will be supported at the base by a noncombustible, 4-inch high, hollow metal frame that extends a minimum of 2 inches from the face of the glass on each side. This will ensure that complete coverage of the glass by sprinklers is not impeded by the potential arrangement of combustible materials, achieving the same intent as a pony wall.

Therefore, it is requested that the proposed design of the fixed, glazed wall assembly in accordance with ICC ESR-2397, with the proposed noncombustible frame dimensions in lieu of a pony wall, be allowed to meet the §707.2 material requirements for a 2-hour fire barrier as required at the exit passageway enclosure between the Media Center and the Library.

ATTACHMENT
E02-029AMHS AppealESR-2397 Sprinklers on Glass includes:
• Floorplan of Level 01 indicating location of fire barrier wall assembly utilizing sprinkler protection on glazed walls (1 sheet)
• Section detail of glazed wall assembly at base (1 sheet)
• ICC-ES Evaluation Report ESR-2397 (5 sheets)

APPEAL DECISION

1. Omission of smoke control system: Denied. Proposal does not provide equivalent Life Safety protection.

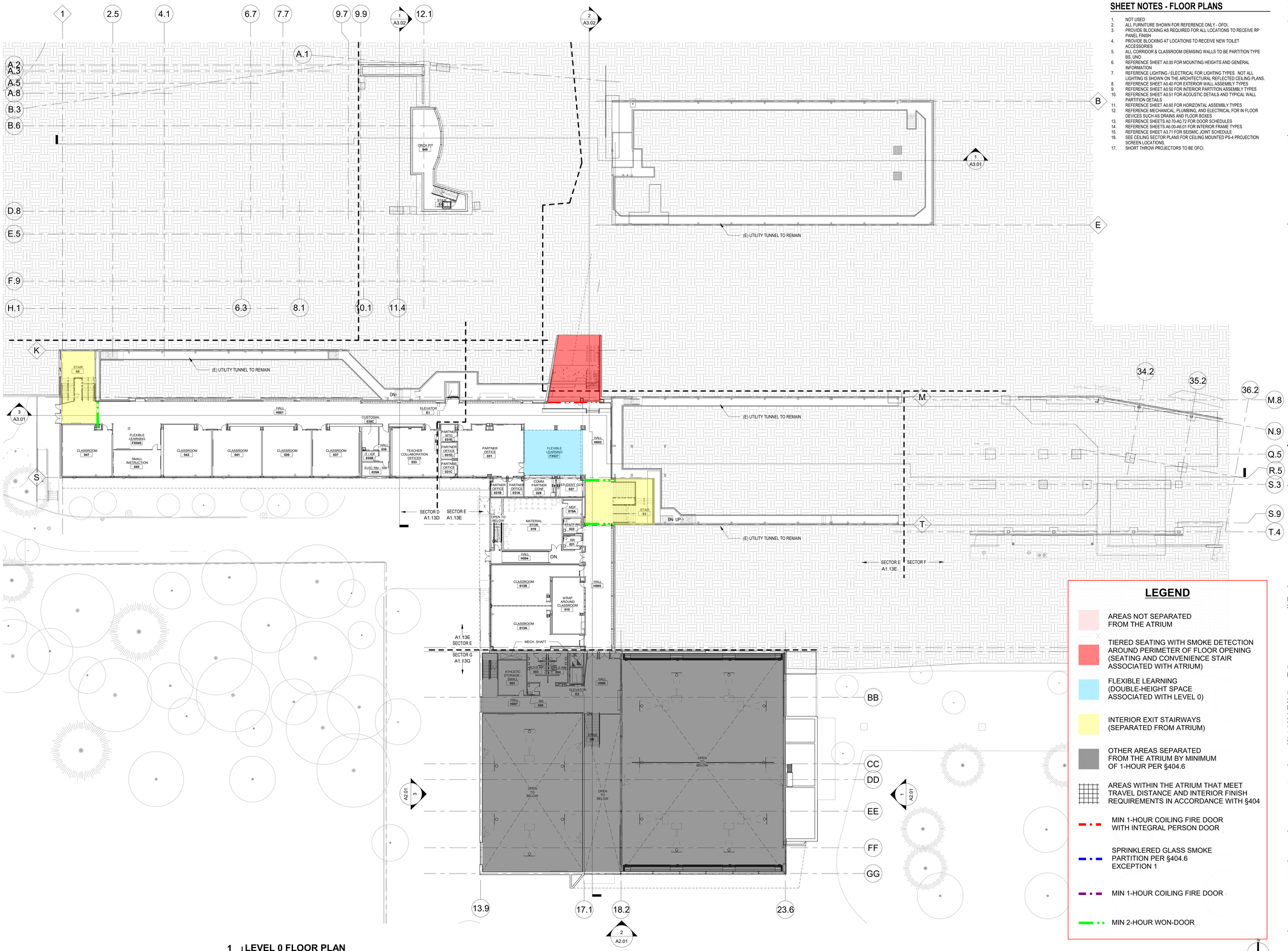
2. Reduction in minimum required number of plumbing fixtures: Granted as proposed.

3. Alternate 2 hour wall construction: Denied. Proposal does not provide equivalent Life Safety protection.

Appellant may contact John Cooley (503-823-7944) with questions.

For the item 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 NOTES - FLOOR PLANS

1. NOT USED
2. ALL FURNITURE SHOWN FOR REFERENCE ONLY - OFOI.
3. PROVIDE BLOCKING AS REQUIRED FOR ALL LOCATIONS TO RECEIVE RP PANEL FINISH
4. PROVIDE BLOCKING AT LOCATIONS TO RECEIVE NEW TOILET ACCESSORIES
5. ALL CORRIDOR & CLASSROOM DEMISING WALLS TO BE PARTITION TYPE B5, UNO
6. REFERENCE SHEET A0.00 FOR MOUNTING HEIGHTS AND GENERAL INFORMATION
7. REFERENCE LIGHTING / ELECTRICAL FOR LIGHTING TYPES. NOT ALL LIGHTING IS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS.
8. REFERENCE SHEET A0.40 FOR EXTERIOR WALL ASSEMBLY TYPES
9. REFERENCE SHEET A0.50 FOR INTERIOR PARTITION ASSEMBLY TYPES
10. REFERENCE SHEET A0.51 FOR ACOUSTIC DETAILS AND TYPICAL WALL PARTITION DETAILS
11. REFERENCE SHEET A0.60 FOR HORIZONTAL ASSEMBLY TYPES
12. REFERENCE MECHANICAL, PLUMBING, AND ELECTRICAL FOR IN FLOOR DEVICES SUCH AS DRAINS AND FLOOR BOXES
13. REFERENCE SHEETS A0.70-A0.72 FOR DOOR SCHEDULES
14. REFERENCE SHEETS A0.00-A0.01 FOR INTERIOR FRAME TYPES
15. REFERENCE SHEET A0.71 FOR SEISMIC JOINT SCHEDULE
16. SEE CEILING SECTOR PLANS FOR CEILING MOUNTED PS-4 PROJECTION SCREEN LOCATIONS.
17. SHORT THROW PROJECTORS TO BE OFCI.

LEGEND

- AREAS NOT SEPARATED FROM THE ATRIUM
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- FLEXIBLE LEARNING (DOUBLE-HEIGHT SPACE ASSOCIATED WITH LEVEL 0)
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- OTHER AREAS SEPARATED FROM THE ATRIUM BY MINIMUM OF 1-HOUR PER §404.6
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- MIN 1-HOUR COILING FIRE DOOR WITH INTEGRAL PERSON DOOR
- SPRINKLERED GLASS SMOKE PARTITION PER §404.6 EXCEPTION 1
- MIN 1-HOUR COILING FIRE DOOR
- MIN 2-HOUR WON-DOOR

1 | LEVEL 0 FLOOR PLAN
A1.03 | 3/64" = 1'-0"

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Key Plan

Project Owner:
PORTLAND PUBLIC SCHOOLS

Project Name:
MADISON HIGH SCHOOL

Project Adress:
**2735 NE 82ND AVE.
PORTLAND, OR 97220**

Revisions to Sheet

No.	Revision	Date

Status: **PACKAGE 2 PERMIT SET**

Date: **05/24/2019**

Sheet Title
LEVEL 0 FLOOR PLAN

Sheet No.
A1.03

Job No.
4722-01

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1 | **LEVEL 1 FLOOR PLAN**
A1.04 | 3/64" = 1'-0"

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Status: **PACKAGE 2 PERMIT SET**

Date: **05/24/2019**

Sheet Title
LEVEL 1 FLOOR PLAN

Sheet No.
A1.04

Job No.
4722-01

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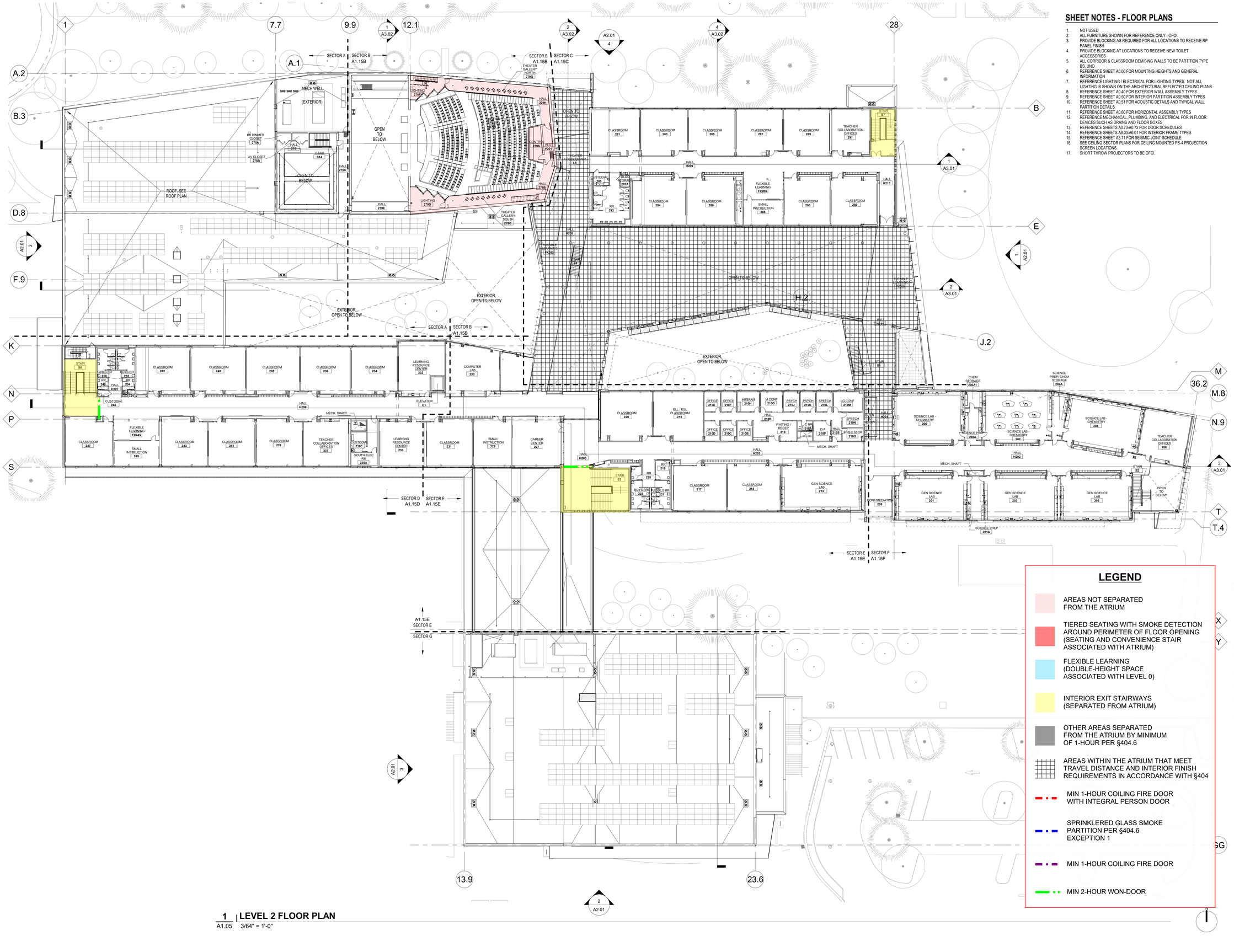

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1 LEVEL 2 FLOOR PLAN
A1.05 3/64" = 1'-0"

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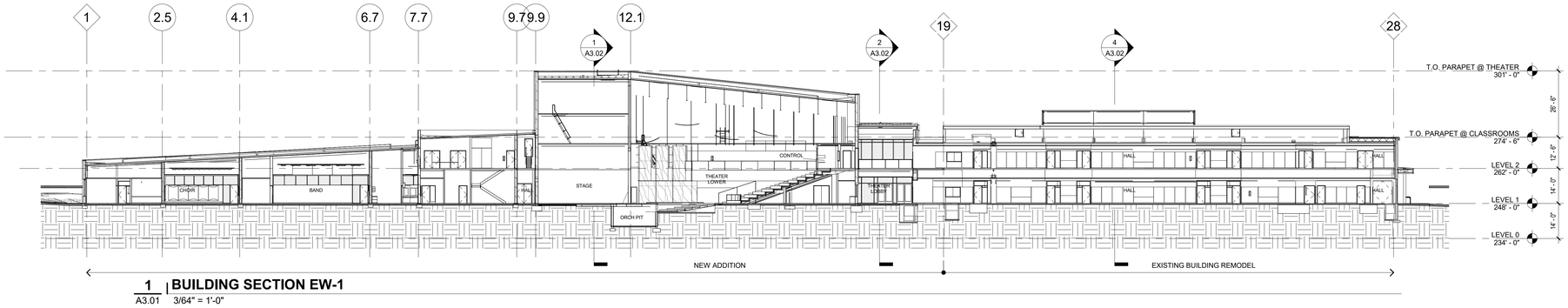
Status: **PACKAGE 2 PERMIT SET**

Date: **05/24/2019**

Sheet Title
LEVEL 2 FLOOR PLAN

Sheet No.
A1.05

Job No.
4722-01



1 / A3.01 | **BUILDING SECTION EW-1**
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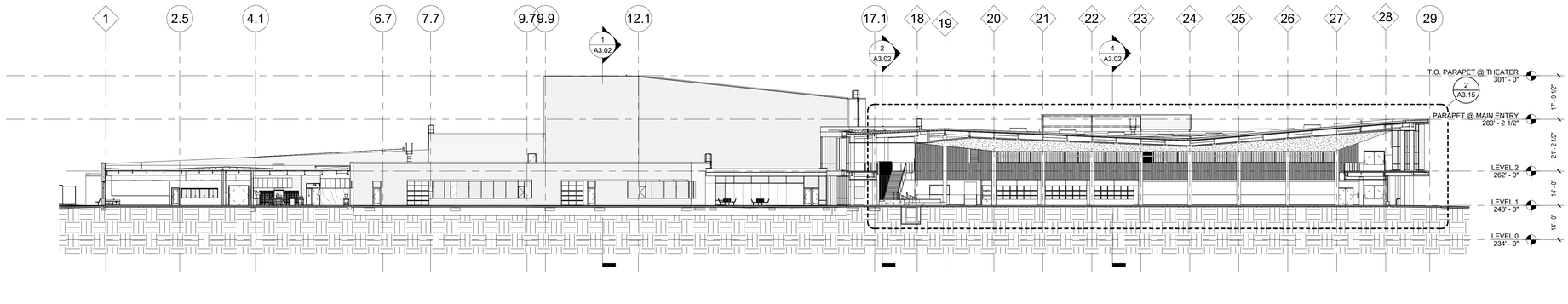

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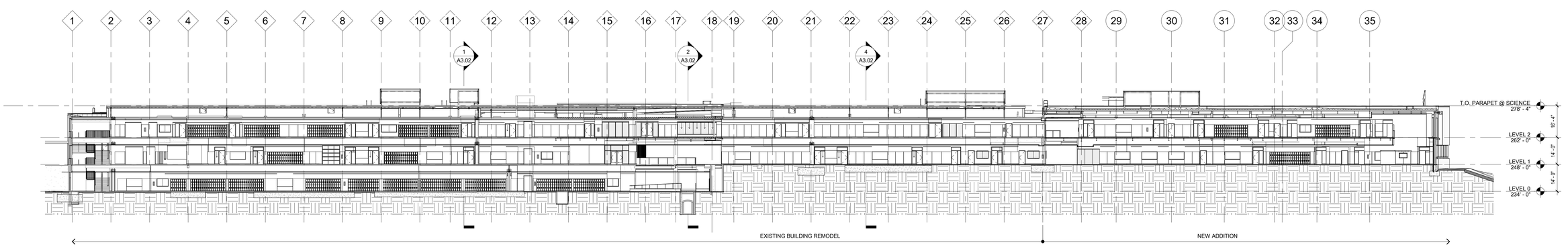

3 / A3.01 | **BUILDING SECTION EW-3**
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Status: **PACKAGE 2 PERMIT SET**

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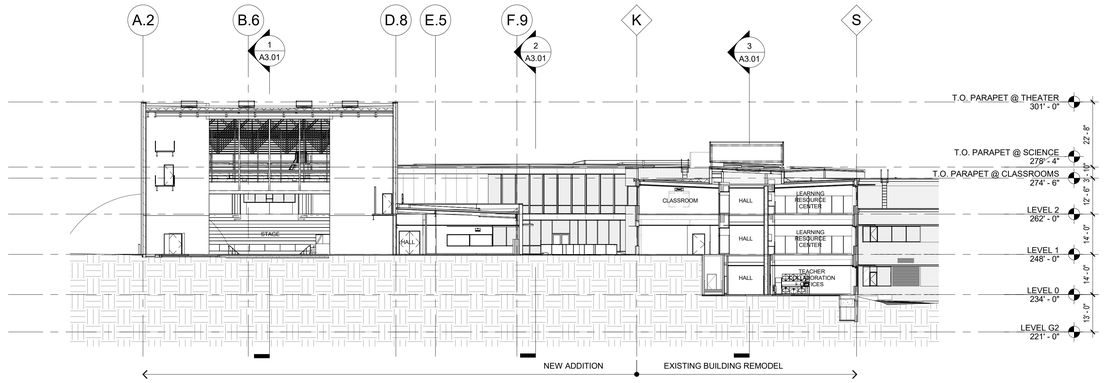
Sheet Title
BUILDING SECTIONS - OVERALL

Sheet No.
A3.01

Job No.
4722-01



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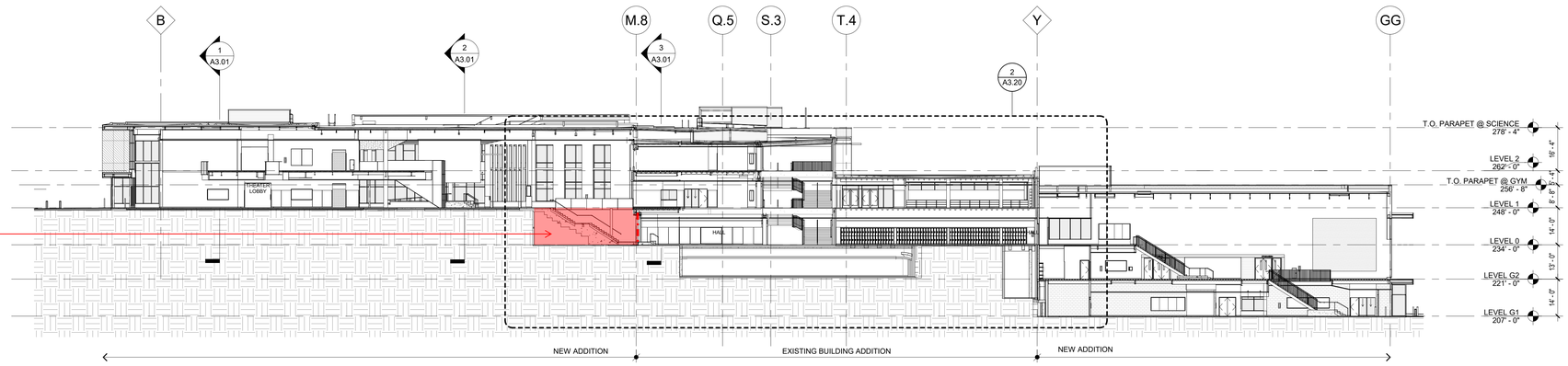

Tiered seating separated from Level 0 by 1-hour rated accordion type, horizontal sliding door with a person-door.

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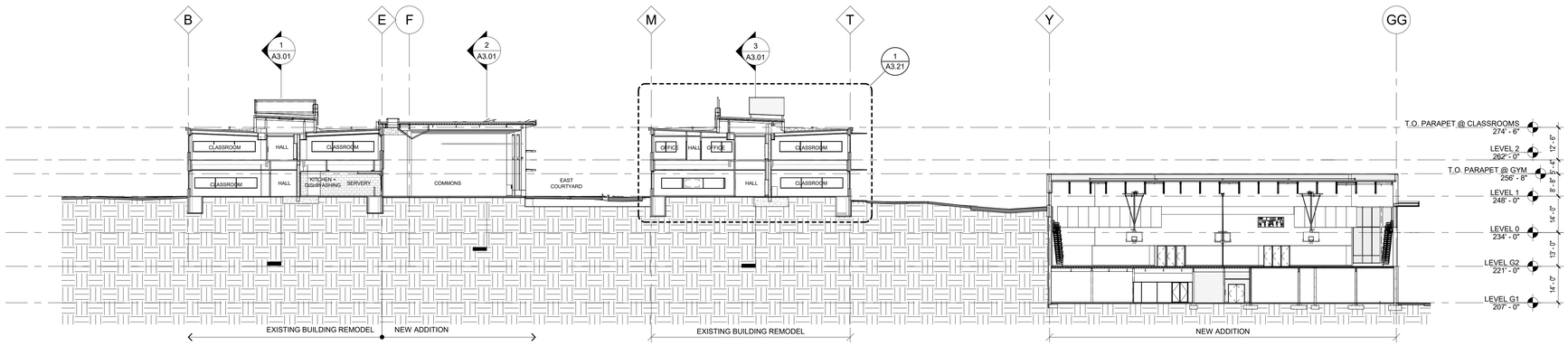

4 | **BUILDING SECTION NS-3**
A3.02 3/64" = 1'-0"

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Sheet Title
BUILDING SECTIONS - OVERALL

Sheet No.
A3.02

Job No.
4722-01

LEGEND

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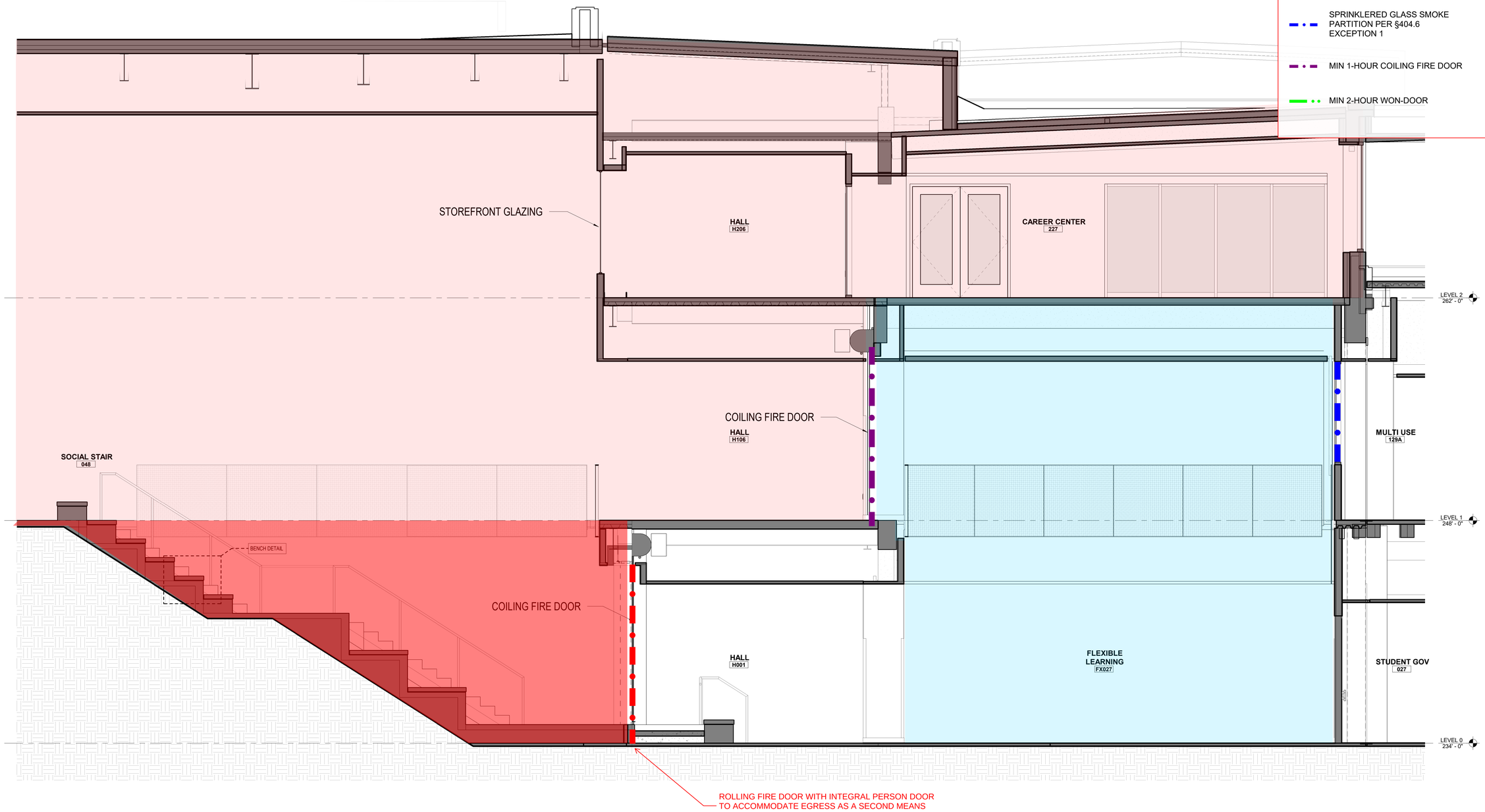


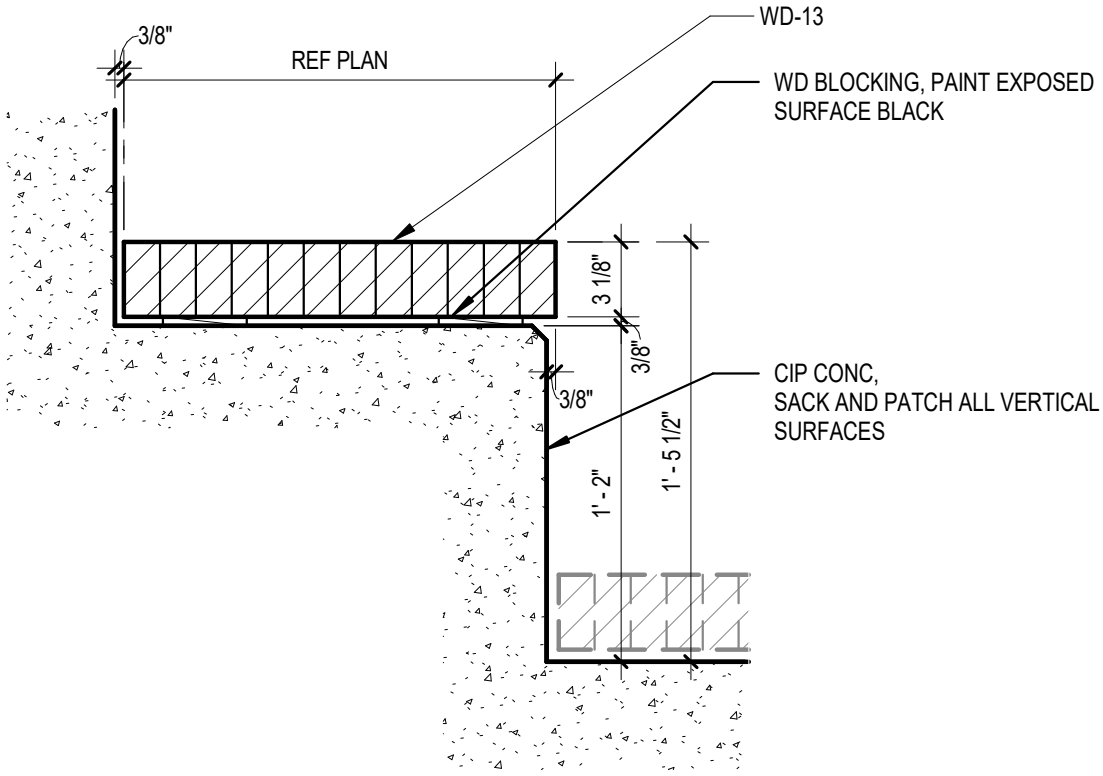
1 / A7.36E | **BLDG SECTION THROUGH SOCIAL STAIR AND CROSSROADS**
3/8" = 1'-0"

Madison High School

12/11/2019

Section at Social Stair & Crossroads

opsis + dao



Madison High School

12/11/2019

Social Stair Bench Detail

opsis + dao

FIRE PROTECTIVE CLOSURES

ROLLING FIRE DOOR

Models ERD10 and ERD20 (Insulated Firemiser™)

STOP FIRE AND SMOKE IN ITS TRACKS

TAILORED LIFE SAFETY SOLUTIONS

Our fire doors help save property, and more importantly, live. Our advanced Fire Door Systems offer industry-leading, intelligent operation that:

- Activate thermally or electrically to contain fire and smoke spread
- Easily - or even automatically - reset or auto open after a fire event or power outage

ENHANCED SMOKE PROTECTION

Optional SmokeShield® smoke and draft control conforms to UL1784 and assures that smoke will be compartmentalized with the fire and not spread quickly throughout the facility, allowing safe egress for occupants.

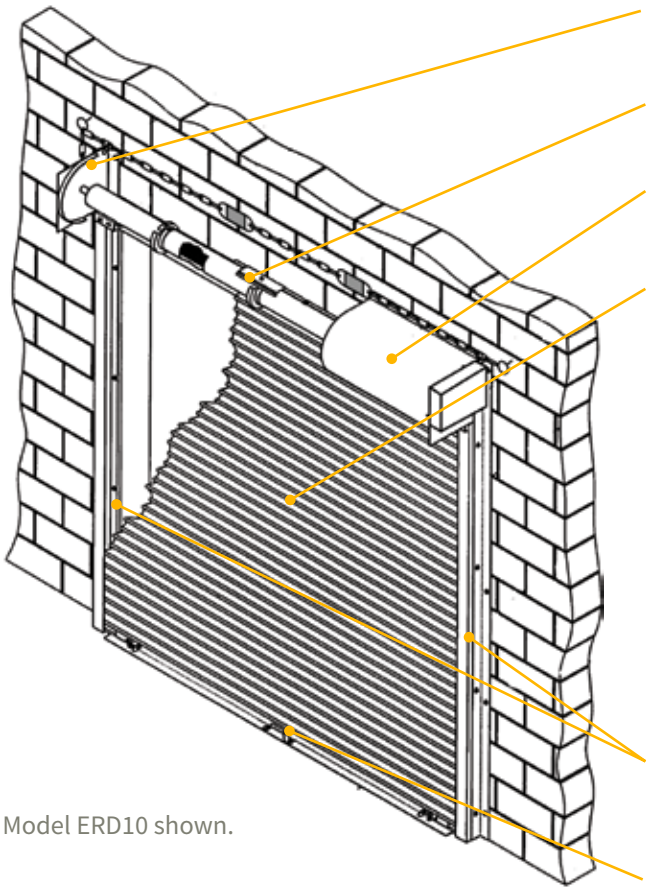
CUSTOM BUILT FOR EVERYDAY USE

Designed for fire rated openings, our fire doors provide security and access control and are for use in openings that are not part of a required means of egress. Factory Mutual Approved and listed with California Office of State Fire Marshall. UL listed for fire protection ratings of 3/4, 1 1/2, 3 and 4 hours.

INSULATED ROLLING FIRE DOOR OPTION

The Firemiser insulated fire door contains mineral wool which helps control climate and reduce sound transmission - featuring an R value of 5.3 and a U Value of .189 based on the ASHRAE Handbook of Fundamentals. This door is ideal for a climate controlled environment because it helps to maintain a different temperature on the interior and exterior of the door.

STANDARD COMPONENT MATERIALS AND FINISHES



Model ERD10 shown.

BRACKETS - Steel with powder coating to match curtain. Bolt to guide assembly and support counter-balance shaft curtain.

COUNTER-BALANCE SHAFT - Steel. Supports curtain and contains torsion springs for assisting operation.

HOOD - Galvanized steel with GalvaNex™ polyester enamel finish to match curtain. Encloses the curtain and provides fire protection at the head of the door.

CURTAIN

FIRE DOOR MODEL ERD10

Interlocking roll formed slats of galvanized steel with GalvaNex polyester enamel finish in Gray, Tan, White or Brown. Cast iron end locks are riveted to the ends of alternate slats to maintain alignment and prevent war.

FIRE DOOR MODEL ERD20

Double skin interlocking roll formed slats of galvanized steel, with GalvaNex polyester enamel finish in Gray, Tan, White, or Brown filled with mineral wool insulation. Flame spread and smoke development index factors are zero as tested per ASTM E84. Cast iron end lock/wind locks are riveted to the slats to maintain alignment, lock curtain into guides and prevent wear.

GUIDES - Structural steel with powder coating to match curtain. Guide assemblies bolt to the wall and support the weight of the door.

BOTTOM BAR - Two back to back structural steel angles with powder coating in Gray, Tan, White or Brown. Lock mechanisms available.

OPERATION

Alarm-activated AlarmGard® and a variety of motor options are the superior choice.

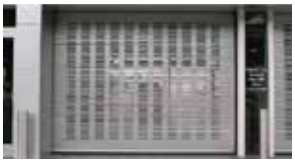
Fusible-link-activated chain, crank or motor options are available for openings that are not in a pedestrian thoroughfare and where electrical activation is not desired.

OPTIONAL MATERIALS AND FINISHES

- Stainless steel - 300 series in #4 finish
- SpectraShield® Powder Coating in more than 180 colors

Brackets, Guides and Bottom Bar

- Hot-dip galvanizing on steel components
- Zinc-enriched, corrosion-resistant powder coating in Gray



CUSTOM-DESIGNED SOLUTIONS

Contact our experienced Architectural Design Support Team for help in customizing our products to fit your specific application. Call 800.233.8366 ext. 4551 • architecturaldesignsupport@cornellcookson.com

Vertical Coiling with Deployable Egress

SAFESCAPE® T2000 Series

A vertical coiling fire and smoke rated door system that incorporates either one or two deployable complying egress swing doors. Flush mounted in an adjacent wall, these complying egress swing doors deploy and lock into position at the command of an alarm condition. Once in place the integral egress doors and frames serve as side guides to accommodate a 3-hour roll-down door assembly that descends at a governed rate. Within seconds a 3-hour opening protective with single or dual egress swing doors stands ready to fight fire and smoke.

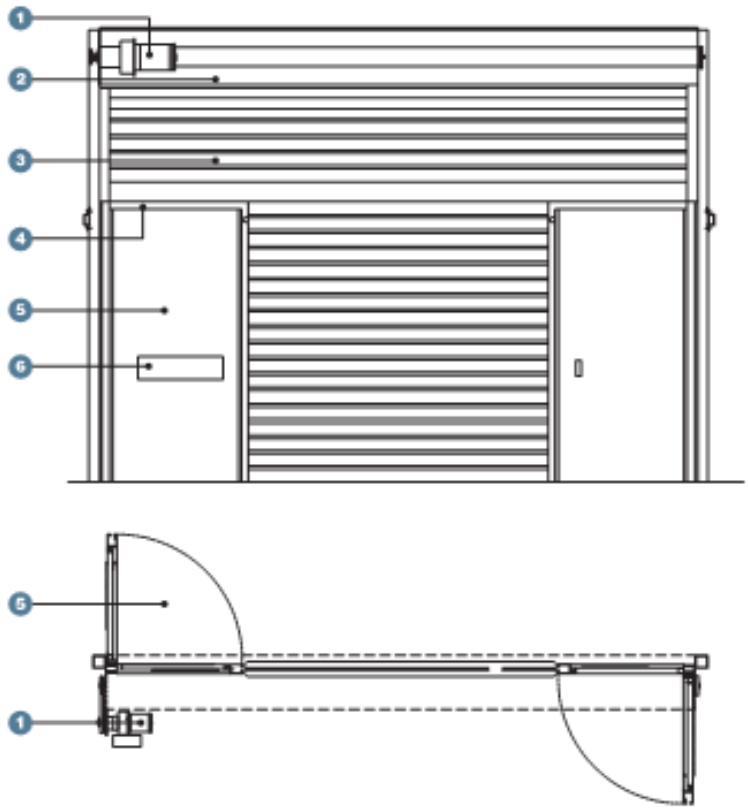
Safescape® Model T2000 | Vertical Coiling Fire Door with One Deployable Egress Door

T2000 Series fire door assemblies incorporate either one or two deployable egress doors which are flush mounted in an adjacent wall. Upon activation by a building alarm or in an emergency condition, these complying egress doors swing into position. The doors then serve as side guides for the vertical coiling door assembly as it descends to provide complete protection from fire and smoke, and provide conventional egress as required.

Safescape® Model T2500 | Vertical Coiling Fire Door with Two Deployable Egress Doors

T2500 with Two Deployable Egress Doors: Main Components

1 Fire Door Motor Operator
2 Hood
3 Curtain Slats
4 Door Closer
5 Swinging Egress Doors
6 Fire Exit Hardware



Note: Egress doors may swing in opposite directions.

Product Features

Ratings

3-hour rated UL 10B*

90-minute rated assembly available with a 650° F over 30 minute Temperature Rise rating when required

Smoke & Draft labeled UL 1784

Code Compliance

CCRR-1086

ADA compliant

Egress

Available with up to 2 complying egress swing doors

Operation

Auto-Set® automatic resetting

Fail-Safe Design - automatic self-closing mechanism does not require power operation to self-close

Size

Unlimited heights and widths to 60'; for larger sizes and custom configurations consult the factory

Finishes

McKeon sterling gray

Powder coat

Stainless steel

*Listed under the Canadian equivalent CAN/ULC S104

MODEL	OPERATION		EGRESS
	Open	Self-Close	
T2000	Auto-Set® Power Operator	Fail-Safe Mechanical	1 Complying Swing Door[1]
T2500	Auto-Set® Power Operator	Fail-Safe Mechanical	2 Complying Swing Doors[1]

[1] Maximum swing door width is 48".

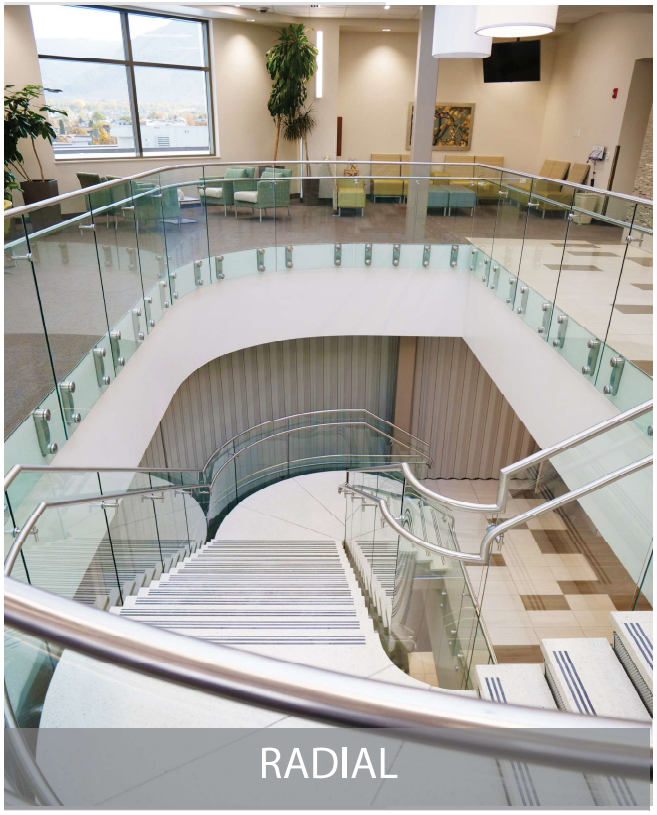
This technology is the subject of US Patent No. 7,490,645

McKEON DOOR COMPANY T: 800.266.9392 / 631.803.3000 | F: 631.803.3030 | www.mckeondoor.com | info@mckeondoor.com

WON-DOOR

FireGuard

The ORIGINAL horizontal sliding accordion fire door.


RADIAL

CROSS-CORRIDOR


WIDE SPAN

Meets all IBC and NFPA Egress Requirements

Providing Architects with DESIGN FREEDOM since 1962

FIRE SAFETY by Design

Founded in 1962, the Won-Door Corporation introduced the world's most durable acoustically rated folding partition. In 1977, the company pioneered the development of the first-ever accordion-type, fire rated horizontal sliding door. Today, more than 40 years later, Won-Door remains the industry leader in the manufacture of accordion-type fire doors and moveable firewalls. Technology developed by Won-Door engineers continues to influence the building products and fire protection industries.

SETTING THE STANDARD

The First to Gain Universal Acceptance

The development of the accordion-type, horizontally sliding fire door – as manufactured by Won-Door Corporation – has had a profound influence on the model code requirements that regulate their use, leading to its universal acceptance for use in virtually any means of egress application.

The first to be UL listed

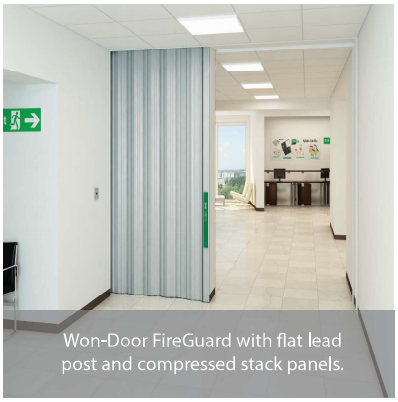
The Won-Door FireGuard was the first accordion-type fire door to successfully pass nationally recognized tests to withstand the passage of fire. Won-Door FireGuard products are listed by Underwriters Laboratories Inc. (UL) for up to 3 hours as a rated door assembly and 2 hours as a moveable fire wall.

Still on the cutting-edge

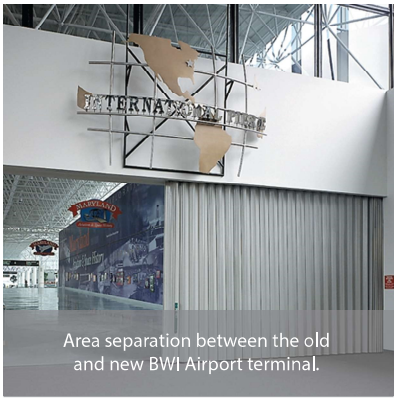
Only Won-Door FireGuard doors have a flat lead post option that eliminates the need for a pocket cover door. This option along with our compressed stack panels combine to reduce traditional stack depths by up to 50%.

ENGINEERED TO FIT YOUR NEEDS

Why be limited by traditional forms of opening protectives like roll-down shutters or swing-type doors? The custom-made Won-Door FireGuard fire door can accommodate virtually any opening. Capable of spanning wide openings and heights up to 28 feet* – even radial configurations are possible. Best of all, the single- or bi-parting doors are engineered to fit your design while meeting all code requirements for egress and fire ratings.



Won-Door FireGuard with flat lead post and compressed stack panels.



Area separation between the old and new BWI Airport terminal.

* Increased custom heights available

WON-DOOR
CORPORATION
SALT LAKE CITY, UT 84104
(800)-453-8494
WWW.WONDOOR.COM

SUPERIOR PERFORMANCE, SUPERIOR SERVICE

Company owned sales offices placed strategically around the country, plus a highly skilled team of designers, engineers and field technicians, provide product service and support across the United States. Thoroughly knowledgeable about building codes as well as construction, our sales team can be relied upon to guide you every step of the way so you can get your ideas off the drawing board and into existence.

Typical applications include:

- Area Separation
- Atrium Separation
- Corridor Separation
- Elevator Lobby Separation
- Horizontal Exits
- Occupancy Separation
- Safe Areas of Refuge
- Smoke Barrier
- Smoke and Draft Control
- Vertical Exit Enclosure Separation
- Smoke Compartmentation
- Stage Proscenium Protective
- Vertical Opening Protective

The same Won-Door FireGuard fire doors are used in this elevator lobby/ stairwell to satisfy two code enclosure requirements – protection of a vertical opening as well as elevator lobby separation.

APPLICATION
Elevator Lobby Separation in Type R Occupancy

PROJECT
Gold Country Hotel & Casino

LOCATION
Oroville, California

PROJECT ARCHITECT
Varond Design Group

Won-Door FireGuard fire doors are used to create unobtrusive, yet code-compliant, elevator lobbies that are compatible with the decor of this high-rise hotel and casino in Northern California.

APPLICATION
Vertical Opening Protective

PROJECT
Arizona State University
Athletics Facility

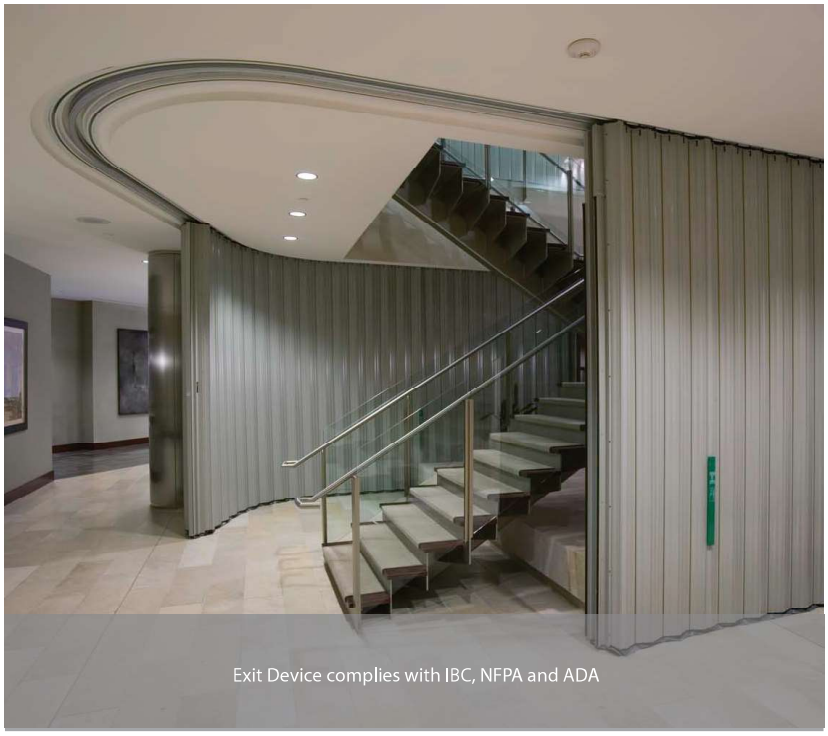
LOCATION
Tempe, Arizona

PROJECT ARCHITECT
DWL Architects

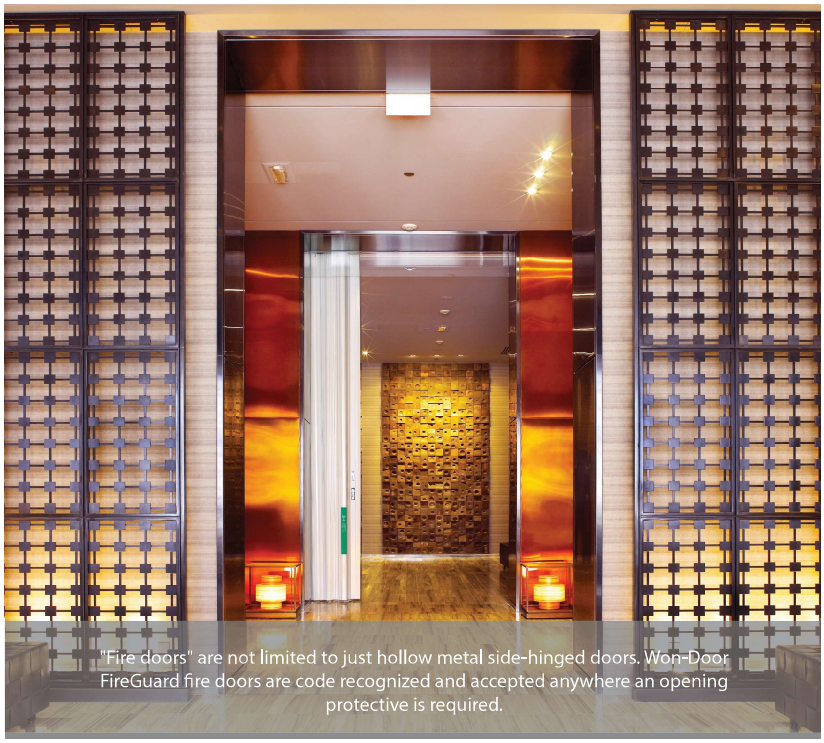
Exit Device complies with IBC, NFPA and ADA

EGRESS APPLICATIONS

USE WON-DOOR FIREGUARD IN LIEU OF SWING DOORS

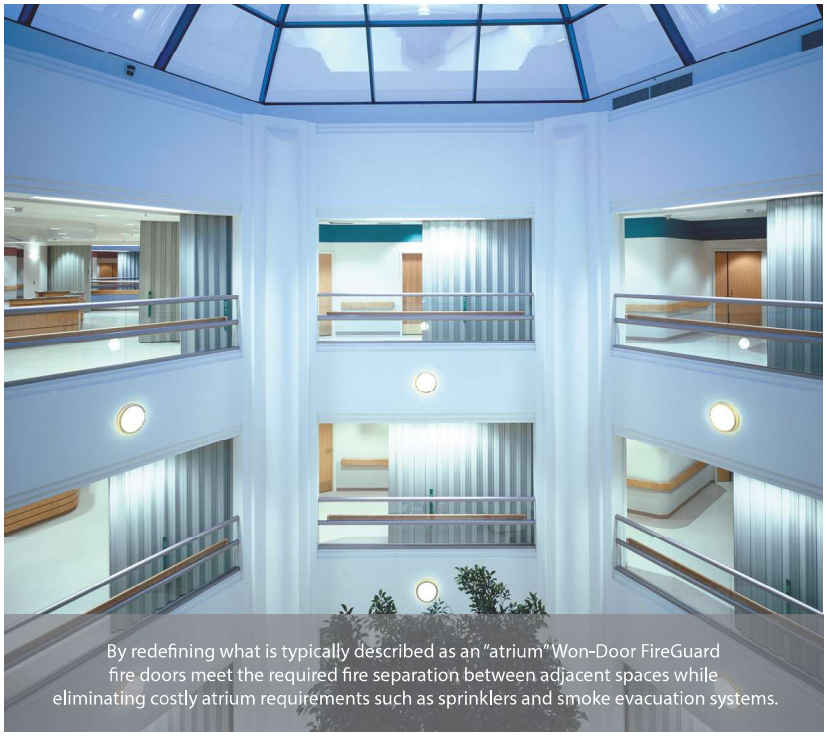

Exit Device complies with IBC, NFPA and ADA

USE WON-DOOR FIREGUARD IN LIEU OF REDUCING THE SIZE OF RATED OPENINGS


"Fire doors" are not limited to just hollow metal side-hinged doors. Won-Door FireGuard fire doors are code recognized and accepted anywhere an opening protective is required.

ADDITIONAL APPLICATIONS

USE WON-DOOR FIREGUARD IN LIEU OF SHUTTERS



By redefining what is typically described as an "atrium" Won-Door FireGuard fire doors meet the required fire separation between adjacent spaces while eliminating costly atrium requirements such as sprinklers and smoke evacuation systems.

USE WON-DOOR FIREGUARD IN LIEU OF FIRE-RATED GLASS

Specifying Won-Door FireGuard in conjunction with tempered glass can result in significant cost savings compared to using fire-rated glass.

APPLICATION
Area Separation

PROJECT
Provo City Library

LOCATION
Provo, Utah

PROJECT ARCHITECT

A non-rated clerestory joins the renovated historic 1892 building with a large modern library addition. Combining the old and the new presented a code compliance challenge. Since the aggregate square footage exceeded the allowable area defined in the current code, a two hour fire barrier – the Won-Door FireGuard – was used to separate a large portion of the historic renovation. By taking advantage of the approved wide span opening protective capabilities, historic ambiance and code compliance were easily accommodated.

VALUE ENGINEERING OPTIONS
using Won-Door FireGuard

A. FIRE-RATED GLASS:

Won-Door is often 1/3 the cost to protect the same opening. Use tempered glass or clear opening with Won-Door FireGuard for:

- Exterior Rated Windows/Facades
- Atriums & Mezzanines
- Rated Glass Enclosure

B. ELEVATOR LOBBIES:

Point of Access single door enclosure is often the least expensive option compared to pressurized shafts and full elevator lobbies on every floor.

- Per ASTM 1784 without an artificial bottom seal
- 2015 IBC 3006.3 exception 3

C. ATRIUMS:

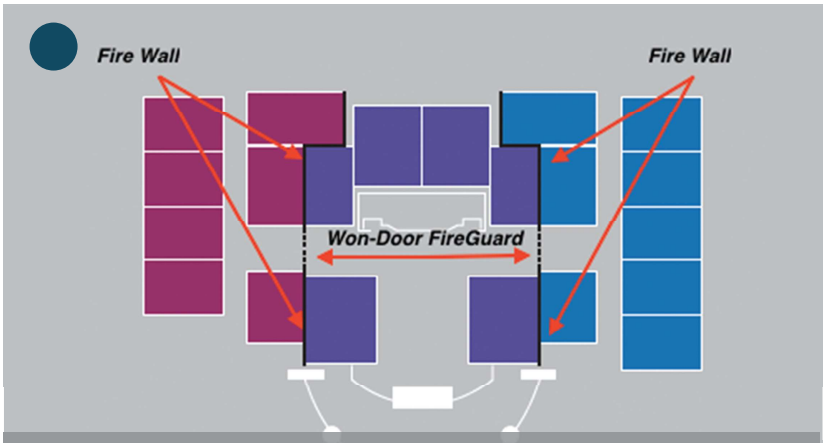
Enclosing the upper floors during fire alarm turns the "atrium" into a "shaft" per 2015 IBC. The following may be omitted:

- Smoke Purge
- 1-hour rating on all adjacent walls
- Full Building Sprinkler
- Class B Finishes

D. AREA ALLOWANCES:

Introduction of Fire Walls with large openings to connect the spaces reduces floor area of an occupancy – sprinkler and construction type requirements are also reduced.

See Table 506.2 2015 IBC



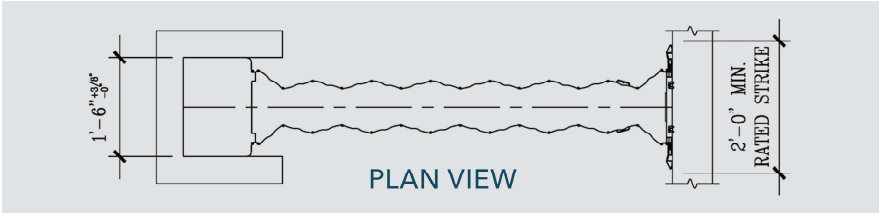
Creative use of fire walls and Won-Door FireGuard doors, resulted in three separate buildings with a single footprint and significantly reduced construction costs.

FireGuard CONFIGURATIONS

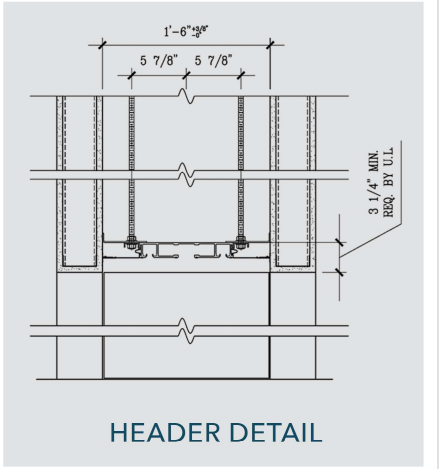
All FireGuard doors are made to fit your design. We offer different configurations based on your design criteria. Won-Door FireGuard assemblies meet all egress requirements found in IBC and NFPA. Below are samples of some of the available details.

FLAT LEAD POST

- Opening sizes up to 40 feet wide and 12 feet tall
- Straight, single-parting configurations
- Integrated pocket cover door



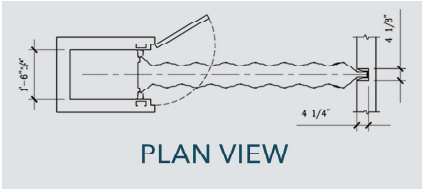
PLAN VIEW



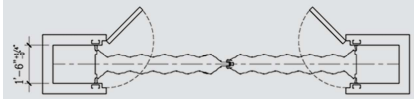
HEADER DETAIL

NARROW LEAD POST

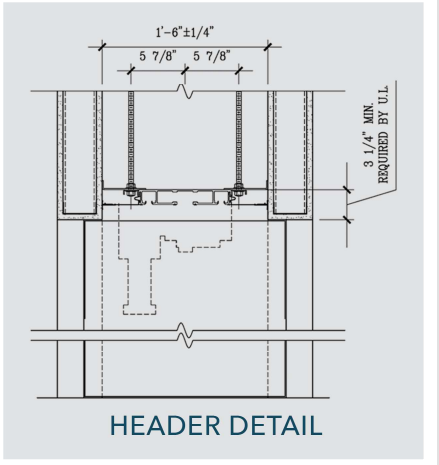
- Opening sizes
  - Unlimited widths (per U.L. label)
  - Heights up to 28 feet
  - For doors >700 square feet contact local District Manager
- Single-parting or bi-parting configurations
- Pocket cover door by others



PLAN VIEW



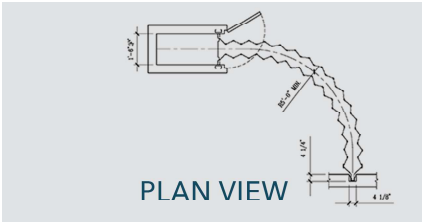
PLAN VIEW



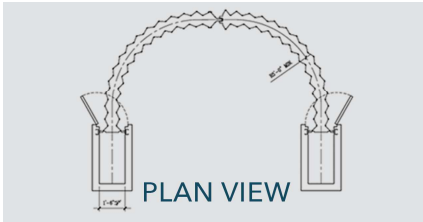
HEADER DETAIL

CURVED

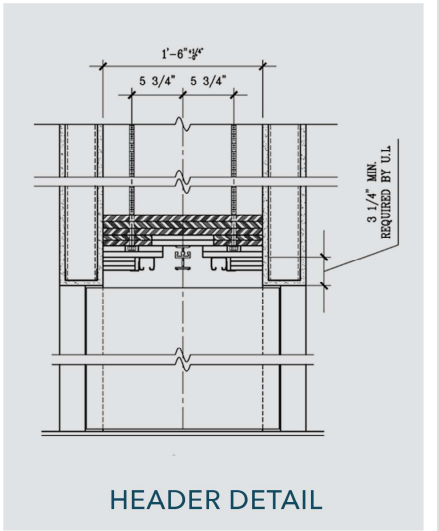
- Opening sizes
  - Unlimited widths (per U.L. label)
  - Heights up to 28 feet
  - For doors >700 square feet contact local District Manager
- Single-parting or bi-parting configurations
- Minimum radius = 5'0"
- Pocket cover door by others



PLAN VIEW



PLAN VIEW



HEADER DETAIL

APPLICATION

Elevator Lobby
Separation/Access Control

PROJECT

San Diego International Airport

LOCATION

San Diego, California

PROJECT ARCHITECT

SPGA

The Won-Door FireGuard fire door can be used to isolate and control a security breach as well as stop the spread of fire and toxic fumes.

LISTINGS and APPROVALS

MEANS OF EGRESS APPLICATIONS

APPLICATIONS	2012 IBC[1]	2015 IBC[1]	2015 NFPA 101
BUILDING CODE REFERENCE	1008.1.2 exc #6	1010.1.2 exc #6	7.2.1.14
PERFORMANCE CRITERIA	1008.1.4.3	1010.1.4.3	7.2.1.14

PRODUCT INFORMATION

MODEL NUMBER	HOURLY RATING	TEST CRITERIA	U.L. FILE NUMBER	SINGLE OR BI-PARTING	MAX. OVERSIZE LABEL SIZE
Door Assembly FireGuard FG20	20 minutes	U.L. 10B (ASTM E-2074)[4]	R6799	Both Available	28'0" (h) Unrestricted (w)
Door Assembly FireGuard FG60[2]	1 hour	U.L. 10B (ASTM E-2074)[4]	R6799	Both Available	28'0" (h) Unrestricted (w)
Door Assembly FireGuard FG90[2]	1 ½ hours	U.L. 10B (ASTM E-2074)[4]	R6799	Both Available	28'0" (h) Unrestricted (w)
Door Assembly FireGuard FG180[2]	3 hours	U.L. 10B (ASTM E-2074)[4]	R6799	Both Available	28'0" (h) Unrestricted (w)
Wall Assembly FireGuard MFW1[3]	1 hour	U.L. 263 (ASTM E-119)	R12272	Single Parting Only	N.A.
Wall Assembly FireGuard MFW2[3]	2 hours	U.L. 263 (ASTM E-119)	R12272	Single Parting Only	N.A.
Automatic Closing System[5]	< 3 hours[6]	U.L. 864	E92690	Can be used for both	N.A.

[1] Any application without occupant load limitation except H occupancies.

[2] Each door assembly, when required, complies with UL1784; and with the exception of FG20, can be labeled as Temperature Rise (TR). See ESR1394.

[3] MFW - Movable Fire Wall

[4] Excluding cotton pad test.

[5] This listing applies for use on all Won-Door FireGuard models.

[6] Can be used on all Won-Door FireGuard models. Listed up to 3 hours.

Other Won-Door FireGuard LISTINGS and REPORTS

ICC	Research Rep. ESR-1394
State of California Door Assemblies MFW	3261-357:001; 1080-357:100
San Francisco Dept. of Public Works	387W18.2
City & County of Denver	M-8275
State of Wisconsin	811003
City of New York Listed Assemblies Oversized Assemblies	MEA-127-79-M; MEA-124-79M; MEA-383-85-M; MEA-377-86-M; MEA-70-87-M; MEA-69-87-M

IMPORTANT INFORMATION about Specifying ACCORDION-TYPE FIRE DOORS

All accordion-type fire doors are not created equal. The Won-Door FireGuard system makes use of the latest technology and is continually tested to make sure all current building code requirements are met or exceeded. Below is a partial list of code requirements for accordion-type, fire rated horizontal sliding fire doors.

ACCORDION-TYPE FIRE DOOR CODE REQUIREMENTS	CODE REFERENCE	WON-DOOR FIREGUARD
TESTED in accordance with UL 10B, NFPA 252	2015 IBC: 716.5.2	✓
AUTOMATIC CLOSING SYSTEM listed separately; UL 864	2016 NFPA 80: 9.4.1.1	✓
SMOKE & DRAFT shall bear the "S" label in accordance with UL 1784	2015 IBC: 716.5.3.1	✓
When used at the POINT OF ACCESS TO AN ELEVATOR shall bear the "S" Label and be tested in accordance with UL 1784 WITHOUT AN ARTIFICIAL BOTTOM SEAL.	2015 IBC: 3006.3 exception #3	✓
Complies with all EGRESS REQUIREMENTS	2015 IBC: 1010.1.4.3, 2015 NFPA 101: 7.2.1.14	✓
Doors in EXIT ENCLOSURES AND EXIT PASSAGEWAYS shall meet maximum transmitted temperature requirements.	2015 IBC: 716.5.5	✓
INSTALLATION of the accordion fire door, including the frame, closing and release devices, and anchorage must be in accordance with NFPA 80	2015 IBC: 1010.1.4.3	✓
INDEPENDENTLY tested to assure compliance	ICC Evaluation Service Report ESR-1394	✓

Only the Won-Door FireGuard uses a state-of- the-art microprocessor activated control system to guarantee reliability and enhance door function. This technology provides almost limitless opportunities for electronic communication, supervision, alarm activation and more.

AVAILABLE OPTIONS	WON-DOOR FIREGUARD
Fire ratings up to 3 hours (A Label)	✓
ASTM E-119 rating (Movable Fire Wall)	✓
High Speed Motors (Maximize Egress Width)	✓
Access control options	✓
Resist air pressure differential of up to .15 inches	✓
Use an infrared light beam to monitor the opening	✓
Control and monitor door functions through Building Automation System	✓

Won-Door Corporation

Horizontal Sliding, Accordion-Type FIRE DOOR FREQUENTLY ASKED QUESTIONS (FAQ'S)

Is FireGuard approved for egress applications?

Yes, FireGuard meets all egress requirements found in NFPA 101 (Chapter 7) and IBC (Chapter 10). The assembly has also been evaluated through the ICC Evaluation Service. ICC-ES Report 1394 is available upon request.

How much does the assembly weigh?

5.5 pounds per square foot.

At what speed does the FireGuard door travel?

NFPA 80 Chapter 9 limits the speed of the door to not less than 6"per second and not more than 24" per second. FireGuard doors are set to open and close at approximately 10" per second. High speed motor option available.

Will the FireGuard door operate in the event of a power loss?

Yes, as required by NFPA 80 Chapter 9 the system includes a standby power source.

Does the FireGuard door require a floor track?

No, the door does not need a floor track.

What fire ratings are available?

Available fire door ratings are 20, 60, 90 and 180 minutes. The FireGuard assembly is also available as a Moveable Fire Wall tested in accordance with ASTM E-119.

Are smoke ratings available?

Yes, FireGuard doors are available with an "S" label.

What is the size limitation?

FireGuard doors are available in heights up to 28'. Widths are virtually unlimited.

Are radial configurations available?

Yes, standard available radii are 5' and 10'. Custom radii are also available greater than 5'.

For additional information visit our website at www.wondoor.com

WON-DOOR CORPORATION
1865 South 3480 West
Salt Lake City, Utah 84014
800-453-8494

MADISON HIGH SCHOOL PLUMBING FIXTURE SCENARIOS

SCENARIO A - CLASSROOM USE
Total Occupants: 4551
Occupied areas exclude the following: commons/servery, locker rooms, and site buildings. The theater, black box, gym, and aux gym have been calculated for classroom use.

UNRESTRICTED ACCESS		50% OCC. LOAD		WC/UR		LAV	
	Occ. Load	M	F	M	F	M	F
Level G1							
Business (B)	16	8	8	0.32	0.32	0.1	0.1
Educational (E)	133	66.5	66.5	1.33	1.33	1.33	1.33
Storage (S-1)	8	4	4	0.04	0.04	0.04	0.04
		Sub-total Required		1.69	1.69	1.47	1.47
		Sub-total Provided		15	21	12	12
Level G2							
Business (B)	3	1.5	1.5	0.06	0.06	0.01875	0.01875
Educational (E)	370	185	185	3.7	3.7	3.7	3.7
Storage (S-1)	9	4.5	4.5	0.045	0.045	0.045	0.045
		Sub-total Required		3.805	3.805	3.76375	3.76375
		Sub-total Provided		4	4	3	4
Level 0							
Business (B)	7	3.5	3.5	0.14	0.14	0.04375	0.04375
Educational (E)	393	196.5	196.5	3.93	3.93	3.93	3.93
Storage (S-1)	4	2	2	0.02	0.02	0.02	0.02
		Sub-total Required		4.09	4.09	3.99375	3.99375
		Sub-total Provided		5	5	4	5
Level 1							
Business (B)	196	98	98	3.92	3.92	1.225	1.225
Educational (E)	1989	628	628	12.56	12.56	12.56	12.56
Daycare (E)	48	24	24	0.48	0.48	0.48	0.48
Storage (S-1)	38	19	19	0.19	0.19	0.19	0.19
		Sub-total Required		17.15	17.15	14.455	14.455
		Sub-total Provided		17	20	16	17
Level 2							
Business (B)	79	39.5	39.5	1.58	1.58	0.49375	0.49375
Educational (E)	1251	625.5	625.5	12.51	12.51	12.51	12.51
Storage (S-1)	7	3.5	3.5	0.035	0.035	0.035	0.035
		Sub-total Required		14.125	14.125	13.03875	13.03875
		Sub-total Provided		12	13	10	11
		Grand Total Required		41	41	37	37
		Grand Total Provided		54	63	46	49
		Total Provided Minus Restricted		46	55	38	41

SCENARIO B - THEATER EVENT
Total Occupants: 947
Occupied areas exclude the following: gym, classrooms, library, and site buildings.

UNRESTRICTED ACCESS		50% OCC. LOAD		WC/UR		LAV	
	Occ. Load	M	F	M	F	M	F
Level G1							
Business (B)	0						
Assembly (A-3: Gym)	0						
Storage (S-1)	0						
		Sub-total Required					
		Sub-total Provided					
Level G2							
Business (B)	0						
Assembly (A-3: Gym)	0						
Storage (S-1)	0						
		Sub-total Required					
		Sub-total Provided					
Level 0							
Business (B)	0						
Assembly (A-3: Gym)	0						
Storage (S-1)	0						
		Sub-total Required					
		Sub-total Provided					
Level 1							
Business (B)	0						
Educational (E)	0						
Assembly (A-1: Theater)	910	455	455	3.64	7	2.275	2.275
Storage (S-1)	5	3	3	0.03	0.03	0.03	0.03
		Sub-total Required		3.67	7.03	2.305	2.305
		Sub-total Provided		9	10	8	9
Level 2							
Business (B)	0						
Assembly (A-1: Theater)	32	16	16	0.128	0.246154	0.08	0.08
Storage (S-1)	0						
		Sub-total Required		0.128	0.246154	0.08	0.08
		Sub-total Provided		7	8	5	6
		Grand Total Required		4	8	3	3
		Grand Total Provided		16	18	13	15
		Total Provided Minus Restricted		15	17	12	14

SCENARIO C - GYM EVENT
Total Occupants: 2313
Occupied areas exclude the following: locker rooms, theater, classrooms, library, and site buildings.

UNRESTRICTED ACCESS		50% OCC. LOAD		WC/UR		LAV	
	Occ. Load	M	F	M	F	M	F
Level G1							
Educational (E)	0						
Assembly (A-3: Gym)	151	76	76	0.608	1.169231	0.38	0.38
Storage (S-1)	19	10	10	0.1	0.1	0.1	0.1
		Sub-total Required		0.708	1.269231	0.48	0.48
		Sub-total Provided		11	17	9	9
Level G2							
Business (B)	0						
Assembly (A-3: Gym)	2131	1066	1066	8.528	16.4	5.33	5.33
Storage (S-1)	10	5	5	0.05	0.05	0.05	0.05
		Sub-total Required		8.578	16.45	5.38	5.38
		Sub-total Provided		3	4	4	3
Level 0							
Business (B)	0						
Assembly (A-3: Gym)	0						
Storage (S-1)	2	1	1	0.01	0.01	0.01	0.01
		Sub-total Required		0.01	0.01	0.01	0.01
		Sub-total Provided		4	5	5	4
Level 1							
Business (B)	0						
Educational (E)	0						
Assembly (A-1: Theater)	0						
Storage (S-1)	0						
		Sub-total Required					
		Sub-total Provided					
Level 2							
Business (B)	0						
Assembly (A-1: Theater)	0						
Storage (S-1)	0						
		Sub-total Required					
		Sub-total Provided					
		Grand Total Required		10	18	6	6
		Grand Total Provided		18	26	18	16
		Total Provided Minus Restricted		16	25	16	15

SCENARIO D - OUTDOOR EVENT
Total Occupants: 1864
Occupied areas exclude the following: the main building.

UNRESTRICTED ACCESS		50% OCC. LOAD		WC/UR		LAV	
	Occ. Load	M	F	M	F	M	F
Grandstands							
Assembly (A-5: Bleachers)	1800	900	900	12	22.5	4.5	6
Assembly (A-5: Press Box)	36	18	18	0.24	0.45	0.09	0.12
Storage (S-1)	22	11	11	0.11	0.11	0.11	0.11
		Sub-total Required		12.35	23.06	4.7	6.23
		Sub-total Provided		16	25	15	15
Concession Building							
Business (B)	5	3	3	0.12	0.12	0.075	0.075
		Sub-total Required		0.12	0.12	0.075	0.075
		Sub-total Provided		1	1	1	1
Ticket Booth							
Business (B)	1	1	1	0.04	0.04	0.025	0.025
		Sub-total Required		0.04	0.04	0.025	0.025
		Sub-total Provided		0	0	0	0
		Grand Total Required		13	24	5	7
		Grand Total Provided		22	26	16	16
		Total Provided Minus Restricted		21	25	15	15

SHEET NOTES - FLOOR PLANS

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6. REFERENCE SHEET A0.00 FOR MOUNTING HEIGHTS AND GENERAL INFORMATION
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16. SEE CEILING SECTOR PLANS FOR CEILING MOUNTED PS-4 PROJECTION SCREEN LOCATIONS
17. SHORT THROW PROJECTORS TO BE OFCI.
18. REFERENCE FLOOR FINISH PLANS FOR SEISMIC JOINT TRANSITIONS

LEGEND

PLUMBING FIXTURES - UNRESTRICTED ACCESS

PLUMBING FIXTURES - RESTRICTED ACCESS

1 / A1.01 **LEVEL G1 FLOOR PLAN**

3/64" = 1'-0"

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Alec S. Holser
PORTLAND, OR
STATE OF OREGON

Consultant Logo

Key Plan

Project Owner:
PORTLAND PUBLIC SCHOOLS

Project Name:
MADISON HIGH SCHOOL

Project Adress:
2735 NE 82ND AVE.
PORTLAND, OR 97220

Revisions to Sheet

No.	Revision	Date
4	GMP/ADD 4	06/26/19

Status: **PACKAGE 3 PERMIT SET**

Date: **09/27/2019**

Sheet Title
LEVEL G1 FLOOR PLAN

Sheet No.
A1.01

Job No.
4722-01

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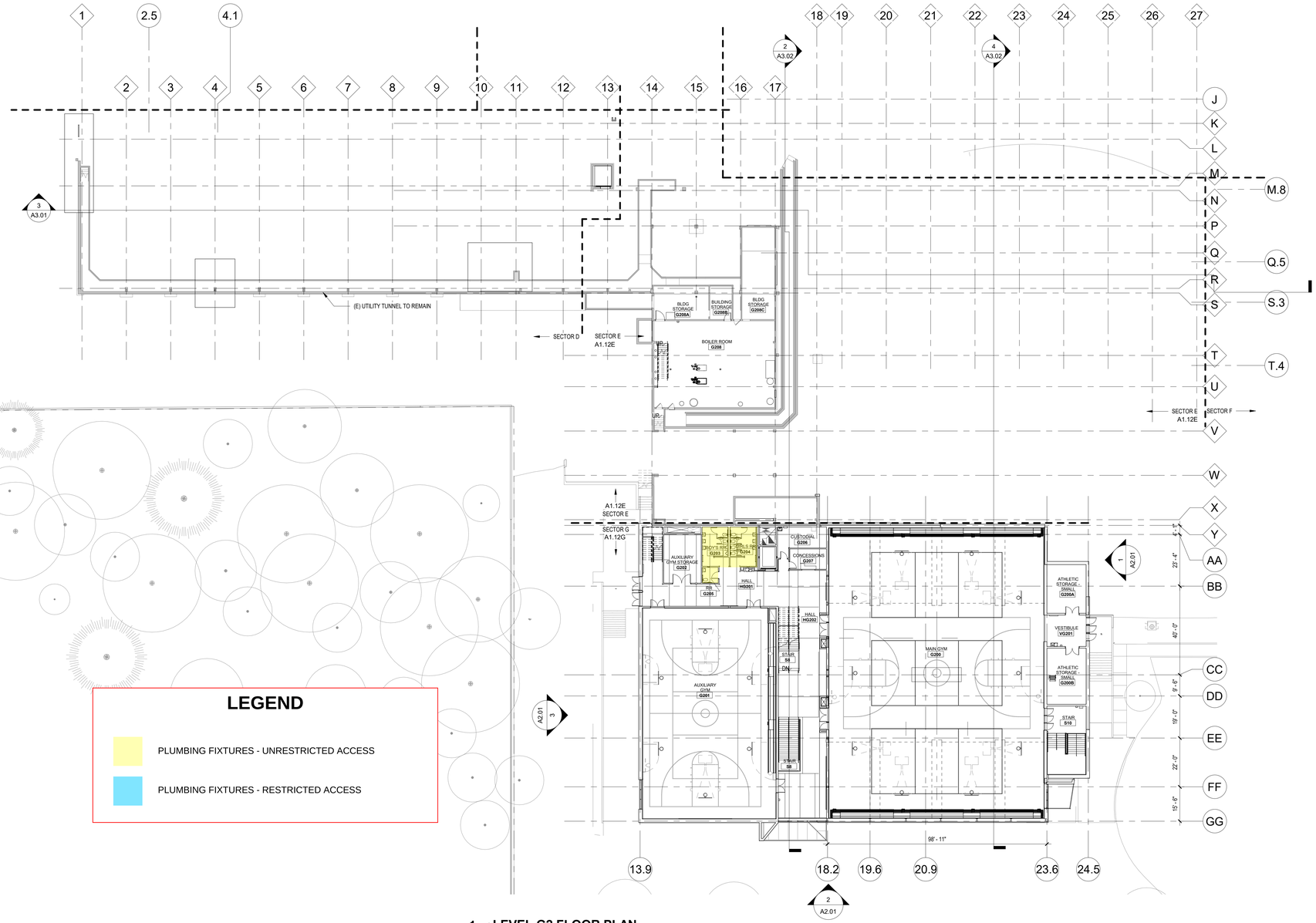

LEGEND

PLUMBING FIXTURES - UNRESTRICTED ACCESS

PLUMBING FIXTURES - RESTRICTED ACCESS

1 | LEVEL G2 FLOOR PLAN
A1.02 3/64" = 1'-0"

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Revisions to Sheet

No.	Revision	Date
4	GMP/ADD 4	06/26/19
6	PP2-COP RESP/ASI 01	08/05/19

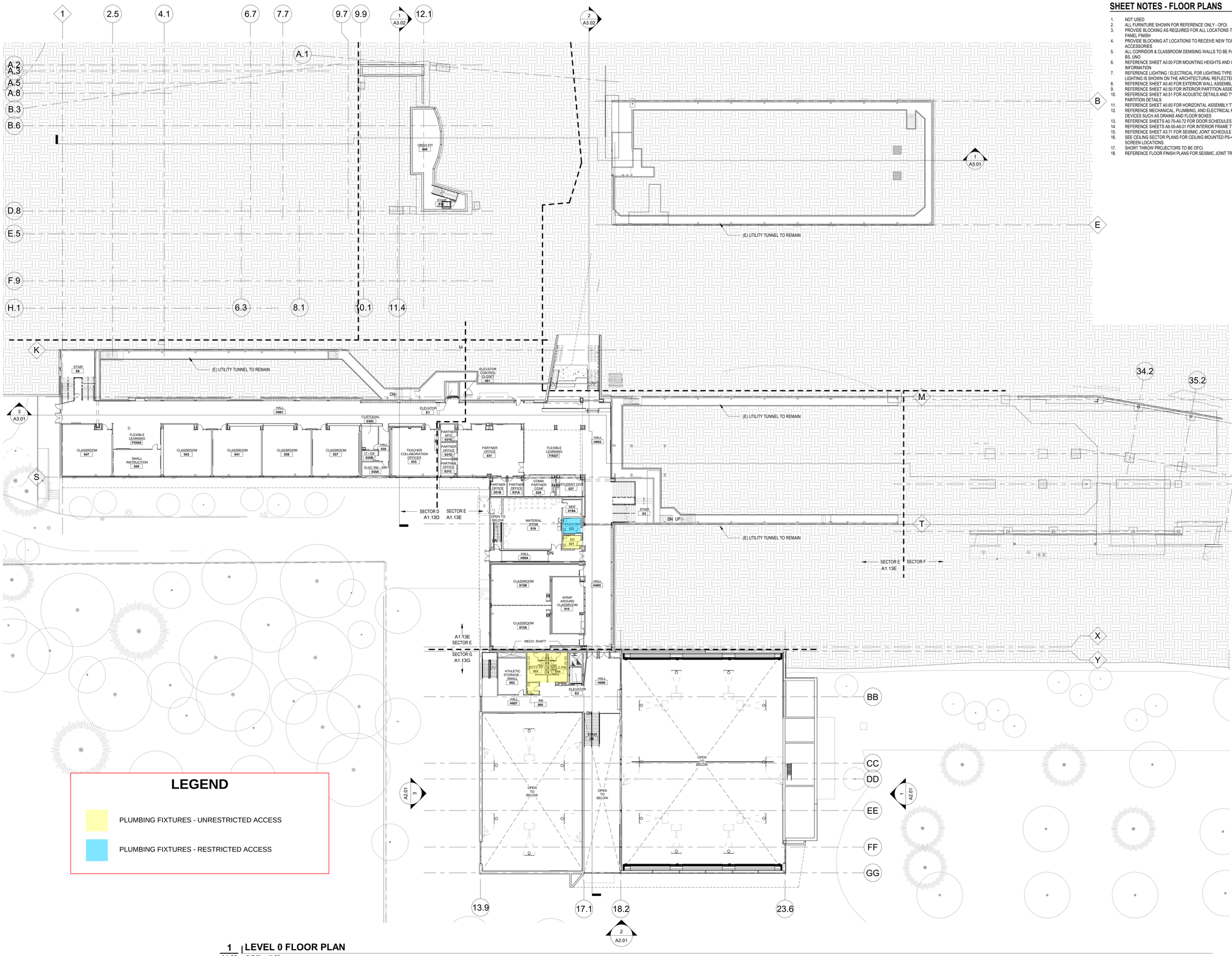
Status: **PACKAGE 3 PERMIT SET**

Date: **09/27/2019**

Sheet Title
LEVEL G2 FLOOR PLAN

Sheet No.
A1.02

Job No.
4722-01



LEGEND

PLUMBING FIXTURES - UNRESTRICTED ACCESS

PLUMBING FIXTURES - RESTRICTED ACCESS

1 | A1.03 LEVEL 0 FLOOR PLAN
3/64" = 1'-0"

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Revisions to Sheet

No.	Revision	Date
4	GMP/ADD 4	06/26/19

Status: **PACKAGE 3 PERMIT SET**

Date: **09/27/2019**

Sheet Title
LEVEL 0 FLOOR PLAN

Sheet No.
A1.03

Job No.
4722-01

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PLUMBING FIXTURES - UNRESTRICTED ACCESS

PLUMBING FIXTURES - RESTRICTED ACCESS

1 | LEVEL 1 FLOOR PLAN
A1.04 3/64" = 1'-0"

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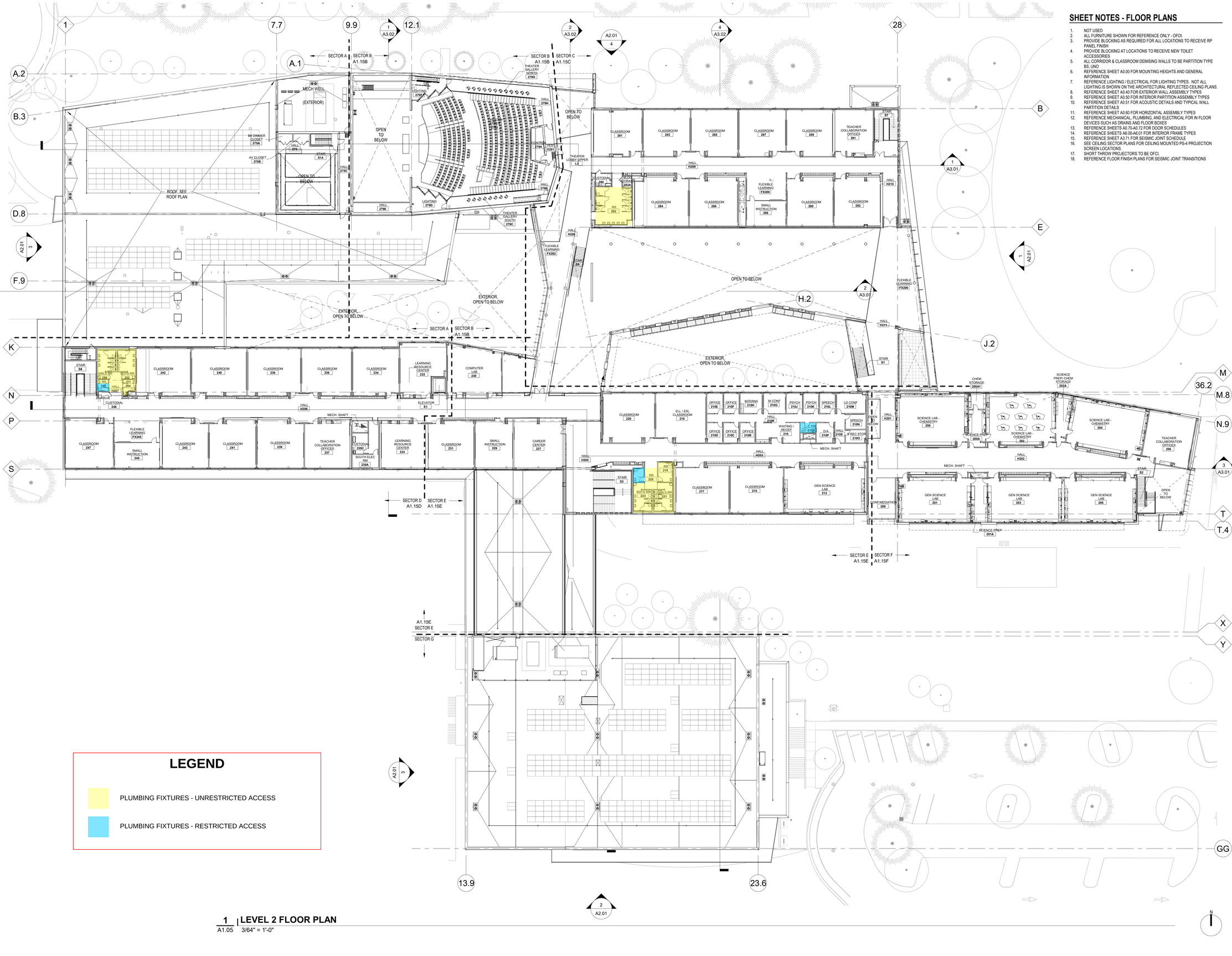
Sheet Title
LEVEL 1 FLOOR PLAN

Sheet No.
A1.04

Job No.
4722-01

plotted: **10/4/2019 3:30:12 PM**



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1 | LEVEL 2 FLOOR PLAN
A1.05 3/64" = 1'-0"

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Status: **PACKAGE 3 PERMIT SET**

Date: **09/27/2019**

Sheet Title
LEVEL 2 FLOOR PLAN

Sheet No.
A1.05

Job No.
4722-01

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 - Reconsideration of ID 14734, item #1

Appeal ID: 15102	**Project Address:** 2245 NE 36th Ave
Hearing Date: 5/17/17	**Appellant Name:** Alyssa Leeviraphan
Case No.: B-005	**Appellant Phone:** 503-224-4032
Appeal Type: Building	**Plans Examiner/Inspector:** John Cooley
Project Type: commercial	**Stories:** 3 **Occupancy:** E **Construction Type:** I-A, II-B, III-B
Building/Business Name:	**Fire Sprinklers:** Yes - throughout
Appeal Involves: Alteration of an existing structure,Addition to an existing structure,Reconsideration of appeal	**LUR or Permit Application No.:**
Plan Submitted Option: pdf [File 1] [File 2] [File 3] [File 4]	**Proposed use:** educational - high school

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	2902.1
Requires	Minimum number of plumbing fixtures provided shall be based on the number of occupants as determined by code.
Proposed Design	In order to determine the quantity of plumbing fixtures to be provided per table 2902.1, the fixture calculations exclude occupant loads of rooms which will not be loaded simultaneously with the rest of the school. The non-simultaneously loaded rooms are listed on attached document and identified on the attached plans.
Reason for alternative	The actual number of occupants intended to use the school is 1825 (1700 students + 125 staff) per Portland Public Schools (PPS) comprehensive high school educational specification. The quantity of plumbing fixtures required by 2902.1 using occupant loads of all rooms per 1004 would far exceed the number which is practically necessary. The rooms identified as being occupied non-simultaneously include those which will be occupied outside of school hours, or those which would be accessory uses to the established occupant count during school hour:s The proposed 95 WCs provides quantities more than double the intended occupant load of the school. For reference, the following WC counts were provided at two recently permitted PPS schools, Franklin High School (FHS) and Roosevelt High School (RHS) which also have an intended maximum student body of 1700. Franklin High School - Total WCs Provided = 77 WCs

Roosevelt High School - Total WCs Provided = 90 WCs

APPEAL DECISION

Plumbing fixture count based on non-simultaneous use of spaces: Granted as proposed for this use and configuration only.

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 180 calendar days of the date this decision is published. For information on the appeals process and costs, including forms, appeal fee, payment methods and fee waivers, go to www.portlandoregon.gov/bds/appealsinfo, call (503) 823-7300 or come in to the Development Services Center.

APPEALS
City of Portland
Bureau of Development Services
1900 SW 4th Ave., Suite 5000 (5th floor)
Portland, Oregon 97201
(503) 823-7335

Building Code Appeal Form
(Appeal Information Sheet)
BLD

To Appellant:

Each item you are appealing requires a separate Appeal Information Sheet to be filled out. All requested information is to be filled out completely with as much detail as possible. **Failure to do so may cause your appeal to be held over until adequate information is received.** For help in filling out these forms, consult with the Plans Examiner assigned to your project or with a Plans Examiner in the Development Services Center.

Any alternative method or modification of a Building Code requirement requires an appeal. A reasonable degree of equivalent health, accessibility, structural capacity, energy conservation, life safety or fire protection **must** be demonstrated before an appeal may be considered.

Code Section being appealed: 2902.1

Regulation Requirement:
Minimum number of plumbing fixtures provided shall be based on the number of occupants as determined by code.

Proposed Design:
In order to determine the quantity of plumbing fixtures to be provided per table 2902.1, the fixture calculations exclude occupant loads of rooms which will not be loaded simultaneously with the rest of the school. The non-simultaneously loaded rooms are listed below and identified on the attached plans.

Non-simultaneous occupant loads excluded from plumbing fixture calculation are listed below:

BUILDING 1+2	
GYMNASIUMS (+ Support)	
Level 0 Main Gym	1450
Level 1 Upper Gym	108
Level 1 Auxiliary Gym	796
Level 0 Locker Rooms	128
Level 0 Team Rooms	36
AUDITORIUM (+ Support)	
Level 1 Auditorium Stage	196
Level 1 Auditorium seating	667
Level 2 Auditorium balcony seating	260
Level 0 Flexible Assembly	289
STUDENT SPACES	
Level 0 Commons	309
Level 1 Commons	397
Level 1 Library	137
Level 2 Open Breakout Space	120
TOTAL	4893
BUILDING 3	
VISUAL ARTS	
Level 1 Gallery	76
Level 2 Gallery	36
TOTAL	112

Occupant loads excluding non-simultaneous loads (listed above) and resulting fixtures required:

Building 1+2	4148 occupants	4148/50 =	83 WCs
Building 3	575 occupants	575/50 =	12 WCs
TOTAL REQ'D	4716 occupants	4716/50 =	95 WCs

WC quantities proposed:

Proposed WCs Building 1+2:	83 WCs
Proposed WCs Building 3:	12 WCs
TOTAL PROPOSED:	95 WCs

Reason for Alternate:
The actual number of occupants intended to use the school is 1825 (1700 students + 125 staff) per Portland Public Schools (PPS) comprehensive high school educational specification. The quantity of plumbing fixtures required by 2902.1 using occupant loads of all rooms per 1004 would far exceed the number which is practically necessary.

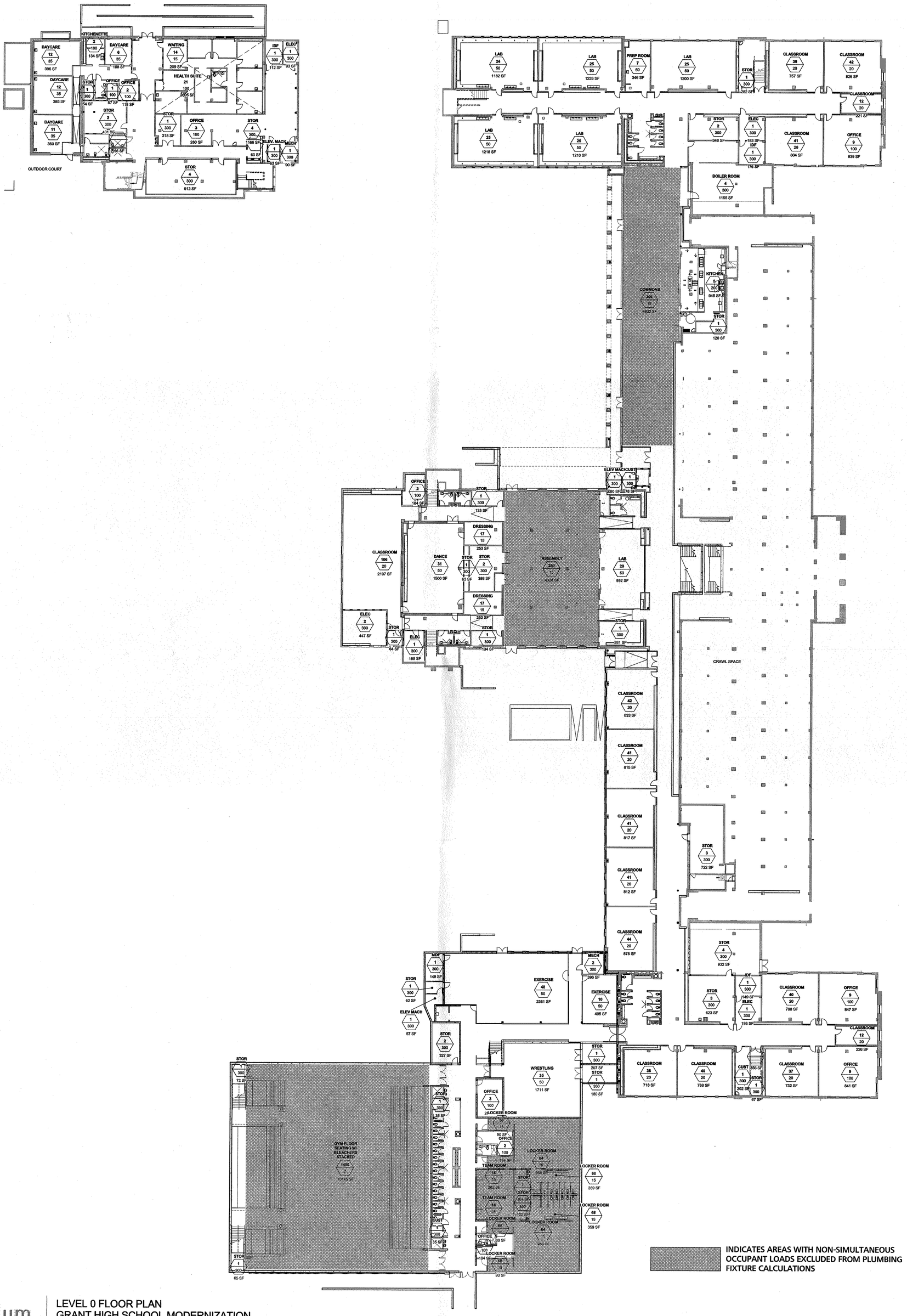
The rooms identified as being occupied non-simultaneously include those which will be occupied outside of school hours, or those which would be accessory uses to the established occupant count during school hours.

The proposed 95 WCs provides quantities more than double the intended occupant load of the school.

For reference, the following WC counts were provided at two recently permitted PPS schools, Franklin High School (FHS) and Roosevelt High School (RHS) which also have an intended maximum student body of 1700.

Franklin High School	Total WCs Provided	=	77 WCs
Roosevelt High School	Total WCs Provided	=	90 WCs

_____Initial here



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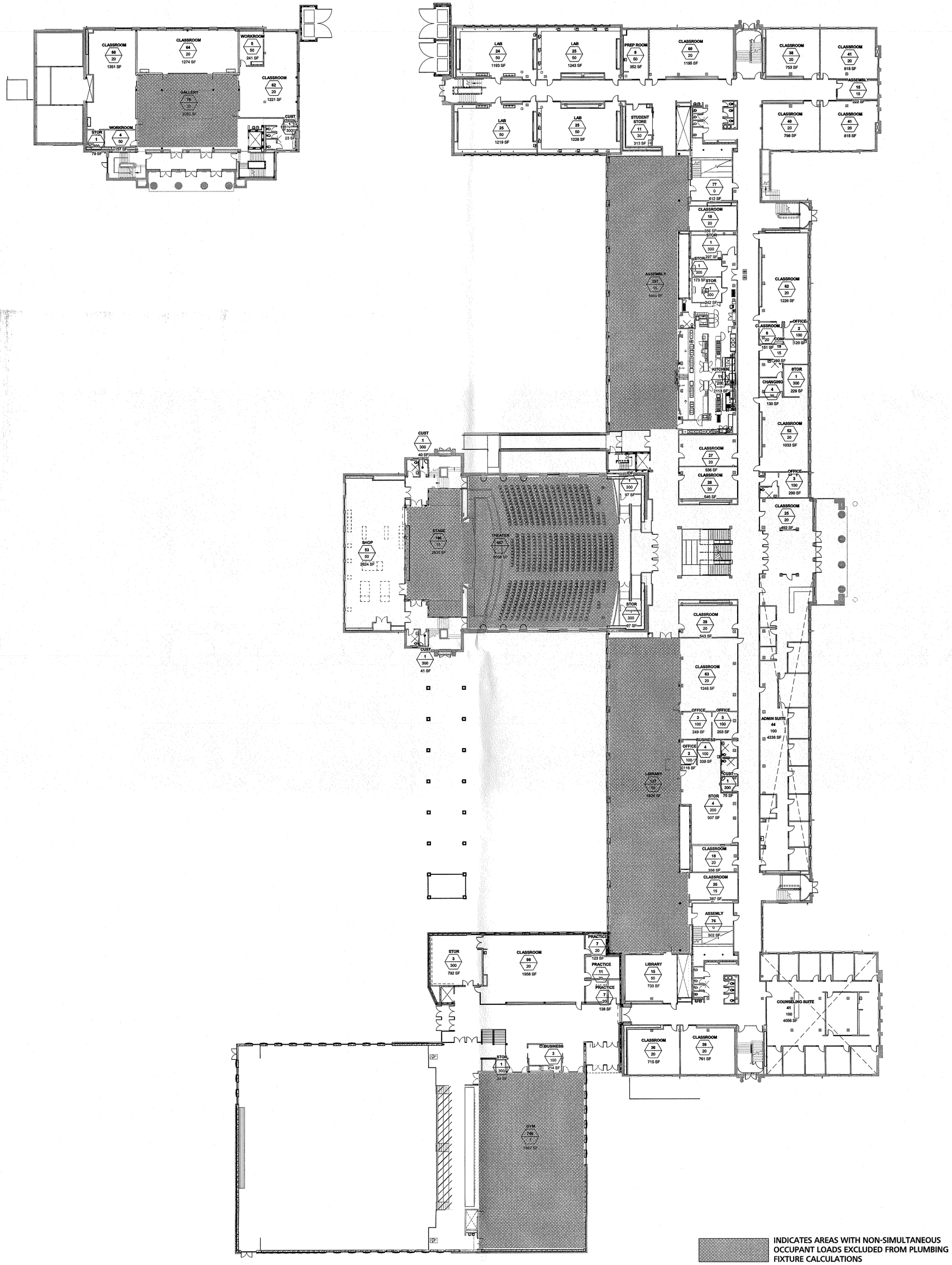
LEVEL 0 FLOOR PLAN
GRANT HIGH SCHOOL MODERNIZATION
PORTLAND PUBLIC SCHOOLS | 17 MAY 2017



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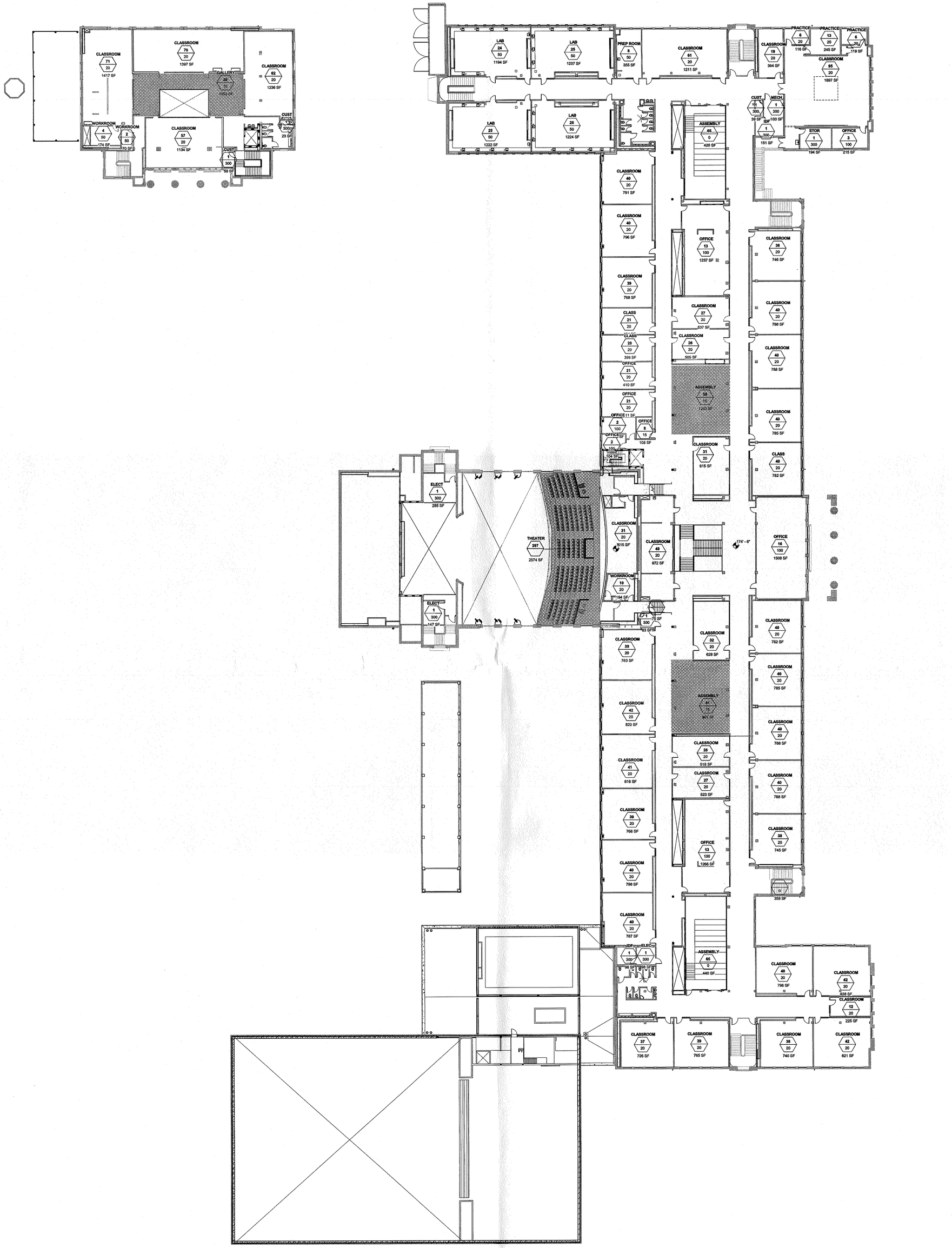
LEVEL 1 FLOOR PLAN
GRANT HIGH SCHOOL MODERNIZATION
PORTLAND PUBLIC SCHOOLS | 17 MAY 2017



INDICATES AREAS WITH NON-SIMULTANEOUS OCCUPANT LOADS EXCLUDED FROM PLUMBING FIXTURE CALCULATIONS

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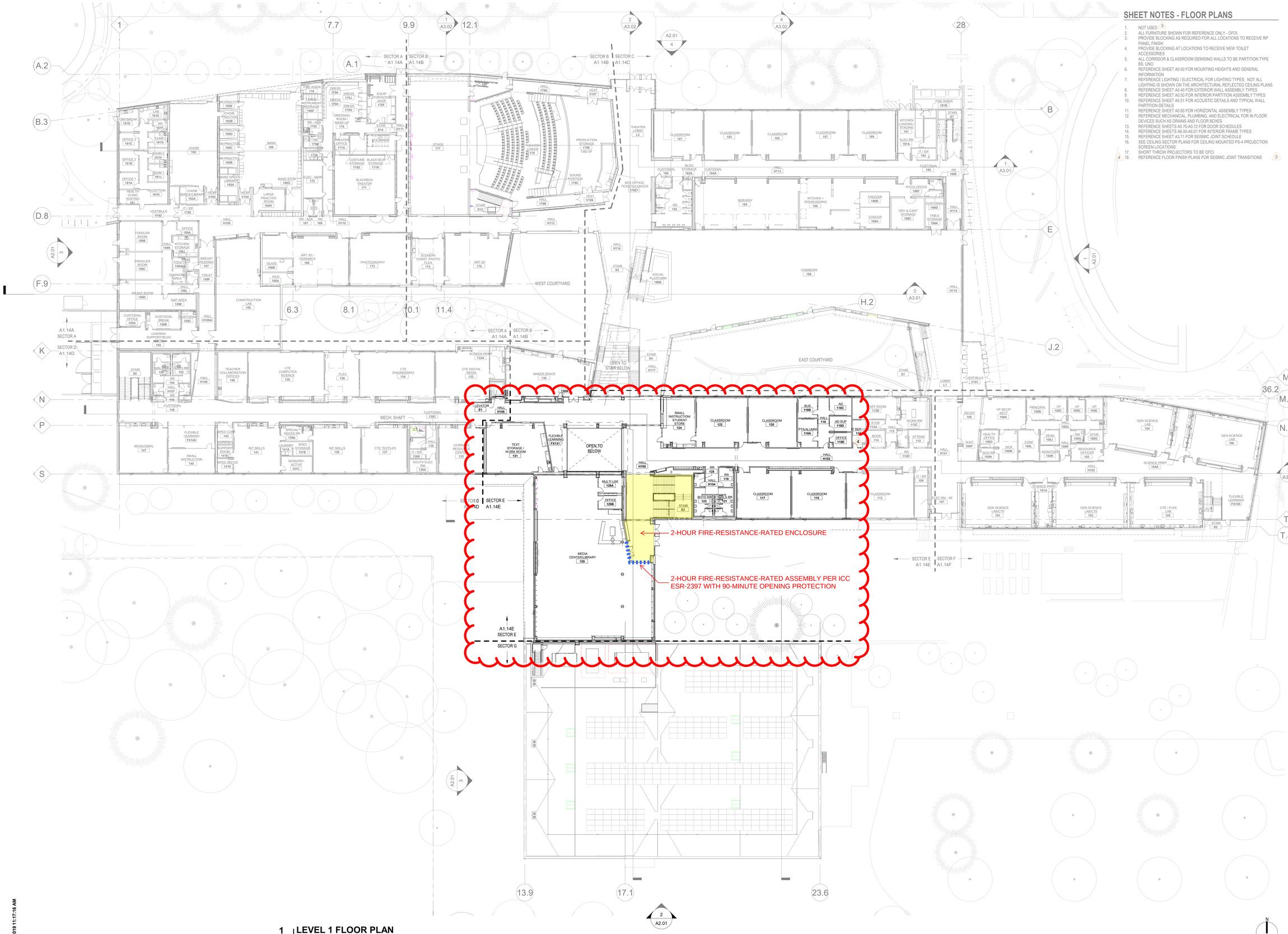
LEVEL 2 FLOOR PLAN
GRANT HIGH SCHOOL MODERNIZATION
PORTLAND PUBLIC SCHOOLS | 17 MAY 2017



SHEET NOTES - FLOOR PLANS

1. NOT USED
2. ALL FURNITURE SHOWN FOR REFERENCE ONLY - OFOI.
3. PROVIDE BLOCKING AS REQUIRED FOR ALL LOCATIONS TO RECEIVE RP PANEL FINISH
4. PROVIDE BLOCKING AT LOCATIONS TO RECEIVE NEW TOILET ACCESSORIES
5. ALL CORRIDOR & CLASSROOM DEMISING WALLS TO BE PARTITION TYPE BS, UNO
6. REFERENCE SHEET A0.00 FOR MOUNTING HEIGHTS AND GENERAL INFORMATION
7. REFERENCE LIGHTING / ELECTRICAL FOR LIGHTING TYPES. NOT ALL LIGHTING IS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS.
8. REFERENCE SHEET A0.40 FOR EXTERIOR WALL ASSEMBLY TYPES
9. REFERENCE SHEET A0.50 FOR INTERIOR PARTITION ASSEMBLY TYPES
10. REFERENCE SHEET A0.51 FOR ACOUSTIC DETAILS AND TYPICAL WALL PARTITION DETAILS
11. REFERENCE SHEET A0.60 FOR HORIZONTAL ASSEMBLY TYPES
12. REFERENCE MECHANICAL, PLUMBING, AND ELECTRICAL FOR IN FLOOR DEVICES SUCH AS DRAINS AND FLOOR BOXES
13. REFERENCE SHEETS A0.70-A0.72 FOR DOOR SCHEDULES.
14. REFERENCE SHEETS A0.00-A0.01 FOR INTERIOR FRAME TYPES
15. REFERENCE SHEET A0.71 FOR SEISMIC JOINT SCHEDULE
16. SEE CEILING SECTOR PLANS FOR CEILING MOUNTED PS-4 PROJECTION SCREEN LOCATIONS.
17. SHORT THROW PROJECTORS TO BE OFCI.
18. REFERENCE FLOOR FINISH PLANS FOR SEISMIC JOINT TRANSITIONS

1 | LEVEL 1 FLOOR PLAN
A1.04 3/64" = 1'-0"

plotted: 9/5/2019 11:17:16 AM

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DAO ARCHITECTURE LLC

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Consultant Logo

Key Plan

Project Owner:
PORTLAND PUBLIC SCHOOLS

Project Name:
MADISON HIGH SCHOOL

Project Adress:
**2735 NE 82ND AVE.
PORTLAND, OR 97220**

Revisions to Sheet

No.	Revision	Date
4	GMP/ADD 4	06/26/19

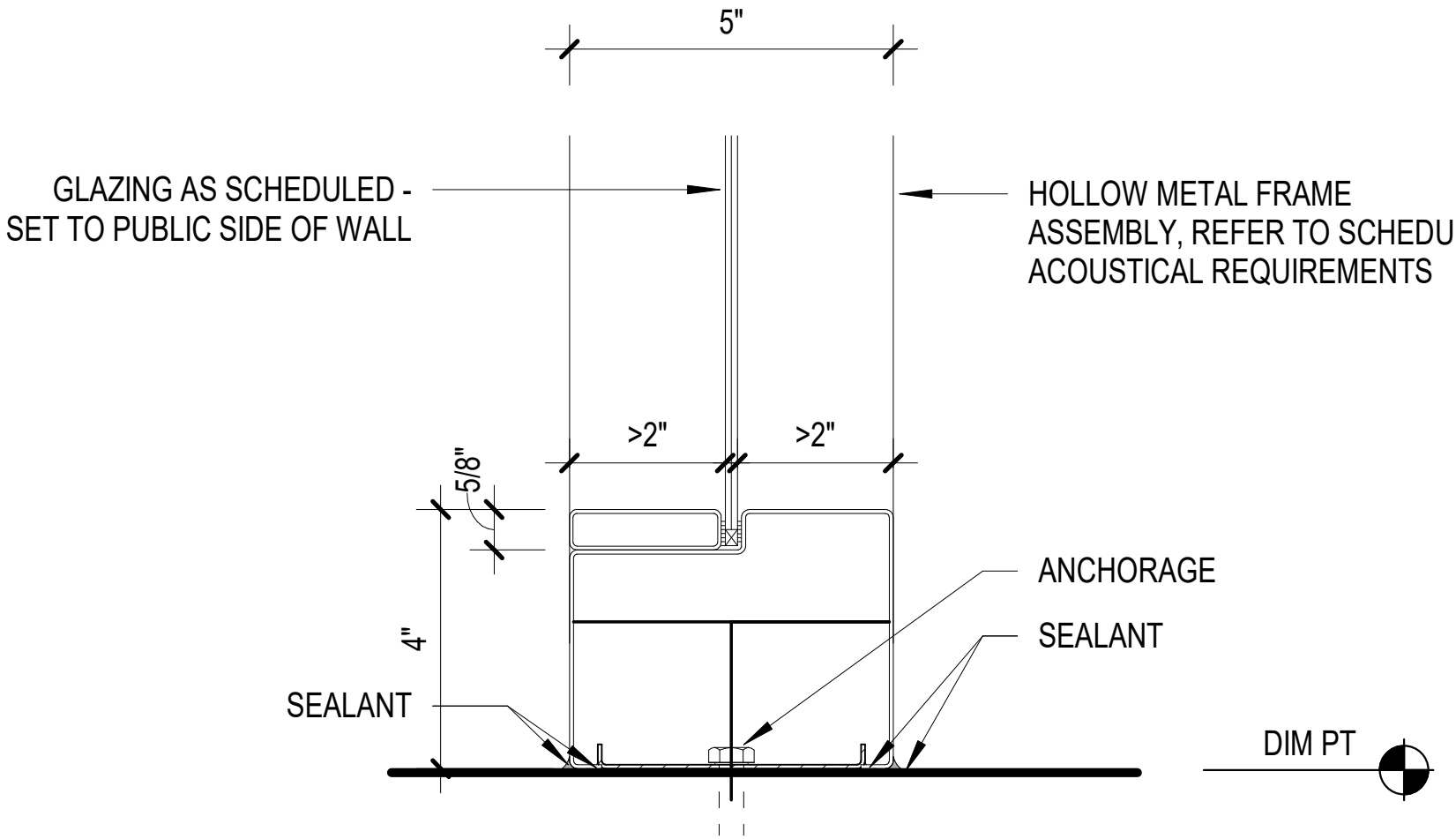
Status: **PACKAGE 2 PERMIT SET**

Date: **05/24/2019**

Sheet Title
LEVEL 1 FLOOR PLAN

Sheet No.
A1.04

Job No.
4722-01


5"
GLAZING AS SCHEDULED -
SET TO PUBLIC SIDE OF WALL
HOLLOW METAL FRAME
ASSEMBLY, REFER TO SCHEDULE FOR
ACOUSTICAL REQUIREMENTS
>2"
>2"
5/8"
4"
ANCHORAGE
SEALANT
SEALANT
DIM PT

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ESR-2397

Reissued 02/2018
This report is subject to renewal 02/2020.

DIVISION: 21 00 00—FIRE SUPRESSION
SECTION: 21 13 13—WET-PIPE SPRINKLER SYSTEMS

REPORT HOLDER:

TYCO FIRE PRODUCTS RESEARCH & DEVELOPMENT

1467 ELMWOOD AVENUE
CRANSTON, RHODE ISLAND 02910

EVALUATION SUBJECT:

MODEL WS™-5.6 K-FACTOR SPECIFIC APPLICATION WINDOW SPRINKLERS, HORIZONTAL SIDEWALL AND PENDANT VERTICAL SIDEWALL

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ICC-ES Evaluation Report

ESR-2397

Reissued February 2018

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DIVISION: 21 00 00—FIRE SUPPRESSION
Section: 21 13 13—Wet-Pipe Sprinkler Systems

REPORT HOLDER:

TYCO FIRE PRODUCTS RESEARCH AND DEVELOPMENT
1467 ELMWOOD AVENUE
CRANSTON, RHODE ISLAND 02910
(401) 781-8220
www.tyco-fire.com

EVALUATION SUBJECT:

MODEL WS™—5.6 K-FACTOR SPECIFIC APPLICATION WINDOW SPRINKLERS, HORIZONTAL SIDEWALL AND PENDENT VERTICAL SIDEWALL

1.0 EVALUATION SCOPE

Compliance with the following code:

- 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Property evaluated:

Alternative to a fire-resistance-rated wall assembly

2.0 USES

The automatic special-purpose sprinkler system incorporating the Model WS™ sprinkler is used in conjunction with a fixed glazed wall assembly to provide an alternative to a two-hour fire-resistance-rated nonload-bearing interior fire barrier assembly prescribed in IBC Section 707, fire partition assembly prescribed in IBC Section 708 or exterior wall assembly prescribed in IBC Section 705. The Model WS™ sprinklers are recognized as a means to achieve a fire-resistance rating on fixed glazed wall assemblies in exterior fire-resistance-rated walls only when the horizontal fire separation distance is 5 feet (1525 mm) or greater.

3.0 DESCRIPTION

3.1 General:

The Model WS™ window sprinklers are used as part of a wet-pipe fire suppression system to provide a two-hour fire-resistance rating to an interior nonload-bearing fire barrier, fire partition or exterior wall assembly consisting of fixed glazing as described in this report. When activated, the sprinklers are designed to wet the entire surface of the affected side of the fixed glazed openings in the fire barrier and exterior wall assembly in order to achieve the fire-resistance rating of the wall. For exterior glazed assemblies that are permitted to be rated only from the interior, the sprinklers must be located on the interior side of the glazing. For interior glazed assemblies, the sprinklers must be located on both sides of the assembly. The primary components of the fire-resistance-rated assembly are as described in Sections 3.2 and 3.3.

3.2 Model WS™ Window Sprinklers:

The Model WS™ window sprinklers described in this report are quick-response sprinklers that are available in models that activate to release water flow when they reach an ambient temperature of either 155°F or 200°F (68°C or 93°C). The sprinklers have an orifice and thread size of $^1/_2$ inch (12.7 mm). The sprinklers are manufactured for two orientations. The horizontal sidewall type (product number TY3388), as shown in Figure 1, is designed to face the glazing of the fire barrier assembly in a horizontal orientation. The pendent vertical sidewall type (product number TY3488), as shown in Figure 2, is designed to face the glazing of the fire barrier assembly in a vertical orientation.

3.3 Glazed Fire Barrier Assembly:

The glazing used in the fire barrier must be nominally $^1/_4$-inch-thick heat-strengthened or tempered glass complying with ASTM C1048 or Federal Specification DD-G-1403B, installed as a single pane or dual pane. The exposed glass component of the wall assembly must not exceed 13 feet (4 m) in height. There is no exposed width restriction for the horizontal span, except where necessary to comply with the requirements of IBC Sections 2403 and 2404.

All interfaces between the fixed glazed wall assembly and adjacent wall assemblies must include termination of the glazing within a window frame as described in this section. The glazing is held in place by a metallic frame with an elastomeric seal allowing for thermally initiated contraction and expansion. Unframed vertical joints between glazing panels are permitted provided that such joints are sealed with silicone sealant. Intermediate horizontal mullions are not permitted as part of the fixed glazed wall assembly. The interface details and mounting method must be approved by the code official.

4.0 INSTALLATION

4.1 Sprinkler Orientation:

For the Model WS™ horizontal sidewall sprinkler, the deflector of the sprinkler must be placed from $^1/_2$ inch to 4 inches (12.7 to 102 mm) away from the glass and 1 to 3 inches (25 to 76.2 mm) down from the top of the noncombustible frame as shown in Figure 3.

The Model WS™ pendent vertical sidewall sprinkler must be located 4 to 12 inches (102 to 305 mm) from the face of the glass and 2 to 4 inches (51 to 102 mm) down from the top of the noncombustible frame as shown in Figure 4.

Intermediate horizontal mullions are not permitted as part of the glass wall assembly. All combustible materials must be kept a minimum distance of 2 inches (51 mm) from the face of the glass. This can be accomplished by a 36-inch-high (914 mm) "pony wall" as shown in Figures 3 and 4. This "pony wall" is constructed using construction methods and materials as recognized in the applicable codes based on the building's type of construction. The "pony wall" must be constructed in a manner which meets the minimum required fire-resistance rating which is sought for the fixed glazed wall assembly. This "pony wall" construction must be approved by the code official. The evaluation of alternative methods other than the "pony wall" to maintain a minimum 2-inch (51 mm) clearance of combustibles from the face of the assembly is outside the scope of this report.

The maximum distance between window sprinklers is 8 feet (2440 mm) on center and the minimum distance is 6 feet (1830 mm) on center, except where the sprinklers are separated by a noncombustible vertical mullion located between sprinklers. In this case, the maximum distance maintained between the sprinkler and the mullion must not exceed one-half of the distance required between sprinklers.

The automatic water supply must have the capability to supply water to the assembly for a time not less than the rating of the assembly. The maximum fire-resistance rating recognized in this report is two hours.

4.2 Hydraulic Requirements:

The code official must be consulted to determine the hydraulic requirements for each installation. Hydraulic calculations must show a maximum pressure of 175 psi (1207 kPa) on the vertical sidewall sprinklers and horizontal sidewall sprinklers separated by a noncombustible vertical mullion. Hydraulic calculations must show a maximum pressure of 70 psi (483 kPa) for horizontal sidewall sprinklers that are not separated by a noncombustible vertical mullion between sprinklers.

Interior Protection—Sprinklered Building: The compartmented area that has the most hydraulically demanding window sprinklers must be identified. The most demanding 46.5 linear feet (14.2 m) of Model WS™ Window Sprinklers is calculated based on $L=1.2\sqrt{A}$, where A is system area of operation, and when A equals 1,500 square feet (139.4 m^2), in accordance with NFPA 13 Light/Ordinary Hazard density curves.

If an area reduction for quick-response sprinklers is being utilized, the linear length of the calculated window sprinklers may be reduced, to 36 linear feet (11 m) or greater, based on $L=1.2\sqrt{A}$, where A is a minimum of 900 square feet (83.6 m^2). If a single fire can be expected to cause operation of the Model WS™ window sprinklers and sprinklers within the design area of a hydraulically calculated system, the water flow demand of the window sprinklers must be added to the water demand of the hydraulic calculations and must be balanced to the calculated area demand. If the window sprinklers are located in an area other than the hydraulic design area, the demand of the window sprinklers is not required to be added to the demand of the remote hydraulic design area; however, it is necessary to hydraulically prove that proper simultaneous operation of the Model WS™ window sprinklers and the ceiling sprinklers adjacent to the Model WS™ window sprinklers will occur.

5.0 CONDITIONS OF USE

The Model WS™ window sprinklers described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The installation of the special-purpose sprinkler systems must be in accordance with the manufacturer's published installation instructions, this report and the applicable code. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs. A copy of the installation instructions and this report must be available at all times on the jobsite during installation.

5.2 The design, with plans and details of the specific installation of the fixed glazed assembly with special-purpose sprinklers, must be submitted to the code official for approval. The design must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.3 Where approved by the code official, the fixed glazed assembly described in this report, comprised of special-purpose sprinklers with fixed glazing having specific construction requirements, is intended to provide an alternative to a two-hour fire-resistance-rated nonload-bearing interior fire barrier assembly prescribed in IBC Section 707, a fire partition assembly prescribed in IBC Section 708 or an exterior wall assembly prescribed in IBC Section 705. The registered design professional must provide the code official with documentation outlining the basis of compliance with the criteria specified by the IBC for a code modification in accordance with Section 104.10 or for an alternative method of construction in accordance with Section 104.11.

5.4 The assembly must not be used in locations that contain materials that represent deflagration or detonation hazards.

5.5 Special-purpose fire sprinkler system piping must be designed, sized and installed in accordance with NFPA 13.

5.6 Use of the system is limited to wet-type special-purpose sprinkler systems and nonload-bearing wall assemblies.

5.7 Use of the special-purpose fire sprinkler system in exterior wall applications is limited to installations where the fire separation distance is greater than 5 feet (1524 mm) for the 2006 IBC, and 10 feet (3048 mm) for the 2015, 2012 and 2009 IBC.

5.8 The assembly is not permitted to incorporate penetrations. Openings must be protected in accordance with applicable requirements of the IBC for opening protection.

5.9 The fixed glazed assembly is not permitted to be used in lieu of firewalls. Where the assemblies are used as an alternative to fire barriers for exit-passageways, horizontal exits, or exit enclosures, the fire area (Section 202 of the IBC) in which the assembly is located shall be fully sprinklered in accordance with Section 903.3.1 of the IBC. The water supply duration for sprinklers, where used, shall be not less than the fire resistance rating that would have been

required for a fire barrier. In addition, the registered design professional shall provide the code official with documentation in accordance with Section 104.10 of the IBC for a code modification or Section 104.11 of the IBC for an alternative method of construction that addresses any anticipated impact on the functionality of the means of egress.

5.10 The fixed glazed assembly must not have intermediate horizontal mullions that interfere with the uniform distribution of water over the surface of the glazing.

5.11 All combustible materials must be kept a minimum distance of 2 inches (51 mm) from the face of the glass, such that the complete coverage of the glass by the sprinklers is not impeded. This is accomplished by a minimum 36-inch-high (914 mm) knee or "pony" wall at the base of the assembly. The means for maintaining clearance must be as set forth in this evaluation report.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Special-purpose Sprinklers Used with Fixed Glazed Assemblies to Provide an Alternative to a Fire-resistance-rated Wall Assembly (AC385), dated February 2015.

7.0 IDENTIFICATION

For field identification, all Tyco Model WS™ window sprinklers are labeled with the manufacturer's name (Tyco), the product name, and the evaluation report number (ESR-2397).

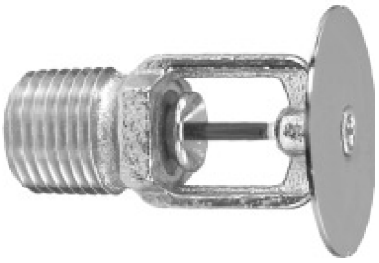

FIGURE 1—HORIZONTAL SIDEWALL SPRINKLER

FIGURE 2—PENDENT VERTICAL SIDEWALL SPRINKLER

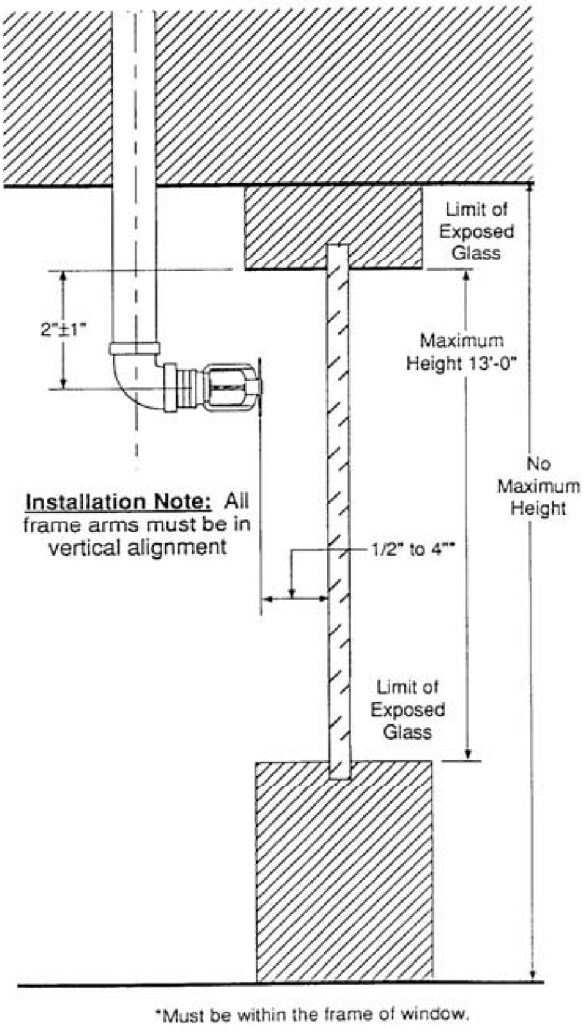

FIGURE 3—WS™ HORIZONTAL SIDEWALL SPRINKLER INSTALLATION

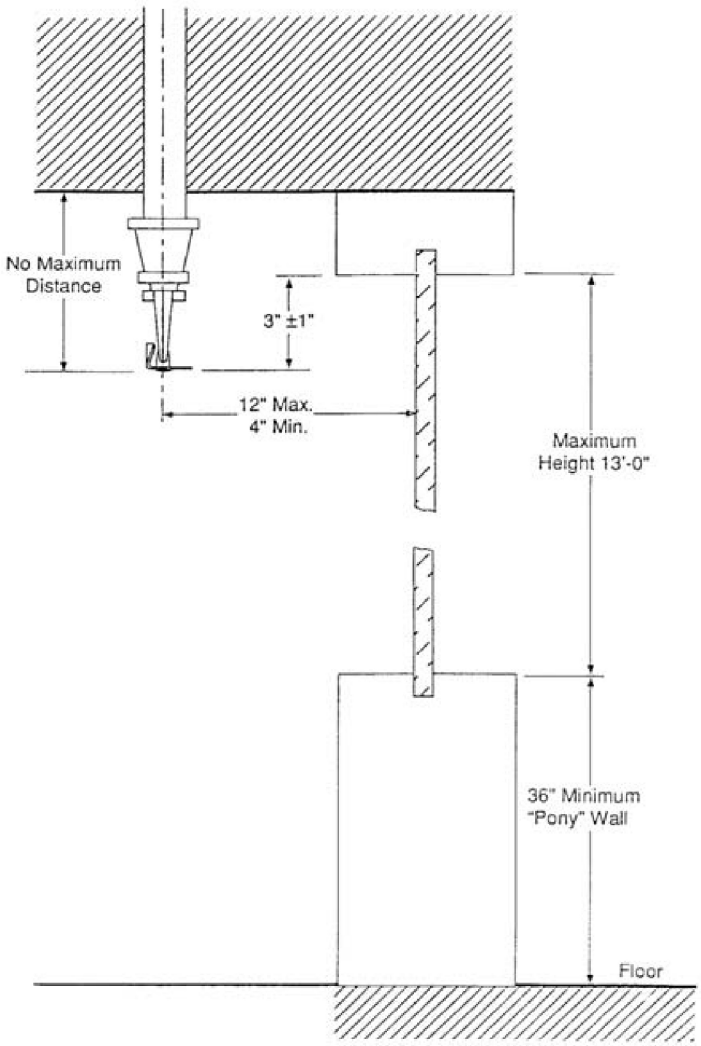

FIGURE 4—WS™ PENDENT VERTICAL SIDEWALL SPRINKLER INSTALLATION