November 20, 2015

SAFETY ADVISORY

Fire Fighter Fatality Investigation and Prevention Program

Translucent Corrugated Roof Panels May Contribute to Increased Fall Risk during Roof Operations

The National Institute for Occupational Safety and Health (NIOSH) recommends that all fire departments immediately take the following actions to reduce the risk of fire fighters being injured or killed while operating on roofs that contain translucent corrugated roof panels:

-Ensure that all fire fighters, company officers and chief officers are aware of and are trained to recognize translucent corrugated roof panels.

-Establish policies and procedures to ensure that fire fighters do not walk or stand on translucent corrugated roof panels.

-Ensure fire fighters immediately inform the incident commander and other fire fighters when translucent corrugated roof panels are identified.

-Ensure fire fighters follow safe roof operating practices including sounding the roof, having enough ladders for safe exit and always wearing the proper PPE, including self-contained breathing apparatus.

Photos. Top photo shows the panel where a fire fighter fell through a translucent corrugated roof panel. The panel was flush with the surrounding roof surface. Bottom photo shows an aerial view of the building where incident occurred. The translucent roof panels appear grey against the white metal roof. At night, the panels are difficult to detect and typically do not include a frame.

Map data: Google, DigitalGlobe

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

NIOSH Safety Advisory: Translucent Roof Panels May Contribute to Increased Risk during Roof Operations

The NIOSH Fire Fighter Fatality Investigation and Prevention Program is currently investigating a July 15, 2015 fire fighter line-of-duty-death that illustrates the hazard to fire fighters when operating on roofs containing translucent corrugated panels. These panels are designed to transfer natural light and heat into a building's interior and in some cases may be painted or tinted to blend in with the existing roof. These panels are designed in a variety of shapes, sizes, and colors and may be difficult to recognize, especially at night. Preliminary findings indicate that these panels are typically not designed to be walked upon, will not support the weight of a fire fighter (with or without personal protective equipment and tools), and may degrade when exposed to UV, water and other chemicals. These roof panels can be found in a variety of buildings including, manufacturing facilities, warehouses, storage buildings, restaurants, carports, canopies, barns and covered walkways in both commercial and residential settings.

Circumstances of the incident under investigation by NIOSH

On June 28, 2015, at approximately 2130 hours, a 46-year-old career fire fighter/engineer was seriously injured, and eventually died, when he fell through a translucent corrugated roof panel while his crew was searching the roof for fire extension from an exterior dumpster fire. The fire department was dispatched for a report of a multi-family commercial structure fire. The first arriving crews found a fire burning in a dumpster located against the exterior wall of a 300 feet x 60 feet, one-story, metal frame commercial building located in a warehouse district. The first arriving crews pulled the dumpster away from the building and quickly extinguished the fire using tank water. Scorch marks on the exterior wall near a window raised the possibility of fire extension inside the building. The incident commander directed crews to force entry into the building and search for fire extension and occupants. He also directed a truck company to ladder the roof and search for fire extension. Four fire fighters climbed onto the roof, where one used a thermal imager to check for signs of fire extension while the other three, including the fire fighter/engineer, sized up the roof conditions. While operating on the roof, the fire fighter/engineer stepped on a translucent corrugated roof panel and fell approximately 17 feet onto a concrete floor. The fire fighter was seriously injured and died 17 days later on July 15, 2015. This fire department experienced a similar incident in 2012 in which a translucent corrugated roof panel broke under the weight of a fire fighter who fortunately did not receive a serious injury. A NIOSH investigation report of this fatality providing additional details about the incident and recommendations for preventing falls through these types of roof panels will be available at a later date.

NIOSH would like to bring this information to the attention of all U.S. fire departments; fire fighters; fire service trainers; building officials; local, city and state authorities having jurisdiction and building code organizations. Translucent corrugated roof panels are widely used across the United States. Fire departments should identify structures within their jurisdiction that have translucent corrugated roof panels and include this information in pre-incident plans. This information should be shared with mutual aid departments and added into the caution notes of CAD dispatch systems where possible. Incident commanders should strongly consider the risk benefit analysis of permitting rooftop operations on identified buildings.

Fire fighters may not be aware of and may not fully appreciate the hazards and risks associated with these panels. Fire fighters should always inform the incident commander and other fire fighters when translucent corrugated roof panels are identified and should not walk or stand on them. Fire fighters should constantly sound the roof to gauge structural integrity and changes in roof construction. Translucent corrugated roof panels can be difficult to identify and seldom have frames or other features that identify their location.

References

NIOSH [2004]. NIOSH ALERT: Preventing Falls of Workers through Skylights and Roof and Floor Openings. Cincinnati OH. DHHS (NIOSH) Publication Number 2004-156.
http://www.cdc.gov/niosh/docs/2004-156/

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The **NIOSH Fire Fighter Fatality Investigation and Prevention Program** is conducted by the National Institute for Occupational Safety and Health (NIOSH). The purpose of the program is to investigate fire fighter line-of-duty-deaths and formulate recommendations for preventing future deaths and injuries. The program does not seek to determine fault or place blame on fire departments or individual fire fighters but to learn from these tragic events and prevent future similar events. For more information, visit the program website at www.cdc.gov/niosh/fire.