

Owner / Applicant Information

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Project Information

Project Aisle
SW of Edwards Drive and Council Drive

Lebanon IN

County BOONE

Project Type New Addition Alteration Existing Change of Occupancy

Project Status U F=Filed U or Null=Unfiled

IDHS Issued Correction order? Has Violation been Issued?

Violation Issued by: NA

Local Building Official

Phone: Email:

Local Fire Official

Phone: Email:

Variance Details

Code Name: Other Code (Not in the list provided)

504, 2014 IBC

Conditions: The building's high bay areas used for an ASRS (automated storage and retrieval system) warehouse structure will exceed the allowable height for Type IIB Construction. Allowable height in feet is 75 feet. The proposed height will be approximately 160 feet to the high bay warehouse roof.

The building will house rack supported storage for frozen food, a Class III commodity. The building is classified as S-1 Occupancy. The building consists of a:

201,250 sf high-bay cold storage (-15°F) area, with a roof deck height of approximately 141 feet.

Two-story (120,580 sf per floor) dispatch and loading dock area, operating at -15°F.

Two-story technical area

Two-story office area

DEMONSTRATION THAT PUBLIC HEALTH, SAFETY, AND WELFARE ARE PROTECTED:

1=Non-compliance with the rule will not be adverse to the public health, safety or w

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2= Applicant will undertake alternative actions in lieu of compliance with the rule to ensure that granting of the variance will not be adverse to public health, safety, or welfare. Explain why alternative actions would be adequate (be specific).

Facts:

1. The process in the building involves a normally unoccupied automated storage and retrieval system.
2. Sec. 503.1.1 permits special industrial occupancies designed to house special industrial processes that require large areas and unusual building heights to accommodate craneways or special machinery and equipment to be exempt from the allowable area and height requirements of Chapter 5, IBC.
3. A fire alarm system will be provided throughout the entire facility, designed and installed in accordance with NFPA 72. Initiating devices will consist of manual pull stations, air-aspirating smoke detection and sprinkler waterflow switches. Notification will consist of horns and strobes throughout normally occupied areas.
4. Automatic sprinkler protection will be provided throughout the dispatch, loading dock, and technical and office areas, consisting of wet pipe, dry pipe, and preaction sprinkler systems as appropriate to the hazard and ambient temperature. Due to the sensitive nature of the equipment installed in the main electrical rooms and server rooms, a clean agent fire suppression system will be provided in lieu of automatic sprinkler protection, in accordance with IFC Section 904.2. A reduced oxygen environment is proposed in lieu of automatic sprinkler protection for the High-Bay storage area.
5. Similar variances have been granted for ASRS warehouse facilities, including 03-09-24, 07-11-15, and 19-02-44.

DEMONSTRATION OF UNDUE HARDSHIP OR HISTORICALLY SIGNIFICANT STRUCTURE:

Imposition of the rule would result in an undue hardship (unusual difficulty) because of physical limitations of the construction site or its utility services.

Imposition of the rule would result in an undue hardship (unusual difficulty) because of major operational problems in the use of the building or structure.

Imposition of the rule would result in an undue hardship (unusual difficulty) because of excessive costs of additional or altered construction elements.

Imposition of the rule would prevent the preservation of an architecturally or a historically significant part of the building or structure

Facts:

The height of the building is dictated by the automated storage and retrieval system. Imposition of the rule would not permit the proposed system, which optimizes efficient storage and retrieval for warehouse items.

Variance Details

Code Name: Other Code (Not in the list provided)

903.3.1.1, 2014 IBC

Conditions: The high bay ASRS area will not be provided with a sprinkler system in accordance with 903.3.1.1 as required for unlimited area building and high piled storage. The building will be considered full sprinklered for compliance with other sections of the code.

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2= Applicant will undertake alternative actions in lieu of compliance with the rule to ensure that granting of the variance will not be adverse to public health, safety, or welfare. Explain why alternative actions would be adequate (be specific).

Facts: 1. The High Bay cold storage areas will be provided with a reduced oxygen environment. This system meets or exceeds the fire protection capabilities and reliability of a conventional automatic sprinkler system. The reduced oxygen environment will not support sustained combustion and functions as more of a fire prevention system than a fire suppression system. Unlike a conventional fire sprinkler system which requires a fire to occur in order to activate, a reduced oxygen environment limits ignition and prevents sustained combustion, so the fire never occurs.
2. The high-bay area, which contains the automated storage and retrieval system (ASRS), will be separated from the remainder of the building by an equivalent 1-hour fire barrier. (This fire barrier is based on a European design and is not listed by Underwriter's Laboratories or another Nationally Recognized Testing Laboratory.)

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Facts: Determining which type of suppression medium to use depends in large part on the requirements of local codes, building and/or landlord stipulations, and input from insurance underwriters. It also depends on owner preference, which is influenced by such factors as cost, business risk relative to product protection, and continuation of mission. In this case the High Bay freezer storage protected this special suppression system provided is a design alternative and not adverse to the health safety and welfare of the building occupants within the facility. Sprinkler design criteria available for high piled storage is limited and the application of water in freezer buildings can lead to rack collapse and other hazards.

Variance Details

Code Name: Other Code (Not in the list provided)

Code Name: Other Code (Not in the list provided)

3206.7 2014 IFC

Conditions: The proposed ASRS (automated storage and retrieval system) High Bay warehouse structure will not be provided with smoke and heat removal vents and draft curtains, which are required based upon a storage configuration classified as high piled combustible storage per the IFC. The building will house rack supported storage for frozen food products. The area of highpiled storage will be approximately 201,250 sq ft in area maintained at -15 degrees F. The commodity stored is Class III and will be stored to a height of approximately 138 feet. The building is classified as S-1 Occupancy, with accessory B Occupancy offices.

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Facts: The High Bay cold storage areas will be provided with a reduced oxygen environment. This system meets or exceeds the fire protection capabilities and reliability of a conventional automatic sprinkler system. The reduced oxygen environment will not support sustained combustion and functions as more of a fire prevention system than a fire suppression system. Unlike a conventional fire sprinkler system which requires a fire to occur in order to activate, a reduced oxygen environment limits ignition and prevents sustained combustion, so the fire never occurs.

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Facts:

Smoke/heat vents and draft curtains are provided as an aid for firefighting operations during and after fire suppression activities. Smoke/heat vents in the roof allow for easy manual ventilation by the fire department rather than cutting holes in the roof system. With the ambient temperature in the dispatch/loading dock and picking floor maintained at approximately -15°F, there is significant potential for ice to build-up around the interior of smoke/heat vents due to the temperature and humidity differential between the interior of the space and the exterior. Ice build-up around the smoke/heat vents will render them inoperable in both an automatic and manual mode. The installation of smoke/heat vents in the high-bay area will introduce leakage points within the protected volume which will potentially allow the oxygen concentration to increase above 16.5 percent. As discussed above, draft curtains provide fire protection value only when used in conjunction with smoke/heat vents. Since the smoke/heat vents are not necessary in the reduced oxygen environment, draft curtains are also not necessary

Variance Details

Code Name: Other Code (Not in the list provided)

2014 IBC 904.2

Conditions: A clean agent fire suppression system will be used in the main electrical and server Rooms in lieu of water-based automatic sprinkler protection. The IBC does not permit alternative fire suppression systems to be used in a building where the sprinkler system is otherwise used for trade-offs. The building is designed as an unlimited area based upon fire suppression throughout the building.

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2= Applicant will undertake alternative actions in lieu of compliance with the rule to ensure that granting of the variance will not be adverse to public health, safety, or welfare. Explain why alternative actions would be adequate (be specific).

Facts: 1. The clean agent system is a UL listed system complying with applicable NFPA standards.
2. The clean agent system is designed and tested to provide complete fire suppression.
3. Other similar variances have been granted in the past, including 14-12-47, 15-02-17, 15-03-14(a), 17-06-42 and 18-05-39

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Imposition of the rule would result in an undue hardship (unusual difficulty) because of excessive costs of additional or altered construction elements.

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Facts: The proposed clean agent system will provide fire suppression without damaging sensitive electronic equipment in the Electrical and server Rooms.

