REPORT

FIRE PROTECTION AND LIFE SAFETY CODE ANALYSIS

Sonny's Direct Tenant Improvement

PREPARED FOR

Sonny's Direct Tenant Improvement
2201 NE Town Centre Boulevard
Lee's Summit, WA 64064

Date: August 15, 2025

PREPARED BY

Michael W. Banham
3500 Piedmont Road, Suite 750
Atlanta, GA 30305

mbanham@jensenhughes.com
+1 678-675-1311

JENSEN HUGHES

Revision Record Summary

Revision	*Revision Summary*
0	Issued for Permit

Table of Contents

1.0 Introduction

Sonny's Enterprises, LLC (Sonny's Direct, or Sonny's) plans to lease approximately 24,502 square feet located at 2201 NE Town Centre Boulevard in Lee's Summit, Missouri. Sonny's is a full-service provider of commercial car wash solutions for their customers, from manufacturing equipment, parts, supplies, and back-office solutions to soap manufacturing and distribution and in-the-field service and installation of those products. This location will be used for storage and distribution only; there will be no manufacturing.

Jensen Hughes has completed a hazard assessment based on a review of Safety Data Sheets for Sonny's proposed commodities and determined that some materials are classified in accordance with the applicable building and fire codes as hazardous materials, consisting of Class II, Class IIIA, and IIIB combustible liquids.

Based on the proposed quantities, which exceed the maximum allowable quantities (MAQ) in a "control area," a fire-rated separated room is being proposed to accommodate storage of these hazardous materials. By doing so, the occupancy classification for the Warehouse area (Room 200) remains that of Group S-1, while the occupancy classification within the Liquids Storage room (Room 300) will become a Group H-3 hazardous occupancy.

The purpose of this code analysis is to establish code-compliant mandated building fire protection and life safety features to accommodate the proposed Sonny's Direct tenant improvement (TI).

2.0 Applicable Codes and Standards

The following have been identified as applicable codes for this project:

- 2018 International Building Code (Ordinance #8536)
- 2018 International Fire Code (Ordinance #8537)
- 2017 National Electrical Code (NFPA 70)
- National Fire Protection Association, Standard for the Installation of Sprinkler Systems (NFPA 13), 2019 Edition
- National Fire Protection Association, Flammable and Combustible Liquids Code (NFPA 30), 2021 Edition
- National Fire Protection Association, National Fire Alarm Code (NFPA 72), 2019 Edition
- National Fire Protection Association, Life Safety Code (NFPA 101), 2021 Edition
- National Fire Protection Association, Hazardous Materials Code (NFPA 400), 2019 Edition

3.0 Building Features

3.1 BUILDING DESCRIPTION

The building is a single-story 250,440 square-foot building with a maximum floor-to-deck height of less than 40 feet. The building is constructed of concrete tilt-up walls, concrete floors, and a metal deck on a steel bar joist roof and is classified as Type IIB construction.

Sonny's Direct plans to lease 24,502 sqft within the building, broken down as follows:

- Business (Group B) 2,423 sqft
- Storage (Group S-1) 4,914 sqft
- Liquid Storage Room (Group H-3) 17,165 sqft

3.2 OCCUPANCY

Sonny's Direct intends to use their leased space to store chemicals for resale. All the products are carwash-related chemistries designed to go into a sanitary sewer system. They will not be doing any manufacturing onsite; the space is only for storage and distribution. Sonny's has identified that some of their products are classified as hazardous materials, consisting of Class II, Class IIIA, and IIIB combustible liquids. The proposed quantities of these hazardous materials exceed limitations for exempt or MAQ per "control area" permitted by the IFC and NFPA 30. Therefore, these combustible liquids will be stored on the floor level in a Liquids Storage Room. Within this room, less than 10% of the products are actually combustible, about 30% are corrosive & the remainder of the materials are non-hazardous.

The current occupancy classification for the building is that of a Group S-1 occupancy. Sonny's plans to store the limited amounts of hazardous materials in what is referred to in the codes as a Liquids Storage Room. The Liquids Storage Room will be classified as a Group H-3 occupancy due to the quantity of hazardous materials, which again is slightly more than the MAQ for a Group S-1 occupancy. The occupancy classification for the remaining leased space, which will consist of Sonny's proposed office areas, will be classified as a Group B occupancy classification.

3.3 OCCUPANCY SEPARATIONS

In accordance with Table 508.4 of the building code, the required fire-resistive separation rating between a Group S-1 or Group B occupancy and what will be the Liquid Storage Room containing the combustible liquids, a Group H-3 occupancy is only 1 hour.

However, NFPA 30 classifies the Liquids Storage Room as a Liquid Warehouse since the area of the room is over 500 square feet. Table 9.9.1 of NFPA 30 mandates the walls separating the room from the remainder of the building to be 2-hour rated when protected in accordance with Chapter 16 of NFPA 30, which is planned for the room. Openings should be protected by automatic-closing 1-½ -hour rated fire doors.

The space Sonny's Direct plans to lease is located at the west end of the building. So, the proposed tenant demising wall between Sonny's Liquids Storage Room (Group H-3) area and the adjacent existing tenant (assumed to be a Group S-1 occupancy), as well as between the remainder of Sonny's leased Group B business space/offices and Group S-1 storage areas, must be 2-hour fire-rated. There are currently no openings planned between Sonny's Direct and adjacent tenants.

3.4 CONSTRUCTION TYPE AND ALLOWABLE AREAS

Per Section 506.1 of the building code, the floor area of a building shall be determined based on the type of construction, occupancy classification, whether there is an automatic sprinkler system installed throughout the building, and the amount of building frontage on a public way or open space. The existing building is classified as Type IIB construction, and the proposed and existing building occupancies, including the proposed Sonny's Direct leased space, consist of the following:

Although the overall building B is 250,440 square feet in size, it is considered a building of "unlimited" area based on the construction types and clear distances surrounding the building. In accordance with IBC Section 507.8.1, the aggregate floor area of Group H occupancies located in an unlimited area building shall not exceed 10 percent of the area of the building, which in this case is 25,044 square feet.

The proposed floor area for the cutoff Liquid Storage Room containing the Group H-3 occupancy is only 17,165 square feet, which is obviously less than the 10 percent limit, and there are reportedly no other hazardous occupancies within the other tenant spaces in the building.

3.5 AUTOMATIC SPRINKLER PROTECTION

The building is currently protected by an automatic sprinkler system consisting of Early Suppression – Fast Response (ESFR) sprinklers designed to provide 25 psi to the hydraulically most remote 12 pendent ESFR sprinklers having a nominal K-factor of 25.2.

Sonny's proposes to have 20 to 25-foot storage of commodities in open (no solid shelving) metal single-row and double-row racks. The primary commodities being stored are products/liquids in plastic containers of various sizes. In accordance with NFPA 13, non-combustible liquids in plastic containers can be classified and protected as a Class III commodity. Per NFPA 13 Table 23.5.1, the existing ESFR sprinkler protection can protect this proposed rack storage of Class III commodities.

With respect to the Liquids Storage Room/Warehouse, all products in this room are stored in plastic containers of various sizes. The majority of the proposed liquid storage in this room is non-combustible as well, but some are corrosive. A relatively small amount of Class II and Class IIIA combustible liquids will be located in the room, as well. All but one product of these liquids is water miscible and have concentrations of flammable or combustible liquid component(s) of less than 20%. So, in accordance with NFPA 30 Section 16.4.1 and Figure 16.4.1(c), these products can be protected in accordance with NFPA 13 as a Class III commodity. So again, the existing ESFR sprinkler protection can protect this proposed storage configuration.

One product that does not meet this application of NFPA 30 and NFPA 13 is water miscible but has a concentration of 22%; this product is X55-2X. There will only be four (4) 5-gallon containers of this product at any time in the room. The proposed amount of this product is well below the MAQ amount permitted in a Group S-1 occupancy. This product could be stored on the floor in the general Warehouse and would be code-compliant and protected by the existing ESFR roof-level sprinkler system. However, for logistics purposes, the owner prefers to locate all Class II and IIIA combustible liquid products in the Liquids Storage Room/Warehouse on the floor level in the bottom tier of racks. Given the very limited amounts associated with the X55-2X product and the fact that the concentration level is just 2% above the 20% threshold, we feel that storing this product in the Liquids Storage Room/Warehouse will not create an unprotected or unsafe scenario in the room.

Therefore, the ESFR sprinkler system, which is designed and installed to protect Class I, II, III, IV, and cartoned Group A plastics both in solid piles and in racks properly protects Sonny's proposed racking layout in the Liquids Storage Room, as well as the Warehouse.

No modifications are proposed to the shell building ESFR sprinkler system other than extending sprinkler protection to the proposed office areas using quick-response sprinklers designed in accordance with NFPA 13.

3.6 FIRE ALARM SYSTEM

The sprinkler system protecting the building will be monitored by a central station monitoring company. In accordance with IBC Section 907, the fire alarm system will be modified to include the provision of a manual fire alarm system in the Liquids Storage Room to notify building occupants of an emergency. The manual fire alarm system will include appropriate manual fire alarm boxes and occupant visual and audible notification devices.

3.7 CONTAINMENT

Curbing shall be provided within the Liquid Storage Room to prevent the flow of liquids under emergency conditions into adjacent building areas. The volume of containment shall be sufficient to contain the contents of the largest container, in this case, one (1) 30-gallon plastic drum, plus 20 minutes of fire sprinkler flow.

Confirming the minimum curbing requirement for containment:

- Room floor area is 17,165 sqft
- Sprinkler protection is an existing ESFR sprinkler system with a required flow rate of 1,512 gpm
- Largest container of combustible liquids is 30 gallons

Containment is required to contain 20 minutes of sprinkler flow plus the largest container:

- Sprinkler flow rate is 1,512 gpm
- Volume after 20 minutes = 35,240 gallons
- Plus the largest container = 35,270 gallons
- Converting gallons to cubic feet: 35,270 gallons / 7.48 ft^3/gallon = 4,715 ft^3

Minimum required curb height: 4,715 ft^3 / 17,165 ft^2 = 0.27 feet = 3.30 inches

3.8 VENTILATION

There will be no dispensing of liquids within the building at any time; this will be a storage and distribution facility only. Therefore, in accordance with NFPA 30 Section 9.14, mechanical ventilation is not required, and only natural ventilation will be provided in the Liquids Storage Room/Warehouse.

3.9 ELECTRICAL

Again, there will be no dispensing of liquids within the building at any time; this will be a storage and distribution facility only. Therefore, in accordance with NFPA 30 Table 7.3.3 for "Indoor warehousing where there is no flammable liquid transfer," ordinary electricals are permitted in the Liquids Storage Room/Warehouse.

4.0 Conclusion

This fire protection and life safety code analysis report has been developed to assist in the design of all active and passive fire protection features for the proposed Sonny' Direct tenant improvement project in this building. The report is based on compliance with the requirements of the aforementioned applicable codes and standards for Lee's Summit, Missouri, as well as NFPA 13 and NFPA 30, as applicable. It is Jensen Hughes's opinion that

designing and constructing the project in this manner will result in a project with a high level of life safety and property protection.