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## Fire Ratings and Roof Hatches: What You Need to Know

### Introduction

This paper explores pertinent building codes, their specific language (or lack thereof), and the existing consensus among fire protection experts regarding the need for fire protection ratings of roof hatches. The subject can occasionally create confusion among architects, construction managers, and code enforcement officials.

### Understanding Roof Hatches

Roof hatches provide access to a building's roof, typically via a fixed interior ladder. They are manufactured in standard sizes and custom sizes can also be fabricated. In commercial settings, they are commonly installed to access the roof area for maintenance purposes, such as air treatment systems, air conditioning units and other mechanical systems. They are installed at hospitals, offices, industrial buildings, retail facilities, and any commercial building that requires roof top access.

### Deciphering Building Codes

The International Building Code (IBC) does not explicitly address a fire protection rating for roof hatches. Fire protection experts primarily refer to Section 712.1.15 concerning Skylights. This section states that “unprotected skylights **and other penetrations** through a fire-resistance-rated roof deck or slab are **permitted** provided that the structural integrity of the fire-resistance rated roof assembly is maintained.”

This means that, in most cases, roof hatches are not required to be fire-rated, even in fire-rated roofs as they are not a structural component of the roof assembly. However, a rarer scenario arises when Section 705.8.6 of the IBC, addressing Vertical Exposure, comes into play. It stipulates that if a building is within 15 feet of another building or has a stepped roof, non-rated roof hatches (or skylights) are not permitted, as they would affect the fire separation requirements. In these cases, fire-rated access doors are required as defined in Section 712.1.13.2.

### A Deeper Dive

The IBC Commentary of Section of 712.1.15 elaborates on this issue, emphasizing that:

“Fire-resistance-rated roof construction is not intended to create a barrier to contain the fire within the building, except for Exception 1 of Section 705.8.6 and the exception to Section 706.6.1. **Nonfire-**

***resistance rated penetrations are, therefore, permitted to be installed in fire-resistance-rated roof assemblies, provided that the structural integrity of the roof assembly is not reduced and provisions of Section 705.8.6 for protection of vertical exposure do not apply.”***

### **An Alternate Perspective**

Section 711 of the IBC addresses Floor and Roof Assemblies. While this section does not directly mention roof hatches, it requires horizontal assemblies to be continuous with vertical openings, as regulated by Section 712.

It further states that penetrations or openings in the assembly are permitted according to Section 712, provided that the fire-resistance rating is maintained. This provision *could* lead some code enforcement officials to question whether non-rated roof hatch installations in fire-resistant horizontal assemblies are permitted. However, as noted above, Section 712.1.15 allows non-fire rated hatches in rated assemblies.

### **Roof Assemblies**

Manufacturers of roof hatches assert that their products are not integral parts of roof assemblies and, therefore, do not impact a roof’s fire-resistance rating or the structural integrity of roof. IBC Section 1501, states that a Roof Assembly is “A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof deck, vapor retarder, substrate or thermal barrier, insulation, vapor retarder and roof covering.”

The inclusion of roof hatches within the definition of a roof assembly is not stipulated. Therefore, it is appropriate to adhere to Section 712.1.15, which permits skylights and other penetrations through a fire-resistance-rated roof deck or slab to be unprotected. This allowance is applicable assuming that Section 705.8.6 which concerns vertical exposure for buildings on the same lot does not apply.

### **Rooftop Trends**

The increasing trend of rooftops being utilized as additional occupiable spaces, such as rooftop bars, is prompting a potential shift in building codes to prioritize enhanced safety measures. Consequently, in the future rooftops may be subjected to code requirements like those applied to indoor floors. This evolution could lead to a need for fire protection ratings on roof hatches.

In such scenarios, the consideration of fire-rated access doors becomes relevant. These specialized doors are designed to preserve the fire rating of a floor/ceiling assembly. They incorporate intumescent coatings that resist the passage of heat, gases, and flames, thereby ensuring a higher level of safety. In rare instances, code officials may mandate this elevated level of safety for occupiable rooftops to align with the changing landscape of rooftop utilization.

### **Confusing Aspects of European Roof Hatches in the U.S. Market**

There is often perplexity surrounding European products entering the U.S. market, particularly concerning roof hatches marketed as fire rated. These products undergo testing according to European standards, specifically EN1634-4 and UL-EU, which are not referenced in the IBC or applicable to U.S. fire protection standards.

Despite these European roof hatches incorporating non-combustible mineral wool insulation and achieving fire ratings of up to 4 hours, the IBC generally does not mandate fire ratings for roof hatches,

even within fire-rated assemblies. This situation raises questions about the applicability and relevance of such products in most U.S. construction scenarios.

### **Safe and Convenient Roof Access**

BILCO manufactures roof hatches designed for safe and convenient access to roof areas. These hatches are available in various sizes and feature engineered lift assistance, making them suitable for accessing equipment and servicing building needs. Roof hatches are available in steel, aluminum, and stainless-steel construction and can be supplied in an energy efficient, thermally broken design that features R-20+ insulation and a special gasket for wind resistance.

### **Conclusion**

Building codes play a crucial role in construction projects, yet their lack of clarity can sometimes lead to confusion. To mitigate ambiguity, it could be beneficial for a subsection to be developed in the IBC specifically addressing roof hatches. Until such a change is made, treating roof hatches and skylights similarly, in alignment with the prevailing expert consensus, appears to be a prudent approach during pre-construction planning.

While our outreach efforts have revealed a consensus among fire protection officials that fire protection ratings for roof hatches are typically not mandatory, it is crucial to acknowledge the potential for variations in interpretation by code officials, particularly in jurisdictions that may have local code amendments or ordinances in place. Such variations can arise with any code provision. Therefore, it remains best practice for architects and construction managers to proactively engage in collaborative discussions with code officials to ensure adherence to the building codes before commencing construction. This proactive approach will help in preempting any discrepancies and will ensure alignment with the local code interpretations and requirements.

*This paper has been prepared for BILCO by Mercury Marketing Communications with consultation from The Hickman Group of Plantation, Florida, which provides a wide range of consulting services to companies, trade associations and organizations in building, mechanical, energy, green/sustainability and fire codes and standards.*

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