

**FATALITY ASSESSMENT AND CONTROL EVALUATION****Restaurant Co-owner Fatally Crushed  
by a Dumbwaiter Car  
Case Report 12NY033****CASE SUMMARY**

On June 23, 2012, a 30 year-old co-owner of a Thai restaurant (victim) was fatally crushed by a dumbwaiter car in the basement kitchen of his restaurant. The dumbwaiter was a wire-rope type lift or elevator for transporting household goods between the first floor food preparation area and the basement kitchen. There was a hoistway opening on each floor: it was a rectangle opening with a vertical sliding door (Photo 1). The incident occurred at 1:19 AM on a Sunday. At the time of the incident, the victim and several restaurant staff were working in the basement kitchen. A cook prepared an appetizer and placed it in the dumbwaiter car to send it to the upstairs dining area. The cook stepped aside while the victim was standing next to the hoistway door. At this moment, the manager upstairs yelled down the shaft asking about the appetizer. The victim leaned into the dumbwaiter shaft and told the manager that the appetizer was ready. According to the manager, she then looked down and saw the appetizer but did not see the victim in the shaft. She then pressed the UP button to activate the dumbwaiter car. The dumbwaiter car started moving up and the victim's head was caught between the upper frame of the access opening and the bottom shelf of the dumbwaiter car. The cook quickly moved the car downward to release the victim. The workers helped the victim to the floor. A 911 call was placed by the staff upstairs. The EMT services arrived at the site within minutes following the call. The victim was pronounced dead at the scene. The immediate cause of death was massive cranial-cerebral trauma. The American Society of Mechanical Engineers (ASME) specifies that all dumbwaiters have a hoistway door safety locking device. The locking device prevents the operation of the dumbwaiter unless all hoistway doors are in closed position. The dumbwaiter in this case did not have the locking device on the doors.

**CONTRIBUTING FACTORS**

- The dumbwaiter did not have the hoistway door safety locking device to prevent it from being operated when the doors were open.
- The restaurant owners were not aware of the ASME requirement of the hoistway door safety locking device.
- The elevator company that serviced the dumbwaiter was not aware of the ASME requirement of the hoistway door safety locking device.
- Workers used the dumbwaiter shaft to communicate between the upstairs and the basement kitchen.
- High noise levels in the kitchen at the time of the incident made it harder to hear the upstairs staff.
- Workers were not trained on the safety hazards associated with operating the dumbwaiter and how to operate it safely.

## KEY RECOMMENDATIONS

- *Employers should ensure that all new or existing dumbwaiters have all the safety devices installed and the safety devices are functioning properly according to the ASME standard.*
- *Employers should install an intercom system for staff to communicate between different floors to prevent workers from using a dumbwaiter shaft to communicate.*
- *Employers should provide employee training to ensure that workers are aware of the hazards associated with a dumbwaiter and know how to operate it safely.*
- *Employers should post hazard warning signs next to the dumbwaiter operating areas to warn users of potential crushing and falling hazards.*
- *Elevator companies should be familiar with the ASME standard and inform the dumbwaiter owners about the required safety features.*



*Photo 1. The hoistway door opening in the upstairs food preparation area with the dumbwaiter car in the landing zone. The sliding door was nailed to stay in the up and open position.*



*Photo 2. The dumbwaiter hoistway door opening in the basement kitchen with the dumbwaiter car in the landing zone. There were two black press switches one for UP and one for DOWN and a red on/off power switch to the left of the opening. The bell attached to the rack in the car did not work.*

## INTRODUCTION

On June 23, 2012, a 30 year-old co-owner of a Thai restaurant (victim) was fatally crushed by a dumbwaiter car in the basement kitchen of his restaurant. The New York State Fatality Assessment and Control Evaluation (NY FACE) staff learned of the incident from the news media and initiated an investigation. The NY FACE investigator visited the restaurant to meet the other co-owner, observe and photograph the site and view the restaurant surveillance video of the incident. The Occupational Safety and Health Administration (OSHA) and the city police department also investigated the case. The NY FACE investigator discussed the case with the OSHA compliance officer, and reviewed the OSHA and police investigation reports and the death certificate.

The co-owner and the victim were brothers-in-law; they jointly opened the Thai restaurant in 2007. At the time of the incident, the restaurant employed 20 workers. Half of the employees worked in the kitchen and the rest were wait staff. This was the company's first work-related fatality.

## INVESTIGATION

The restaurant building was constructed at the end of 19<sup>th</sup> century with a dining room and a food preparation area on the main floor and the kitchen in the basement. The first business that occupied the building was a German restaurant. It opened in 1901 and closed in 1975. Between 1975 and 2007, numerous restaurants operated in the building before the Thai restaurant opened.

There was a dumbwaiter (an elevator or lift for transporting household goods) between the main floor and the basement kitchen. The exact age of the dumbwaiter was unknown. The dumbwaiter shaft (hoistway) was lined with the same tin used for the original tin ceiling of the building, so the dumbwaiter may have been installed in the same era as the building. The original lift may have been a hand lift, manually operated through a pulley system. It was likely converted later to a power dumbwaiter with a retrofitted electric motor.

The dumbwaiter was a wire-rope type powered by a 7 ½ hp electric motor. Its weight capacity was unknown. The dumbwaiter car was shaped like a cardboard box with the top and front open. The car was 27 inches wide, 30 inches high and 31 inches deep. There was a shelf mounted to the back and side walls of the car. The shelf was approximately 19 inches above the base (bottom shelf) of the car and 18 inches deep. The dumbwaiter car traveled a vertical distance of 9'7" between the two floors at a speed of 0.5 feet per second (ft/sec), approximately.

There was a hoistway access opening that had a vertical sliding door with a handle on each floor for loading or unloading the dumbwaiter car (Photos 1 and 2). The upstairs door opening was 26 ¼" x 31" x 29 ¼" (W x D x H). The bottom of the opening was 24" above the floor. The opening in the basement kitchen was 26 7/8" x 31" x 29 7/8" (W x D x H). The bottom of the opening was approximately 30" above the kitchen floor. There were two black press switches (one for UP and one for DOWN) and a red on/off flip power switch to the left of the hoistway door opening on each floor (photo 2).

The American Society of Mechanical Engineers (ASME) sets standards for elevators and escalators including dumbwaiters. The ASME (*ASME A17.3-2011 Safety Code for Existing Elevators and Escalators Part VI Dumbwaiters*) specifies that all existing dumbwaiters have a hoistway door safety locking device. The locking device acts as an interlock to prevent the operation of the dumbwaiter

unless the hoistway door is in the closed position. It also keeps the hoistway door in the closed position unless the car is within the landing (loading or unloading) zone. In other words, if the hoistway door interlock works properly, the dumbwaiter car would not be activated (it would not move) unless all hoistway doors are closed. Once the dumbwaiter is activated or moving, the hoistway door cannot be opened unless the car reaches the landing zone.

The dumbwaiter at the restaurant did not have the interlock on either of the hoistway doors. The upstairs sliding door could not be closed because it was nailed in the up and open position. There were no signs on or near the dumbwaiter to warn users of fall or crushing hazards. When workers were first hired, they were shown how to operate the dumbwaiter and were told to stay away from the dumbwaiter when it was operating. They were supposed to check and make sure that the hoistway was clear of a person or unintended objects before activating the dumbwaiter car.

The dumbwaiter was used daily throughout each shift to transport food, dishes and other items between the upstairs food prep area and the basement kitchen. There was a bell attached to the shelf in the dumbwaiter car (Photo 2). Workers were supposed to ring the bell before activating the dumbwaiter to alert the staff on the other floor. According to the OSHA compliance officer who tested the bell, the bell did not work. Workers also used the dumbwaiter hoistway as a means of communication. They often leaned into the hoistway door openings yelling up or down to the staff on the other floor.

Since 2007, a local elevator company had serviced the dumbwaiter at the request of the restaurant. Most of the time, the service orders were placed by the victim. Based on the records provided by the elevator company, the company technicians were on site five times to troubleshoot and repair the dumbwaiter between 2009 and 2012. The victim alleged the following problems over the time: the dumbwaiter was stuck in the hoistway; it dropped down the hoistway; and it made noises. The elevator company determined the causes of these problems and worked on car shoes, guide bolts, rail shoe, sheave bearing and deflector sheave. The last service was provided in May 2012, one month prior to the incident. The elevator company reportedly never recommended to the restaurant that they retrofit the dumbwaiter to include hoistway door locking devices.

The incident occurred at 1:19 AM on a Sunday. Seven restaurant staff were present at the time of the incident: two male cooks, a female manager, two off-duty female waitresses, a male bouncer and the victim. The manager and a waitress were upstairs while the victim and the rest of the staff were in the basement kitchen. The victim and the cooks were preparing food, cleaning and getting ready for the next day.

At approximately 1:00 AM, a customer came in and ordered an appetizer. The manager typed the order into the computer system that printed out an order ticket in the kitchen. A cook prepared the appetizer and placed it on the upper shelf of the dumbwaiter car. The cook then stepped aside while the victim was standing next to the hoistway door opening. At this moment, the manager yelled down the shaft asking about the order. The victim leaned into the dumbwaiter opening to tell the manager that the appetizer was ready. According to the manager, she then looked down and saw the appetizer but did not see the victim in the dumbwaiter shaft. She pressed the UP button to activate the dumbwaiter car to bring up the appetizer. The cook in the basement kitchen saw the dumbwaiter going up and yelled to the victim to get out, but the victim was unable to get out on time. His head was caught between the upper frame of the hoistway door opening and the bottom shelf of the dumbwaiter car. The cook immediately hit the power switch to shut the dumbwaiter off in an attempt to bring down the car to release the victim. The car did not move. He then quickly turned the power back on

and pressed the DOWN button. The car moved down and released the victim. The workers helped the victim to the floor. A 911 call was placed by the staff upstairs. EMT arrived at the site within minutes following the call and attempted to revive the victim. After consulting with an on-call physician, the EMT terminated the attempt and pronounced the victim dead. The immediate cause of death listed on the death certificate was massive cranial-cerebral trauma.

Other contributing factors included the high noise level in the kitchen and alcohol consumption. There was music playing on a radio; it was difficult for the workers in the kitchen to hear the upstairs staff. Some staff were drinking alcohol. The victim's blood alcohol content was 0.13%. The legal limit for driving a motor vehicle in New York State is 0.08%.

After the incident, the restaurant had the interlocks installed on the dumbwaiter hoistway doors. Indicator lights were installed on both floors to signal the arrival of the dumbwaiter car. The restaurant also installed an intercom for communications between the dining room and kitchen staff. All restaurant staff were provided with training on how to safely operate the dumbwaiter.

## **RECOMMENDATIONS/DISCUSSIONS**

**Recommendation #1:** *Employers should ensure that the dumbwaiter has all the safety devices installed and the safety devices are functioning properly according to the ASME standard.*

**Discussion:** Dumbwaiters can be found in both old and contemporary commercial, public and private buildings. They are used to transport goods between different floors and generally terminate in kitchens. Serious injuries and deaths associated with both intentional and unintentional use of dumbwaiters have been reported. The most recent fatality prior to this case happened in March 2011 when a 21 year-old waitress fell to her death while operating a dumbwaiter in a restaurant in Oklahoma City.

Employers who have a dumbwaiter on their business premises should ensure the dumbwaiter meets the ASME standard. All dumbwaiters should have an interlock on all hoistway access doors that will prevent operation of the dumbwaiter unless all the doors are in the closed position. The interlock should also prevent a door from being opened from the landing side unless the car has arrived or is sitting in the landing zone. An indicator light or sound device should also be used to signal the arrival of the dumbwaiter car within the landing zone. For older existing dumbwaiters, employers should consult a qualified elevator technician to ensure they have all the safety features that are specified by the ASME standard.

**Recommendation #2:** *Employers should install an intercom system for staff to communicate between different floors to prevent workers from using the dumbwaiter shaft to communicate.*

**Discussion:** There was no intercom between the upstairs and the basement kitchen in this case and workers used the dumbwaiter shaft to communicate. By doing this, workers were exposed to both fall and crushing hazards. Employers should provide an intercom system for workers to communicate between different floors.

**Recommendation #3:** *Employers should provide employee training to ensure that workers are aware of the hazards associated with a dumbwaiter and know how to operate it safely.*

**Discussion:** When workers lean into the lift opening, as in this case, they are exposed to fall or crushing hazards. Employers should provide employee training on the hazards associated with a dumbwaiter and safe work practices. Workers should be familiar with the dumbwaiter interlocks, know not to tamper with them and report problems immediately.

**Recommendation #4:** *Employers should post hazard warning signs next to the dumbwaiter operating areas to warn users of potential fall and crushing hazards.*

**Discussion:** Warning signs should be posted next to the dumbwaiter operating areas to warn operators of the potential fall and crushing hazards.

**Recommendation #5:** *Employers should address the issues related to drugs and alcohol in the workplace by enforcing a clearly defined company policy.*

**Discussion:** Alcohol misuse is associated with loss of productivity, increased tardiness and absenteeism, and increased severity and frequency of workplace injuries and work related fatalities. Employers should develop a drug and alcohol policy to ensure a safe work environment that is free of drugs and alcohol, and require the workers to comply with the company policy.

**Recommendation #6:** *Elevator companies should be familiar with the ASME standard and inform the dumbwaiters owners about the required safety features.*

**Discussion:** The ASME standard (*ASME A17.3-2011 Safety Code for Existing Elevators and Escalators Part VI Dumbwaiters*) requires all existing dumbwaiters to have a hoistway door interlock device. The interlock ensures that the dumbwaiter cannot be operated unless all hoistway doors are closed and that the doors cannot be opened unless the car is within the landing zone. All existing dumbwaiters should have all the safety features specified in ASME standard. Elevator repair and maintenance companies should be familiar with the standard and inform their customers/clients about the safety requirement.

**Keywords:** *dumbwaiter, hoistway door locking device, restaurant, hoistway door interlock,*

## REFERENCES

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The New York State Fatality Assessment and Control Evaluation (NY FACE) program is funded by the National Institute for Occupational Safety and Health and administered by the New York State Department of Health. NY FACE is a research program designed to study the causes of workplace fatalities and develop practical and effective prevention measures. NY FACE investigators evaluate information from multiple sources and provide recommendations for prevention in summary reports. These recommendations are distributed to employers, workers, and other organizations interested in promoting workplace safety. The NY FACE does not determine fault or legal liability associated with a fatal incident. Names of employers, victims and/or witnesses are not included in written investigative reports or other databases to protect the confidentiality of those who voluntarily participate in the program. Additional information regarding the NY FACE program can be obtained from:

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