

Investigation Report
Worker Fatally Injured Following Collapse of Equipment
September 24, 2014

The contents of this report

This document reports Occupational Health and Safety's investigation of a fatal accident that occurred in September 2014. It begins with a short summary of what happened. The rest of the report covers this same information in greater detail.

Incident summary

Two workers were conducting duties related to the installation of a rooftop exhaust ventilation unit on a restaurant construction site. One of the workers was conducting some preparation work for a second duty related to the installation of a rooftop makeup air unit when the support curbing shifted, causing the unit to fall toward and on to the worker causing fatal injuries.

Background information

1459885 Alberta Ltd. (Marathon Ventilation) is a local Fort McMurray heating and ventilation company. Marathon Ventilation provides services consistent with heating, ventilation and air conditioning (HVAC) work. Marathon Ventilation had been originally contracted to remove and replace the existing ventilation ducting. Marathon Ventilation was later contracted to remove and replace the makeup air unit (MAU).

Climate Control Ltd. (Climate Control) is a local Fort McMurray heating and ventilation company. Climate Control provides services consistent with HVAC work. Climate Control had been contracted to order and install the MAU, including lifting the unit to the rooftop worksite.

BJ Chen Food and Trading Corp. (Chinese Flavor) is a local Fort McMurray company which owns and operates the Chinese Flavor restaurant at the Stoneycreek Village in Fort McMurray, Alberta. Chinese Flavor is a tenant at the Stoneycreek Village site and is operating as the prime contractor with respect to tenant additions to the leased space. Chinese Flavor contracted both Marathon Ventilation and Climate Control.

The HVAC technician was a 54 year old sheet metal journeyman with over 20 years of HVAC experience including foreman and estimator duties. The HVAC technician worked for Marathon Ventilation for approximately seven months.

The welder was a 26 year old journeyman welder and the owner and operator of Certified Boss Welding. The welder was contracted by Marathon Ventilation to install the exhaust ventilation including the rooftop exhaust hood.

Equipment and materials

Makeup air unit

Model #T3-D.750-G18

An MAU was a device used to regulate and circulate clean air as a part of the HVAC system. The MAU connected to a ductwork ventilation system that distributed air from the rooftop to the main floor restaurant location. The MAU was a Thermotek direct industrial air heater (figure 1) for industrial/commercial use. The makeup air unit weighed approximately 450 kilograms (kg).

Offset curb

The offset curb was made from four panel pieces secured to each other at their corners with self-tapping screws. The offset curb was made of galvanized steel measuring 1.5 millimetres (mm) thick and was approximately 2.1 metres (m) long x 1 m wide and 0.9 m high with an approximate 45° offset. The offset curb was installed to provide separation between the exhaust ventilation and the clean air intake of the MAU. The offset curb was not an engineered structure.



Figure 1. MAU with offset curb pre-accident (photo provided by Marathon Ventilation).

A: MAU

B: Manufactured curb

C: Offset curb

D: Roof curb



Figure 2. Offset curb with manufactured curb post-accident.

Sequence of events

On February 25, 2014, Chinese Flavor signed a commencement letter with Melcor Developments Ltd. (Melcor) identifying that Chinese Flavor would be responsible for tenant improvements to the restaurant under construction. The contract further stated that the tenant was responsible, following the possession date, for being prime contractor with respect to the tenant improvements on the leased premises. On June 5, 2014, Chinese Flavor took legal possession of the site. Melcor is a real estate development and asset management company based in Edmonton, Alberta. Melcor developed and operated the Stoneycreek Village site.

Between April 2014 and September 2014, Chinese Flavor contracted engineering firms and HVAC contractors for the specific task of installing and commissioning the ventilation and air exchange system for the Chinese Flavor restaurant.

On August 13, 2014, Chinese Flavor contracted Climate Control with the job scope of ordering and installing an MAU, including lifting the unit to the rooftop worksite, and installing ventilation ductwork for the MAU and exhaust fan as well as bathroom exhaust and controls.

On September 8, 2014, the MAU was delivered and Myshak Crane & Rigging Ltd. (Myshak) was contracted by Climate Control to raise the MAU to the rooftop worksite. Myshak is a crane,

rigging and operated equipment service provider based in Acheson, Alberta with offices in Calgary, Fort McMurray, Blackfalds and Bonnyville.

Climate Control identified there were concerns with the curb stand with respect to its size and subsequent sitting location as the air inlet unit was too close to the exhaust. A 3 m separation between the MAU and the adjacent exhaust ventilation was required to remain within the manufacturer specifications and the code requirements of the National Fire Protection Association (NFPA) 96. Climate Control decided that a new and modified adaptor curb would be required.

On September 9, 2014, Chinese Flavor contracted Marathon Ventilation with the job scope of removing the existing ventilation ductwork and replacing with new ventilation ductwork.

On September 11, 2014, Climate Control provided specifications to Alberta Industrial Sheet Metal (AISM) for a modified adaptor curb with an offset. AISM is a local Fort McMurray sheet metal fabrication company.

On September 12, 2014, Climate Control received the fabricated offset curb from AISM, assembled and installed all components of the curb assembly at the worksite. Myshak was contracted, and the MAU was raised and placed on to the offset curb. At this time it was identified that the curb assembly would now be too close to the edge of the roof and that the MAU, with the offset curb, would not pass a safety codes inspection and that another redesigned curb would be required.

On September 22, 2014, following the ordering of a new adaptor curb, Chinese Flavor advised Climate Control that their services were no longer required. Chinese Flavor then extended the job scope for Marathon Ventilation to include the installation and commissioning of the MAU. Marathon Ventilation contacted Myshak and scheduled service for September 26, 2014.

On September 24, 2014, the HVAC technician and the welder were conducting duties for Marathon Ventilation, with respect to the original contract (installing the exhaust ventilation). The HVAC technician and the welder were working together and in the process of transferring tools and equipment from the third floor to the rooftop work area. The welder was on the third floor and the HVAC technician was on the roof.

The HVAC technician had been attempting to investigate the MAU and the offset curb assembly. The south panel section (1 m x 0.9 m) of the offset curb was removed in an attempt to view the inside of the curb assembly. This action reduced the structural integrity of the offset curb and shifted the weight of the MAU, which was not secured to the curb, causing it to slide forward. The HVAC technician attempted to hold the MAU in place but was unable to hold back the MAU causing crush injuries to the HVAC technician's chest area.

Final Report

The welder noticed that the HVAC technician had stopped communicating and returned to the roof where the HVAC technician was found underneath the MAU. The welder removed the MAU and contacted Emergency Medical Services (EMS). The Fort McMurray Royal Canadian Mounted Police (RCMP) and the Fort McMurray Fire Department arrived where the HVAC technician was transported by ground ambulance to the Northern Lights Regional Health Centre and pronounced deceased.

Completion

A review for enforcement action was completed on April 16, 2015, and it was determined that the file would be referred to Alberta Justice for review. The entire file was sent to Alberta Justice on November 6, 2015. Charges were laid on September 1, 2016, but as the case file no longer supported a prosecution, the charges were stayed on January 30, 2018.

This investigation was closed on February 16, 2018.

Final Report

Signatures

ORIGINAL REPORT SIGNED

February 16, 2018

Lead Investigator

Date

ORIGINAL REPORT SIGNED

February 20, 2018

Manager

Date

ORIGINAL REPORT SIGNED

February 20, 2018

Director

Date