20 build safe live safe DIGITAL CONSTRUCTION 21 SAFETY CONFERENCE

CONSTRUCTION SAFETY REPORT CARD

2020 - 2021 Retrospective

PRESENTED BY

TIMOTHY E. HOGAN Deputy Commissioner



COPYRIGHT

This presentation is protected by United States and International Copyright laws. Reproduction, distribution, display and use of the presentation without written permission of the speaker is prohibited.

© 2021 New York City Department of Buildings



PRESENTATION OVERVIEW

This presentation is designed to make all parties aware of the types of incidents the Department of Buildings responds to on a regular basis.

 Understanding the causes of these incidents may help deter future situations that often lead to fatalities.



ANNUAL CONSTRUCTION-RELATED INJURIES & FATALITIES vs. AVERAGE NEW YORK CITY CONSTRUCTION EMPLOYMENT*



*NYC Construction Employment Figures are based on Current Employment Statistics(CES) survey of construction-related skilled trades occupations in NYC





ANNUAL CONSTRUCTION-RELATED INJURIES & FATALITIES vs. AVERAGE NEW YORK CITY CONSTRUCTION EMPLOYMENT*

- For 2020 the total incidents we responded to at construction sites numbered 796.
- This reflected a 17% reduction from 2019 when we responded to 959.
- Regrettably, 141 or 29% of those responses were for worker falls.



ANNUAL CONSTRUCTION-RELATED INJURIES & FATALITIES







ANNUAL CONSTRUCTION-RELATED INJURIES & FATALITIES

- Injuries to workers in 2020 numbered 502, a reduction of 16% from 2019 when we had 595 injuries.
- Fatalities in 2020 were down to 8 for the year, which is 8 too many, but again were a 33% reduction for the 12 in 2019.
- As a note, since the creation of CSC in 2018, injuries are down 34% and Fatalities are down 33%.



2020 CONSTRUCTION RELATED INCIDENTS BY CAUSE OF INCIDENT





2020 CONSTRUCTION RELATED INCIDENTS BY CAUSE OF INCIDENT

This year's fatalities were led by 4 worker falls, 3 struck by materials, and 1 electrocution. Our significant near misses included 4 material failure 1 structural failure, and 1 struck by incident.



2020 INJURY AND FATALITY BY HEIGHT

Project Height	# of Injuries	# of Fatalities	
6 or less stories	75	4	
7 to 9 stories	50	1	
10 or more stories	377	3	
Total	502	8	

This year we analyzed injury rates by height of the buildings and by the number of permits.

NOTE: the number of incidents by height.





2020 INJURY & FATALITY RATES BY PERMIT AND HEIGHT

Injuries and Fatalities by Height and Active Permits for 2020

Stories	Permit Count	Fatalities	Fatality Rate/1000 Permits	Injuries	Injury Rate/1000 Permits
>9	15,224	3	.197	377	24.76
"7-9"	4,829	1	.207	50	10.35
<6	62,663	4	.064	75	1.196



2020 INJURY & FATALITY RATES BY PERMIT AND HEIGHT

For 2020:

- Buildings greater than 9 stories had 15,224 permits. 3 fatalities occurred on these sites at a rate of .197 per 1,000 permits. Additionally, 377 Injuries occurred at a rate of 24.76 per 1,000 permits.
- Buildings 7 to 9 stories had 4,829 permits. 1 fatality occurred on these sites at a rate of .207 per 1,000 permits. On these sites 50 Injuries occurred at a rate of 10.35 per 1,000 permits.





2020 INJURY & FATALITY RATES BY PERMIT AND HEIGHT

(continued)

- Buildings under 6 stories had 62,663 permits. 4 fatalities occurred on these sites at a rate of .064 per 1,000 permits. Lastly, 75 Injuries occurred at a rate of 1.196 per 1,000 permits.
- This analysis continues to place focus on the largest projects as being the highest contributors to injuries by percentage of work.



JAMAICA DEMOLITION OPERATION







JAMAICA DEMOLITION OPERATION

Overview

On February 20, 2020, construction workers were conducting demolition operations at 147-07 94th Avenue Queens. One of the workers was operating in close proximity to a concrete beam, cutting the rebar. A robotic demolition machine had chipped the concrete at each end of the beam to expose the rebar for cutting. After cutting one end of the beam's rebar, the beam rolled off the support columns and pulled the attached wall down on top of the worker. The worker succumbed to his injuries, and a second worker was also injured.



JAMAICA DEMOLITION OPERATION

Incident Category

This incident falls into the OSHA category Struck By.

What Went Wrong

Our investigation determined that failure to follow proper demolition sequencing, deviating from the approved plans, and failure to shore and brace the beam all contributed to the fatality. There was also missing site safety logs at the site.





BOROUGH PARK BRANCH CIRCUIT INSTALLATION







BOROUGH PARK BRANCH CIRCUIT INSTALLATION

Overview

On June 20, 2020, a homeowner at 1154 39th Street, Brooklyn, hired an unlicensed contractor to install high hat lighting in their home. The worker was in the cockloft of the home putting in new wiring. The worker cut an existing wire in the cockloft, which was still energized, resulting in the worker being electrocuted. The worker succumbed to his injuries





BOROUGH PARK BRANCH CIRCUIT INSTALLATION

Incident Category

This incident was categorized into the OSHA category Electrocution.

What Went Wrong

An unlicensed worker performing electrical work on an energized line was the key contributing factor to this fatality.



MURRAY HILL FAÇADE REPAIR







MURRAY HILL FAÇADE REPAIR

Overview

On July 16, 2020, workers were executing a large façade restoration project at an 11-story building at 136 East 36th Street, Manhattan. A worker on a suspended scaffold rig was lowering the scaffold at the end of the workday. While descending, a large section of cornice separated from the building and fell on top of him, killing him. The cornice landed onto the suspended scaffold and sidewalk shed. In addition to the worker who was fatally injured, three other workers at the site suffered serious injuries





MURRAY HILL FAÇADE REPAIR

Incident Category

This incident was categorized as by the Department as Material Fall.

What Went Wrong

The failure to institute adequate safety measures during construction operations was a contributing factor to the fatality.









Overview

On July 20, 2020, workers were constructing a new cast-in-place concrete building at 30 Kent Avenue, Brooklyn. The construction workers had completed the 11th floor of the building and were in the process of relocating guardrails on the exterior of the formwork to the perimeter of the structure so that the formwork could be removed. Vertical netting was then installed after the guardrail installation.



Overview (continued)

A worker installing vertical netting at the perimeter of on the 11th floor stepped on a piece of cantilevered formwork built to allow work near the leading edge. At the same time other construction workers, working on the floor below, were removing the shoring supporting that same formwork. The formwork collapsed, causing the worker to fall 10 stories. The worker succumbed to his injuries. The worker was not wearing a safety harness at the time of the collapse. That day, neither a Site-Specific Safety Orientation nor a Pre-Shift Safety Meeting had been given to the workers, as required by Code.





Incident Category

This incident was labelled a Worker Fall.

What Went Wrong

The lack of a site safety briefing, no pre-task plan meeting, not following the site safety plan, and failure to follow work sequencing were all key factors to this fatality. The worker should have also been utilizing PPE, specifically a safety harness, and have been tied off since he was relocating guardrails that created a controlled access zone at the perimeter of the building.



BOROUGH PARK FRAME WORK







BOROUGH PARK FRAME WORK

Overview

On August 20, 2020, a worker at 1465 56th Street, Brooklyn, was in the process of reframing a bathroom partition wall over a stairwell. A short piece of plywood had been placed vertically at the floor edge but was not sufficient as a guardrail since it did not meet height requirements. While performing this reframing work the worker lost his balance and fell down the stairwell to the first floor, where he succumbed to his injuries.



BOROUGH PARK FRAME WORK

Incident Category

This incident was considered a Worker Fall.

What Went Wrong

The lack of proper work sequencing, failure to create a controlled access zone, in addition to inadequate guardrails, and failure to tie off were all contributing factors to this incident.



FINANCIAL DISTRICT DUCT WORK







FINANCIAL DISTRICT DUCT WORK

Overview

September 18, 2020, a major construction project was underway at 1 Wall Street in Manhattan. A security guard who worked in the building was at the end of his shift and was awaiting access to an area of the first floor prior to leaving the site. While waiting, the guard leaned against a guardrail protecting an open shaft way. Prior to this, workers had removed the guardrails to perform work on a duct. The railings were not adequately reinstalled, as required, leaving large openings near the opening of the duct. The railing on which the security guard was leaning against failed, and the guard fell 62 feet through an opening into a mechanical shaft, where he succumbed to his injuries.





FINANCIAL DISTRICT DUCT WORK

Incident Category

This incident was categorized as Worker Fall.

What Went Wrong

Failing to properly install and maintain the guardrails was a key factor in this fatality.



EAST WILLIAMSBURG SUPPORTED SCAFFOLD INSTALLATION







EAST WILLIAMSBURG SUPPORTED SCAFFOLD INSTALLATION

Overview

On November 13, 2020, a worker was erecting supported scaffold at 710 Metropolitan Avenue, Brooklyn, the site of a 7-story building undergoing permitted alteration work when he stepped on an unsecured plank which upended causing the worker to fall from the 3rd level of the scaffold, approximately 24 feet. The worker succumbed to his injuries.





EAST WILLIAMSBURG SUPPORTED SCAFFOLD INSTALLATION

Incident Category

This incident was labelled a Worker Fall.

What Went Wrong

Failure to secure deck planks before relying on them to support a load and stepping on a cantilevered section were key factors to this fatality.



SUNSET PARK RETAINING WALL







SUNSET PARK RETAINING WALL

Overview

On December 28, 2020, workers were excavating the area adjacent to a retaining wall in the back yard, between two houses at 454 42nd Street Brooklyn, and 453 43rd Street, Brooklyn. The workers had not implemented adequate shoring measures for the retaining wall adjacent to their excavation hole. As a result, the retaining wall collapsed into the backyard at 454 42nd Street, and onto the two workers. One of the workers succumbed to his injuries. The excavation and repair work on the retaining wall did not have the required DOB work permits.



SUNSET PARK RETAINING WALL

Incident Category

This incident is considered as **Other Construction-related** and the OSHA category **Struck by**.

What Went Wrong

The retaining wall was not constructed properly and the failure to shore and brace the unstable wall prior to working beneath it were key factors to this fatality.





NEAR MISSES Unfortunate Incidents that Could Have Been Worse





NEAR MISSES & MAJOR NONFATAL CONSTRUCTION-RELATED INCIDENT

The Department investigated other construction-related incidents in 2020 that could have easily ended in tragedy but did not despite having all the makings of a potentially fatal incident.

Following is a review of notable potentially fatal **near misses** of 2020.



124 EAST 14 ST, MANHATTAN 5/8/20





124 EAST 14 ST, MANHATTAN 5/8/20

On May 8, 2020, workers were repositioning a piece of climbing form work on the building. Using the crane as part of the means and methods, the workers opened the climbing shoes. When the workers detached the panel they lost control of the panel and it pulled away from the building wall leaving 3 workers dangling by harnesses. In addition to riding the formwork which is absolutely forbidden, the workers attached their harness to the formwork which could have exacerbated the situation.

Tying off is essential. On the periphery of the accident where numerous workers are standing on the leading edge where railings had been removed for the days' operation.





LONG ISLAND CITY ALTERATION PROJECT









LONG ISLAND CITY ALTERATION PROJECT

Overview

On July 13, 2020, a major permitted alteration project was underway on an existing 6-story commercial office at 45-18 Court Square, Queens. As part of the alteration, the contractor was casting new concrete columns within the existing brick and mortar structure. While work was ongoing to cast a new concrete column at the 6th floor of the building, the pressure from the concrete pour caused the existing facade of the building to bulge outward approximately 1.5 inches. This incident could have caused a potential collapse of the façade of the building down onto a busy street. Thankfully, there were no injuries associated with this incident.



LONG ISLAND CITY ALTERATION PROJECT

Incident Category

This incident was considered a Material Failure.

What Went Wrong

Failure to shore and brace the existing structure, and failure to tie the existing wall to the new concrete floor were major factors in this incident.



MURRAY HILL EXCAVATION









MURRAY HILL EXCAVATION

Overview

On July 16, 2020, workers were performing excavation work at 509 3rd Avenue, Manhattan. The excavation work at the site was in preparation for a planned new 35-story tower project. Adjacent to this site was an existing building also undergoing permitted construction work at 211 East 34th Street, Manhattan. While channeling soil at 509 3rd Avenue, workers observed wall movements at 211 East 34th Street, and subsequently moved their machinery away from the unstable building, which eventually collapsed. Fortunately, the workers noticed the hazardous situation in time, and the partially collapsed building was vacant at the time of the incident. There were no reported injuries.



MURRAY HILL EXCAVATION

What Went Wrong

This incident was under the category of Excavation/Soil Work.

What Went Wrong

Failure to shore and brace the neighboring building, failure to monitor the building wall, and failure to evaluate the neighboring building were all contributing factors in this incident.











Overview

On the windy evening of October 29, 2020, a headache ball attached to a tower crane struck the façade of the new tower construction site at 111 West 57th Street, Manhattan. After DOB issued a wind advisory, the crane had been put into a weathervane configuration while not in use. This allows the crane to safely spin 360 degrees in the wind in order to reduce wind resistance on the crane's boom. While weathervaning, the (headache) ball was spinning so fast that it lifted to a perpendicular position from the tip of the crane.





Overview (continued)

The line from the top of the tip to the headache ball was 35' long but the tip of the crane was only 25' from the building. The ball at the end of the boom repeatedly swung into the new building construction at the upper floors which resulted in large sections of glass and aluminum debris falling off the building into the street below. The crane had been left out of service with an excessive amount of drift in the load line. Fortunately, no one was injured.





Incident Category

This incident was considered a Material Fall.

What Went Wrong

Our investigation determined that excessive slack in the load line allowed the hook and ball to reach the structure while the crane was weathervaning. Proper tower crane storage procedures for high wind events would include shortening the load line so it could not hit the building.





540 FULTON ST, BROOKLYN 12/25/20











540 FULTON ST, BROOKLYN 12/25/20

Overview

On 12/25/20, after DOB had released a high wind advisory due to an incoming weather front. The contractor failed to button down the site and secure all the operational windows. In the ensuing winds, 2 windows rained down onto Fulton St. 5 additional windows dangled over the street in danger of falling off and 74 others that were left open needed to be secured to prevent further damage. No injuries reported.





111 57TH STREET, MANHATTAN 12/26/20









111 57TH STREET, MANHATTAN 12/26/20

Overview

On 12/26 2020, the same storm from the previous incident moved into Manhattan and caught an open window tearing it from its frame and dropping it into the middle of 57th Street. The contractor was aware of the damaged window from a previous incident and failed to secure it for wind conditions.



THANK YOU

FERENCE

