

RBJ Construction LLC

Signal Mountain, TN

Fall from roof of fire hall

Employees: 6

Inspection date: 6/13/19

Victim: Alberto Zacapala Santiago, 31

CSHO: Jon Morris

TOTAL Penalty: \$41,200

A **31 year old male** employee was fatally injured when he fell from the structure of a fire hall building under construction to the gravel ground below. The fire hall was designed to be a steel frame structure with a skeletal frame of vertical steel columns and horizontal I-beams which were bolted and welded together. The walls were also metal stud framing. The roof was designed to be a metal roof attached directly to the metal cross purlins.

The employees were applying a vapor barrier membrane, insulation materials, and metal roofing directly to the metal roofing battens. The structure for the main bay of the hall consisted of 5 vertical I-beam rigid frame columns east to west that supported the 2:12 sloped roofing rigid frame rafters. Metal sidewall girts and end wall girts were connected to the frame columns horizontally along each side of the building. Metal purlins were connected east to west and horizontal to the frame rafters. The purlins were spaced approximately 5 feet from each other. Nylon banding had been attached to the underside of the purlins to support the insulation and vapor barrier materials. The bands were spaced approximately 4 feet from each other and ran north to south, perpendicular to the purlins. Insulation had been installed in the area that the victim was working on the day of the incident. The rest of the bay was still open and uncovered. Interview with the RBJ superintendent indicated that the employees were accessing the roof of the structure from one access point. The employees were using a ladder to access the roof of the administrative offices. They would walk to the center of that roof and then would step down onto the roof purlins of the main hall. The employees were installing metal roof sheets that measured approximately 2 feet wide x 42 feet long north to south on the top of the purlins. On the day previous to the incident, the employees had staged the roof by positioning bundles of metal roof sheets in several areas of the roof. Each bundle contained 14 sheets of metal roof panels. They were laid on the tops of the purlins and secured with string to prevent them from sliding. At the time of the incident, the employees had installed the first row of roofing beginning directly adjacent to the administrative offices on the west edge of the roof. They were preparing to lay the next row beside it. The victim was taking a measurement to ensure that the first installed row was straight before the second row was

connected. The employee was walking on the purlins and he was not wearing fall protection. The purlins that the employee was walking on measured approximately 4 inches wide. While using a measuring tape, the victim was walking backwards and stepped on a bundle of roof sheeting. The string securing the sheeting did not prevent the bundle from shifting beneath the employee's weight. As the bundle slid down the roof, the employee fell backward, through the roofing purlins to the gravel ground below. The employee was positioned at the apex of the roof when he fell approximately 36 feet to the ground.

Citation(s) as Originally Issued

A complete inspection was conducted at the accident scene. Some of the items cited may not directly relate to the fatality.

Citation 1 Item 1 Type of Violation: Serious \$1,200

29 CFR 1926.50(c): A person who has a valid certificate in first-aid training was not available at the worksite to render first-aid.

In that employees were exposed to aggravation of injuries due to delayed response for emergency medical care due to no employees were trained in first aid and the nearest medical facility available at all times was Erlanger Baroness Hospital approximately 13 minutes away.

Citation 2 Item 1 Type of Violation: Willful-Serious \$40,000

29 CFR 1926.760(a)(1): Each employee engaged in a steel erection activity who is on a walking/working surface with an unprotected side or edge more than 15 feet (4.6 m) above a lower level was not protected from fall hazards by guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems.

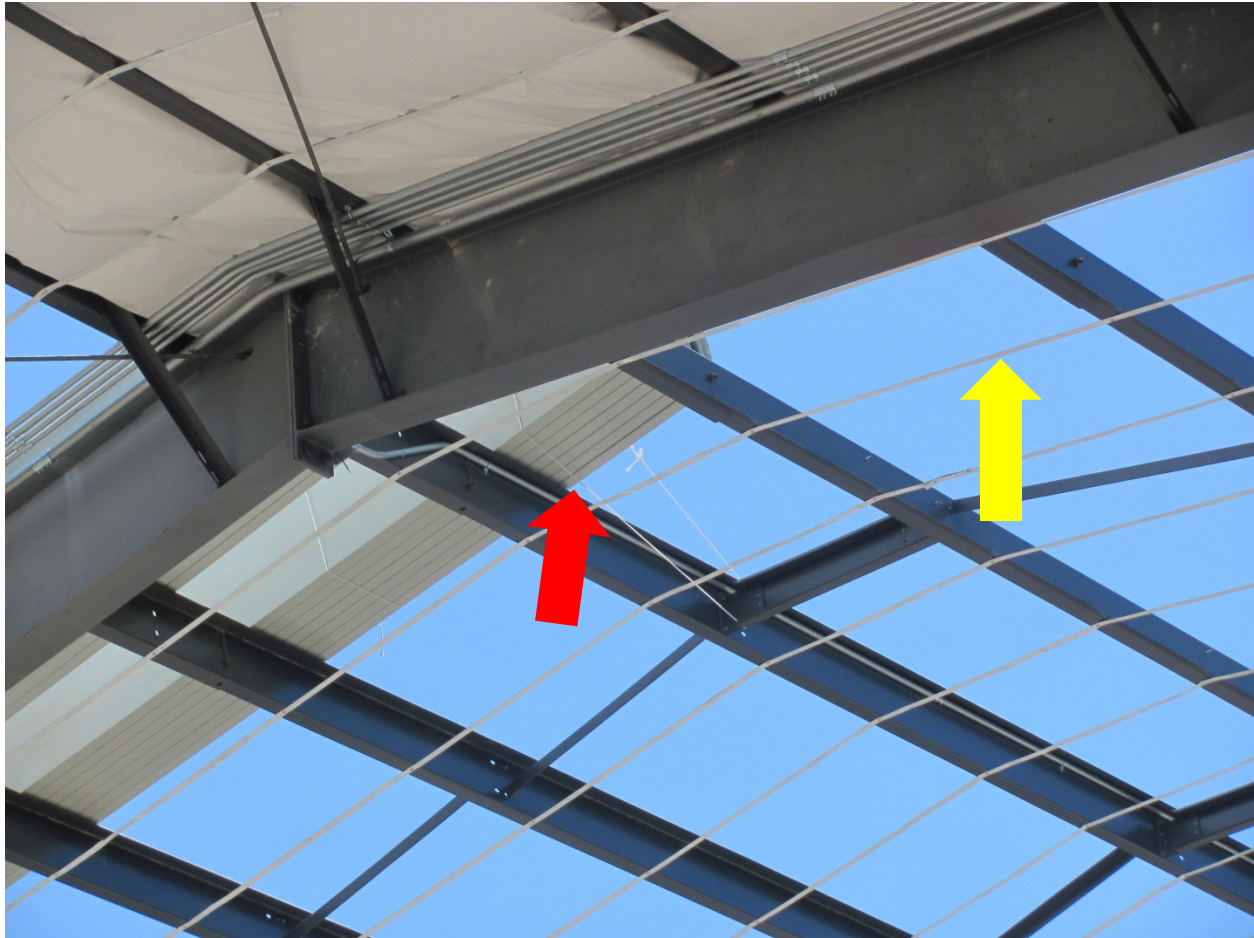
In that employees were exposed to an approximately 36 foot fall hazard while installing metal roofing an approximately 2:12 sloped roof due to the employer failed to provide or ensure the use of any form of fall protection resulting in a fatality.

10 Fall from elevation--Inspection #1408728 RBJ Construction



Photograph shows the east side of the construction site. The victim was working near the apex of the roof when he fell. The red arrow indicates the point of access to the roof. The yellow arrow indicates from where the victim fell.

10 Fall from elevation--Inspection #1408728 RBJS Construction



Photograph shows the area of the roof where the victim was working at the time of the fall.

The red arrow indicates a bundle of metal roofing sheets, secured with string, similar to when the incident occurred. The yellow arrow indicates the nylon banding installed to support the insulation and vapor barrier materials.