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

Appeal ID: 22232	**Project Address:** 7000 NE Airport Way
Hearing Date: 12/18/19	**Appellant Name:** Tom Jaleski
Case No.: M-001	**Appellant Phone:** 9712385266
Appeal Type: Mechanical	**Plans Examiner/Inspector:** Thomas Ng, Ali Soheili
Project Type: commercial	**Stories:** 2 **Occupancy:** A-2, A-3, B, M, S-1, S-2 **Construction Type:** I-A
Building/Business Name: PDX Airport	**Fire Sprinklers:** Yes - Throughout
Appeal Involves: Alteration of an existing structure,other: Tenant Improvement to an existing building	**LUR or Permit Application No.:**
Plan Submitted Option: pdf [File 1]	**Proposed use:** Airport

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	2014 OSMC 506.3.13.1, 506.3.13.3
Requires	506.3.13.1 Termination above the roof. Exhaust outlets that terminate above the roof shall have the discharge opening located not less than 40 inches (1016 mm) above the roof surface. 506.3.13.3 Termination location. Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from parts of the same or contiguous buildings, adjacent buildings and adjacent property lines and shall be located not less than 10 feet (3048 mm) above the adjoining grade level. Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from or not less than 3 feet (914 mm) above air intake openings into any building. Exception: Exhaust outlets shall terminate not less than 5 feet (1524 mm) horizontally from parts of the same or contiguous building, an adjacent building, adjacent property line and air intake openings into a building where air from the exhaust outlet discharges away from such locations.
Proposed Design	The Portland International Airport (PDX) is a fully sprinklered building of Type IA construction. The Concourse E extension will have food service areas that have Type I hoods that will vent to the roof. The grease duct would be required to extend 40 inches above the highest edge of the adjacent roof structure (approximately 16 feet above the mechanical well roof surface). Due to the sloping roof which surrounds the roof well where the vent duct is located, providing the grease duct termination 40-inches above the highest edge of the adjacent roof structure would cause worker safety hardships for maintenance and clean out procedures. The proposed design criteria is an alternative to extending the grease duct 40-inches above the highest edge of the adjacent roof structure. This is based on the following:

The following grease duct protection measures will provide equivalent protection:

The stack will meet the requirements of 503.3.13.1 and extend to a height in excess of 40 inches above the mechanical well flat roof surface but not above the highest level of the roof within 10 feet of the duct termination.
The proposed design meets the exception for 503.3.13.3.
The velocity of the discharge will be increased from 500 feet per minute to 3,000 feet per minute to align with requirements and best practice for fumehood exhaust systems per AIHI Z9.5.
The stack will be sized to produce a velocity of 3,000 feet per minute without the use of a cone-type reducer to ensure laminar floor and an effective discharge minimizing eddies at the termination.
The stack will extend 5 inches above the edge of the sloped roof to the north (which is 6 feet 5 inches away), in lieu of extending 40 inches above this point, with no offsets from the fan discharge to the termination.
The stack will extend 30 inches above the edge of the sloped roof to the south.

Reason for alternative

The mechanical roof well will be provided with a fan, motor and stack for a Type I grease duct exhaust system. The stack that will extend above the roof eave of the mechanical well as illustrated in the attached files. The grease duct is located on a low roof area adjacent to a sloping roof and a façade extension. The location is proposed to be in excess of 70 feet from the nearest air intake location and will not be near any operable windows.

The primary goal is to reduce the height of the stack to provide a design that that can be maintained without presenting a safe access issue for those performing clean out and other periodic maintenance. This work is anticipated to require the use of a portable ladder. Extending the duct to a height of approximately 16 feet above the roof well surface would be difficult to support structurally and would likely require a specific design that would be difficult to provide safety procedures for the maintenance personnel.

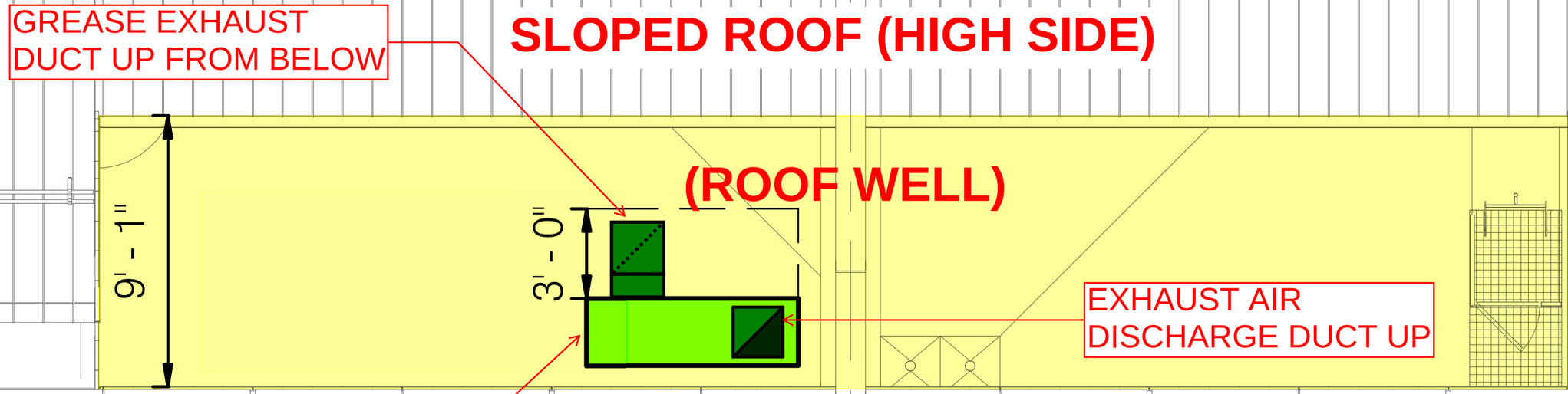
Equivalent protection for the grease duct termination at a reduced height is based on the increased air velocity that results in a plume height that meets or exceeds what would be anticipated with a prescriptive design and will prevent re-entrainment and accumulation of grease on the building envelope. This approach is presented as an alternate design considering the practical difficulties outlined above.

When considering an alternate to the prescriptive code for grease exhaust, the important design parameters to consider are the physical stack height, volume flow rate, exit velocity, expected pollutant emission rates, and location proximity of exposures including the building, building openings including air intake locations, and property lines. At this location, the alternative is to reduce the height of the stack and increase the velocity of the discharge so that the plume is well above the highest point of the roof preventing entrainment through windows and air intakes and preventing the buildup of grease on the building envelope including the walls and roof near the stack termination.

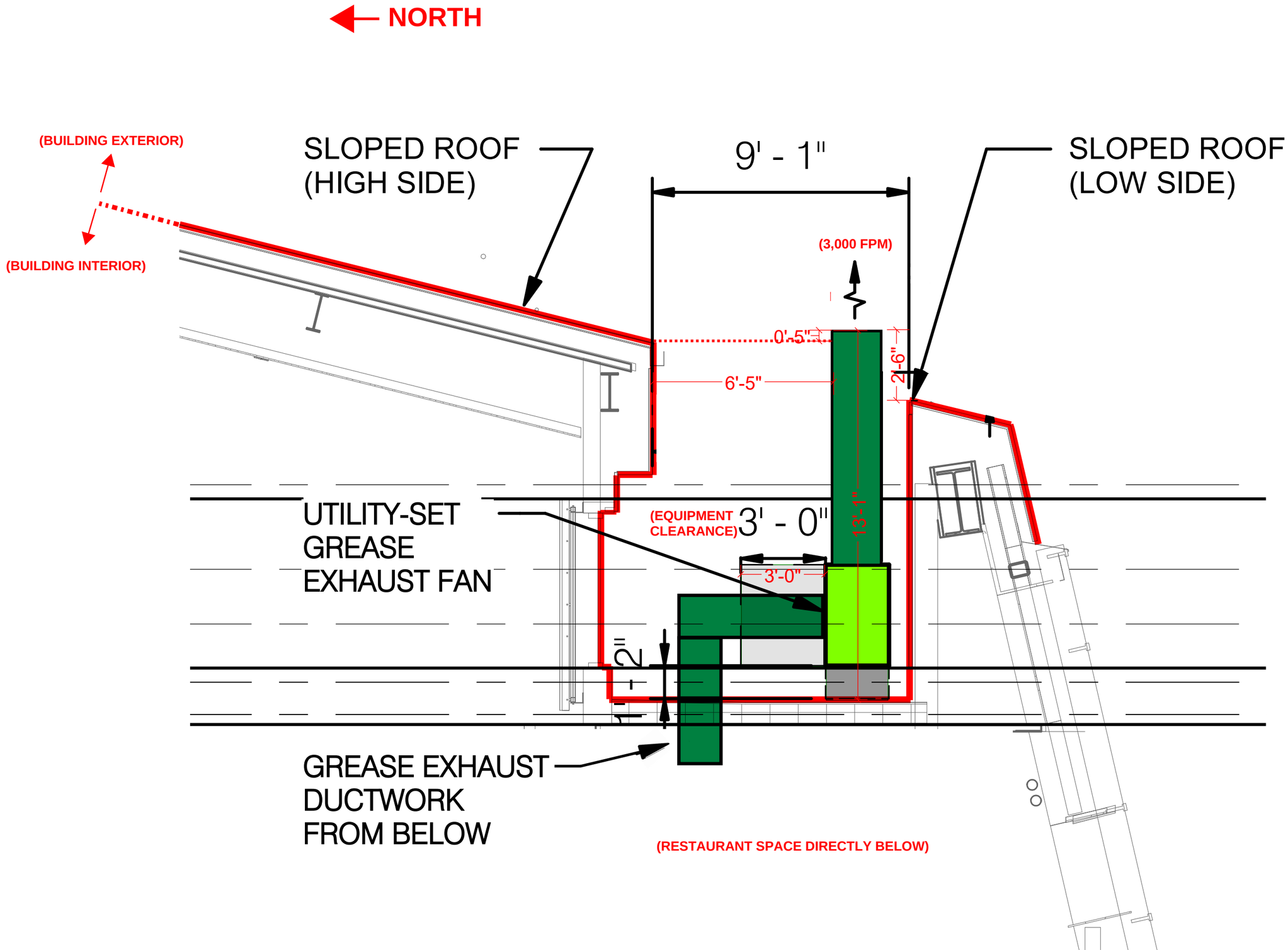
APPEAL DECISION

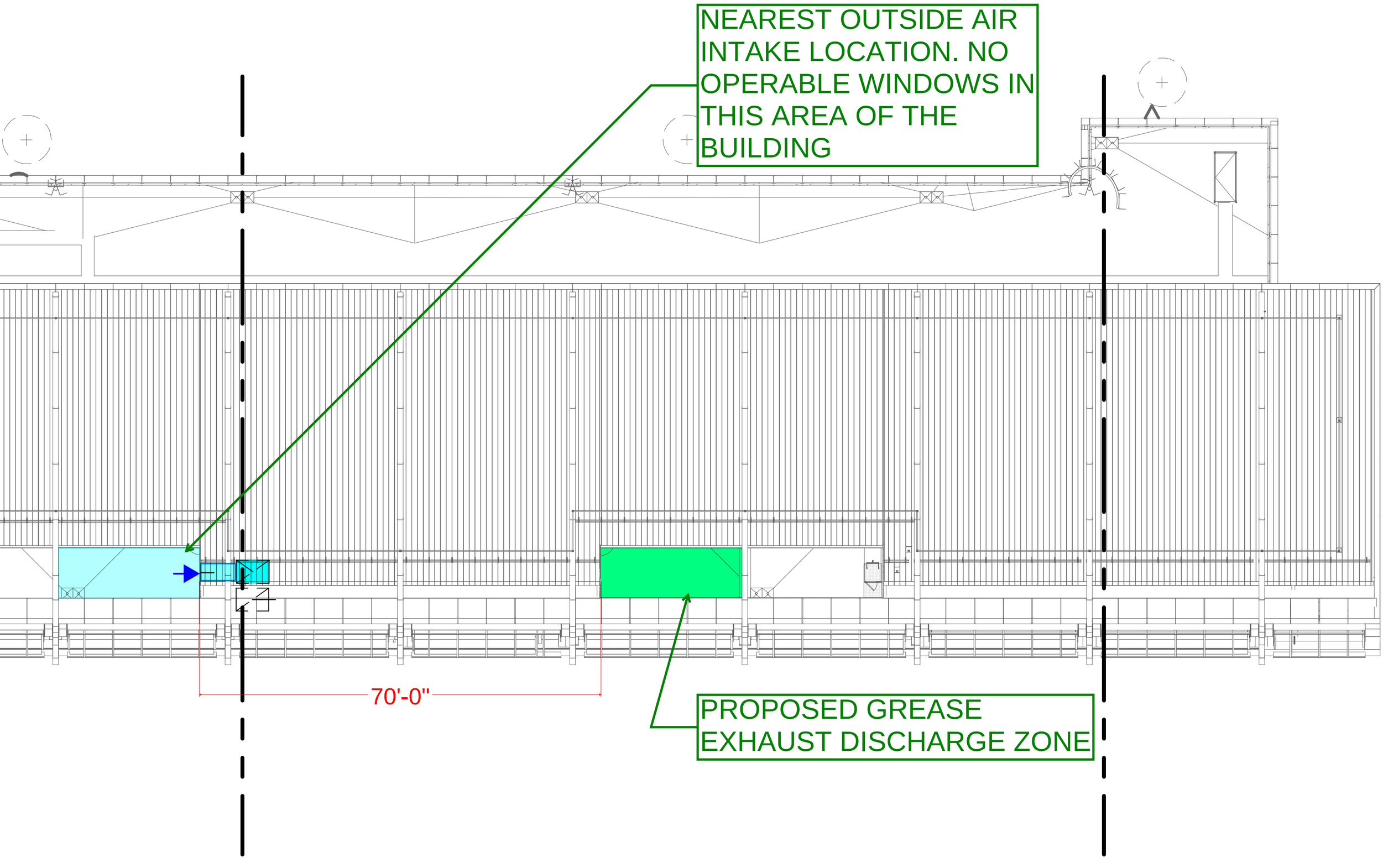
Reduction in minimum required height of grease duct exhaust above adjacent roof surface: Denied.
Proposal does not provide equivalent Life Safety protection.
Appellant may contact John Butler (503 823-7339) with questions.

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



SEE SECTION VIEW NEXT PAGE ⟶


NORTH
(BUILDING EXTERIOR)
(BUILDING INTERIOR)
SLOPED ROOF
(HIGH SIDE)
9' - 1"
SLOPED ROOF
(LOW SIDE)
(3,000 FPM)
0'-5"
6'-5"
2'-6"
UTILITY-SET
GREASE
EXHAUST FAN
(EQUIPMENT
CLEARANCE)
3' - 0"
3'-0"
13'-1"
1' - 2"
GREASE EXHAUST
DUCTWORK
FROM BELOW
(RESTAURANT SPACE DIRECTLY BELOW)


NEAREST OUTSIDE AIR INTAKE LOCATION. NO OPERABLE WINDOWS IN THIS AREA OF THE BUILDING
70'-0"
PROPOSED GREASE EXHAUST DISCHARGE ZONE