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APPEAL SUMMARY

Status: Decision Rendered

Appeal ID: 21894	**Project Address:** 151 SW 1st Ave
Hearing Date: 9/18/19	**Appellant Name:** Milena Di Tomaso
Case No.: B-009	**Appellant Phone:** 5038632425
Appeal Type: Building	**Plans Examiner/Inspector:** John Cooley
Project Type: commercial	**Stories:** 5 **Occupancy:** B ,M, S-1 **Construction Type:** 3-A
Building/Business Name: PAE Living Building	**Fire Sprinklers:** Yes - Throughout
Appeal Involves: Erection of a new structure	**LUR or Permit Application No.:** 19-185198-CO
Plan Submitted Option: pdf [File 1] [File 2] [File 3] [File 4]	**Proposed use:** Office, Retail

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	OSSC 1023.3
Requires	1023.3 – Construction. Exit passageway enclosures shall have walls, floors and ceilings of not less than 1-hour fire resistance rating, and not less than that required for any connecting interior exit stairway or ramp. Exit passageways shall be constructed as fire barriers in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.
Proposed Design	Stair A exit discharge occurs at a recessed alcove on SW 1st Avenue. The soffit and walls of the alcove require 2-hour protective ratings as they are a continuation of the exit passageway. Adjacent to the exit door on the exterior wall is storefront glazing to an interior office space. In order to maintain the required 2-hour rating at the glass we are proposing to sprinkler the glazing with WS side wall heads. The sprinklers will be installed a minimum of 4 inches and maximum of 24 inches from the openings and spaced at 6 feet on center or closer. Sprinklers are to be installed on the interior side of the openings and are capable of wetting the entire window surface. Refer to Exhibit 1 for locations and ESR-2397 reference.
Reason for alternative	The building is provided with a full NFPA 13 sprinkler system and fire sprinkler heads can be designed and installed to provide an equivalent degree of protection at the window opening. The proposed design meets the intention of the code to provide fire protection between the interior office space and the exit discharge area. All openings for the new building comply with Table 705.8 regarding allowable area relative to fire separation distance.

Appeal item 2

Code Section	OSSC 1023.5, OSSC 1022.4

Requires	1023.5 – Openings and Penetrations. Exit passageway opening protectives shall be in accordance with the requirements of Section 716. Except as permitted in Section 402.8.7, openings in exit passageways other than exterior openings shall be limited to those necessary for exit access to the exit passageway from normally occupied spaces and for egress from the exit passageway. Where an interior exit stairway or ramp is extended to an exit discharge or a public way by an exit passageway, the exit passageway shall also comply with Section 1022.3.1. 1022.4 - Openings. Interior exit stairway and ramp opening protectives shall be in accordance with the requirements of Section 716. Openings in interior exit stairways and ramps other than unprotected exterior openings shall be limited to those necessary for exit access to the enclosure from normally occupied spaces and for egress from the enclosure. Exit passageway opening protectives shall be in accordance with the requirements of Table 716.5. For shaft, exit enclosures and exit passageways, with 2-hr rated wall assemblies, fire door and fire shutters shall have a minimum rating of 90 minutes.
Proposed Design	This appeal is a revised condition to an already granted appeal, refer to appeal number 19095 item 2. The difference is to switch the overhead roll down fire shutter with a 90-minute rated hollow metal door and frame. Refer to Exhibit 2 drawings attached. The proposed building is a 5 story Type IIIA construction seeking Living Building Certification. It will have two interior exit stairs in the central core. Stair A is a 2 hour enclosure and will exit directly to the exterior of the building via a 2 hour rated exit passageway which extends the exit from the core to the exterior of the building. Stair B is a 2 hour enclosure and will exit through the ground floor lobby with direct visual access to the lobby exit door. Per 1027.1, a maximum of 50 percent of the number and capacity of interior exit stairways and ramps is permitted to egress through areas on the level of exit discharge. The exit passageway of Stair A will have the same ratings (floors, walls and ceiling) as the stair shaft, 2 hours as required per Section 1023.3. The exit passageway terminates at an exit discharge per 1023.4. The exit stair contains an opening, 4’-0” wide x 9’-0” tall, between the building lobby and the exit passageway. The opening provides visual access from the main lobby to the stair, encouraging use of the stair and promote occupant health. The opening is protected by a 2-hr rated hollow metal door and frame that is held open with a magnetic device. The door is released upon activation of the building’s smoke detection system, fire alarm system or power failure. The lobby side of the door will have no hardware so once the door is closed and latched it cannot be reopened from the lobby side. The stair side of the door will have signage to indicate that it is not an exit and will direct occupants to the exit passageway and exit discharge.
Reason for alternative	The proposed exit stair shaft follows all applicable codes except for the addition of the opening to the lobby. At this opening, we have provided a UL listed (and NFPA 80 compliant), 90 minute rated hollow metal door and frame with a fire rating to meet the requirements of Section 716.5. Once the door is closed, it functions like the 2-hr fire barrier required by section 1022.3.1. The door is released from the magnetic hold open upon activation of the building’s smoke detection system, fire alarm system, or power failure. The door does not have lever hardware on the lobby side so it cannot be opened to always maintain the required separation of the exit enclosure. The Living Building Challenge (LBC) imperative for “Human-Powered Transportation” requires the “promotion of the use of stairs over elevators through interior layout and quality of stairways.” In addition, the intention of the Universal Access to Nature and Place imperative is “to create places that are accessible to all,” such that all members of the public have access to elements that are sustainable, healthy and beautiful, The proposed exit stair strategy, in addition to meeting equivalent (or better) fire protection, meets the intention of the both these LBC elements by providing a healthy building element, allowing all visitors to the building to choose to use the stairs

(in lieu of the available elevator) to get to the main tenant office lobby on the 5th floor. This accessible stair option is in alignment with public health recommendations for people to get more steps in their day, and its benefit and status as industry best practice is recognized in the GSA-developed Fitwel guidelines for healthy workplaces (credit 5.1, “Provide at least one stairwell accessible to regular occupants that connects relevant building floors”, credit 5.2 “Locate an accessible stairwell equally or more visible than any elevators and/or escalators from the main building entrance”)

Appeal item 3

Code Section

OSSC 704.10, OSSC Table 601, OSSC Table 602

Requires

704.10 – Exterior structural members. Load-bearing structural members located within the exterior walls or on the outside of a building or structure shall be provided with the highest fire-resistance rating as determined in accordance with the following:

As required by Table 601 for the type of building element based on the type of construction of the building;
As required by Table 601 for exterior bearing walls based on the type of construction; and
As required by Table 602 for exterior walls based on the fire separation distance.
Table 601 – Type IIIA
Primary Structural Frame – 1 Hour
Exterior Nonbearing walls – per Table 602
Exterior Bearing Walls – 2 Hour

Table 602 – Type IIIA
0’ to 30’ Fire Separation Distance – 1 Hour Rating
Greater than 30’ Fire Separation Distance – No Rating

Proposed Design

The PAE Living Building is a 5-story type 3A building. The primary structural frame is 1 hour rated glulam post and beam, the floor and roof construction are 1 hour rated CLT5 deck as required by Table 601. The exterior walls are nonbearing standard brick veneer rain screen on metal stud partition. The exterior wall rating is defined by Table 602. The North and West exterior walls are either 1 hour or 2 hours as defined by fire separation distance requirements of the occupancy. The South and East elevation do not require a rating as they are street facing and have over 30’ fire separation distance.

Chapter 2 Definitions:

Exterior Wall – A wall, bearing or nonbearing, that is used as an enclosing wall for a building, other than a fire wall, and that has a slope of 60 degrees or greater with the horizontal plane.

Exterior Wall Envelope - A system or assembly of exterior wall components, including exterior wall finish materials, that provides protection of the building structural members, including framing and sheathing materials, and conditioned interior space, from the detrimental effects of the exterior environment.

Refer to the attached Exhibit 3. Included are floor plans and details that indicate the relationship of the exterior wall to the primary structural frame. The nonbearing exterior wall assembly, consisting of interior finish membrane, wall structure, insulation and exterior finish, is provided as required between the conditioned interior space and the exterior space. In all cases, unless noted otherwise on the plans, we have designed the structure to be completely within the conditioned interior space of the exterior wall assembly. The exterior wall spans from the CLT floor decks. In cases where the structure is engaged in the exterior wall or on the exterior side of the wall, we are

providing the required 2-hour rating at the primary structure, and all elements that support that structure will also be 2-hour rated. Those locations are indicated on the attached exhibit drawings.

On levels 1 and 5 on the South and East exterior walls, there are recesses between the column bays. In those locations the structure is still completely on the inside of the inner most exterior wall layer, and per Table 601 will require 1-hour rating. We are proposing an additional layer of 5/8" type X gypsum board on the interior side at the walls surrounding the structure in order to provide a 2-hour rated exterior wall assembly. These locations only occur on the street facing walls with a fire separation distance of greater than 30', and the locations on the 5th floor are over 56' above grade level.

Reason for alternative The conditions addressed above and in the attached exhibits were identified as within the exterior wall during permit review and not compliant with the Section 704.10 of the building code, and as a result it was requested to provide 2 hour rated structural components where the setbacks occur on levels 1 and 5, and to continue the rating to any structural elements that support those elements.

The exterior wall envelope as defined in Chapter 2, refers to the "assembly of components" that are used to provide protection of the building structural members. The non-load bearing exterior wall assembly, consisting of interior finish membrane, wall structure, insulation and exterior finish, is provided as required between the conditioned interior space and the exterior space. The structural elements all exist on the conditioned interior space of the exterior wall assembly and do not require additional rating beyond 1 Hour, per Table 601.

In order to provide protection of the structure at these areas on the 1st and 5th floor, the two layers of 5/8" gypsum board on the interior side along with the brick masonry unit on the exterior side will provide a 2-hour rated equivalent exterior wall assembly. We feel the proposed design meets the intent of the code and protects the structure from exposure to fire.

Appeal item 4

Code Section OSSC Table 503

Requires Table 503 – Allowable Building Heights and Areas. In Type III-A construction, A-3 Assembly occupancy is limited to four stories above grade with an automatic sprinkler system increase per Section 504.2

Proposed Design The PAE Living Building is a 5-story type 3A mixed occupancy building with Retail and Support spaces on the ground floor and Business occupancy on levels 2 through 5. The proposed design locates two A-3 assembly spaces (Main Conference Room and Multi-Purpose Room) on the 5th floor which total in excess of 10% of the floor area, so they cannot be considered accessory to the Business occupancy (per 508.2.1). We are proposing to install a 1-hour fire barrier partition on the 5th floor (per table 508.4) that will separate the assembly spaces from the remaining portion of the Business office spaces. The floor and roof structure below and above the assembly spaces will also be constructed to a 1-hour protective rating. The separate assembly space has direct access to a main exit Stair A, in addition to Stair B which will exit through the 1-hour fire barrier.

We are providing the following required fire protection systems:

Full sprinkler coverage throughout the building per NFPA 13
We are also providing the following additional measures, which are not required, to provide extra protection:

Smoke detection throughout the building.
Emergency voice alarm communication system.

	Additional exit door width at Stair A, we are providing a second exit door into the stair with direct access from the assembly space. Additional exit stair width, Stair A has direct access from the assembly space and the width is 53", which is larger than the required code minimum. This width can handle more than 70% of the occupant load of the assembly space.
Reason for alternative	The intent of Table 503 requirements to limit A-3 Assembly spaces to four floors above grade in Type 3A sprinklered building is to reduce the amount of time it takes A occupants, who are considered not familiar with the space, to get to the exit location on grade. In order to maintain an equivalent level of safety we are providing the following additional protection measures that directly affect the capability to alert occupants immediately and allow them to exit the building quickly and safely: Full smoke detection coverage throughout building per NFPA 72 Emergency voice alarm communication system per NFPA 72. Intercom position will be located at the ground floor lobby adjacent to the Fire Alarm Control Panel. Direct access to a main exit stair that is capable of providing more than 70% of the occupant load. (OSSC 1028.2) Additional width of exit doors at stairs. The total occupant load of the 5th floor is 271 occupants which requires 55" of exit door width. We are providing 108" of width at three exit doors. Additional width of exit stairs. The total required exit stair width for the 271-person occupant load on the 5th floor is 82" of stair width. We are providing 97" of stair width combined at two stairs. The intent of the smoke detection and voice alarm is to get occupants alerted of a fire/smoke event sooner than otherwise would be required, and getting the occupants to move faster than required because tests have shown that a voice command is taken more seriously and acted on sooner than a standard horn/strobe alarm. The extra door into Stair A provides direct access from the assembly space to the exit, as well as provide additional width. This addresses concerns that egress models show that occupants often have to line up at the door to get into the stair. The extra width gets people into a protected environment faster than the code requires and the extra stair width gets them down the stairs to the exit faster than would otherwise be required. Even though more people are on the 5th floor than would be there as an office space, the people there are employees of the business, they are familiar with the space, they are familiar with the stairs, therefore can proceed to the exits efficiently and the additional protection measures ensure early and efficient egress of the occupants on the 5th floor and the building.

APPEAL DECISION

1. Tyco Type WS water curtain sprinkler protection at non-fire rated glazing at exterior wall: Granted provided sprinklers are installed per manufacturer's specifications. A separate permit from the Fire Marshal's Office is required.

2. Use of 90 minute door in lieu of fire shuter: Denied. Proposal does not provide equivalent Life Safety protection.
Appellant may contact John Butler (503 823-7339) with questions.

3. Alternate 2 hour wall assembly: Hold for additional information.

4. Assembly occupancy above maximum height allowed: Denied. Proposal does not provide equivalent Life Safety protection.
Appellant may contact John Butler (503 823-7339) 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.

For item 3: Additional information is submitted as a no fee reconsideration, following the same submittal process and using the same appeals form as the original appeal. Indicate at the beginning of the appeal form that you are filing a reconsideration and include the original assigned Appeal ID number.
Include the original appeal language, with the new information in a separate paragraph clearly identified as "Reconsideration Text". No additional fee is required.

2

1

PL

F

E

D

STAIR A
103
145 SF

JAN.
110

W/C
105
59 SF

FIRE HOSE VALVE CABINET

2 HOUR RATED EXIT
ENCLOSURE (GREEN LINE)

SPRINKLERED
GLASS WALL

CANOPY ABOVE

EXIT CORRIDOR
115
155 SF

W/C
104
59 SF

CORR
130
186 SF

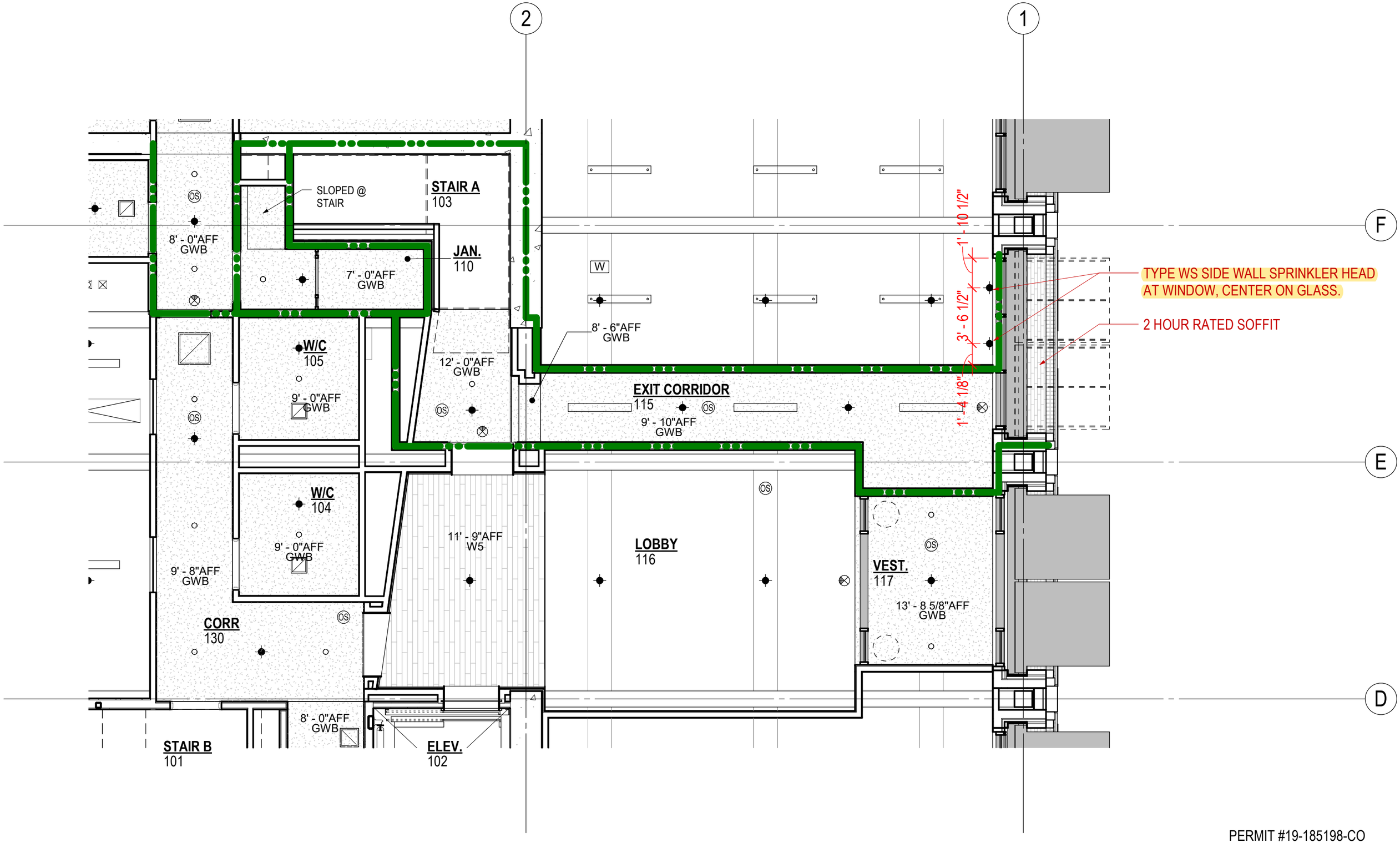
LOBBY
116
476 SF

VEST.
117
92 SF

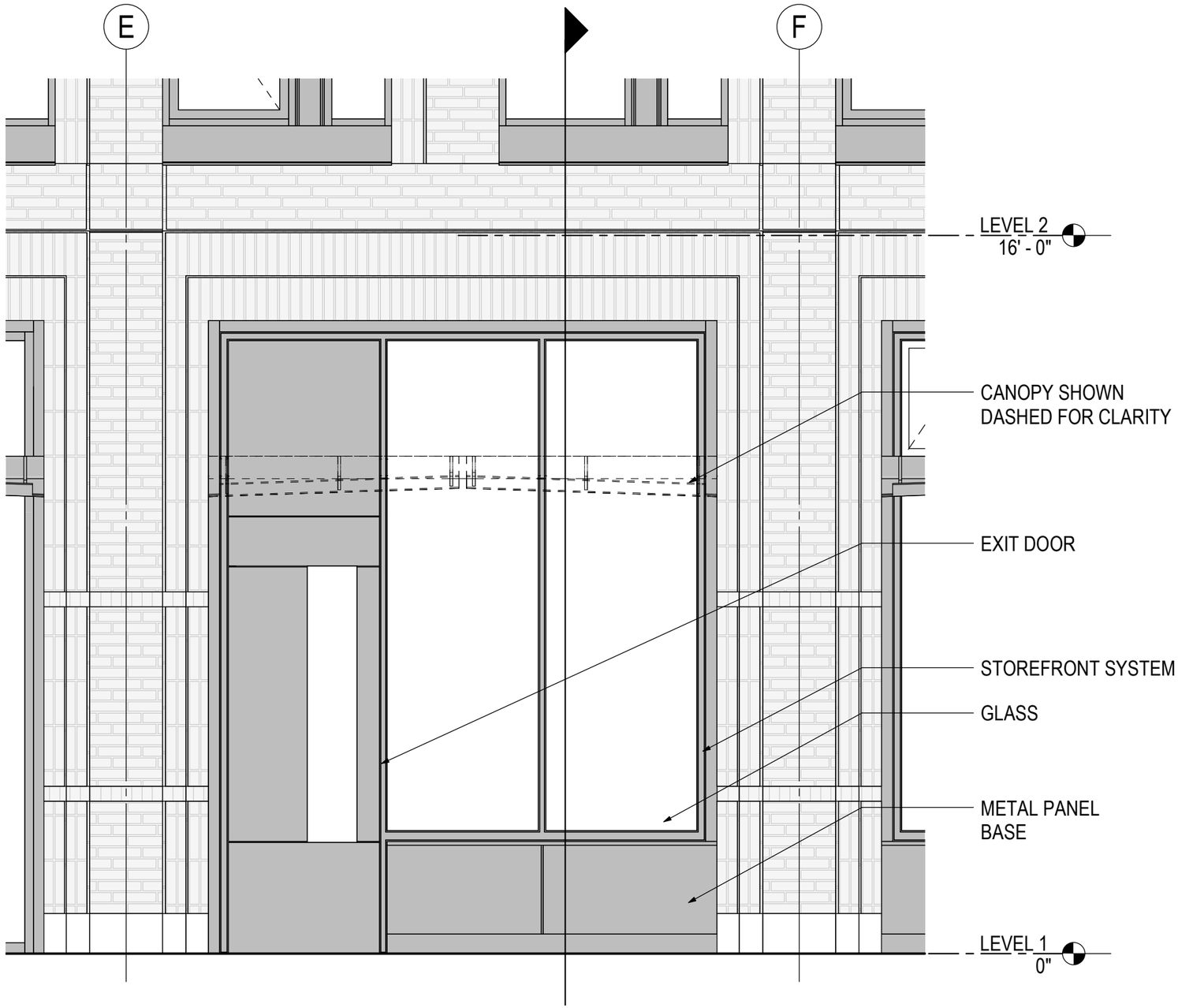
151 SW 1ST AVE.

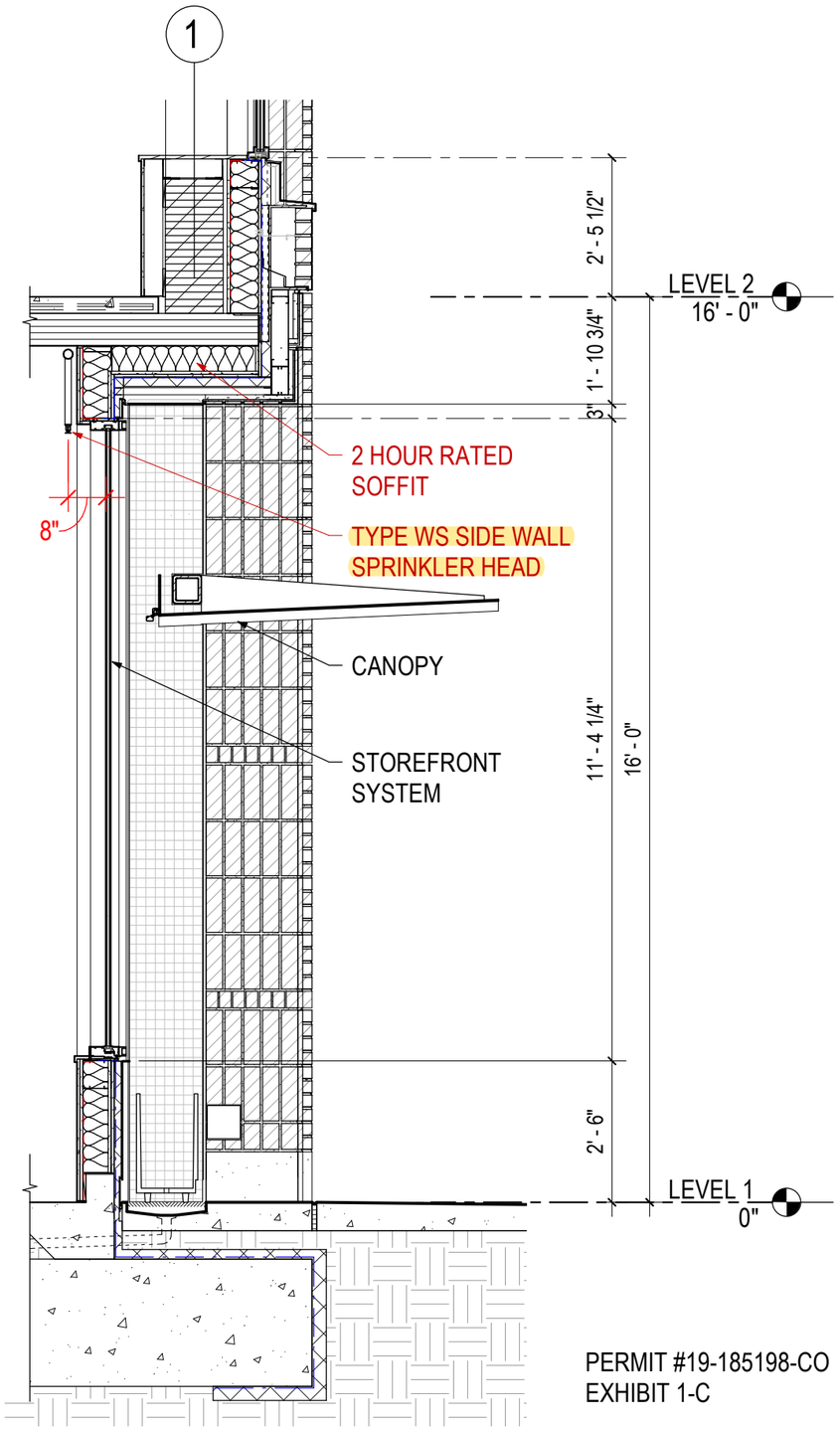
ELEV.
102
70 SF

PERMIT #19-185198-CO
EXHIBIT 1-A



PERMIT #19-185198-CO
EXHIBIT 1-B





PERMIT #19-185198-CO
EXHIBIT 1-C

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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

This report is subject to renewal February 2020.

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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
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(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).

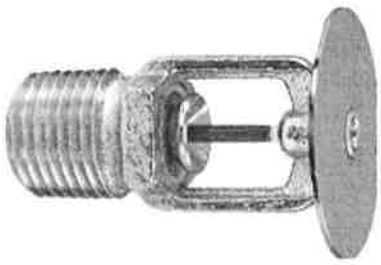


FIGURE 1—HORIZONTAL SIDEWALL SPRINKLER

FIGURE 2—PENDENT VERTICAL SIDEWALL SPRINKLER

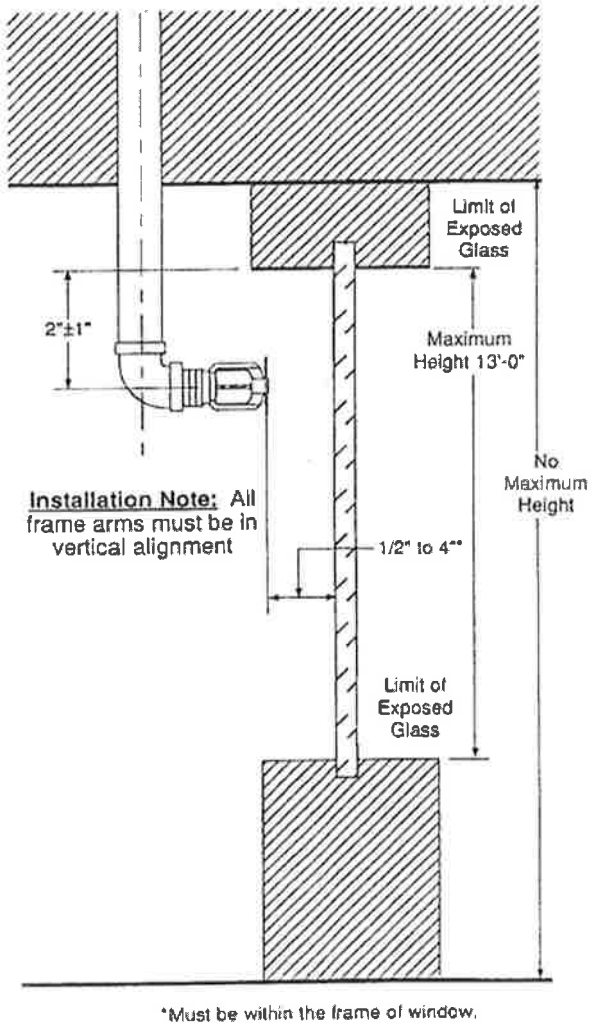


FIGURE 3—WS™ HORIZONTAL SIDEWALL SPRINKLER INSTALLATION

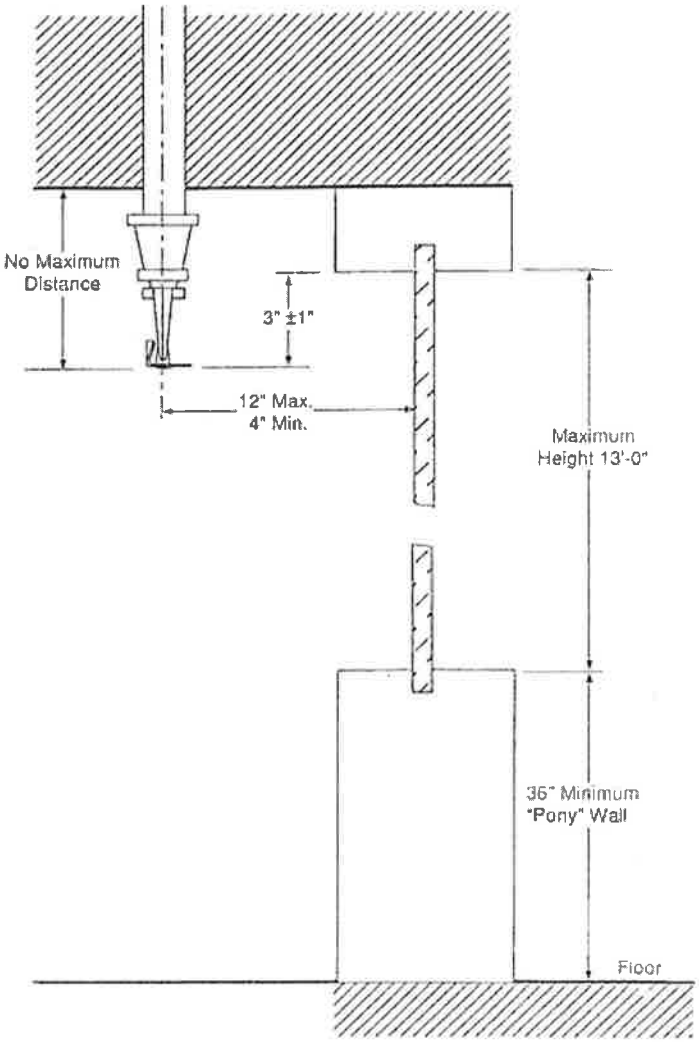
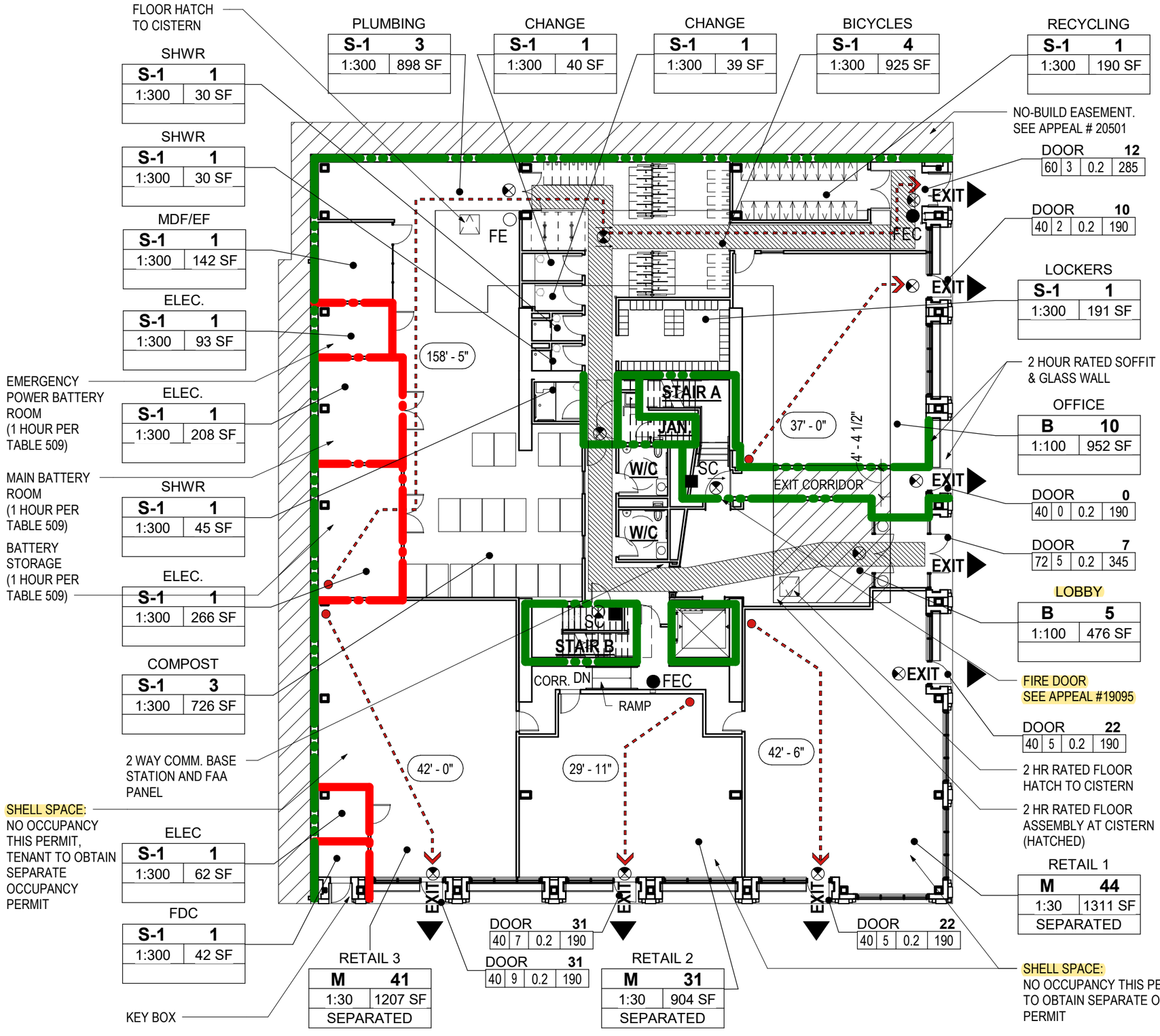
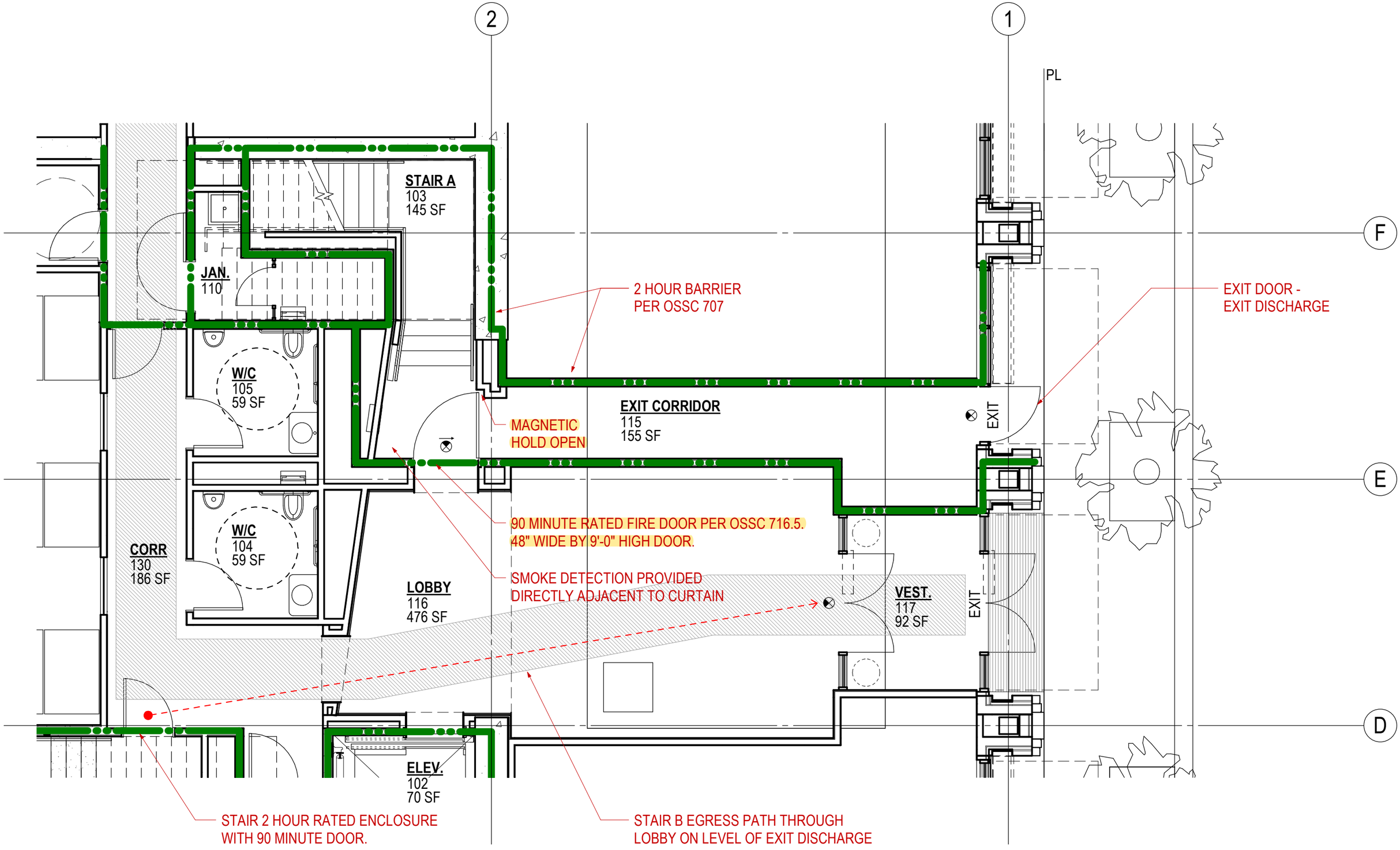


FIGURE 4—WS™ PENDENT VERTICAL SIDEWALL SPRINKLER INSTALLATION



PERMIT #19-185198-CO
EXHIBIT 2-A



PERMIT #19-185198-CO
EXHIBIT 2-B

1 HR RATED @ LEVELS 2-5 PER TABLE 602
2 HR RATED @ LEVEL 1 PER TABLE 602

2 HOUR RATED
STRUCTURE PER 704.10.
COLUMN LOCATED
WITHIN EXTERIOR WALL.

KELLS
RESTAURANT
BUILDING

PINE STREET
MARKET
BUILDING

MECH.
MDF/EF 129
PLUMBING 125
ELEC. 128
ELEC. 127
ELEC. 126
COMPOST 124
CORR 130
STAIR B 101
ELEV. 102
DN
CORR 119
RETAIL 3 131
RETAIL 2 121
RETAIL 1 118
ELEC 123
FDC 122
3' - 0" - 2" - 4" - 10"
BICYCLES 112
CHANGE 111
CHANGE 109
SHWR 108
SHWR 107
SHWR 106
JAN. 110
W/C 105
W/C 104
LOCKERS 113
STAIR A 103
EXIT CORRIDOR 115
LOBBY 116
VEST. 117
RECYCLING 120
OFFICE 114

PL
J
H
G
F
E
D
C
B
A

2 EX3-F
1 EX3-E
1 SIM
2 EX3-D

4 3.9 3.5 3 2.9 2.5 2 1.9 1.5 1

2 HOUR RATED COLUMN SUPPORTS
LEVEL 5 COLUMN A/1

NO RATING REQUIRED
FSD > 30' - 0" PER TABLE 602

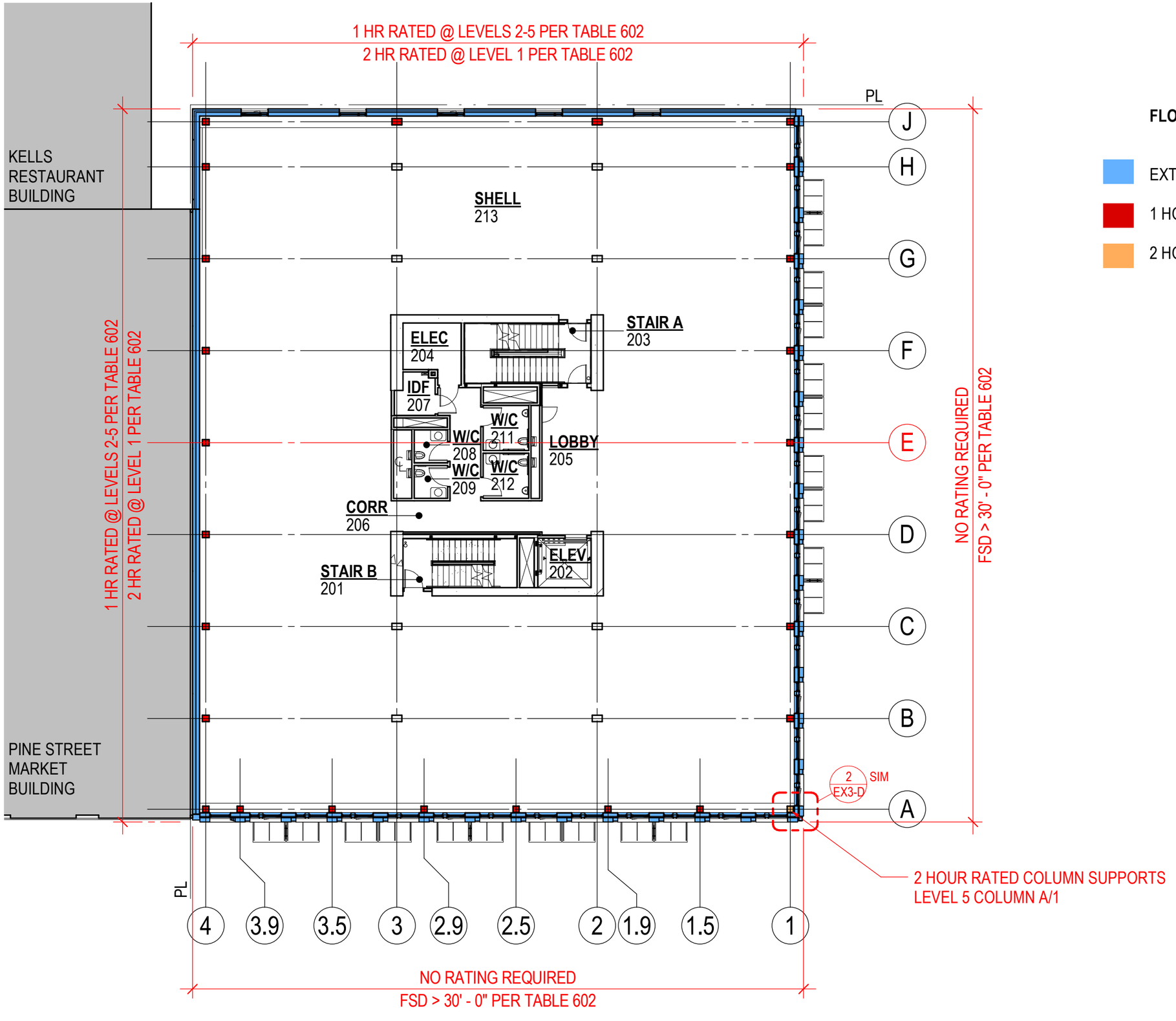
FLOOR PLAN - LEVEL 01

EXTERIOR WALL

1 HOUR RATED PRIMARY STRUCTURE

2 HOUR RATED PRIMARY STRUCTURE

PERMIT #19-185198-CO
EXHIBIT 3-A



FLOOR PLAN - LEVELS 02-04

- EXTERIOR WALL
- 1 HOUR RATED PRIMARY STRUCTURE
- 2 HOUR RATED PRIMARY STRUCTURE

PERMIT #19-185198-CO
EXHIBIT 3-B

FLOOR PLAN - LEVEL 05

EXTERIOR WALL

1 HOUR RATED PRIMARY STRUCTURE

2 HOUR RATED PRIMARY STRUCTURE

1 HR RATED @ LEVELS 2-5 PER TABLE 602
2 HR RATED @ LEVEL 1 PER TABLE 602

PL

KELLS
RESTAURANT
ROOF BELOW

OPEN OFFICE
529

OPEN OFFICE
530

MAIN
CONFERENCE
513

TEL.
531

COPY
532

STOR.
514

CORR
533

STOR.
515A

ELEC
504

CONFERENCE
MEDIUM
527

IDF
507

CORR
528

W/C
511

STAIR A
503

W/C
508

W/C
509

W/C
512

CONFERENCE
MEDIUM
526

LOBBY
505

RECEPTION
515

CORR.
506

1
EX3-G
SIM

ELEV.
502

STAIR B
501

1
EX3-G

CORR
523

WELL
522

PANTRY
519

MULTI-PURPOSE
RM
518

OPEN OFFICE
525

TEL.
521

OPEN OFFICE
524

1
EX3-H

1
EX3-H

2
EX3-G

PINE STREET
MARKET ROOF
BELOW

1
EX3-G
SIM

1
EX3-G

J
H
G
F
E
D
C
B
A

4
3.9
3.5
3
2.9
2.5
2
1.9
1.5
1

PL

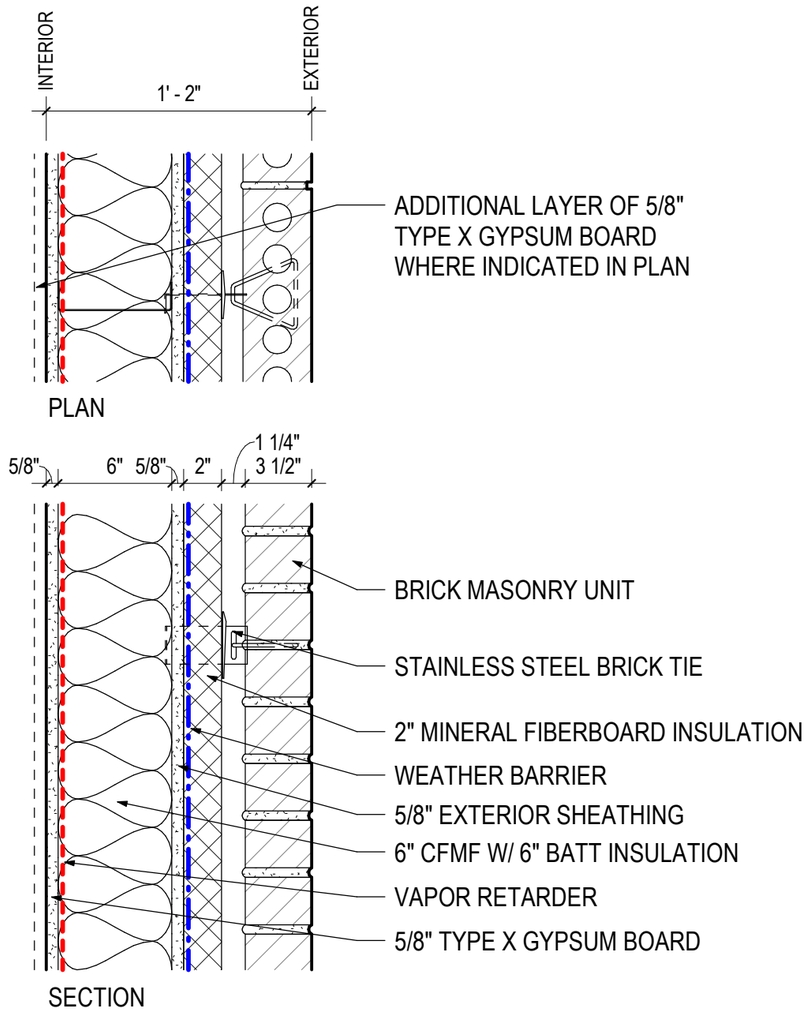
NO RATING REQUIRED
FSD > 30' - 0" PER TABLE 602

1 HR RATED @ LEVELS 2-5 PER TABLE 602
2 HR RATED @ LEVEL 1 PER TABLE 602

NO RATING REQUIRED
FSD > 30' - 0" PER TABLE 602

2 HOUR RATED STRUCTURE PER 704.10. COLUMN LOCATED OUTSIDE EXTERIOR WALL. ALL SUPPORTING STRUCTURAL ELEMENTS REQUIRE A 2 HOUR RATING.

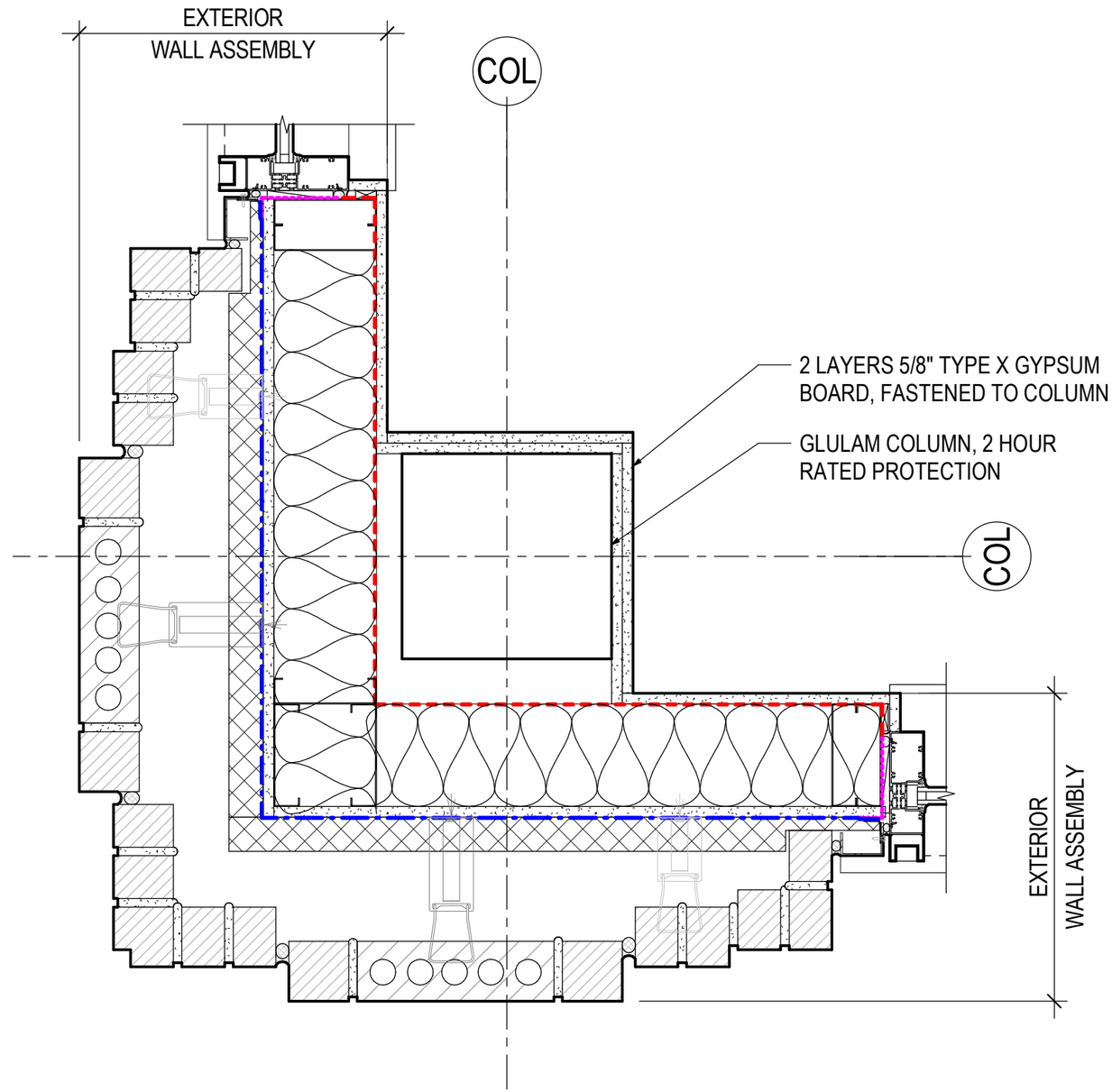
PERMIT #19-185198-CO
EXHIBIT 3-C



1 EX3-D

TYPICAL EXTERIOR WALL ASSEMBLY

1 1/2" = 1'-0"

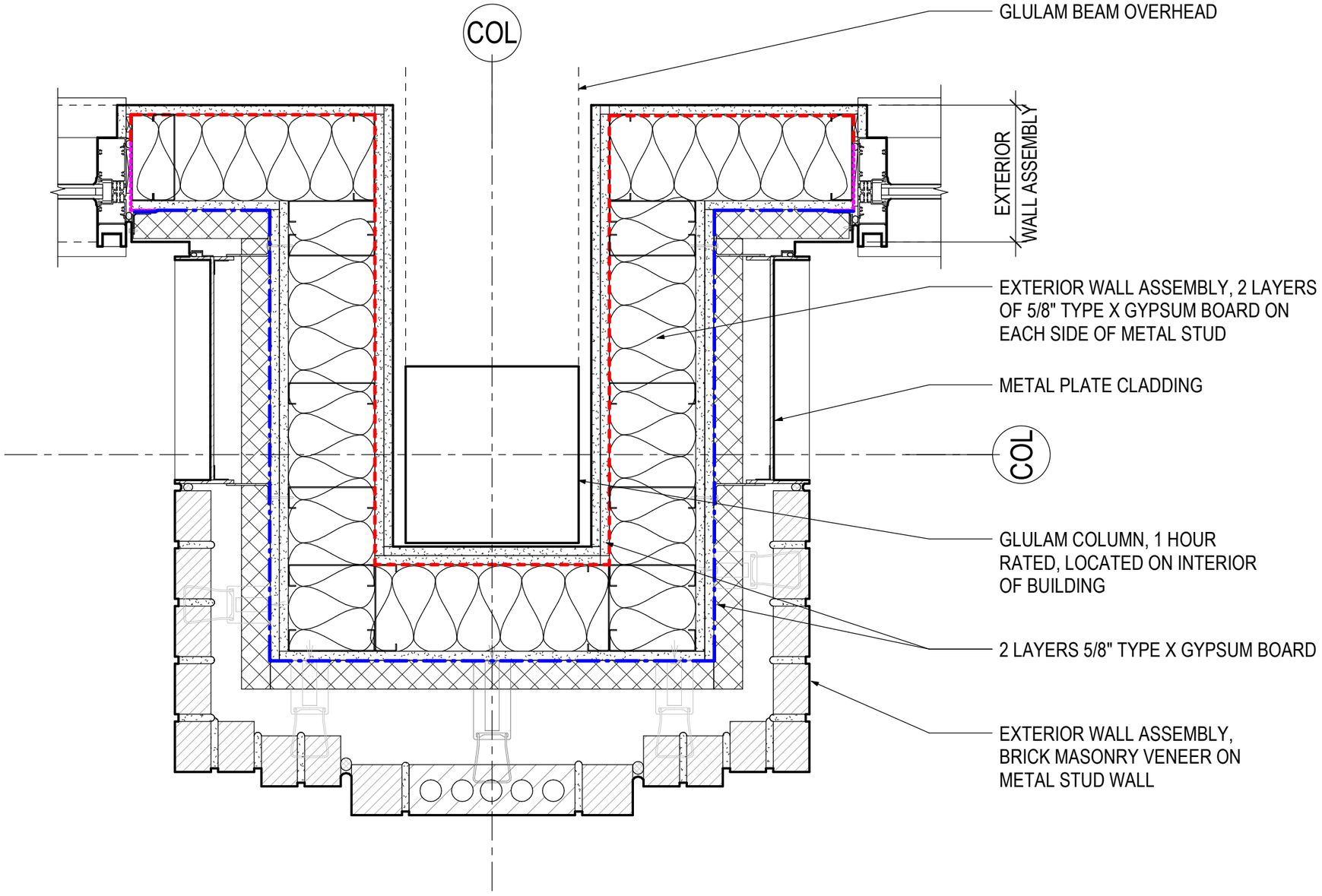


2 EX3-D

PLAN DETAIL - SOUTHEAST CORNER AT LEVEL 1

1 1/2" = 1'-0"

PERMIT #19-185198-CO
EXHIBIT 3-D

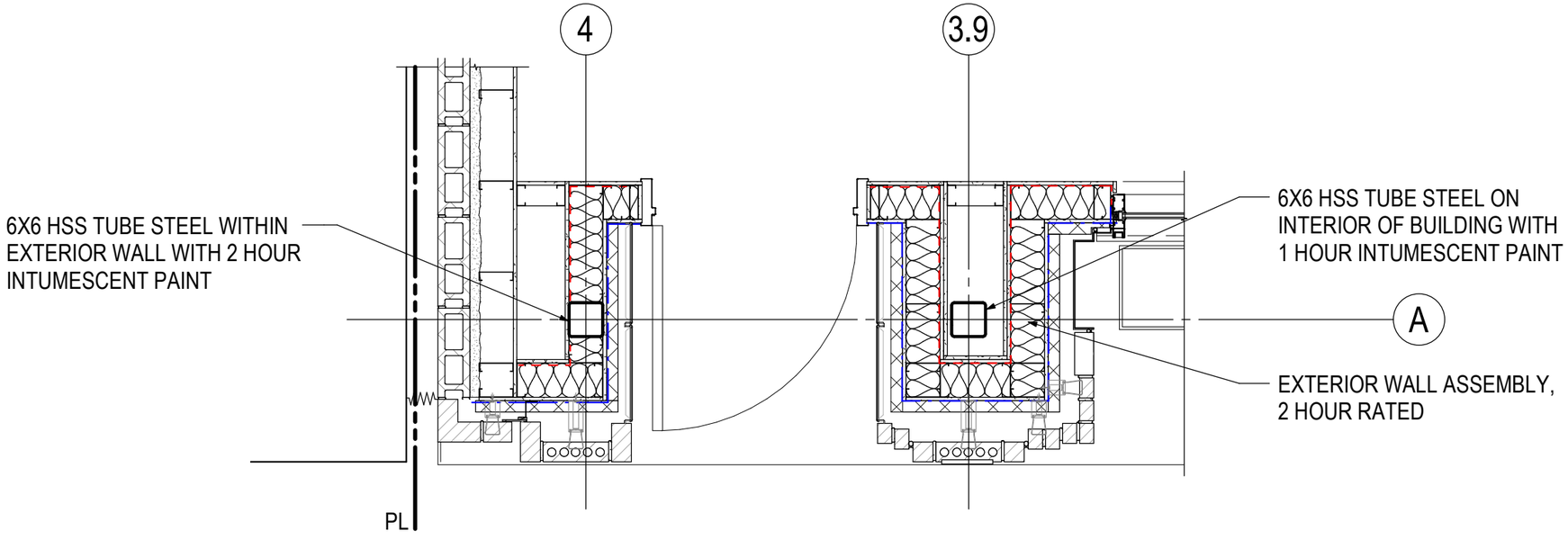


1
EX3-E

PLAN DETAIL - PILASTER AT LEVEL 1 RECESS

1 1/2" = 1'-0"

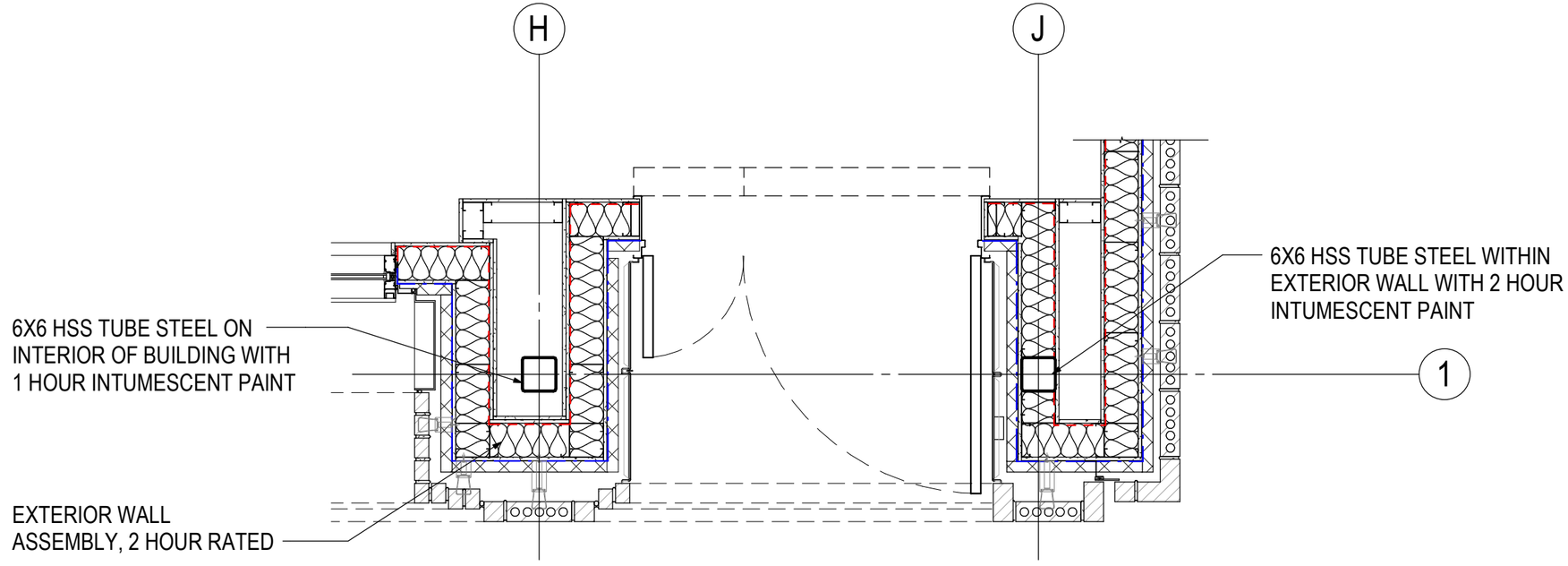
PERMIT #19-185198-CO
EXHIBIT 3-E



1
EX3-F

PLAN, ENLARGED - SOUTHWEST CORNER AT LEVEL 1

1/2" = 1'-0"

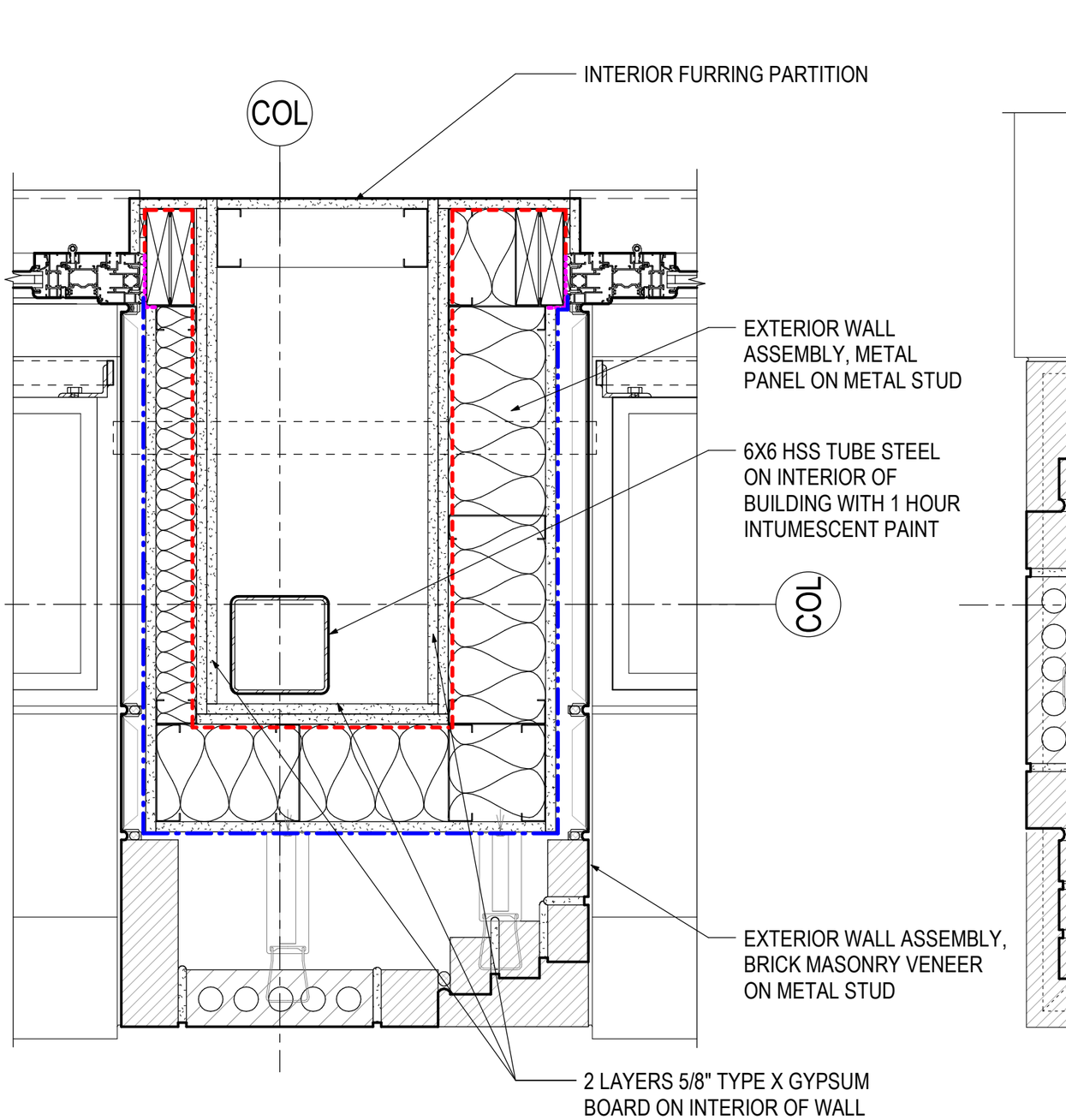


2
EX3-F

PLAN, ENLARGED - NORTHEAST CORNER AT LEVEL 1

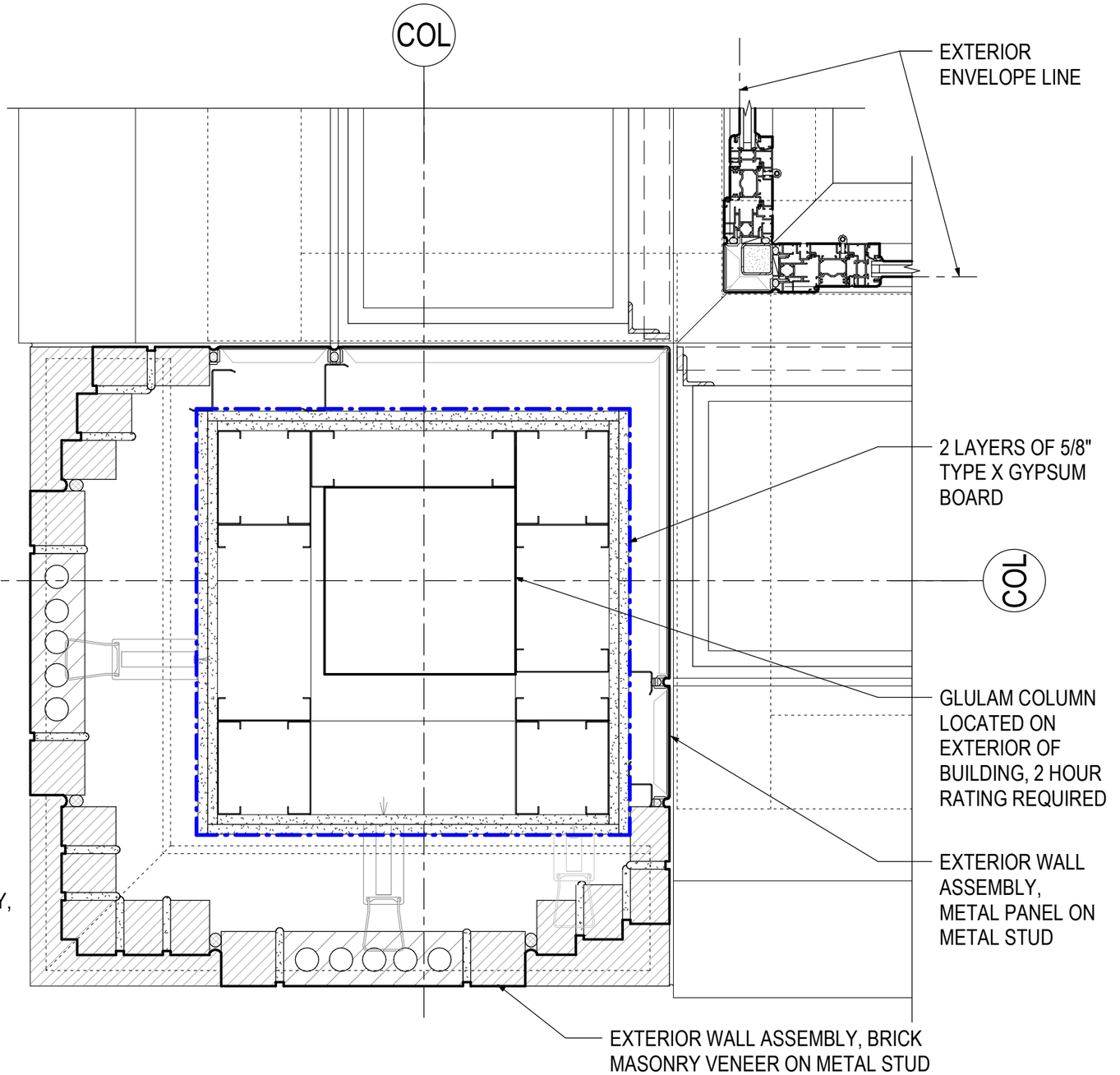
1/2" = 1'-0"

PERMIT #19-185198-CO
EXHIBIT 3-F



1 EX3-G **PLAN DETAIL - PILASTER AT LEVEL 5 RECESS**

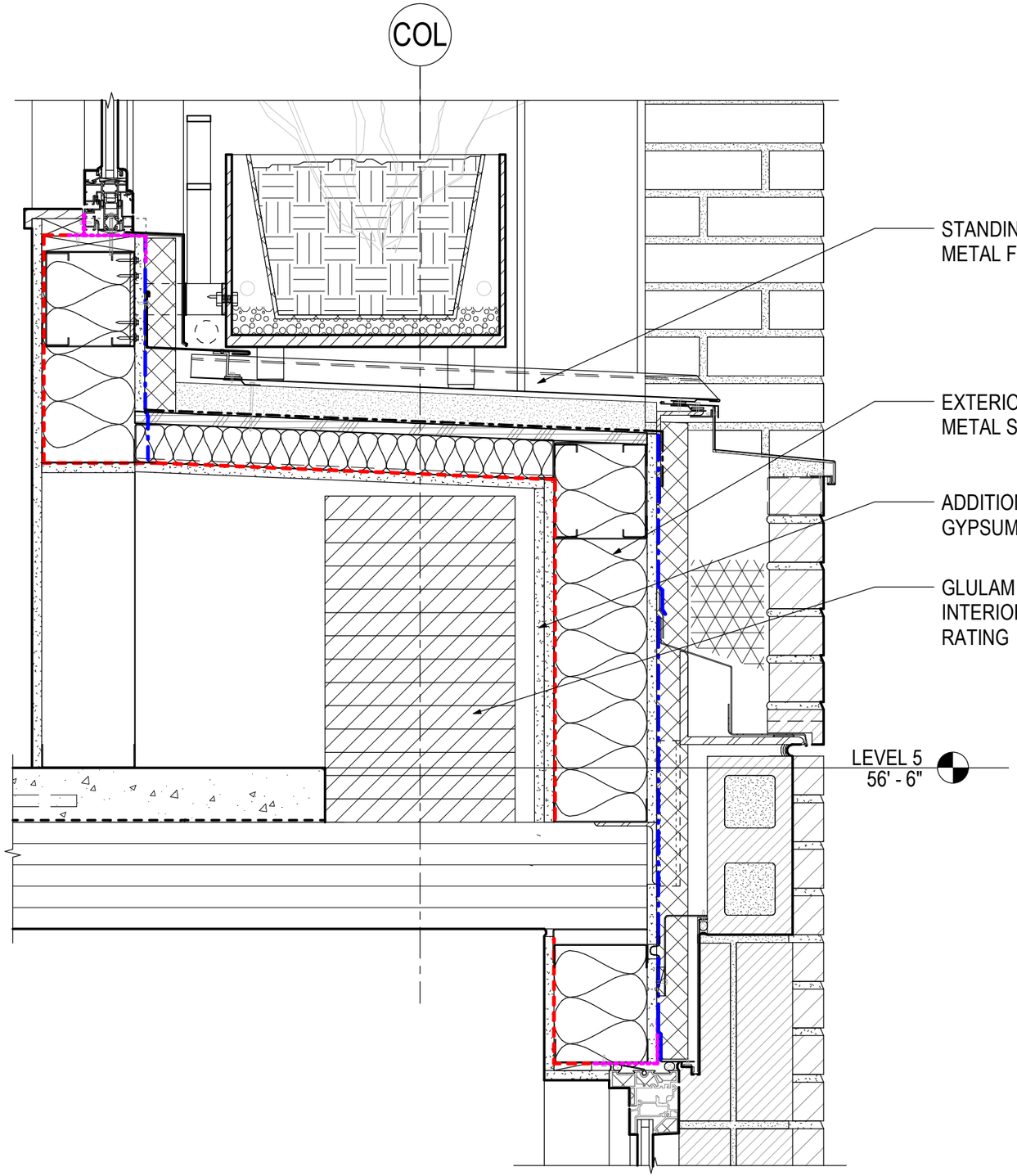
1 1/2" = 1'-0"



2 EX3-G **PLAN DETAIL - SOUTHEAST CORNER AT LEVEL 5**

1 1/2" = 1'-0"

PERMIT #19-185198-CO
EXHIBIT 3-G

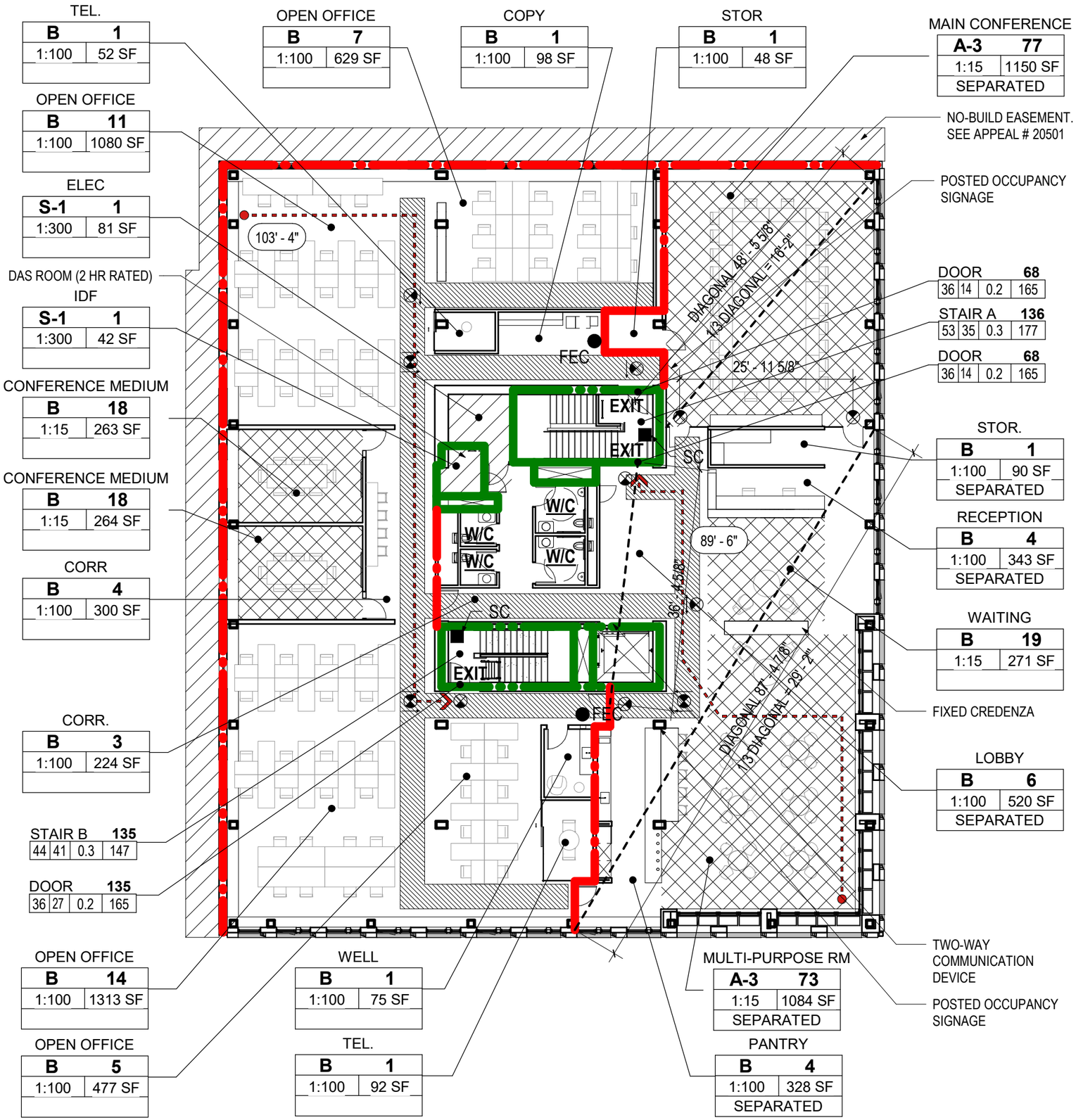


1
EX3-H

SECTION - UPTURNED BEAM AT LEVEL 5 BALCONY

1 1/2" = 1'-0"

PERMIT #19-185198-CO
EXHIBIT 3-H



FIRE - 0.5 HR
FIRE - 1 HR
FIRE - 2 HR
FIRE - 3 HR
FIRE - 4 HR
FIRE SMOKE BARRIER - 1 HR
FIRE SMOKE PARTITION

EXIT SIGN
FE FIRE EXTINGUISHER
FEC FIRE EXTINGUISHER CABINET
SC STANDPIPE CABINET
BUILDING EXIT
0' - 0" TRAVEL DISTANCE
EGRESS PATH

44" WIDE CLEAR PATH OF TRAVEL
2 HOUR RATED FLOOR (SEE FA2/A4.00)
ASSEMBLY - 1 OCC PER 15 SF NET

DOOR 173
36 25 0.15 220
EXIT COMPONENT
OCCUPANT LOAD
OCCUPANT CAPACITY
OCCUPANCY LOAD FACTOR
WIDTH REQUIRED
WIDTH PROVIDED

NAME
G ###
SF
SEPARATION
SPACE NAME
OCCUPANCY GROUP
OCCUPANCY LOAD
CALCULATED AREA
OCCUPANCY SEPARATION
OCCUPANCY LOAD FACTOR

PERMIT #19-185198-CO
EXHIBIT 4-A

OCCUPANT LOAD - LEVEL 5				
ROOM NAME	OCCUPANCY GROUP	OCCUPANT LOAD FACTOR	AREA	OCCUPANT LOAD
MAIN CONFERENCE	A-3	15	1150 SF	77
MULTI-PURPOSE RM	A-3	15	1084 SF	73
CONFERENCE MEDIUM	B	15	263 SF	18
CONFERENCE MEDIUM	B	15	264 SF	18
COPY	B	100	98 SF	1
CORR	B	100	300 SF	4
CORR.	B	100	224 SF	3
LOBBY	B	100	520 SF	6
OPEN OFFICE	B	100	1313 SF	14
OPEN OFFICE	B	100	477 SF	5
OPEN OFFICE	B	100	629 SF	7
OPEN OFFICE	B	100	1080 SF	11
PANTRY	B	100	328 SF	4
RECEPTION	B	100	343 SF	4
STOR	B	100	48 SF	1
STOR.	B	100	90 SF	1
TEL.	B	100	92 SF	1
TEL.	B	100	52 SF	1
WAITING	B	15	271 SF	19
WELL	B	100	75 SF	1
ELEC	S-1	300	81 SF	1
IDF	S-1	300	42 SF	1
				271

GROSS FLOOR AREA - 10,635 GSF

OCCUPANCY CLASSIFICATION: BUSINESS W/ A-3 & S-1

EXITS REQUIRED: 2
STAIR A: 53" / .3 = 176 OCCUPANTS
STAIR B: 46" / .3 = 153 OCCUPANTS
TOTAL EXIT CAPACITY = 329 OCCUPANTS

OCCUPANT LOAD: REFER TO LEVEL 5 SCHEDULE
TOTAL - 271 PERSONS

TRAVEL DISTANCE:
COMMON PATH - 100’ MAX @ B BUSINESS
COMMON PATH - 75' MAX @ A-3 ASSEMBLY
EXIT ACCESS - 300’ MAX @ B BUSINESS
EXIT ACCESS - 250' MAX @ A-3 ASSEMBLY

PERMIT #19-185198-CO
EXHIBIT 4-B