

**Case 178. 38-year-old male refrigeration technician died when an explosion occurred in a heating, ventilation, and air conditioning (HVAC) unit.**

A 38-year-old male refrigeration technician died when an explosion occurred in a heating, ventilation, and air conditioning (HVAC) unit. The decedent was in the process of starting up an HVAC unit because all the units had been shut down to permit a tie-in/tap-in to the existing natural gas pipeline that fed the HVAC units in the building. The tie-in/tap-in was a new connection for the new HVAC unit that was to be placed on the roof of Building A. The HVAC unit involved in the incident was 30 feet long, 10'4" wide, and 48" tall from the outside. It had a central equipment room. To access the inside of the HVAC unit, the decedent used a three-step ladder. The doorway to the corridor was 30 inches above the roof's walking surface. The decedent entered the unit and walked into the HVAC equipment room. The burner assembly, which was 68 inches long, was located 82 inches from doorway. The HVAC startup button was located approximately 16 feet from the door. He pressed the startup button and then the natural gas regulator exploded. This ignited natural gas, which shot across the corridor preventing his escape through the equipment room door. It appears he was attempting to find outside air in order to breathe in fresh air and to avoid the smoke and superheated air inside the equipment room. The fusible link on a nearby damper automatically shut the damper because of the fire to prevent outdoor air and its oxygen from feeding the fire. The decedent was found on the floor with his face near a drain that was near the damper. The direct cause of the explosion is unknown. The top half of the natural gas regulator was found at the rear of the unit, between 6 to 10 feet from its original location.

MIOSHA General Industry Safety and Health Division issued the following Serious citation.

**SERIOUS:**

**FLOOR AND WALL OPENINGS, STAIRWAYS AND SKYLIGHTS PART 2  
RULE 220(1).**

Insure appropriate means be used to gain access to another elevation in excess of 16 inches.

MIOSHA General Industry Safety and Health Division issued the following Recommendations to the employer.

- Install rear escape doors in all the air handling units.
- Have all gas regulators located on the gas line for building A tested to ensure no damage was done to them in the 11/23/07 accident.
- Install weather resistant start-up activation devices on the outside of the air handling units. This will place employees on the outside of the unit at start-up.