

Development Services

From Concept to Construction

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APPEAL SUMMARY

Status: Decision Rendered - Held over from ID 21854 (9/11/19) for additional information

Appeal ID: 21938	Project Address: 7200 NE Airport Way
Hearing Date: 9/25/19	Appellant Name: Tom Jaleski
Case No.: B-018	Appellant Phone: 9712385266
Appeal Type: Building	Plans Examiner/Inspector: David Bartley, Joe Thornton, Corey Stanley
Project Type: commercial	Stories: 2 Occupancy: A-3 Construction Type: I-A, II-B
Building/Business Name: PDX Concourse C	Fire Sprinklers: Yes - throughout, on wall
Appeal Involves: Erection of a new structure, Reconsideration of appeal	LUR or Permit Application No.: 19-175691-CO and 19-175835-MT
Plan Submitted Option: pdf [File 1] [File 2] [File 3]	Proposed use: Airport

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	3104.5
Requires	<p>Walkways shall be separated from the interior of the building by not less than 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. This protection shall extend vertically from a point 10 feet (3048 mm) above the walkway roof surface or the connected building roof line, whichever is lower, down to a point 10 feet (3048 mm) below the walkway and horizontally 10 feet (3048 mm) from each side of the pedestrian walkway. Openings within the 10-foot (3048 mm) horizontal extension of the protected walls beyond the walkway shall be equipped with devices providing a 3/4-hour fire protection rating in accordance with Section 715.</p> <p>Exception: The walls separating the pedestrian walkway from a connected building and the openings within the 10-foot (3048 mm) horizontal extension of the protected walls beyond the walkway are not required to have a fire-resistance rating by this section where any of the following conditions exist:</p> <p>The distance between the connected buildings is more than 10 feet (3048 mm). The pedestrian walkway and connected buildings, except for open parking garages, are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. The wall is capable of resisting the passage of smoke or is constructed of a tempered, wired or laminated glass wall and doors subject to the following:</p> <ol style="list-style-type: none"> 1.1. The wall or glass separating the interior of the building from the pedestrian walkway shall be protected by an automatic sprinkler system in accordance with Section 903.3.1.1 and the sprinkler system shall completely wet the entire surface of interior sides of the wall or glass when actuated; 1.2. The glass shall be in a gasketed frame and installed in such a manner that the framing system

will deflect without breaking (loading) the glass before the sprinkler operates; and

1.3. Obstructions shall not be installed between the sprinkler heads and the wall or glass.

The distance between the connected buildings is more than 10 feet (3048 mm) and both sidewalls of the pedestrian walkway are not less than 50 percent open with the open area uniformly distributed to prevent the accumulation of smoke and toxic gases.

Buildings are on the same lot in accordance with Section 503.1.2.

Where exterior walls of connected buildings are required by Section 705 to have a fire-resistance rating greater than 2 hours, the walkway shall be equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

The previous exception shall apply to pedestrian walk-ways having a maximum height above grade of three stories or 40 feet (12 192 mm), or five stories or 55 feet (16 764 mm) where sprinklered.

Proposed Design

The Portland International Airport (PDX) is a fully sprinklered building of Type IA construction. At the end on Concourse C, ground load gates are being added for a duration of less than two years while the airport is undergoing construction of the new Concourse B. Access to the planes will be through the current jetways from the terminal. Passengers will disembark not through the jetways, but from the planes across the apron, up stairs and ramps under a new membrane structure, and then enter the terminal.

The proposed design is for the membrane structure that provides weather protection for passengers as they move into the terminal to be a pedestrian walkway per OSSC 3104 that will connect the existing terminal building with an exterior safe dispersal area per OSSC 1027.5, instead of another building. The membrane structure meets all the requirements of OSSC 3104 for pedestrian walkways and OSSC 3102 for membrane structures, except the exterior wall of Concourse C will not be fire rated and full membrane structure will not be fully sprinklered as required for pedestrian walkways that connect two buildings per OSSC 3104.5, exception 1. Since one end of the pedestrian walkway will be connected to the exterior and a safe dispersal area, equivalent protection will be provided by a single line of sprinklers along the exterior wall of the existing Concourse C building using a glycol system connected to the existing sprinkler system, designed per NFPA 13, section 7.6.

The following fire and smoke protection measures will be provided to provide equivalent protection:

The membrane structure will be protected with a single line of sprinklers along the exterior wall of the existing Concourse C building. Additionally there will be window washing sprinklers for each recessed window and under the horizontal projections and elevated landing to wet the entire surface per OSSC 3104.5, exception 1.

The sprinkler systems will be a glycol system per NFPA 13, 7.6, connected to the terminal sprinkler system fire pump. The sprinkler line will be separated with backflow preventer as required.

The membrane structure will be on non-combustible construction Type II-B per OSSC 3102.

Stair and ramp will be of non-combustible construction.

No storage will be allowed under the membrane.

Reconsideration text:

Add to item 1 of the proposed design – The sprinkler system on the terminal wall will be installed as an exposure fire protection system per NFPA 13, 7.8, per the layout shown on attached sheet F6.001. The system will be a deluge system activated by 2 IR flame detectors located along the face of the existing terminal building wall, approximately half-way between the membrane structure ridge and the edge of the membrane structure. The flame detectors will be oriented such that their fields of detection will overlap the entire ground surface of the existing terminal wall. The deluge system will be activated by detection by both flame detectors.

Reason for alternative The intent of OSSC 3104.5 is to provide protection between buildings from fire and smoke migrating through pedestrian walkways where fire separation distances would otherwise protect against fire migration. The membrane structure being used as a pedestrian walkway will connect the existing terminal building with an exterior safe dispersal area per OSSC 1027.5, instead of another building. The design provides sprinkler protection along the existing exterior wall to wet the entire wall of the terminal per OSSC 3104.5, exception 1, including window wash sprinklers for each recessed window and under horizontal projections and elevated walkway landing, non-combustible membrane structure framing with membrane meeting NFPA 701 as allowed per 3120.3.1, and open egress for occupants in the membrane structure to a safe dispersal area on the apron away from aircraft and terminal. The membrane structure will not provide the migration path of fire and smoke. The stair and ramp structure will be of non-combustible construction, and no storage will be allowed under the membrane structure, and the exterior of the terminal building will retain the protections required per NFPA 415 for exposure to aircraft fuel fires.

OSSC 3104.5 requires a fire barrier between the pedestrian walkway and the buildings it connects to unless the pedestrian walkway meets one of the exceptions. Exception 1 allows the separation to just prevent the passage of smoke if the connected buildings and the pedestrian walkway are sprinklered, has sprinklers that wet the glass on the outside of the connected building and the glass is in gasketed frames. The proposed sprinkler system will provide the existing exterior of the terminal building to be fully washed with water from the sprinklers and the windows are in gasketed frames. The exterior wall is of primarily metal wall panel with glazed openings.

The membrane structure will meet the requirements of OSSC 3102 for non-combustible membrane structure with a membrane that meets the fire propagation performance criteria of NFPA 701 as required per OSSC 3102.3.1. The structure will have sides and will only be open where the stair, ramp and egress from the lower level of the terminal exit from under the membrane structure. The sprinkler system will provide continuity of protection along the existing egress path from the exit door on the lower level to the exit discharge at the edge of the membrane structure.

The pipe will be fed water from the terminal building that is connected to a fire pump to ensure adequate water supply is provided to the wet pipe system. The sprinkler heads will be supported by the frame of the membrane structure and installed per NFPA 13 criteria for a peaked roof condition. The membrane will provide the envelope required to allow the temperatures to exceed the 165-degree sprinkler activation threshold. The melting point for high and medium grade polyethylene is 248 degrees minimum, high enough to ensure sufficient heat capture for the RTI of the sprinkler to activate.

Reconsideration text to this paragraph – Add, The sprinkler system will be installed per NFPA 13, 7.8 as an exposure fire protection system with open heads. The wall sprinklers will have 8K heads with 3/4" orifice heads, the window wash sprinklers have 1/2" orifice heads. The flame detectors will detect any fire on the ground along the entire length of the wall. All construction under the structure in non-combustible and will not have any storage. The deluge system will wet the entire surface of the wall, including the windows and under any overhangs as required by the code.

The membrane structure as a pedestrian walkway provides equivalent protection for the occupants and the building as required by OSSC 3104. While the pedestrian walkway is not fully sprinklered, the proposed sprinkler system will provide the wall and window washing required per OSSC 3104.5, exception 1, with a line of sprinklers along the exterior wall of the terminal. The membrane structure will meet the criteria of NFPA 701 for fire propagation construction and will not increase the hazard to the metal wall panels of the terminal building due to its low fuel load and melt point relative to the metal panels. The existing glass in the terminal building has a higher breakage temperature than the melt point of the membrane and the proposed sprinklers along the existing exterior wall that will cool the temperatures on and around the glass.

The proposed design of the membrane structure at PDX as a pedestrian walkway that provides weather protection for occupants provides equivalent protection to the existing terminal building to prevent migration of fire and smoke between buildings and for safety of occupants as required by OSSC 3104.5. We therefore request approval of the appeal.

APPEAL DECISION

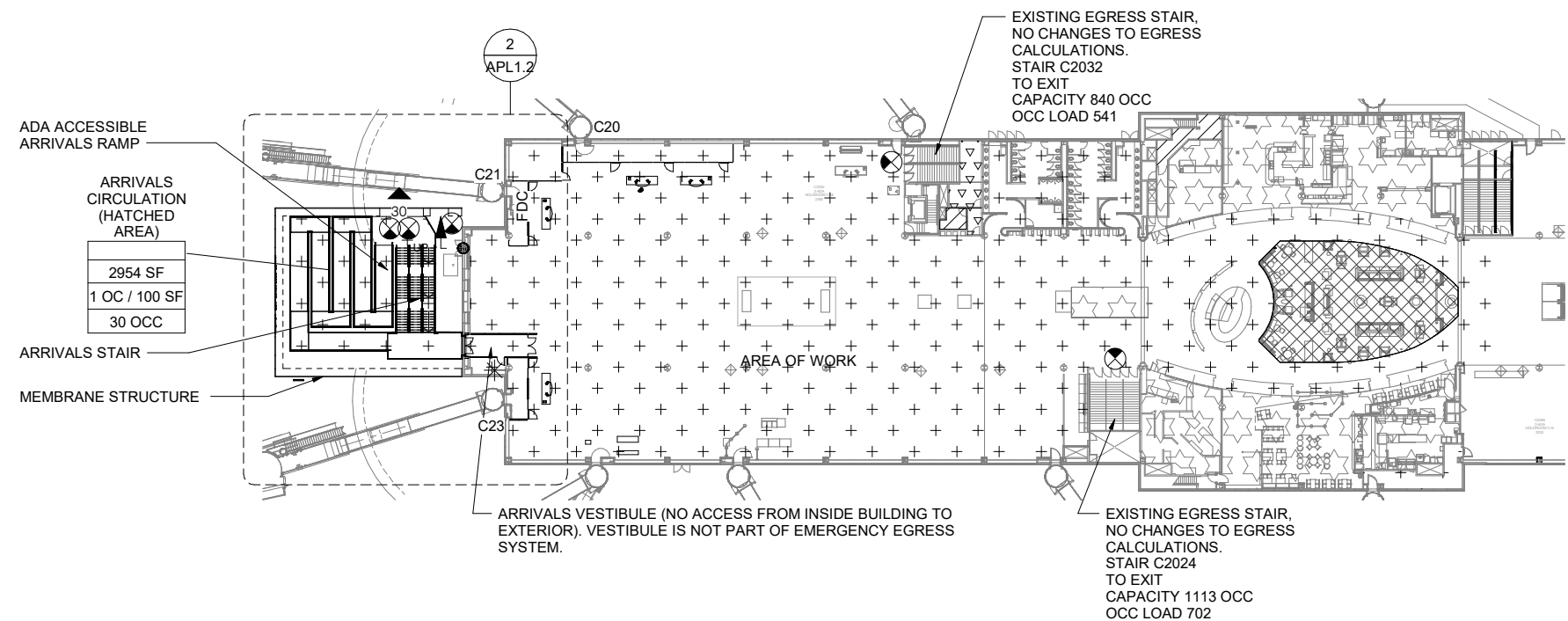
Separation of membrane structure from terminal building: Granted provided the sprinkler system is installed to wet the entire exterior wall surface. A separate permit is required through the Fire Marshal's office.

Appellant may contact Joe Thornton (503 823-4280) with questions.

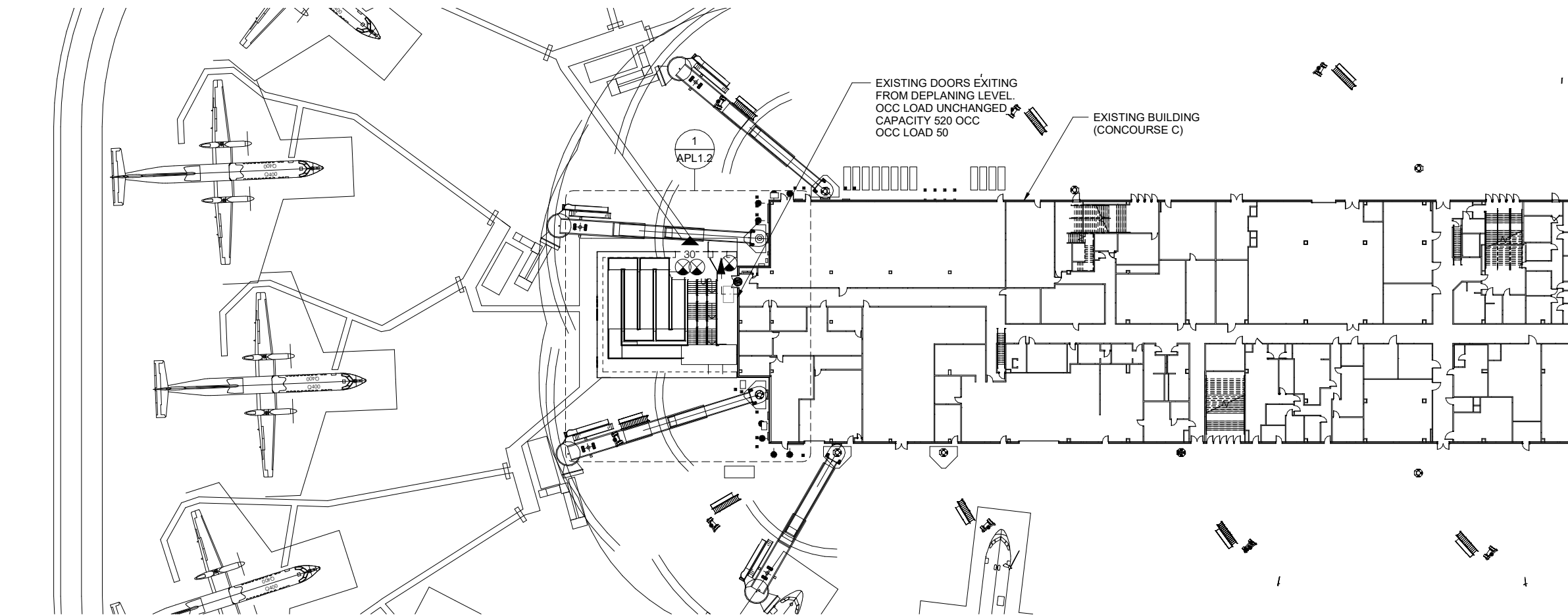
The Administrative Appeal Board finds with the conditions noted, that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; 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.

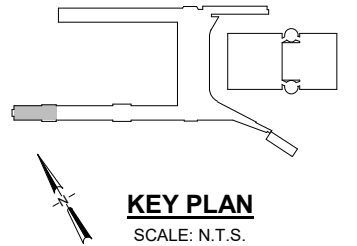
DO YOU SEE THE AIRPLANES? THE ADJACENT SAMPLES SHOW THREE DIFFERENT LEVELS OF SHADING. THE GUIDANCE IS PROVIDED FOR REFERENCE ONLY.



2 LEVEL 02 - ENPLANING - APPEAL PLAN
APL1.1 $1/32'' = 1'-0''$



1 LEVEL 01 - DEPLANING - APPEAL SITE PLAN
APL1.1 1/32" = 1'-0"

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102629

DESIGNED BY MVDRAWN BY MV / BN

CHECKED BY MV

DATE 04/26/19

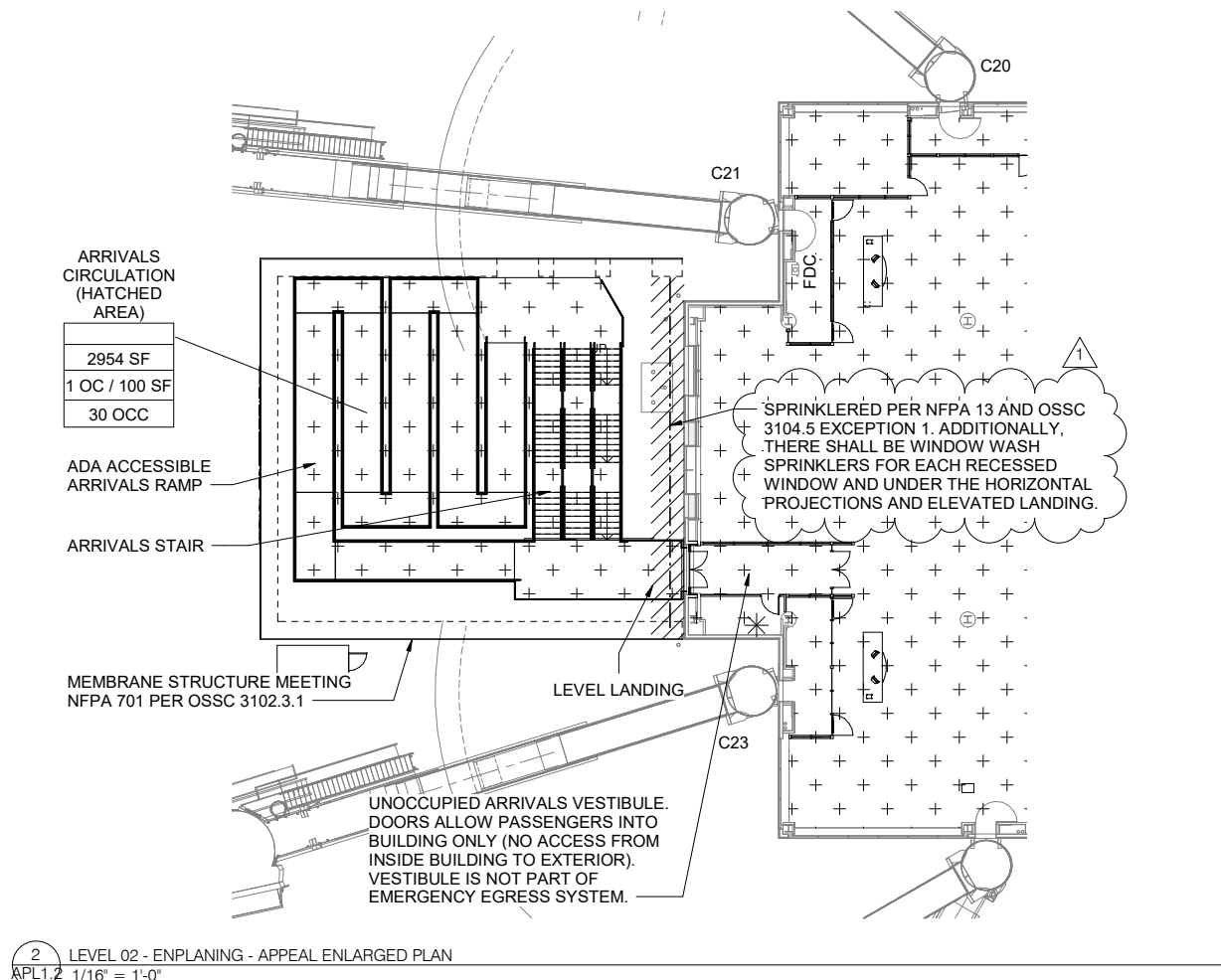
SCALE AS SHOWN

PORTLAND INTERNATIONAL AIRPORT

TCORE - CONCOURSE B EXTENSION - TENANT RELOCATIONS - PHASE 3
APRON PLAN

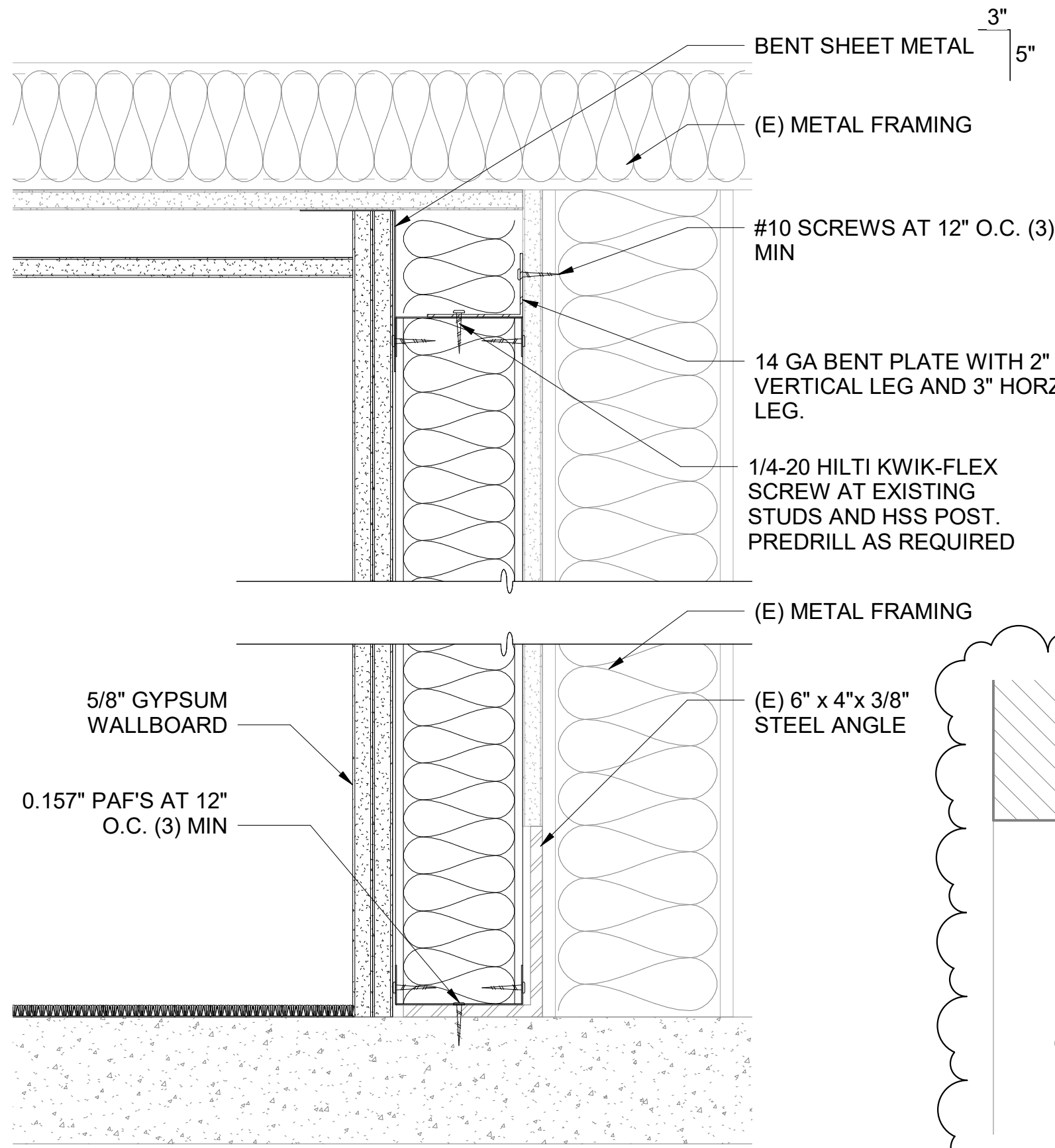
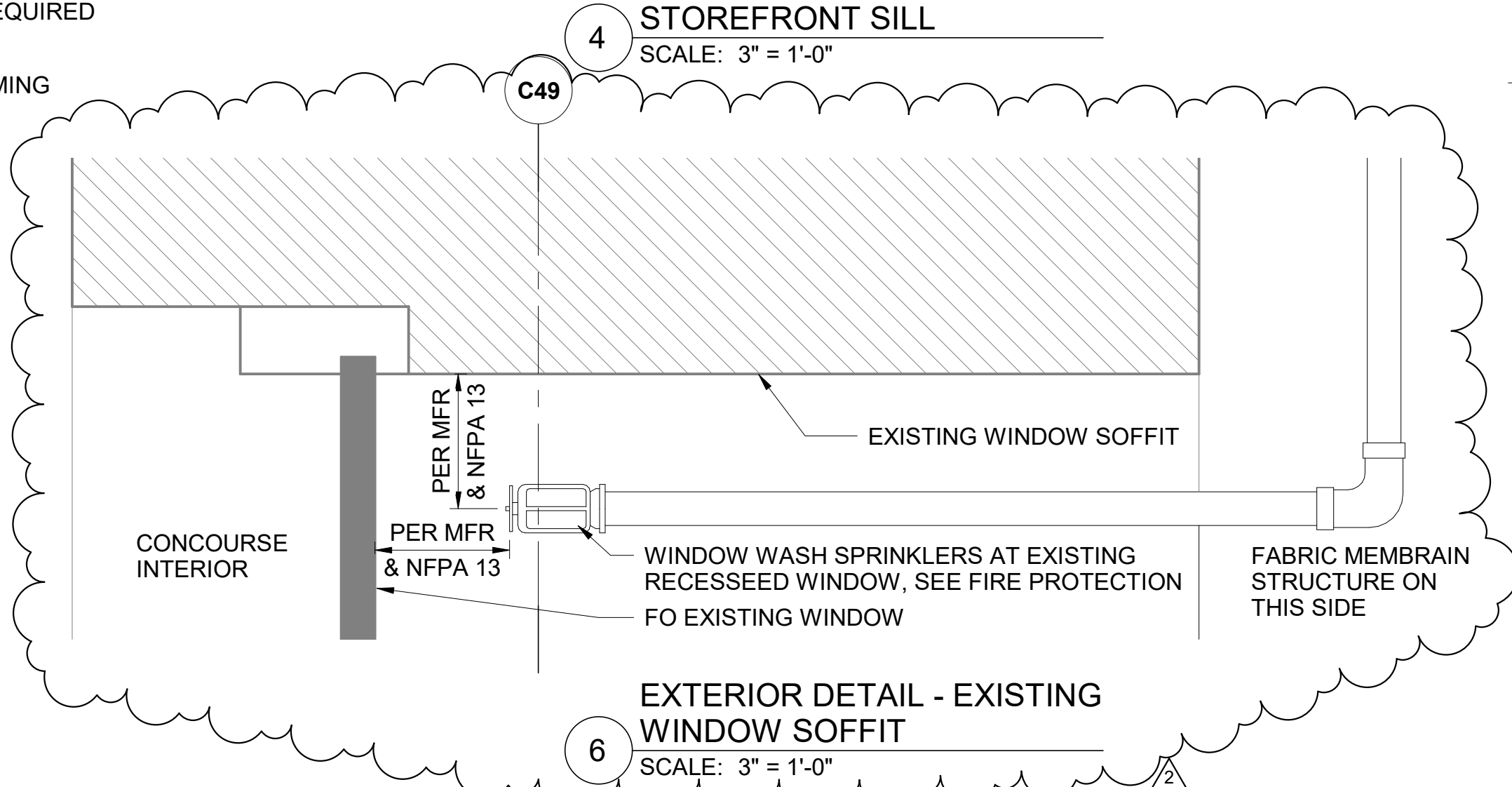
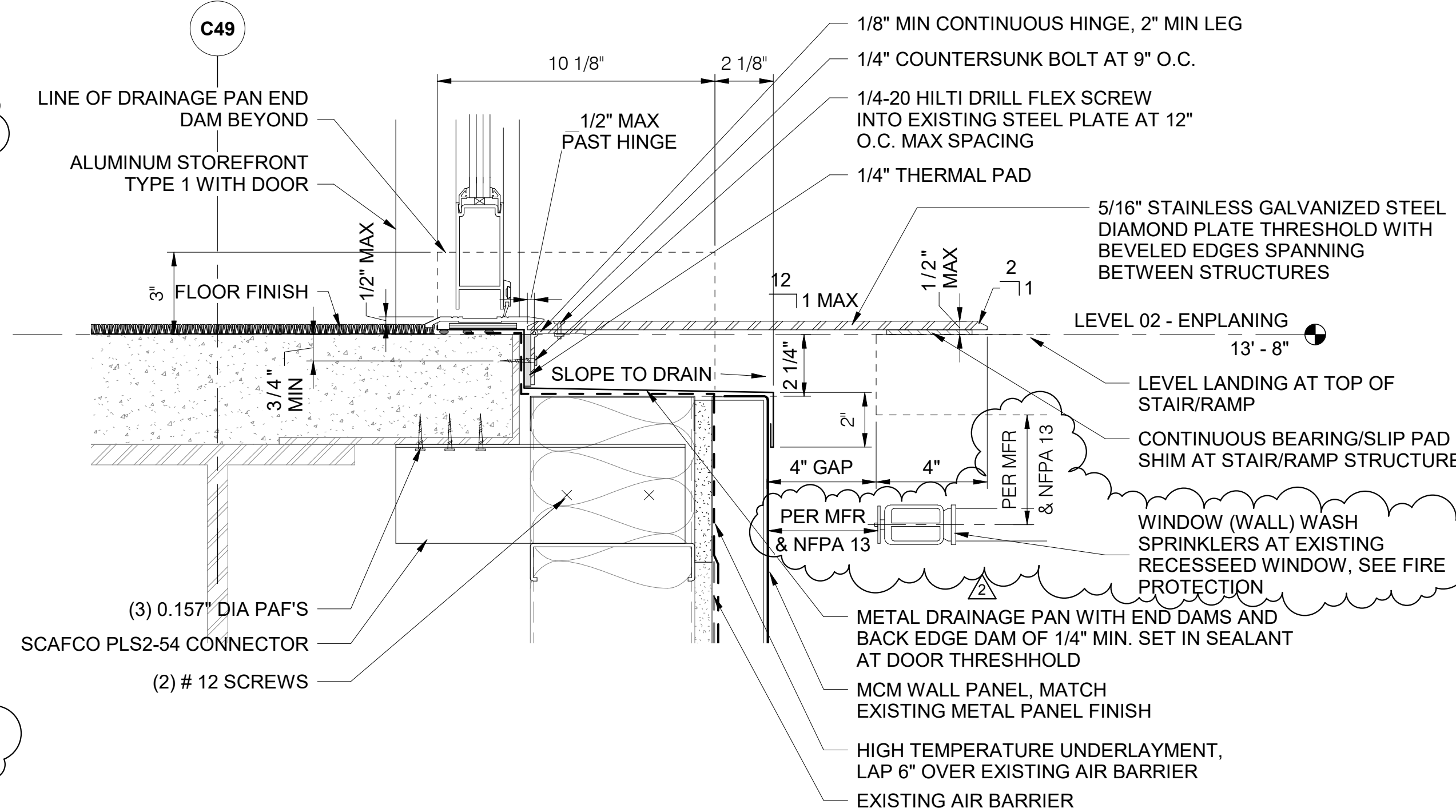
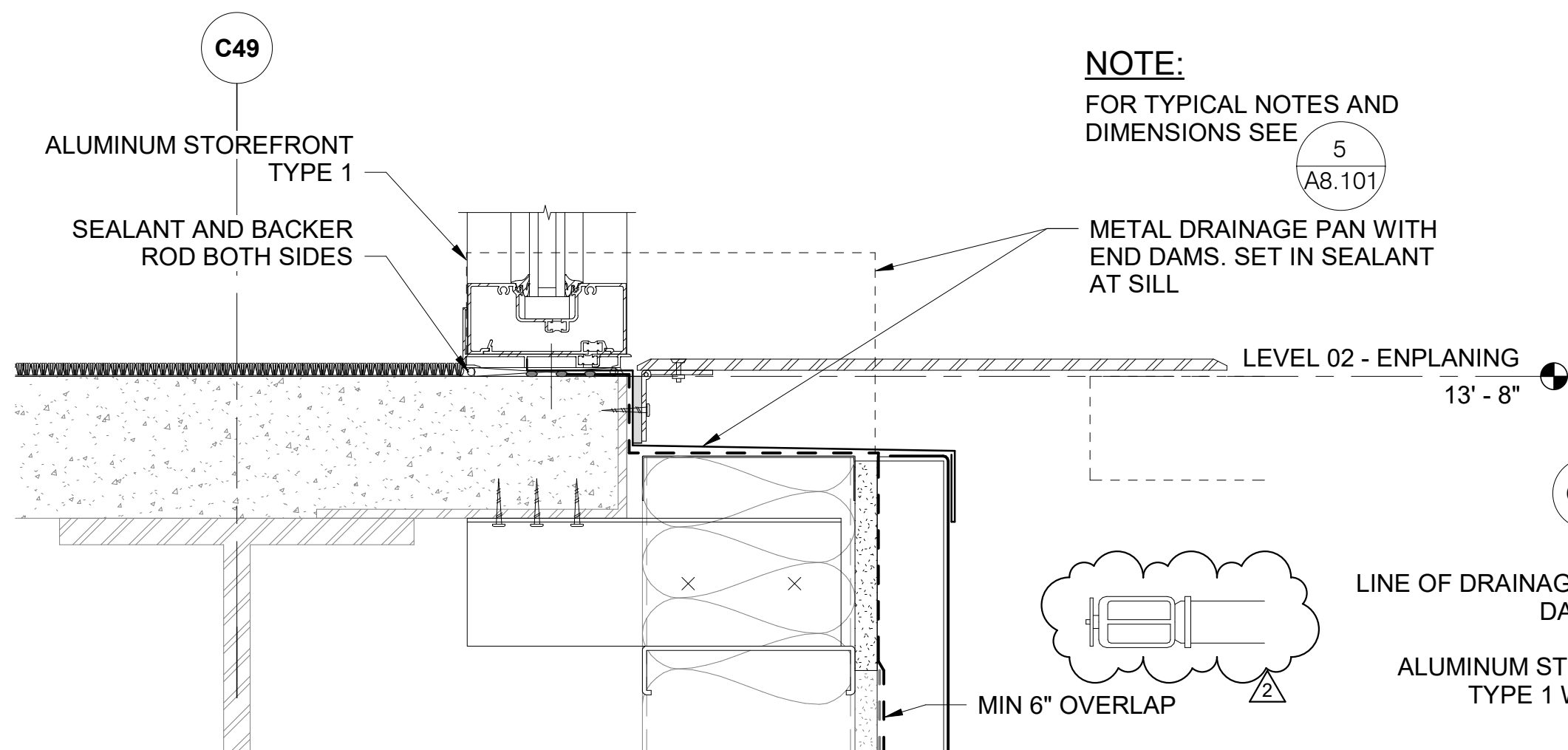
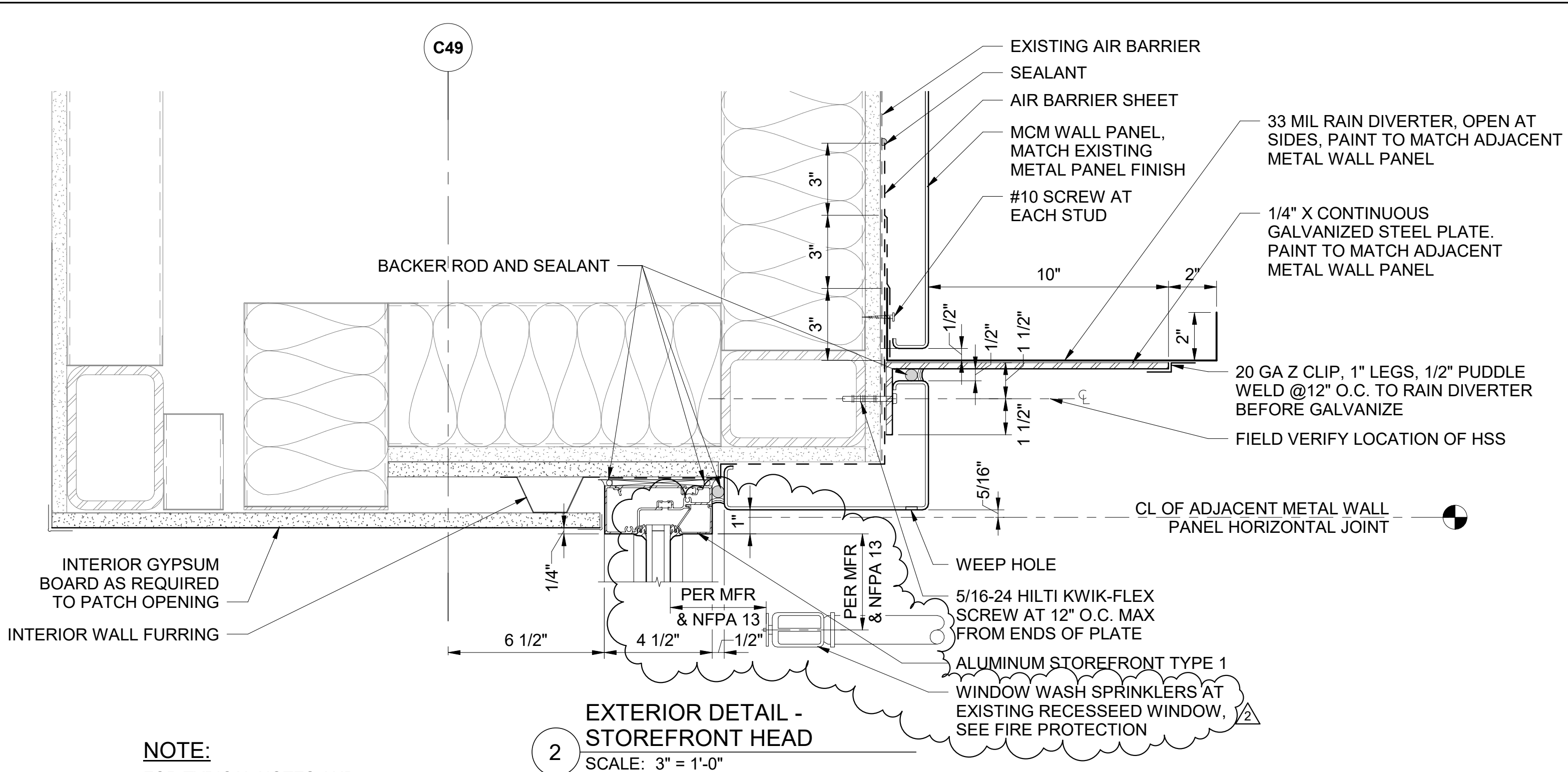
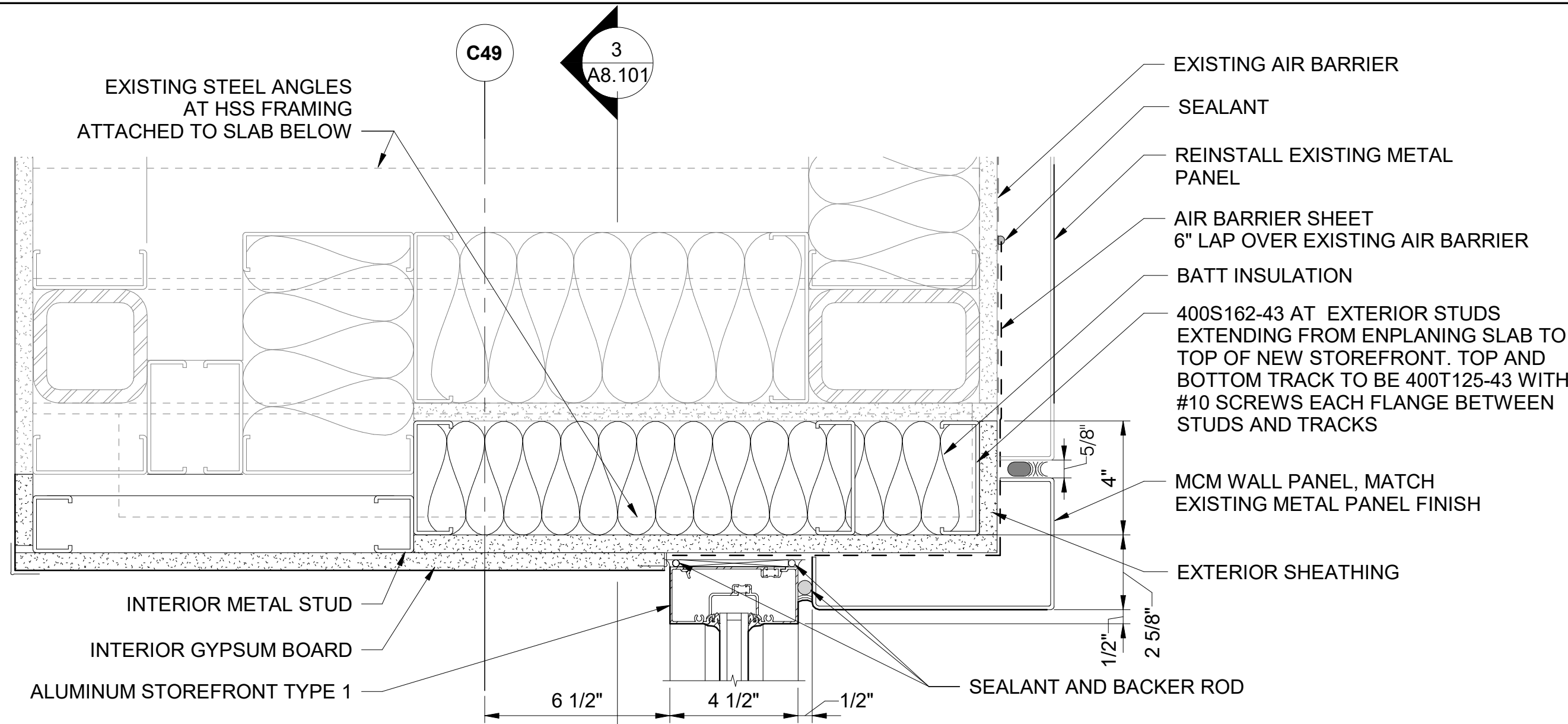
SUBMITTED BY
JAY OSTLUND
PROJECT ENGINEER

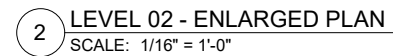
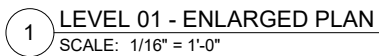
TYPE	DRAWING NO.	SHEET NO.	DISC. SHT. NO.
CD	PDX 2019-512	Approver/114	APL1.1



921 SW WASHINGTON STREET SUITE 250
PORTLAND OREGON 97205
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SHEET NO.	DISC. SHT. NO.
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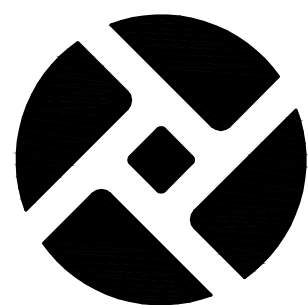
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SUBMITTED BY JAY OSTLUND PROJECT ENGINEER	TYPE CD	DRAWING NO. PDX 2019-512	SHEET NO.	DISC. SHT. NO. APL3.2
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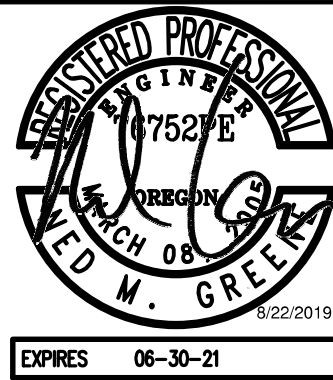
1. PROVIDE A SINGLE LINE OF CLOSELY SPACED SPRINKLERS ALONG THE EXISTING EXTERIOR OF THE TERMINAL BUILDING TO PROVIDE FULLY WASHED EXPOSURE PROTECTION, PER NFPA 13 AND LOCAL AHJ STANDARDS. SPRINKLERS SHALL BE PLACED 6'-0" ON CENTER AND LOCATED 6"-12" AWAY FROM THE EXPOSURE THEY ARE PROTECTING. THE SPRINKLER PIPES WILL BE SUPPORTED BY THE FRAME OF THE TENT MEMBRANE STRUCTURE AND BE INSTALLED PER NFPA 13 CRITERIA FOR A PEAKED ROOF CONDITION.
2. PROVIDE ADDITIONAL FIRE PROTECTION SPRINKLERS UNDER PEDESTRIAN WALKWAY.
3. PROVIDE NEW UPRIGHT SPRINKLERS FOR NEW AREA. SPRINKLERS SHALL BE K=8, POLY-STAINLESS CORROSION RESISTANT. CLEARANCE FROM SPRINKLER DEFLECTOR TO CEILING AS INDICATED BY NFPA 13.
4. ~~CONNECT SPRINKLERS TO ANTI-FREEZE RISER LOCATION AS SHOWN ON PLANS~~
5. PROVIDE WINDOW WASH SPRINKLERS FOR EACH RECESSED WINDOW, UNDER THE RAIN DIVERTER, AND ELEVATED LANDING. INSTALL PER NFPA 13 AND SPRINKLER MANUFACTURER'S REQUIREMENTS.

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SCALE AS SHOWN

TCORE - CONCOURSE B EXTENSION - TENANT RELOCATIONS - PHASE 3
SECTIONS - FIRE PROTECTION

SUBMITTED BY
JAY OSTLUND
PROJECT ENGINEER

TYPE	DRAWING NO.
CD	PDX 2019-512

SHEET NO.	DISC. SHT. NO.
88/114	F6.001